January 10, 2017

Mr. Ted Maine, Nuclear Site VP
Omaha Public Power District
Fort Calhoun Station, FC-1-5 Plant
9610 Power Lane
Blair, NE 68008

Re: Contract No. 00227943; HSA and Limited Site Characterization

SUBJECT: Limited Radiological and Non-Radiological Site Characterization Survey Reports
Fort Calhoun Nuclear Station, Blair, Nebraska

Correspondence No. 9

Dear Mr. Maine;

TSSD Service, Inc. is pleased to provide you the two final Site Characterization Reports: The Limited Radiological and Non-Radiological Site Characterization Survey Reports for the Fort Calhoun Station, completed in support of your decommissioning program.

The intent of these Limited Characterization Surveys was to focus on the most likely areas where releases could impact environmental media and where remediation could impact future costs and/or schedules. These reports present the field activities, field screening and analytical data, and identify both areas that are impacted as well as areas were no further actions are warranted.

If you have any questions, please do not hesitate to call me at 860-377-4169. We appreciate this opportunity to work with your team and look forward to our continued partnership on future projects.

Respectfully,
TSSD Service, Inc.

Charles Mercier
Chief Operating Officer

FORT CALHOUN NUCLEAR STATION
LIMITED SITE NON-RADIOLOGICAL CHARACTERIZATION SURVEY REPORT

JANUARY 2017

Prepared for
Omaha Public Power District

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GLOSSARY OF TERMS, ACRONYMS, AND ABBREVIATIONS

AFFF	Aqueous Film Forming Foam
AOI	Areas of Interest
AST	aboveground storage tank
bgs	below ground surface
COC	(Non-Radioactive) Contaminant of Concern
CRs	Condition Reports
DCE	decommissioning cost estimate
DQO	Data Quality Objective
DRO	Diesel Range Organics
EPA	(U.S.) Environmental Protection Agency
FCS	Fort Calhoun Station
gpm	gallons per minute
HSA	Historical Site Assessment
MCL	Maximum Contaminant Level
mg/kg	milligram per kilogram
mg/L	milligram per liter
mph	miles per hour
MW	megawatts
NDEQ	Nebraska Department of Environmental Quality
NRC	(U.S.) Nuclear Regulatory Commission
OPPD	Omaha Public Power District
PA	Protected Area
PAHs	Polyaromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PFAs	perfluoroalkyl surfactants
PID	photoionization detector
ppm	parts per million
PWR	pressurized water reactor
RCRA	Resource Conservation and Recovery Act
RGs	Remedial Goals
RO	Reverse Osmosis
RPDs	relative percent differences
SDS	safety data sheet
SOPs	Standard Operating Procedures
SPLP	Synthetic Precipitation Leaching Procedure
SVOCs	Semi-Volatile Organic Compounds
TAL	Target Analyte List
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TSCA	Toxic Substance Control Act
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOCs	Volatile Organic Compounds

SECTION 1 INTRODUCTION

Haley & Aldrich, Inc. (Haley & Aldrich) has prepared this Limited Site Non-Radiological Characterization Survey Report (Report) to support the characterization of non-radiological or chemical constituents in environmental media at the Omaha Public Power District's (OPPD) Fort Calhoun Station (FCS).

Specifically, this Report focuses on characterizing the eight Areas of Interest (AOIs) identified in the Limited Historical Site Assessment (HSA), where releases are most likely to have impacted soils, sediments, or groundwater. These AOIs were selected during the preparation of the Limited Site Characterization Work Plan (Work Plan) [1] because they are areas where remediation (if required) may impact the decommissioning cost estimate (DCE), either due to the extent of impacted media or potential impacts to the decommissioning schedule. It should be noted that the remaining AOIs not discussed in this Report will most likely require additional investigations, but the impacts are likely to be restricted to shallow soils, or involve compounds that would not have a long-term impact to soils and groundwater.

1.1 PURPOSE

The purpose of this Report is to summarize the findings of the limited site non-radiological characterization investigation. The investigation was designed to identify significant environmental impacts to soils, sediments, and groundwater to the extent that subsequent characterization and remediation could impact the DCE and/or decommissioning schedule. The investigation efforts followed the Nebraska Department of Environmental Quality (NDEQ) Voluntary Clean-up Program (VCP) guidance as well as the regulations under the Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) under 40 CFR 261 and Toxic Substance Control Act (TSCA) under 40 CFR 761, as applicable.

SECTION 2 SITE DESCRIPTION AND BACKGROUND

2.1 SITE DESCRIPTION

FCS Unit 1 was a Combustion Engineering 2-loop pressurized water reactor (PWR) rated at 479 megawatts (MW) electrical. Plant construction began in 1966. The first fuel assembly was loaded into the reactor between May – June 1973. The Nuclear Regulatory Commission (NRC) issued an operating license on August 9, 1973. The plant officially went online on September 1, 1973 with commercial operation starting 25 days later. The plant went offline on October 24, 2016.

The site operated under the following:
NRC License No. DPR-40
Docket No. 50-285
EPA ID No. 110007129623

2.1.1 Location

The FCS site is located on the west bank of the Missouri River at river mile 646.0 on 660.46 acres, approximately 19.4 miles north of Omaha, Nebraska. OPPD has a perpetual easement on 582.18 acres of land on the east bank of the river directly opposite the plant buildings. About 85 percent of the site area is on relatively level ground located in the alluvial plain of the river. On the Western part of the site the ground rises sharply about 60 feet to a higher level area which is bounded on the west by United States (U.S.). Highway 75, formerly U.S. Highway 73.

The area adjoining the site is farmland and sparsely populated. The minimum exclusion distance is 2,986 feet (910 meters). The nearest privately owned land is farmland and is approximately 0.5 miles from the site. The nearest population center area of more than 25,000 is formed by adjacent cities of Omaha, Nebraska and Council Bluffs, Iowa. Figure 1 shows the location of the site along the Missouri River.

2.2 ENVIRONMENTAL SETTING

2.2.1 Topography

The FCS Plant is situated within parts of Section 20 and 21, Township 18 North, Range 12 East of Washington County, Nebraska in the Modale quadrangle. The site is part of the Missouri River bottomland, which is a nearly level plain about 15 miles wide at Blair, 8 miles wide at the site and narrowing to 3 miles wide in the vicinity of Omaha-Council Bluffs. The elevation of this plain averages about 1,000 feet above mean sea level at the Site.

The surface of the land, starting from the Missouri River at about elevation 997 feet above mean sea level, falls to an old channel of the river before rising again to approximately 1,004 feet. Beyond this point, the land then gradually falls off to about 1,000 feet, rises again to approximately 1,020 feet, and then rises approximately 60 feet to a higher plateau at elevation 1,080 feet [2].

The Missouri River, which flows generally north to south, forms the northeast to southeast site boundary. This part of the river is referred to by the Corps of Engineers as the Blair Bend. The river limits are under control of the Corps who have established a structure azimuth line which acts as another site boundary. The topography of the site is shown in Figure 2.

The site drainage development program provides proper drainage of the plant site and upstream properties. This system controls runoff of local precipitation; drainage empties into the Missouri River north of the plant.

2.2.2 Geology

The soils below FCS included thick beds of limestone, dolomite, shale, and sandstone with some thin layers of coal beds. The deeper formations were deposited in marine depositional environmental with the shallow soils from the lateral migration of the paleo river channel. The major tectonic features of the mid-continent region began to develop late in the Paleozoic Era, and probably most of the important structural features of the Nebraska Iowa Missouri River Valley area. However, there is no record of movement of the fault in historic times, or any indication of activity in recent geologic time.

At the beginning of the Pleistocene period, the Missouri River Valley and its main tributaries were established in their approximate present positions. Subsequently under successive glacial movements, the valleys were filled and re-opened several times. During this period, the Peorian loess was deposited on the terraces and adjacent uplands. It is probable that only the upper part of the alluvium in the Missouri River Valley is actually of recent age and that deeper deposits are mostly of Pleistocene age.

Unconsolidated sediments at the plant site generally range from 65 to 75 feet in thickness. The soils are typically interstratified and cross-bedded [3]. These soils may be grouped generally into two units:

- an upper fine-grained sandy clay with silt approximately 20 to 50 feet thick; and
- an underlying fine to coarse sand with some gravel. This lower unit extends to the relatively flat-lying carbonate bedrock surface at a depth of approximately 65 to 75 feet below ground surface (bgs).

The upper units were representing former river deposits and are not likely continuous, but rather have preferential channels formed by paleo-oxbow deposits.

Pennsylvanian-aged limestone and shale (bedrock) of the Kansas City Formation are encountered below the overburden soils. The bedrock below the site consists of various types of limestone formations [4].

2.2.3 Hydrology

Groundwater at the site is in hydraulic communication with the adjacent Missouri River, with the water table ranging from 2 to 20 feet below the surface depending on the river stage [5]. However, under typical conditions, the depth to groundwater is approximately 15 to 20 feet bgs [4]. Both soil units identified in Section 2.2.2 are water bearing with the deeper unit exhibiting a higher hydraulic conductivity. The hydraulic gradients below the site are relatively flat with relatively slow ground water velocity [4].

Water levels taken at the site show that the groundwater gradients at the site are nearly flat, with only a gentle slope toward the river, about ten feet below the ground surface. Water levels at the site varied from elevations 993.7 to 992.4 feet, while the river levels recorded during this same period ranged from elevations 993.2 to 992.4 feet. Groundwater levels vary with changes in the river level. The rate of groundwater flow in the alluvial soils varies with the permeability, however, the groundwater flow rate, or velocity is very slow due to the low gradients. The coefficient of permeability varied from about one-half to three feet per day in the upper sandy silt and silty sand. In the lower fine-to-coarse sands and gravels, coefficients of permeability as high as 20 feet per day were measured [4].

According to site documents, groundwater flow directions have been reported to be both toward the Missouri River (northeasterly) and away from the Missouri River (south-southwesterly) [6]. Flow directions toward the river appear to represent times when Missouri River levels are relatively low, e.g. during the spring, summer, and early fall, when most precipitation occurs and the river flow is relatively high [4]. Flow directions away from the river appear to represent times when Missouri river levels are relatively high causing bank storage effects, e.g. during late fall and winter when the river recedes [4, 5].

Locally, below the plant structures, the reverse osmosis water (RO) treatment plant withdraws groundwater, to be used at the plant. This groundwater withdrawal causes a cone of depression and alters groundwater flow. The extraction well is located at the northwest corner of the old warehouse. Testing during the well installation documented that the aquifer may produce approximately 500 gallons per minute (gpm). The production well was in service as of August 2007, continuously pumping about 200 gpm. Measurement of groundwater flow indicated that within 600 feet of the RO well, groundwater flow is toward the RO well (i.e. southwest) [4].

2.2.4 Surface Waters

The plant site is bounded on the northeast and southeast by a portion of the Blair Bend of the Missouri River. The Corps of Engineers maintains river structures to prevent further meandering of the channel within the alluvial flood plain; the structures take the form of pile dikes and bank revetments. Fish creek is an intermittent drainage stream that runs along the [plant] north boundary of the Protected Area (PA). This stream discharges into a larger wetland, before flowing in the Missouri River as shown on Figure 3.

There are six dams upstream of the plant site that control the river flow. The nearest structure to the site is Gavin's Point and the most distant structure is Fort Peck. There are no dams, locks, or similar structures on the Missouri downstream of the plant site [6]. The Site has been flooded several times with the most recent occurring in 2011, where the river overflowed its banks for several months. The flood stage from that event and its impacts to the site are shown on Figure 4.

2.2.5 Meteorology

Nebraska is located midway between two distinctive climatic zones, the humid east and the dry west [7]. Cyclic weather conditions representative of either zone, or combinations of both occur. Changes in weather result from the invasion of large masses of air with dissimilar properties. These air masses tend to get their characteristics from either the warm and humid south-southeast, the warm and dry southwest, the cool and dry north-northwest, or the cold continental polar air of the north. The region is also affected by many storms or cyclones (areas of low pressure) which travel across the country, generally from west to east. Periodic and rapid changes in the weather are normal, especially in the winter.

Annual average precipitation for the region is about 28.5 inches, but annual amounts vary widely from year to year. About 75 percent of the precipitation occurs during showers and thunderstorms from April through September. Snowfall amounts to about 30 inches of snow as the annual average, but total annual amounts vary widely from year to year [7].

The surface wind direction and speed is quite varied during all seasons of the year. The prevailing wind direction from May through December is from south-southeast; north-northwesterly winds prevail during the remainder of the year. The mean annual wind speed is 10.6 miles per hour (mph).

The mean annual temperature for the region is 51.1°F. The January monthly mean is 20.2°F, while that for July is 77.7°F. Relative humidity ranges from an average of about 78 percent for the period midnight to noon and about 59 percent from the period noon to midnight. The mean percentage of possible sunshine over the area is about 50 percent in winter and about 75 percent in summer [7].

SECTION 3 SCOPE OF WORK

During the HSA, a total of 17 AOIs were identified for non-radiological (chemical) use based on historical use and operations (see Table 1). These included chemical and equipment storage areas, historic practices, and areas where non-radiological materials could have been released to soils, groundwater, sediments, or surface water. All work will be completed in compliance with NDEQ regulations, and if warranted, remedial actions will be executed under their VCP program. Of the 17 AOIs identified, seven were identified where environmental media impacts could require significant remediation. Data from each of these seven areas was collected and evaluated with respect to the NDEQ VCP cleanup criteria presented in Appendix A [8], in addition to the EPA Maximum Contaminant Levels (MCLs), where applicable. All AOIs are listed below. The seven AOIs that were the focus of this limited characterization effort are highlighted below in bold and italics. All AOIs are shown on Figure 5 and the italicized AOIs are presented on Figures 6 through 12.

Table 1. Areas of Interest (AOIs)

AOI No.	AOI Name
1	***Water Treatment Plant***
2	***Chemical Storage Areas***
3	Transformers
4	Switchyards
5	***Spare Transformer***
6	***USTs***
7	ASTs
8	Disposal Area / Landfill
9	Sewage Lagoons
10	***Fire Training Area***
11	***Firing Range***
12	Old Warehouse
13	6-Bay Building and Maintenance Shop
14	***Fish Creek and Wetlands***
15	Farmlands
16	Storm Water Outfalls
17	Site Wide Groundwater

3.1 SAMPLE METHODOLOGY

The sampling program was completed in accordance with Table 2 and the Work Plan [1]. Locations for each of the explorations are shown on Figures 6 through 12.

Samples were collected using the following methods:

- Surface soil samples. Shallow soil was collected using a hand auger or direct push drilling methods to sample soils at depths up to 5 feet bgs. If there was access the direct push was used in these areas.
- Subsurface samples. Direct Push drilling methods were implemented to collect soil and groundwater grab samples. This method used hydraulics to press a cylinder through the soil to retrieve a core. The core was then logged in the field for soil properties and documented for any evidence of contamination. In areas where volatile or semi-volatile organic compounds (VOCs or SVOCs) were a contaminant of concern (COC), soils were also screened using a photoionization detector (PID).
- Sediment Samples. Sediments were collected from the top 0 to 6 inches of sediment and the data was used to evaluate potential impacts to the benthic receptors.
- Groundwater Grab Samples. Groundwater samples were collected through the direct push locations to identify if there are impacts to groundwater. These samples are considered screening level samples as they will not be collected from groundwater monitoring wells, nor collected using the low flow/low stress techniques.

All work was completed in accordance with the Standard Operating Procedures (SOPs) in Appendix B as well as site safety requirements.

Samples were submitted to General Engineering Laboratories of Savannah, Georgia and TestAmerica Laboratories of Earth City, Missouri. Samples were submitted under chain of custody and samples collected from inside the PA were surveyed by the Health Physics department prior to shipment to the laboratory. Samples were submitted for one or more of the following analyses:

- VOCs, Method 8260C;
- SVOCs, Method 8270D;
- Polychlorinated biphenyls (PCBs), Method 8082A;
- Target Analyte List (TAL) metals, Method 6010C/7471B;
- Synthetic Precipitation Leaching Procedure (SPLP) metals, extraction method 1312 and analysis method 6010C/7470A;
- Toxicity Characterization Leaching Procedure (TCLP) metals, extraction method 1311 and analysis method 6010C/7470A;
- Perchlorate, Method 314.0 Mod;
- Perfluoroalkyl substances (PFAs), Method 537;
- Benzene, toluene, ethylbenzene, xylene, Method 8260B;
- Lead; Method 6010C;

- Naphthalene; Method 8260B;
- Polyaromatic hydrocarbons (PAHs), Method 8270D; and
- Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO), Method 8015C.

Then all sample locations were located using handheld Global Positioning System (GPS) with an accuracy of +/- one foot.

Additional information on the investigation activities or procedures including investigation-derived waste, decontamination, etc. can be found in the Work Plan [1].

3.2 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) were set in the early stages of the characterization effort to ensure that defensible data was collected to satisfy the requirements of the different regulatory agencies, and their different programs.

3.2.1 Quality Assurance/Quality Control

To meet NDEQ and EPA requirements, duplicate samples were collected at a frequency of 5%, or one duplicate and matrix spike/matrix duplicate samples were collected for every 20 samples submitted for laboratory analysis.

Temperature blanks were included in each shipment and trip blanks accompanied any shipment that contains samples scheduled for analysis of VOCs. Equipment blanks were not required as dedicated equipment was used.

3.2.2 Data Validation

All data was reviewed by a qualified chemist and validated in accordance with NDEQ regulations. At a minimum, data was checked so that the reporting limits are below the NDEQ action levels, and to evaluate that the relative percent differences (RPDs) are below acceptable limits. The data validation reports are included in Appendix C.

SECTION 4 CHEMICAL FINDINGS

This limited non-radiological characterization program focused on seven AOIs, as they had the most potential to impact soils, sediments and groundwater and therefore impact decommissioning costs. This section presents a brief description of each AOI, the COCs, a summary of the investigation and the results compared to NDEQ criteria.

4.1 AOI 1 – WATER TREATMENT PLANT

The original Water Treatment Plant was installed during the initial construction of FCS to supply all the facility's demineralized and domestic water needs. The Water Treatment Plant used river water in its treatment process and all equipment and piping throughout the process was classified as the "Demineralized Water System" and equipment was defined with a "DW" prefix [5]. Little information is available but historical knowledge indicates the system transferred water from the river to a settlement tank within the chemical pump house and there used caustics, acids, and other water treatment chemicals. The water was then sent to two ion exchange resin lagoons to remove other constituents such as metals. The lagoons were unlined and system was connected via a pipe to the turbine building.

During the flood of 1993/94, the lagoons were flooded and washed out. In 2002, the east lagoon was overflowed and the berm between the lagoons had to be cut. Other reports include an ammonia release and an exothermic chemical explosion in the transfer lines going to the Turbine Building. The system was abandoned (circa 1990) when a supply connection was made to the City of Blair's municipal water supply [5]. After abandonment, the ion exchange resin from the lagoons was placed in the landfill (AOI 8).

Summary of Field Activities

COCs at AOI 1 include metals from the demineralization process. The limited site investigation included the collection of two soil samples from directly below the lagoons and one soil sample downgradient of the lagoons as identified on Table 2. The plant and lagoons along with the sampling locations are shown on Figure 6 and the boring logs are provided in Appendix D.

Data Evaluation

The analytical results from the soil sampling as shown below indicate elevated arsenic greater than the NDEQ VCP Remedial soil criteria, however, the results are consistent or below background arsenic values [9]. The results also indicated elevated cobalt, iron, and manganese greater than NDEQ VCP soil criteria, but these too are consistent or below published background values [9]. No other values exceeded NDEQ VCP soil criteria. A more comprehensive list of analytical data for this AOI including TAL metals is provided in Table 3 and the laboratory results are provided in Appendix E.

Table 4. AOI 1 – Soil Analytical Regulatory Exceedance Summary

Location Name Sample Depth (bgs)	NDEQ VCP Residential Soil (Sept 2012)	EPA Residential Soil RSL May 2016 HI = 1	DP0101 9-10 (ft)	DP0102 16-17 (ft)	DP0103 7-8 (ft)
Inorganic Compounds (mg/kg)					
Arsenic	0.39	0.68	**7.3 J**	**16.5 J**	**5.83 J**
Cobalt	5.8	23	6.8	11.4	4.28
Iron	14000	55000	17600	27100	10500
Manganese	460	1800	692 J	1050 J	235 J

NOTES:

J – estimated value

- Bold values indicate an exceedance of the EPA Residential RSL.

- Gray values indicate an exceedance of the NDEQ VCP Residential Soil Criteria

The soil samples were also analyzed for SPLP analysis to evaluate the potential for metals in soils to impact the groundwater below. Data results for SPLP analysis are below NDEQ VCP groundwater remedial goals (RGs), except for arsenic.

Findings

Although several inorganics were reported at concentrations that exceeded both EPA and NQED criteria, these are likely naturally occurring but may have been concentrated during the water treatment activities. Additional evaluations may be warranted to evaluate the concentrations with respect to background conditions.

4.2 AOI 2 – CHEMICAL STORAGE AREAS

The site contains two chemical storage buildings. The original chemical storage building and the current chemical storage building. Both are shown on Figure 7. With the exception of the flood in 2010, the site was a classified as a Low Quantity Generator, and therefore did not require a Greater than 90 Day RCRA Storage Area.

The original storage building was located within the PA houses the hazardous waste. This building known as the Hazardous Material Storage Building (also known as Hazmat Shed) is located adjacent to and west of the Old Warehouse [5]. This building continues to store chemicals and hazardous waste. The building floor lies directly on the soils (i.e. “slab on grade”) and there are no floor drains. During interviews, it was

noted that during past operations, if the building was filled the hazardous materials would be placed outside the building to await off-site disposal. There are also accounts of the area being flooded, offering the potential for chemicals to be discharged to the soils outside the doorways.

The second chemical storage building is a more recent structure that is located outside of the PA to the north of the Switchyard and northeast of the Old Warehouse. This building is known to store chemicals, but not hazardous wastes. Additional information on the chemicals stored in this building were not available, but it is anticipated that lubricants, degreasers, hydraulic fluids, etc. are stored here. There are also accounts of numerous drums of materials being stored in this area, prior to offsite disposal.

Summary of Field Activities

COCs for AOI 2 include VOCs, SVOCs, TAL metals, and PCBs. The limited site investigation included the collection of two soil samples from the former and current chemical storage building areas as identified on Table 2. The sampling locations are shown on Figure 7 and the boring logs are provided in Appendix D.

Data Evaluation

The analytical results from the soil sampling as shown below indicate elevated arsenic, cobalt, iron, and manganese greater than the NDEQ VCP soil criteria, however, the results are consistent or below background values [9]. No other values exceeded NDEQ VCP soil criteria. A more comprehensive summary of the analytical data for this AOI including VOCs, SVOCs, SPLP Metals, and PCBs is provided in Table 3 and the laboratory results are provided in Appendix E.

Table 5. AOI 2 – Soil Analytical Regulatory Exceedance Summary

Location Name Sample Depth (bgs)	NDEQ VCP Residential Soil (Sept 2012)	EPA Residential Soil RSL May 2016 HI = 1	DP0201 14-15 (ft)	DP0202 7-8 (ft)	DP0202 9-10 (ft)	DP0203 12-13 (ft)	DP0204 13-14 (ft)
Inorganic Compounds (mg/kg)							
Arsenic	0.39	0.68	**3.82 J**	**13.9 J**	**8.09 J**	**9.96 J**	**9.22 J**
Cobalt	5.8	23	2.23	7.21	4.33	8.31	5.63
Iron	14000	55000	5510	19500	12200	23900	13900
Manganese	460	1800	115 J	646 J	348 J	461 J	396 J

NOTES:

J – estimated value

- Bold values indicate an exceedance of the EPA Residential RSL.

- Gray values indicate an exceedance of the NDEQ VCP Residential Soil Criteria

The soil samples were also analyzed for SPLP analysis to evaluate the potential for metals in soils to impact the groundwater below (see Table 3). Data results for SPLP analysis are below NDEQ VCP groundwater RGs, except for arsenic and selenium.

Findings

Based on the materials stored at AOI 2, the inorganics detected at concentrations above the EPA and NDEQ criteria are likely attributed to natural background conditions. These naturally elevated background conditions also would account for the elevated SPLP results for arsenic. Additional evaluations may be warranted to evaluate the concentrations with respect to background conditions.

4.3 AOI 5 – SPARE TRANSFORMER

The spare transformer is located just off the main plant entrance road and south of the Switchyard. Drawings indicate that two spare transformer pads were constructed in 2002 and 2005, respectively [12]. One is currently in use and houses a spare T1 transformer which was placed on the pad in approximately 2006. During the flood of 2011, the spare transformer was surrounded by an unlined earthen berm covered with crushed rock. This area is shown on Figure 8.

During transportation of the spare transformer, it has been reported that the load was dropped, potentially causing a minor release of non-PCB oils. The area was cleaned up and stained soils removed, but no confirmation soil samples were collected.

During the site walk down in September 2016, it was noted that the spare transformer was visibly leaking oil onto the pad/ground. This is supported by multiple condition reports (CRs) that report similar findings. It is unknown how long this transformer has been leaking or if the non-PCB oil transformer oil contains residual PCBs.

Summary of Field Activities

COCs for AOI 5 include SVOCs and PCBs. The limited site investigation included the collection of one soil sample within the berm where the transformer was leaking, one soil sample around the berm, and one soil sample from the location of the where the spare transformer was dropped as identified on Table 2. The sampling locations are shown on Figure 8 and the boring logs are provided in Appendix D.

Data Evaluation

The analytical results from the soil sampling did not exceed NDEQ VCP soil criteria. A summary of the analytical data is provided in Table 3 and the laboratory results are provided in Appendix E.

Findings

No further actions are warranted at this AOI.

4.4 AOI 6 – USTS

Based on Site documentation [10], three underground storage tanks (USTs) exist on the Site outside of building structures. All three USTs are diesel generator fuel-oil tanks located within the PA. These are:

- Tank FO-1 – 18,000-gallon diesel; single-walled steel tank; located south of the Auxiliary Building
- Tank FO-10 – 18,000-gallon diesel; single-walled steel tank; located between the Intake Structure and the Service Building.

- Tank FO-32 - 4,000-gallon diesel; double-walled steel tank with interstitial monitoring; located south of the New Warehouse

Each of these tanks are shown on Figure 8 and listed on the table below.

Based on the Pollution Prevention Storm Water Management Plan [11], the tanks are installed within compacted soil. Periodic surveillance testing is conducted on these tanks. This testing includes water content and recording level readings.

Table 6. AOI 6 - USTs

Tank	Size (Gallons)	Type of Fuel	Location
FO-1	4/12/1949	Diesel	South of Auxiliary Building
FO-10	4/12/1949	Diesel	East of Service Building
FO-32	12/13/1910	Diesel	South of New Warehouse

Summary of Field Activities

During the site walk down, it was reported that the none of the tanks had ever had a leak but it was possible for them to be overfilled, with residual potentially impacting the adjacent soils. Groundwater wells installed near the USTs have not been tested for non-radiological COCs, however the boring logs do not report staining or odors.

COCs for AOI 6 include TPHDRO. The limited site investigation included the collection of one soil sample from the downgradient edge of each UST as identified on Table 2. The sampling locations are shown on Figure 9 and the boring logs are provided in Appendix D.

Data Evaluation

The analytical results from the soil sampling did not exceed NDEQ VCP soil criteria. A summary of the analytical data is provided in Table 3 and the laboratory results are provided in Appendix E.

Findings

This investigation was designed to identify if there were historic releases that impact soils and groundwater downgradient from USTs. Additional samples may be warranted once the USTs are removed. This work should be completed in accordance with the Nebraska Administration Code, Title 159, Chapter 10.

4.5 AOI 10 – FIRE TRAINING AREA

The fire training area is located to the west of the equipment storage area in the Switchyard (See Figure 10). Currently the area consists of a concrete pad with a central drain that discharges directly to Fish Creek. The area also contains two sealand containers, a propane tank, a cross pan, and other fire training equipment (fire extinguishers, rest area, etc.). The sealand containers are used to start "live" fires using pallets and straws as the fuel, water is used to extinguish the flames. The propane tank, which was installed approximately 12 years ago, is used to start fires in the cross pan which is then put out with chemical fire

suppressants. It was also reported that during fire training activities the central pad drain is covered, preventing materials from draining to Fish Creek, allowing only rain water and water from the pallet and straw fire suppression activities to drain from the pad.

Prior to use of propane, the cross pan fires were started using diesel fuel. Based on interviews, the fuels were first stored in 55 gallon drums, and later transported in 5 gallon containers. These activities allowed for potential releases of the fuel oils to the pad and soils in the area.

After the fires were extinguished, the extra fuel oil was collected from the cross pan for potential future use and the embers were containerized for off-site disposal. The area was then cleaned by spraying the burn pan and sealand containers with water, where the residual water was then drained to Fish Creek via a drain in the burn pad. Additionally, although the cross pan was covered when not in use, it was possible for rain water to fill or overfill the container, releasing residual oils to the pad, and then to Fish Creek.

The fire extinguishers used for fire prevention training are Aqueous Film Forming Foam (AFFF) dry A/B/C type fire extinguishers. These fire extinguishers are known to contain PFAs or proprietary fluorosurfactants based on the safety data sheets (SDSs). These PFAs are currently recognized by EPA as an emerging compound in the environment.

Summary of Field Activities

COCs for AOI 10 include PAHs and TAL Metals due to the use of fuel oils and burning of pallets and an additional COC is PFAs or other proprietary fluorosurfactants from fire suppressant use. The primary migration path for these COCs is via the drain to Fish Creek, potentially impacting the sediments and surface water, but there is also potential for COCs to impact the soils below the drain (if the seals leaked) as well as the area where the fuel oils were stored. The limited site investigation included the collection of three soil samples and one downgradient groundwater sample as identified on Table 2. The sampling locations are shown on Figure 10 and the boring logs are provided in Appendix D.

Data Evaluation

The analytical results from the soil sampling as shown below indicate elevated arsenic, cobalt, and iron, greater than the NDEQ VCP soil criteria, however, the results are consistent or below background values [9]. No other values exceeded NDEQ VCP soil criteria. A more comprehensive summary of the analytical data for this AOI including SVOCs is provided in Table 3 and the laboratory results are provided in Appendix E.

Table 7. AOI 10 – Soil Analytical Regulatory Exceedance Summary

Location Name Sample Depth (bgs)	NDEQ VCP Residential Soil (Sept 2012)	EPA Residential Soil RSL May 2016 HI = 1	DP1001 13-14 (ft)	DP1002 12-13 (ft)	DP1003 10-11 (ft)
Inorganic Compounds (mg/kg)					
Arsenic	0.39	0.68	**9.86 J**	**5.82 J**	**6.63 J**
Cobalt	5.8	23	6.8	9.87	5.83
Iron	14000	55000	15300	13700	12500

NOTES:

J – estimated value

- Bold values indicate an exceedance of the EPA Residential RSL.
- Gray values indicate an exceedance of the NDEQ VCP Residential Soil Criteria

The analytical results from the groundwater sampling did not exceed (MCLs and the VOC analysis was completed outside of the holding time due to insufficient preservative within the sample and was qualified. It should be noted that the combined detections of PFAs did exceed the EPA May 2016 Health Advisory. A summary of the groundwater analytical data is provided in Table 7 and the laboratory results are provided in Appendix E.

Findings

Data from this AOI indicate groundwater impacts from the historic fire training activities. As PFAs are now recognized as an emerging compound and may require remediation (depending on the extent and concentrations). Additional investigations to determine the lateral and vertical extent of these compounds in the environment may be warranted.

4.6 AOI 11 – FIRING RANGE

The firing range is located north of the PA (Figure 11). The firing range consists of three berms and a shelter area. On the south corner of the firing range is a tower used for rifle practice, and there is a simulated indoor or obstructed view scenario practice area in the northeast corner. This area has formed 'hallways' out of soil filled stacked tires. The target line for hand gun firing is plant south to plant north and the target line for rifle firing is plant southwest to plant north east.

When the plant was originally constructed the firing range was reported to consist of one berm, identified as a "hill" running plant east-west. Then in the late 1980's the current firing range was built. Interviews conducted indicated that after its completion, law enforcement agencies also used the facility for weapons training. Reportedly, they used to take care in picking up the spent casings, but over time this practice was discontinued with reports of spent casings on the ground. Currently the area is well maintained, with only with some shells remaining.

The bullets used at the firing range are indicated to be "normal" bullets. Bullets are known to contain lead and lesser concentrations of other metals. Other COCs include perchlorate, as it is commonly used as a stabilizer in the smokeless powder.

A recent lead assessment completed by B2 Engineering in August of 2014 on the exterior sides of the plant north and plant east berms indicate levels of high lead in the exterior of the north berm. The levels range from 42.2 to 5335.7 parts per million (ppm) which is equivalent to milligrams per kilogram (mg/kg) (exceeding the industrial soil criteria of 750 mg/kg [7] and reported TCLP values up to 150 milligrams per liter (mg/L), exceeding the Hazardous Waste Criteria of 5 mg/L [40 CFR 261.24]). These elevated samples were collected from the outside and norther side of the berm, suggesting that during the last construction (to create the three berms) soils were likely reworks. No samples were collected from the inside of the berms, or from the shooting range floor.

The shelter at the firing range is used for cleaning guns in addition to acting as an office. The shelter stores small containers of gun cleaners and most of the cleaning is conducted on tables places under the overhangs

along both side of the shelter. There is also a transformer located at the southwest corner outside the range and shelter. This transformer was flooded in 2010, potentially releasing oils and residual PCBs to the soils.

Summary of Field Activities

COCs for AOI 11 include lead and other metals impacts in the berms (and soils within the rubber tires for the indoor/obstructed view training area) as well as metal and perchlorate in the shallow soils on the floor of the range. The limited site investigation included the collection of soil samples at two locations every two feet (up to 8 feet below ground surface) and at the water table. We also collected two surface soil samples and one downgradient groundwater sample as identified on Table 2. The sampling locations are shown on Figure 11 and the boring logs are provided in Appendix D.

Data Evaluation

The analytical results from some of the soil sampling as shown below indicate elevated arsenic, cobalt, iron, greater than the NDEQ VCP soil criteria, however, the results are consistent or below background values [9]. Additionally, the surface soil sample from within the firing range indicates elevated lead greater than the NDEQ VCP soil criteria. No other values exceeded NDEQ VCP soil criteria. A more comprehensive summary of the analytical data is provided in Table 3 and the laboratory results are provided in Appendix E.

Table 8. AOI 11 – Soil Analytical Regulatory Exceedance Summary

Location Name Sample Depth (bgs)	NDEQ VCP Residential Soil (Sept 2012)	EPA Residential Soil RSL May 2016 HI = 1	DP1101 0-1 (ft)	SS1101 0-0.5 (ft)	SS1102 0-0.5 (ft)
Inorganic Compounds (mg/kg)					
Arsenic	0.39	0.68	--	**4.5 J**	**11.9 J**
Cobalt	5.8	23	--	3.72	10.4
Iron	14000	55000	--	--	18300
Lead	400	400	**2230 J**	--	--
Manganese	1800	460	--	294 J	853 J

NOTES:

J – estimated value

- Bold values indicate an exceedance of the EPA Residential RSL.

- Gray values indicate an exceedance of the NDEQ VCP Residential Soil Criteria

The analytical results from the groundwater sampling as shown below indicated elevated arsenic, barium, chromium, and lead greater than the MCLs and these four compounds plus aluminum, cobalt, iron, manganese, and vanadium are greater than the NDEQ VCP Groundwater Remedial Goals (RGs). A summary of the groundwater analytical data is provided in Table 10 and the laboratory results are provided in Appendix E.

Table 9. AOI 11 - Groundwater Analytical Regulatory Exceedance Summary

Location Name	MCL	NDEQ VCP Groundwater RGs Sept 2012	GW1101
Inorganic Compounds (ug/L)			
Aluminum, Total	NA	50	360000 J-
Arsenic, Total	10	50	**550 J-**
Barium, Total	2000	2000	**19000 J-**
Chromium, Total	100	100	**1700 J-**
Cobalt, Total	NA	2.7	600 J-
Iron, Total	NA	300	1100000 J-
Lead, Total	15	15	**730 J-**
Manganese, Total	NA	50	27000 J-
Vanadium, Total	NA	38	1400 J-

NOTES:

- Gray indicates an exceedance of the NDEQ VCP Groundwater RGs
- Bold values indicate an exceedance of the MCL.

Findings

The inorganics detected at concentrations above the EPA and NDEQ criteria (other than lead) are likely attributed to natural background conditions and are consistent with inorganics on other portions of the site. These naturally elevated background conditions also would account for some of the elevated constituent concentrations of inorganics in water. Additional evaluations may be warranted to evaluate the concentrations in both soil and groundwater with respect to background conditions.

For the lead detections in soil, data from this AOI coupled with past investigations on the concentrations of lead and historical and current use of the area as a firing range, indicate soil impacts are present with concentration of lead that exceed the Hazardous Waste Criteria of 5 mg/L [40 CFR 261.24]). Due to these levels of lead, additional evaluations are warranted to confirm the nature and extent of lead. Additionally, a risk assessment to confirm that no exposure pathways for human health exist, as well as an ecological evaluation should be considered. Note that only slightly increases levels of lead, when compared to other areas of the site, were seen in the wetlands (see AOI 14).

The site controls access to the public, however, in addition to these additional characterization efforts, an industrial hygienist should be consulted regarding site personal who may come in direct contact with soils as regulatory requirement for lead workers may need to be implemented.

Finally, lead was also detected in groundwater. However, the extent of groundwater impacted by lead should be investigated to better understand the lateral and vertical distribution within the aquifer.

4.7 AOI 14 – FISH CREEK AND WETLANDS

Fish Creek runs along the north side of the PA from the hills towards the Missouri River. Prior to discharging to the Missouri River, Fish Creek lets out into a wetlands area located north of the plant. The topography of the site is such that runoff from the farmland runs into Fish Creek (see Figure 12). Additionally, Fish Creek receives storm water runoff from the fire training area, Switchyard, firing range, and the plant.

Summary of Field Activities

COCs for AOI 14 PAHs, PFAs, TAL Metals, and VOCs including perchlorate from the runoff and direct discharges from several other AOIs. The limited site investigation included the collection of three sediment samples along the creek bed. The sampling locations are shown on Figure 12 and the boring logs are provided in Appendix D.

Data Evaluation

The analytical results from the sediment sampling as shown below indicate elevated arsenic, cobalt, iron and manganese greater than the NDEQ VCP soil criteria; however, the results are consistent or below background values [9]. PAHs and PFAS were also detected in sediments, but at concentrations below NDEQ VCP soil criteria. It should be noted that since PFAs are recently considered an emerging contaminant, no NDEQ VCP soil criteria has been established. No other values exceeded NDEQ VCP soil criteria. A summary of the sediment analytical data is provided in Table 11 and the laboratory results are provided in Appendix E.

Table 12. AOI 14 - Sediment Analytical Regulatory Exceedance Summary

Location Name Sample Depth (bgs)	NDEQ VCP Residential Soil (Sept 2012)	EPA Residential Soil RSL May 2016 HI = 1	SD1401 0 - 0.5 (ft)	SD1401 0 - 0.5 (ft)	SD1402 0 - 0.5 (ft)	SD1403 0 - 0.5 (ft)
Inorganic Compounds (mg/kg)						
Arsenic	0.39	0.68	**10.9 J**	**11.4 J**	**9.95 J**	**12.3 J**
Cobalt	5.8	23	9.26	9.36	9.96	9.08
Iron	14000	55000	19800	19500	21100	19800
Manganese	460	1800	706 J	668 J	784 J	663 J

NOTES:

J – estimated value

- Bold values indicate an exceedance of the EPA Residential RSL.
- Gray values indicate an exceedance of the NDEQ VCP Residential Soil Criteria

Findings

Although several inorganics were reported at concentrations that exceeded both EPA and NQED criteria, these are likely attributed to natural background conditions. Additionally, the other analytical data to not

exceed soil screening criteria and to not pose a risk to the public, however, organics should be evaluated in the context of ecological receptors to identify if they could be bioaccumulated.

4.8 AOI 15 – FARMLANDS

Farmlands surround the plant to the north and south. These farmlands are leased to local farmers for use. Typical farming practices include the use of pesticides, herbicides, arsenic, and fertilization to assist in crop production. It is unknown what chemicals or practices were used on the surrounding farmlands.

Additionally, farming uses tractors and other equipment. It was reported that there was a diesel aboveground storage tank (AST) installed to refuel his equipment. When observed, there were also containers stored in this area. OPPD had the tank and containers removed, however it is not documented how long the area was in use or if any releases associated with this AST occurred. The location is shown on Figure 13.

Potential source area and migration pathway to impact soils, sediments, or groundwater

Due to the common practice of releasing small quantities of materials when fueling, shallow soils and groundwater may be impacted by the diesel. As numerous containers were also stored there, additional COCs could include VOCs, SVOCs, metals as well as pesticides.

Summary of Field Activities

COCs for AOI 15 included diesel, VOCs, SVOCs, metals as well as pesticides. The limited site investigation intended to collect one soil sample from this location. However, because personnel at FCS where not able to identify an approximate location of this tank, the sample was not completed at the request of the facility.

Findings

No further actions are warranted at this time.

SECTION 5 CONCLUSIONS

Based on the findings of this investigation, there are only two AOIs were chemical or non-radiological constituents have impacted environmental media.

- AOI 10 - Fire Training Area has PFAOs in excess of the EPA Health Advisory standard of 0.07 micrograms per liter. PFAs do not have a NDEQ criteria, but have been identified recently by EPA as an emerging compound, with a Health Advisory number for drinking water already in effect.

- AOI 11 - Firing Range has lead in the berm and in groundwater. Previous soils data, collected from the north side of the berm, indicated elevated concentrations of lead, that were above the EPA hazardous threshold of 5 mg/L, as analyzed by TCLP. These data were consistent on the southern site of the berm with impacts soils extending to 2 feet bgs. Groundwater grab samples, collected from GW1101 on the downgradient site of the Firing Range also reported lead. It should be noted that the impacted media has not been fully delineated, and will most likely require mitigation and remediation to meet site closure requirements.

Other constituents including arsenic, cobalt, iron, and manganese were noted to have exceedances in soil that exceeded NDEQ criteria. These exceedances occurred in most of the metal samples, but based on a review of published background data [9], these results are consistent with the published values and the samples fall within the same range. Therefore, we do not believe that these elevated levels are due to site conditions, but background levels for the area should be confirmed.

SECTION 6 RECOMMENDATIONS

Based on the limited non-radiological characterization effort, AOIs 10 and 11 show site-related contaminants impacting soils and/or groundwater. It should be noted that the purpose of this investigation was to identify if COCs were released to the environment, and now additional efforts should be completed to delineate the horizontal and vertical extents of these contaminant, and if warranted, remediate impacted areas in accordance with the NDEQ VCP requirements.

It is also recommended that site background levels be established to confirm the data collected to date is consistent with site background values. Additionally, the remaining AOIs should be characterized to support site closure, although based on these findings as well as the current groundwater data set, impacts (if present) are likely to be minimal.

SECTION 7 REFERENCES

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2. FCS USAR-2.3, *Site and Environs Topography*, May 2011
3. FCS USAR-2.6, *Site and Environs Geology*, May 2011
4. Radiation Safety & Control Services, Inc.(RSCS), *Review of the Groundwater Protection Program at the Fort Calhoun Nuclear Station*, Revision 1, May 2008
5. HDR, *Fort Calhoun Station, Flood Recovery Action Plan 4.1: Plant and Facility Geotechnical and Structural Assessment*, Revision 3, September 18, 2012
6. FCS USAR-2.7, *Site and Environs Hydrology*, December 2015
7. FCS USAR-2.5, *Site and Environs Meteorology*, July 2013
8. NDEQ, *Voluntary Cleanup Program Guidance*, 05-162, September 2012
9. United States Geological Survey, *Element Concentrations in Soils and Other Surficial Materials of the Conterminuous United State*, 1984.
10. Terracon Consultants, Inc., *Storm Water Pollution Prevention Plan*, February 16, 2016
11. *OPPD Pollution Prevention and Storm Water Management Plan*, Revision 12, April 25, 2013
12. Code of Federal Regulations (CFR), 2013, *Identification and Listing of Hazardous Waste*; 40 CFR §261.24 as amended on July 14, 2006

SECTION 8 APPENDICES

Appendix A NDEQ VCP Regulations

Appendix B Standard Operating Procedures

Appendix C Data Validation

Appendix D Boring Logs

Appendix E Laboratory Reports

TABLE 3
SUMMARY OF SOIL DATA
OPPD FORT CALHOUN STATION
BLAIR, NEBRASKA

Location Name	Residential Soil	NDEQ VCP	NDEQ VCP	DP0101	DP0102	DP0103	DP0201	DP0202	DP0202	DP0203	DP0203	DP0204	DP0501	DP0502	SS0501	DP0601	DP0602	DP0602	DP0603	DP1001	DP1002	DP1003
Sample Name	RSL	Residential Soil	Groundwater	DP010109	DP010216	DP010307	DP020114	DP020207	DP020209	DP020312	DP020312DUP	DP020413	DP050113	DP050213	SS050100	DP060113	DP060212	DP060212DUP	DP060321	DP100113	DP100212	DP100310
Sample Date	May 2016	Sept 2012	RGs	10/25/2016	10/25/2016	10/25/2016	10/26/2016	10/26/2016	10/26/2016	10/25/2016	10/25/2016	10/25/2016	10/25/2016	10/25/2016	10/25/2016	10/26/2016	10/26/2016	10/26/2016	10/26/2016	10/24/2016	10/25/2016	10/25/2016
Sample Depth (bgs)	HI = 1		Sept 2012	9 - 10 (ft)	16 - 17 (ft)	7 - 8 (ft)	14 - 15 (ft)	7 - 8 (ft)	9 - 10 (ft)	12 - 13 (ft)	12 - 13 (ft)	13 - 14 (ft)	13 - 14 (ft)	13 - 14 (ft)	0 - 0.5 (ft)	13 - 143 (ft)	12 - 13 (ft)	12 - 13 (ft)	21 - 22 (ft)	13 - 14 (ft)	12 - 13 (ft)	10 - 11 (ft)
Volatile Organic Compounds (mg/kg)																						
2-Butanone (Methyl Ethyl Ketone)	27000	7500	-	-	-	-	< 0.0016	0.00763	< 0.00195	< 0.00171	-	0.00416 J	-	-	-	-	-	-	-	-	-	-
Acetone	61000	16000	-	-	-	-	< 0.0016	0.0412	< 0.00195	0.00245 J	-	0.0298	-	-	-	-	-	-	-	-	-	-
Methyl Tert Butyl Ether	47	51	-	-	-	-	< 0.000321	< 0.000326	< 0.000389	< 0.000341	-	< 0.000285	-	-	-	-	-	-	-	-	-	-
Semi-Volatile Organic Compounds (SIM) (mg/kg)																						
Benzo(b)fluoranthene	0.16	0.15	-	-	-	-	-	-	-	-	-	-	0.00329 J	0.00322 J	< 0.523	-	-	-	-	< 0.00229	< 0.00221	0.00356 J
Chrysene	16	15	-	-	-	-	-	-	-	-	-	-	< 0.00205	< 0.0023	< 0.523	-	-	-	-	< 0.00229	< 0.00221	0.00222 J
Fluoranthene	2400	570	-	-	-	-	-	-	-	-	-	-	< 0.00205	0.00322 J	< 0.523	-	-	-	-	< 0.00229	< 0.00221	0.00356 J
Naphthalene	3.8	4.3	-	-	-	-	-	-	-	-	-	-	< 0.00123	0.00552	< 0.314	-	-	-	-	< 0.00138	< 0.00133	< 0.00133
Phenanthrene	NA	NA	-	-	-	-	-	-	-	-	-	-	0.00247 J	0.00552	< 0.523	-	-	-	-	0.00229 J	0.0031 J	0.00311 J
Pyrene	1800	430	-	-	-	-	-	-	-	-	-	-	< 0.00205	0.00276 J	< 0.523	-	-	-	-	< 0.00229	< 0.00221	0.00311 J
Total Petroleum Hydrocarbons (mg/kg)																						
Total Petroleum Hydrocarbons (>C10-C20) DRO	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	< 2.34	< 2.61	9.1 J+	< 2.55	-	-	-
Inorganic Compounds (mg/kg)																						
Aluminum	77000	19000	-	8980 J	14500 J	4380 J	1390 J	9270 J	4850 J	13800 J	-	6420 J	-	-	-	-	-	-	-	6650 J	9700 J	5650 J
Antimony	31	7.8	-	0.454 J	< 4.39 J	0.547 J	0.384 J	0.67 J	0.416 J	0.556 J	-	0.5 J	-	-	-	-	-	-	-	< 0.388 J	< 0.436 J	< 0.386 J
Arsenic	0.68	0.39	-	**7.3 J**	**16.5 J**	**5.83 J**	**3.82 J**	**13.9 J**	**8.09 J**	**9.96 J**	-	**9.22 J**	-	-	-	-	-	-	-	**9.86 J**	**5.82 J**	**6.63 J**
Barium	15000	3800	-	278 J	427 J+	155 J+	71.6 J+	265 J+	217 J+	252 J+	-	205 J+	-	-	-	-	-	-	-	254 J+	239 J+	224 J+
Beryllium	160	39	-	0.685	< 2.66	0.402 J	0.142 J	0.784	0.422 J	1.03	-	0.568	-	-	-	-	-	-	-	< 1.18	< 1.32	< 1.17
Cadmium	71	18	-	0.289 J	0.859	0.201 J	< 0.1	0.193 J	< 0.103	0.127 J	-	0.208 J	-	-	-	-	-	-	-	0.328 J	0.434 J	0.399 J
Calcium	NA	NA	-	14700	15500	30700	5420	19000	16100	8360	-	16700	-	-	-	-	-	-	-	22400	19900	19300
Chromium	NA	NA	-	12.7	19.7	15.1	3.12	14	8.59	18	-	10	-	-	-	-	-	-	-	11.8	15.2	10.1
Cobalt	23	5.8	-	6.8	11.4	4.28	2.23	7.21	4.33	8.31	-	5.63	-	-	-	-	-	-	-	6.8	9.87	5.83
Copper	3100	780	-	17.4 J	30.6 J	8.87 J	1.31 J	24.9 J	7.71 J	25.3 J	-	16.2 J	-	-	-	-	-	-	-	13.3 J	23.9 J	14.9 J
Iron	55000	14000	-	17600	27100	10500	5510	19500	12200	23900	-	13900	-	-	-	-	-	-	-	15300	13700	12500
Lead	400	400	-	11.2 J	20.2 J	6.03 J	2.36 J	12.5 J	6.75 J	17.8 J	-	8.98 J	-	-	-	-	-	-	-	9.5 J	13.8 J	8.86 J
Magnesium	NA	NA	-	6440	6730	5840	1690	7430	6390	6290	-	6520	-	-	-	-	-	-	-	8790	7840	7460
Manganese	1800	460	-	692 J	1050 J	235 J	115 J	646 J	348 J	461 J	-	396 J	-	-	-	-	-	-	-	336 J	433 J	255 J
Mercury	11	3.1	-	0.0296	0.0514	0.024	< 0.00394	0.0293	0.013	0.0434	-	0.017	-	-	-	-	-	-	-	0.0302	0.0313	0.0219
Nickel	1500	390	-	19.8	30.1	15.4	5.24	20.3	11.9	26.3	-	16.3	-	-	-	-	-	-	-	17.7	24.7	14.9
Potassium	NA	NA	-	1670 J+	2660 J+	900 J+	346 J+	1990 J+	1030 J+	2670 J+	-	1430 J+	-	-	-	-	-	-	-	1470 J+	1980 J+	1270 J+
Selenium	390	98	-	2.3 J	2.47 J	1.64 J	0.611 J	2.23 J	1.88 J	2.73 J	-	1.91 J	-	-	-	-	-	-	-	< 0.588	0.948 J	2.01 J
Silver	390	98	-	0.753 J	0.725 J	< 0.11 J	0.241 J	0.759 J	0.433 J	1.02 J	-	0.522 J	-	-	-	-	-	-	-	0.127 J	0.25 J	0.142 J
Sodium	NA	NA	-	680	2080	213	133 J+	211 J+	207 J+	251	-	179 J+	-	-	-	-	-	-	-	264	234	248
Thallium	0.78	NA	-	< 0.56	< 6.65	< 0.551	< 0.502	< 0.572	< 0.513	< 0.61	-	< 0.532	-	-	-	-	-	-	-	< 5.88	< 6.61	< 5.84
Vanadium	390	97	-	29.4	44.9	14.9	5.9	31.5	17.7	41.7	-	22.6	-	-	-	-	-	-	-	23	30.6	20.2
Zinc	23000	5900	-	56	95.1 J	32.1 J	11.3 J	63.8 J	34 J	80.2 J	-	44.3 J	-	-	-	-	-	-	-	49.1 J	64.8 J	43.5 J
Inorganic Compounds (ug/L)																						
Arsenic	NA	NA	50	< 50	94.1 J	74.9 J	< 50	55.2 J	< 50	61 J	-	61.2 J	-	-	-	-	-	-	-	-	-	-
Barium	NA	NA	2000	83.5	61.6	63.1	50.3	64.2	49.8 J	93.4	-	32.2 J	-	-	-	-	-	-	-	-	-	-
Cadmium	NA	NA	5	< 10	< 10	< 10	< 10	< 10	< 10	< 10	-	< 10	-	-	-	-	-	-	-	-	-	-
Chromium	NA	NA	100	12 J	< 10	< 10	< 10	< 10	< 10	< 10	-	< 10	-	-	-	-	-	-	-	-	-	-
Lead	NA	NA	15	< 33	< 33	< 33	< 33	< 33	< 33	< 33	-	< 33	-	-	-	-	-	-	-	-	-	-
Mercury	NA	NA	2	< 0.67 J	< 0.67 J	< 0.67 J	< 0.67 J	< 0.67 J	< 0.67 J	< 0.67 J	-	< 0.67 J	-	-	-	-	-	-	-	-	-	-
Selenium	NA	NA	50	< 60	< 60	< 60	< 60	< 60	79.9 J	< 60	-	< 60	-	-	-	-	-	-	-	-	-	-
Silver	NA	NA	100	< 10	< 10	16.4 J	< 10	< 10	< 10	< 10	-	< 10	-	-	-	-	-	-	-	-	-	-
PCBs (mg/kg)																						
Aroclor-1016 (PCB-1016)	4.1	0.98	-	-	-	-	< 0.00113	< 0.00139	< 0.00124	< 0.0015	< 0.00148	< 0.00134	< 0.00137	< 0.00153	< 0.0124	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	0.2	0.19	-	-	-	-	< 0.00113	< 0.00139	< 0.00124	< 0.0015	< 0.00148	< 0.00134	< 0.00137	< 0.00153	< 0.0124	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	0.17	0.19	-	-	-	-	< 0.00113	< 0.00139	< 0.00124	< 0.0015	< 0.00148	< 0.00134	< 0.00137	< 0.00153	< 0.0124	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	0.23	0.22	-	-	-	-	< 0.00113	< 0.00139	< 0.00124	< 0.0015	< 0.00148	< 0.00134	< 0.00137	< 0.00153	< 0.0124	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	0.23	0.22	-	-	-	-	< 0.00113	< 0.00139	< 0.00124	< 0.0015	< 0.00148	< 0.00134	< 0.00137	< 0.00153	< 0.0124	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	0.24	0.22	-	-	-	-	< 0.00113	< 0.00139	< 0.00124	< 0.0015	< 0.00148	< 0.00134	< 0.00137	< 0.00153	< 0.0124	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	0.24	0.22	-	-	-	-	< 0.00113	< 0.00139	< 0.00124	< 0.0015	< 0.00148	< 0.00134	< 0.00137	< 0.00153	0.049	-	-	-	-	-	-	-
Other																						
Perchlorate (mg/kg)	55	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ABBREVIATIONS AND NOTES:
-: Not Analyzed
bgs: below ground surface
ft: feet
HI: Hazard Index
mg/kg: milligram per kilogram
mg/L: milligram per liter
NA: Not Applicable
NDEQ: Nebraska Department of Environmental Quality
RGs: Remedial Goals
RSL: Regional Screening Level
VCP: Voluntary Cleanup Program

QUALIFIERS:
< 2.5: Not detected, value is the laboratory reporting limit
J: value is estimated.
J-: value is estimated with a potential low bias
J+: value is estimated with a potential high bias

- Volatile and Semi-Volatile Organic analytes detected in at least one sample are reported herein. For a complete list of analytes see the laboratory data sheets.
- Bold values indicate an exceedance of the Residential RSL.
- Shaded values indicate an exceedance of the NE VCP Residential Soil Criteria or Groundwater RGs.

TABLE 3
SUMMARY OF SOIL DATA
OPPD FORT CALHOUN STATION
BLAIR, NEBRASKA

Location Name	Residential Soil	NDEQ VCP	NDEQ VCP	DP1101	DP1101	DP1101	DP1101	DP1101	DP1102	DP1102	DP1102	DP1102	DP1102	SS1101	SS1102
Sample Name	RSL	Residential Soil	Groundwater	DP110100	DP110102	DP110104	DP110106	DP110113	DP110200	DP110202	DP110204	DP110206	DP110214	SS110100	SS110200
Sample Date	May 2016	Sept 2012	RGs	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016
Sample Depth (bgs)	HI = 1		Sept 2012	0 - 1 (ft)	2 - 3 (ft)	4 - 5 (ft)	6 - 76 (ft)	13 - 14 (ft)	0 - 1 (ft)	2 - 32 (ft)	4 -54 (ft)	6 - 76 (ft)	14 -54 (ft)	0 - 0.5 (ft)	0 - 0.5 (ft)
Volatile Organic Compounds (mg/kg)															
2-Butanone (Methyl Ethyl Ketone)	27000	7500	-	-	-	-	-	-	-	-	-	-	-	< 0.00155 J	< 0.00151 J
Acetone	61000	16000	-	-	-	-	-	-	-	-	-	-	-	< 0.00155 J	< 0.00151 J
Methyl Tert Butyl Ether	47	51	-	-	-	-	-	-	-	-	-	-	-	0.000336 J-	< 0.000301 J
Semi-Volatile Organic Compounds (SIM) (mg/kg)															
Benzo(b)fluoranthene	0.16	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	16	15	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	2400	570	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	3.8	4.3	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	1800	430	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Petroleum Hydrocarbons (mg/kg)															
Total Petroleum Hydrocarbons (>C10-C20) DRO	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganic Compounds (mg/kg)															
Aluminum	77000	19000	-	-	-	-	-	-	-	-	-	-	-	2950 J	8030 J
Antimony	31	7.8	-	-	-	-	-	-	-	-	-	-	-	2.11 J	< 0.389 J
Arsenic	0.68	0.39	-	-	-	-	-	-	-	-	-	-	-	**4.5 J**	**11.9 J**
Barium	15000	3800	-	-	-	-	-	-	-	-	-	-	-	89.2 J+	265 J+
Beryllium	160	39	-	-	-	-	-	-	-	-	-	-	-	< 1	< 1.18
Cadmium	71	18	-	-	-	-	-	-	-	-	-	-	-	0.36 J	0.703
Calcium	NA	NA	-	-	-	-	-	-	-	-	-	-	-	183000	19100
Chromium	NA	NA	-	-	-	-	-	-	-	-	-	-	-	7.89	13.3
Cobalt	23	5.8	-	-	-	-	-	-	-	-	-	-	-	3.72	10.4
Copper	3100	780	-	-	-	-	-	-	-	-	-	-	-	21 J	23.4 J
Iron	55000	14000	-	-	-	-	-	-	-	-	-	-	-	10600	18300
Lead	400	400	-	**2230 J**	11.9 J	10.1 J	4.82 J	6.69 J	9.17 J	10.8 J	5 J	6.57 J	4.8 J	105 J	32.2 J
Magnesium	NA	NA	-	-	-	-	-	-	-	-	-	-	-	4820	9960
Manganese	1800	460	-	-	-	-	-	-	-	-	-	-	-	294 J	853 J
Mercury	11	3.1	-	-	-	-	-	-	-	-	-	-	-	0.0115	0.0306
Nickel	1500	390	-	-	-	-	-	-	-	-	-	-	-	12.4	24.2
Potassium	NA	NA	-	-	-	-	-	-	-	-	-	-	-	678 J+	1520 J+
Selenium	390	98	-	-	-	-	-	-	-	-	-	-	-	1.2 J	< 0.59
Silver	390	98	-	-	-	-	-	-	-	-	-	-	-	< 1 J	0.341 J
Sodium	NA	NA	-	-	-	-	-	-	-	-	-	-	-	399	835
Thallium	0.78	NA	-	-	-	-	-	-	-	-	-	-	-	< 0.501	< 5.9
Vanadium	390	97	-	-	-	-	-	-	-	-	-	-	-	10.8	29.3
Zinc	23000	5900	-	-	-	-	-	-	-	-	-	-	-	56.6 J	75.5 J
Inorganic Compounds (ug/L)															
Arsenic	NA	NA	50	-	-	-	-	-	-	-	-	-	-	-	-
Barium	NA	NA	2000	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	NA	NA	5	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	NA	NA	100	-	-	-	-	-	-	-	-	-	-	-	-
Lead	NA	NA	15	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	NA	NA	2	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	NA	NA	50	-	-	-	-	-	-	-	-	-	-	-	-
Silver	NA	NA	100	-	-	-	-	-	-	-	-	-	-	-	-
PCBs (mg/kg)															
Aroclor-1016 (PCB-1016)	4.1	0.98	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	0.2	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	0.17	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	0.23	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	0.23	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	0.24	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	0.24	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-
Other															
Perchlorate (mg/kg)	55	14	-	-	-	-	-	-	-	-	-	-	-	< 0.014	< 0.0161

ABBREVIATIONS AND NOTES:
-: Not Analyzed
bgs: below ground surface
ft: feet
HI: Hazard Index
mg/kg: milligram per kilogram
mg/L: milligram per liter
NA: Not Applicable
NDEQ: Nebraska Department of Environmental Quality
RGs: Remedial Goals
RSL: Regional Screening Level
VCP: Voluntary Cleanup Program

- Volatile and Semi-Volatile Organic analytes detected in at least one sample are reported herein. For a complete list of analytes see the laboratory data sheets.
- Bold values indicate an exceedance of the Residential RSL.
- Shaded values indicate an exceedance of the NE VCP Residential Soil Criteria or Groundwater RGs.

QUALIFIERS:
< 2.5: Not detected, value is the laboratory reporting limit
J: value is estimated.
J-: value is estimated with a potential low bias
J+: value is estimated with a potential high bias

TABLE 10
SUMMARY OF GROUNDWATER DATA
OPPD FORT CALHOUN STATION
BLAIR, NEBRASKA

Location Sample Date Sample Type	MCL	EPA Health Advisory (May 2016)	NDEQ VCP Groundwater Sept 2012	GW1004 10/24/2016 N	GW1101 10/24/2016 N
Volatile Organic Compounds (ug/L)					
Benzene	5	NA	5	R	-
Ethylbenzene	700	NA	700	R	-
Naphthalene	NA	NA	0.14	R	-
Toluene	1000	NA	1000	R	-
Xylene (total)	10000	NA	10000	R	-
Inorganic Compounds (ug/L)					
Aluminum, Total	NA	NA	50	-	360000 J-
Antimony, Total	6	NA	6	-	**< 60 J**
Arsenic, Total	10	NA	50	-	**550 J-**
Barium, Total	2000	NA	2000	-	**19000 J-**
Beryllium, Total	4	NA	4	-	**< 30 J**
Cadmium, Total	5	NA	5	-	**< 30 J**
Calcium, Total	NA	NA	NA	-	960000 J-
Chromium, Total	100	NA	100	-	**1700 J-**
Cobalt, Total	NA	NA	2.7	-	600 J-
Copper, Total	1300	NA	1300	-	590 J-
Iron, Total	NA	NA	300	-	1100000 J-
Lead, Total	15	NA	15	-	**730 J-**
Magnesium, Total	NA	NA	NA	-	300000 J-
Manganese, Total	NA	NA	50	-	27000 J-
Mercury, Total	2	NA	2	-	0.64 J
Nickel, Total	NA	NA	180	-	1500 J-
Potassium, Total	NA	NA	NA	-	66000 J-
Selenium, Total	50	NA	50	-	**< 160 J**
Silver, Total	NA	NA	100	-	< 60 J
Sodium, Total	NA	NA	NA	-	63000 J-
Thallium, Total	2	NA	2	-	**< 100 J**
Vanadium, Total	NA	NA	38	-	1400 J-
Zinc, Total	NA	NA	5000	-	3100 J-
PFAOs (ng/L)		0.07		**3150***	
Perfluorobutane Sulfonate	NA	NA	NA	270	-
Perfluoroheptanoic acid (PFHpA)	NA	NA	NA	380	-
Perfluorohexanesulfonic acid (PFHxS)	NA	NA	NA	1600	-
Perfluorononanoic Acid (PFNA)	NA	NA	NA	100	-
Perfluorooctanesulfonic acid (PFOS)	NA	NA	NA	520	-
Perfluorooctanoic Acid (PFOA, C8)	NA	NA	NA	280	-
Other					
Perchlorate (ug/L)	15		6.4	-	< 4

ABBREVIATIONS AND NOTES:
-: Not Analyzed
ug/L: microgram per liter
ng/L: nanogram per liter
NA: Not Applicable
NDEQ: Nebraska Department of Environmental Quality
MCL: Maximum Contaminant Level
VCP: Voluntary Cleanup Program
* Value obtained by summing all the PFAOs detections

QUALIFIERS:
< 2.5: Not detected, value is the laboratory reporting limit
J: value is estimated.
J-: value is estimated with a potential low bias
J+: value is estimated with a potential high bias
R: Value is rejected

- Bold values indicate an exceedance of the MCL.
- Gray indicates an exceedance of the NDEQ VCP Groundwater Remedial Goal.
- Red bold value indicates an exceedance of the EPA Health Advisory.

TABLE 11
SUMMARY OF SEDIMENT DATA
OPPD FORT CALHOUN STATION
BLAIR, NEBRASKA

Location Name Sample Name Sample Date Sample Depth (bgs)	Residential Soil RSL May 2016 HI = 1	NDEQ VCP Residential Soil Sept 2012	SD1401 SD140100 10/24/2016 0 - 0.5 (ft)	SD1401 SD140100 DUP 10/24/2016 0 - 0.5 (ft)	SD1402 SD140200 10/24/2016 0 - 0.5 (ft)	SD1403 SD140300 10/24/2016 0 - 0.5 (ft)
Volatile Organic Compounds (mg/kg)						
2-Butanone (Methyl Ethyl Ketone)	27000	7500	0.00448 J-	< 0.00286 J	0.00644 J-	0.00316 J-
Acetone	61000	16000	0.0155 J-	0.00728 J-	0.0255 J-	0.0148 J-
Methyl acetate	78000	20000	< 0.00243 J	< 0.00286 J	< 0.00319 J	0.0107 J-
Semi-Volatile Organic Compounds (SIM) (mg/kg)						
Anthracene	18000	5900	< 0.00267	0.0042 J	< 0.00299	< 0.00263
Benzo(b)fluoranthene	0.16	0.15	0.0032 J	0.00367 J	0.00479 J	< 0.00263
Benzo(k)fluoranthene	1.6	1.5	< 0.00267	< 0.00262	0.00359 J	< 0.00263
Chrysene	16	15	< 0.00267	0.00262 J	0.00359 J	< 0.00263
Fluoranthene	2400	570	0.00374 J	0.0063	0.00598	0.00315 J
Phenanthrene	NA	NA	0.00374 J	< 0.00262	0.00419 J	0.00368 J
Pyrene	1800	430	0.0032 J	0.0042 J	0.00419 J	0.00263 J
Inorganic Compounds (mg/kg)						
Aluminum	77000	19000	10300 J	10000 J	11100 J	9630 J
Antimony	31	7.8	< 0.48 J	< 0.506 J	< 0.553 J	< 0.477 J
Arsenic	0.68	0.39	**10.9 J**	**11.4 J**	**9.95 J**	**12.3 J**
Barium	15000	3800	244 J+	243 J+	263 J+	222 J+
Beryllium	160	39	< 1.46	< 1.53	< 1.67	< 1.44
Cadmium	71	18	0.74	0.708 J	0.788 J	0.585 J
Calcium	NA	NA	32900	26700	29700	23100
Chromium	NA	NA	16.1	15.6	17	14.5
Cobalt	23	5.8	9.26	9.36	9.96	9.08
Copper	3100	780	24.3 J	23.4 J	26.6 J	23.8 J
Iron	55000	14000	19800	19500	21100	19800
Lead	400	400	14.9 J	15 J	16.6 J	14.5 J
Magnesium	NA	NA	10300	9400	9470	7010
Manganese	1800	460	706 J	668 J	784 J	663 J
Mercury	11	3.1	0.0355	0.0365	0.0422	0.0342
Nickel	1500	390	23.1	23	24.7	21.9
Potassium	NA	NA	2060 J+	1960 J+	2370 J+	2050 J+
Selenium	390	98	1.95 J	2.36 J	2.21 J	1.38 J
Silver	390	98	0.217 J	0.328 J	0.348 J	0.311 J
Sodium	NA	NA	263	248	221	195
Thallium	0.78	NA	< 0.728	< 0.766	**< 0.837**	< 0.722
Vanadium	390	97	33.3	33.2	35.7	30.7
Zinc	23000	5900	106 J	108 J	112 J	87.5 J
PFAs (mg/Kg)						
Perfluorobutane Sulfonate	1600	NA	< 0.00017	< 0.00016	< 0.00017	< 0.00021
Perfluoroheptanoic acid (PFHpA)	NA	NA	0.00036	0.00026 J	0.00014 J	< 0.00018
Perfluorohexanesulfonic acid (PFHxS)	NA	NA	< 0.00019	< 0.00019	< 0.00019	< 0.00024
Perfluorononanoic Acid (PFNA)	NA	NA	0.0006	0.00046	0.00062	0.00025 J
Perfluorooctanesulfonic acid (PFOS)	NA	NA	0.00023 J	< 0.0002	0.00029 J	0.0005
Perfluorooctanoic Acid (PFOA, C8)	NA	NA	0.00063	0.00039	0.00039	0.00027 J
Other (mg/Kg)						
Perchlorate	55	14	< 0.0216	< 0.0211	< 0.0242	< 0.0213

ABBREVIATIONS AND NOTES:

-: Not Analyzed
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QUALIFIERS:

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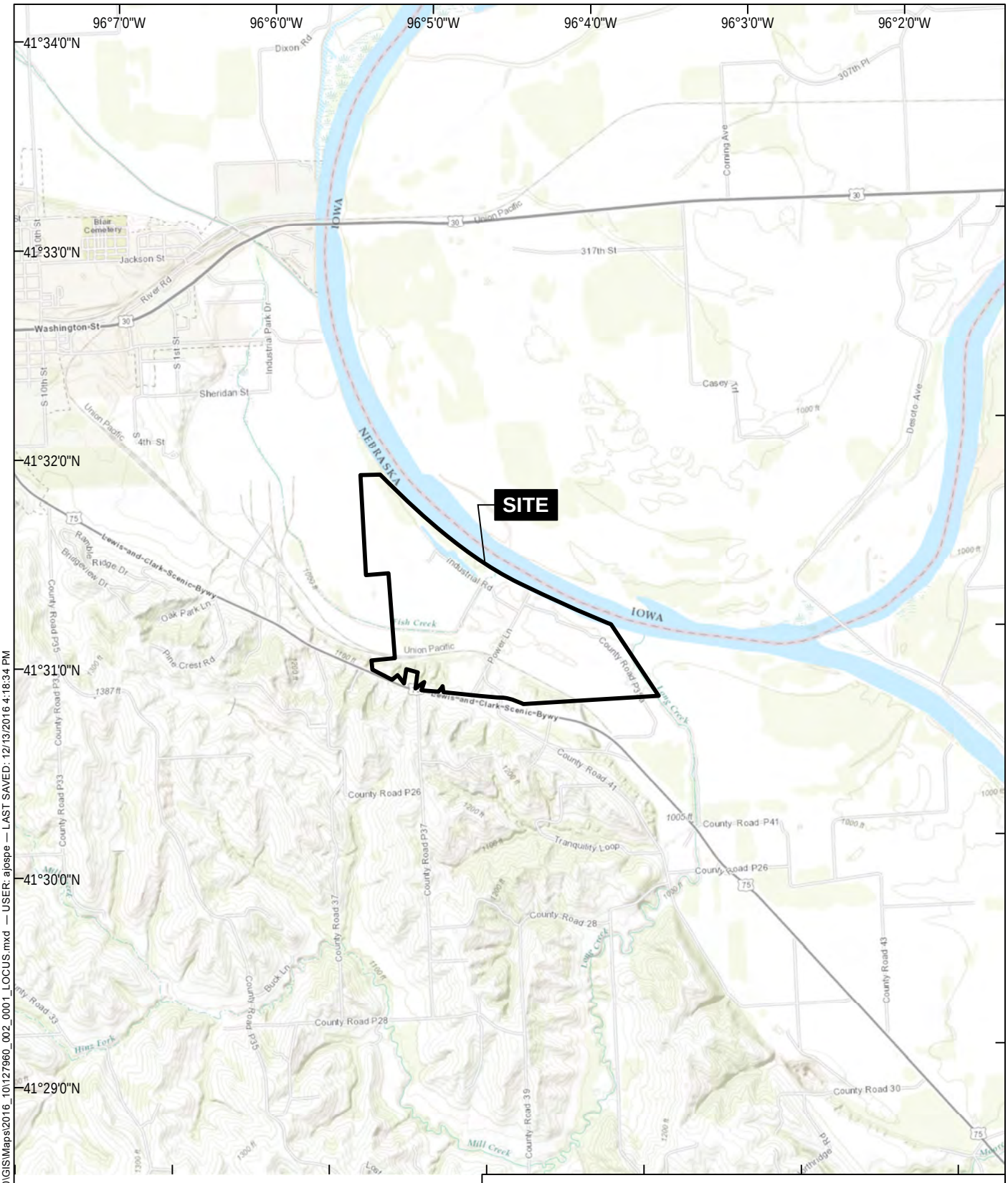
J: value is estimated.
J-: value is estimated with a potential low bias
J+: value is estimated with a potential high bias

- Volatile and Semi-Volatile Organic analytes detected in at least one sample are reported herein. For a complete list of analytes see the laboratory data sheets.
- Bold values indicate an exceedance of the Residential RSL.
- Shaded values indicate an exceedance of the Nebraska VCP Residential Soil Criteria.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96°2'0"W
41°34'0"N
41°33'0"N
41°32'0"N
41°31'0"N
41°30'0"N
41°29'0"N
SITE
IOWA
NEBRASKA
Dixon Rd
307th Pl
Corning Ave
Union Pacific
317th St
Blair Cemetery
Jackson St
River Rd
Washington St
S 10th St
S 1st St
Industrial Park Dr
Sheridan St
4th St
Casey Ln
Desoto Ave
Lewis-and-Clark-Scenic-Bywy
Rainbow Ridge Dr
Bridgeview Dr
Oak Park Ln
Pine Crest Rd
County Road P25
County Road P33
Industrial Rd
Power Ln
County Road P27
Log Creek
County Road 41
County Road P26
County Road P37
County Road P41
Tranquility Loop
County Road 37
County Road 28
Lewis Creek
Buck Ln
County Road P35
County Road 39
County Road 43
County Road 30
Hintz Fork
Mill Creek
1387 ft
1005 ft
1000 ft
1200 ft
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1600 ft
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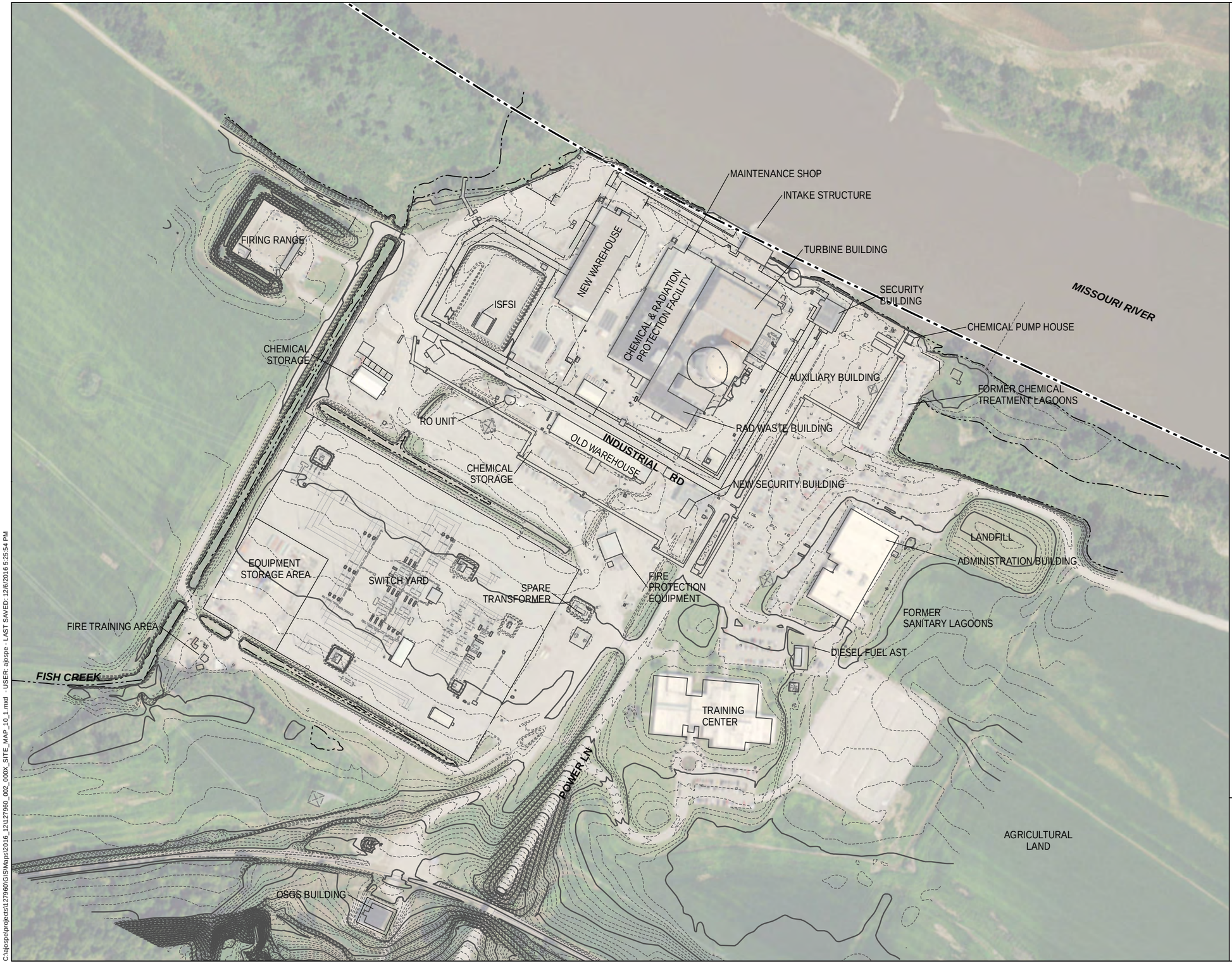

LEGEND

- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY
- MAJOR TOPOGRAPHIC CONTOUR, 5' CONTOUR INTERVAL
- MINOR TOPOGRAPHIC CONTOUR, 1' CONTOUR INTERVAL

NOTES

1. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
2. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
3. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 150 300 600

SCALE IN FEET

TOPOGRAPHY

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 2
DECEMBER 2016

HALEY ALDRICH

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LEGEND

- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY
- WETLAND

NOTES

1. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
2. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
3. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 350 700 1,400

SCALE IN FEET

SURFACE WATER FEATURES

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 3
DECEMBER 2016

HALEY ALDRICH

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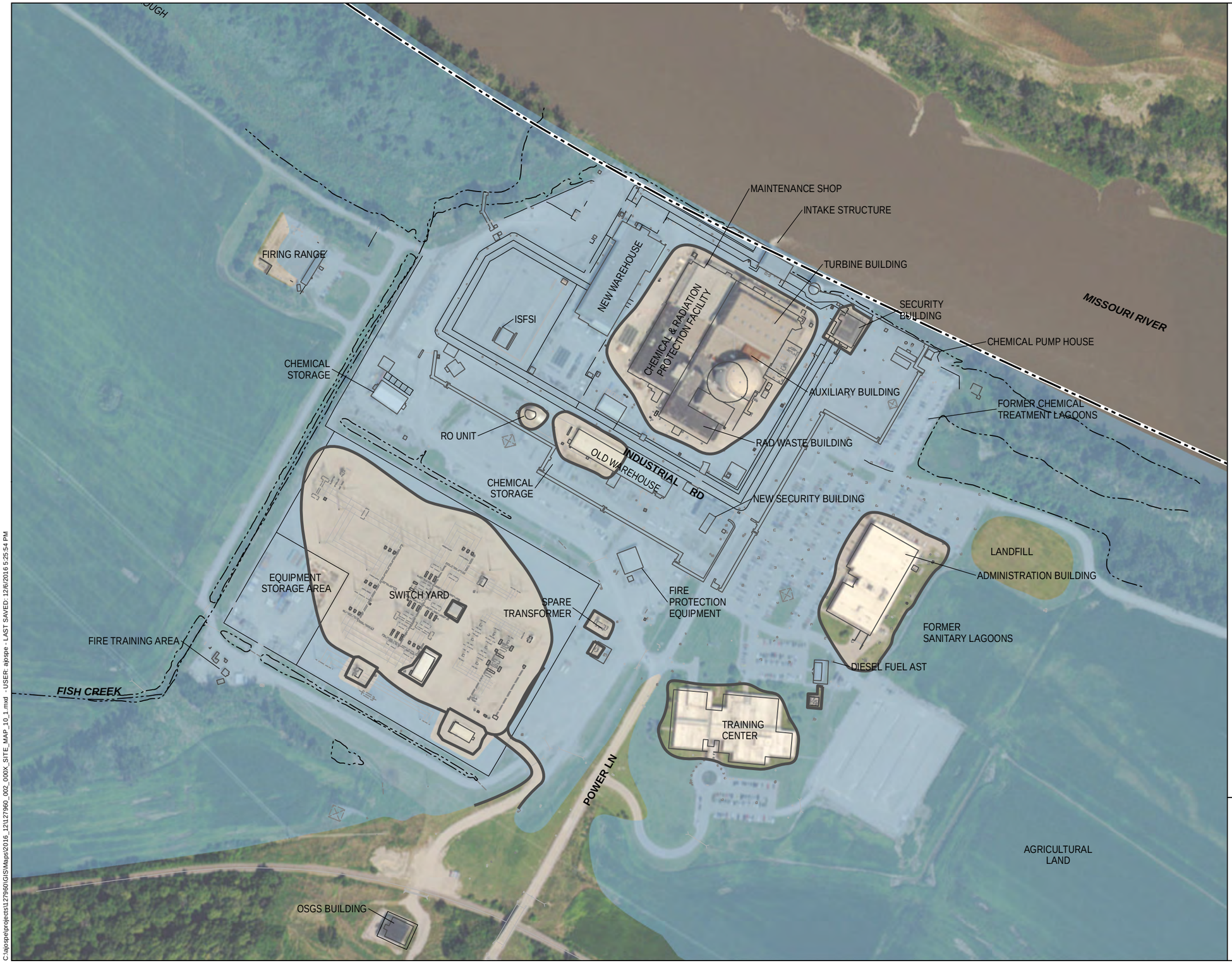

LEGEND

- AQUA DAM OR SANDBAGGED AREA
- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY
- APPROXIMATE AREA OF FLOODING IN 2011

NOTES

1. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
2. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
3. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 150 300 600

SCALE IN FEET

SITE CONDITIONS DURING THE 2011 FLOOD

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 4
DECEMBER 2016

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LEGEND

- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY

NOTES

1. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
2. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
3. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 350 700 1,400

SCALE IN FEET

CURRENT SITE CONDITIONS

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 5
DECEMBER 2016

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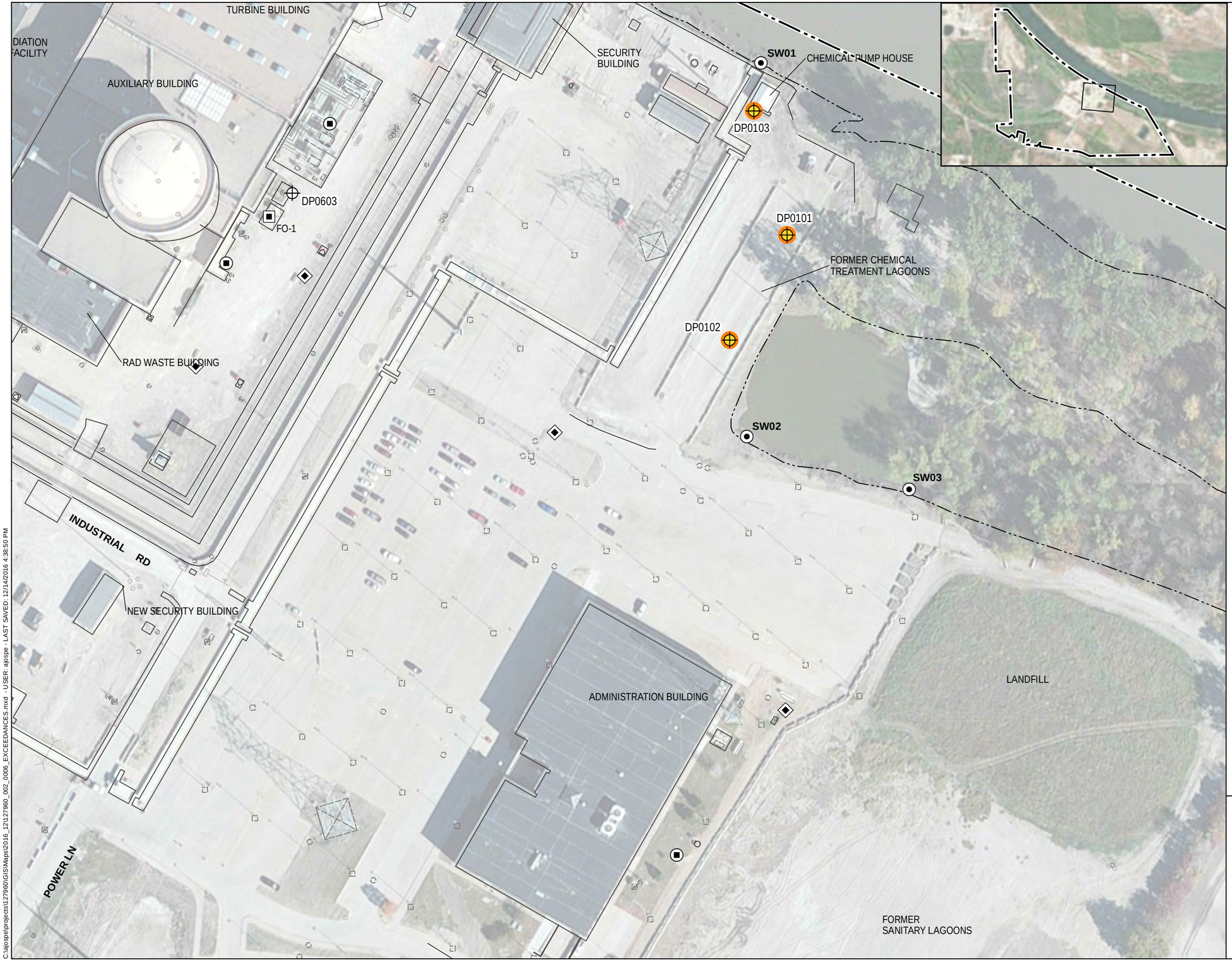

LEGEND

2016 SAMPLING

- SOIL SAMPLING LOCATION (DIRECT PUSH AND SOIL SAMPLE)
- GROUNDWATER SAMPLING LOCATION
- SEDIMENT SAMPLING LOCATION
- EXCEEDANCE OF OTHER CONSTITUENTS
- EXCEEDANCE FOR ARSENIC
- TRANSFORMER
- NPDES OUTFALL
- STORMWATER OUTFALL
- STORMWATER INLET
- ACID TANK
- ABOVEGROUND STORAGE TANK
- UNDERGROUND STORAGE TANK
- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY

NOTES

1. LOCATIONS IN THE FIELD MAY BE ADJUSTED BASE ON SITE CONDITIONS.
2. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
3. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
4. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 50 100 200

SCALE IN FEET

AOI 1: WATER TREATMENT PLANT, LIMITED INVESTIGATION FINDINGS

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 6
DECEMBER 2016

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LEGEND

2016 SAMPLING

- SOIL SAMPLING LOCATION (DIRECT PUSH AND SOIL SAMPLE)
- GROUNDWATER SAMPLING LOCATION
- SEDIMENT SAMPLING LOCATION
- EXCEEDANCE OF OTHER CONSTITUENTS
- EXCEEDANCE FOR ARSENIC
- TRANSFORMER
- NPDES OUTFALL
- STORMWATER OUTFALL
- STORMWATER INLET
- ACID TANK
- ABOVEGROUND STORAGE TANK
- UNDERGROUND STORAGE TANK
- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY

NOTES

1. LOCATIONS IN THE FIELD MAY BE ADJUSTED BASE ON SITE CONDITIONS.
2. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
3. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
4. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 50 100 200

SCALE IN FEET

AOI 2: CHEMICAL STORAGE AREAS, LIMITED INVESTIGATION FINDINGS

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 7
DECEMBER 2016

HALEY ALDRICH

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LEGEND

2016 SAMPLING

- SOIL SAMPLING LOCATION (DIRECT PUSH AND SOIL SAMPLE)
- GROUNDWATER SAMPLING LOCATION
- SEDIMENT SAMPLING LOCATION
- EXCEEDANCE OF OTHER CONSTITUENTS
- EXCEEDANCE FOR ARSENIC
- TRANSFORMER
- NPDES OUTFALL
- STORMWATER OUTFALL
- STORMWATER INLET
- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY

NOTES

1. LOCATIONS IN THE FIELD MAY BE ADJUSTED BASE ON SITE CONDITIONS.
2. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
3. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
4. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 15 30 60

SCALE IN FEET

AOI 5: SPARE TRANSFORMER, LIMITED INVESTIGATION FINDINGS

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 8
DECEMBER 2016

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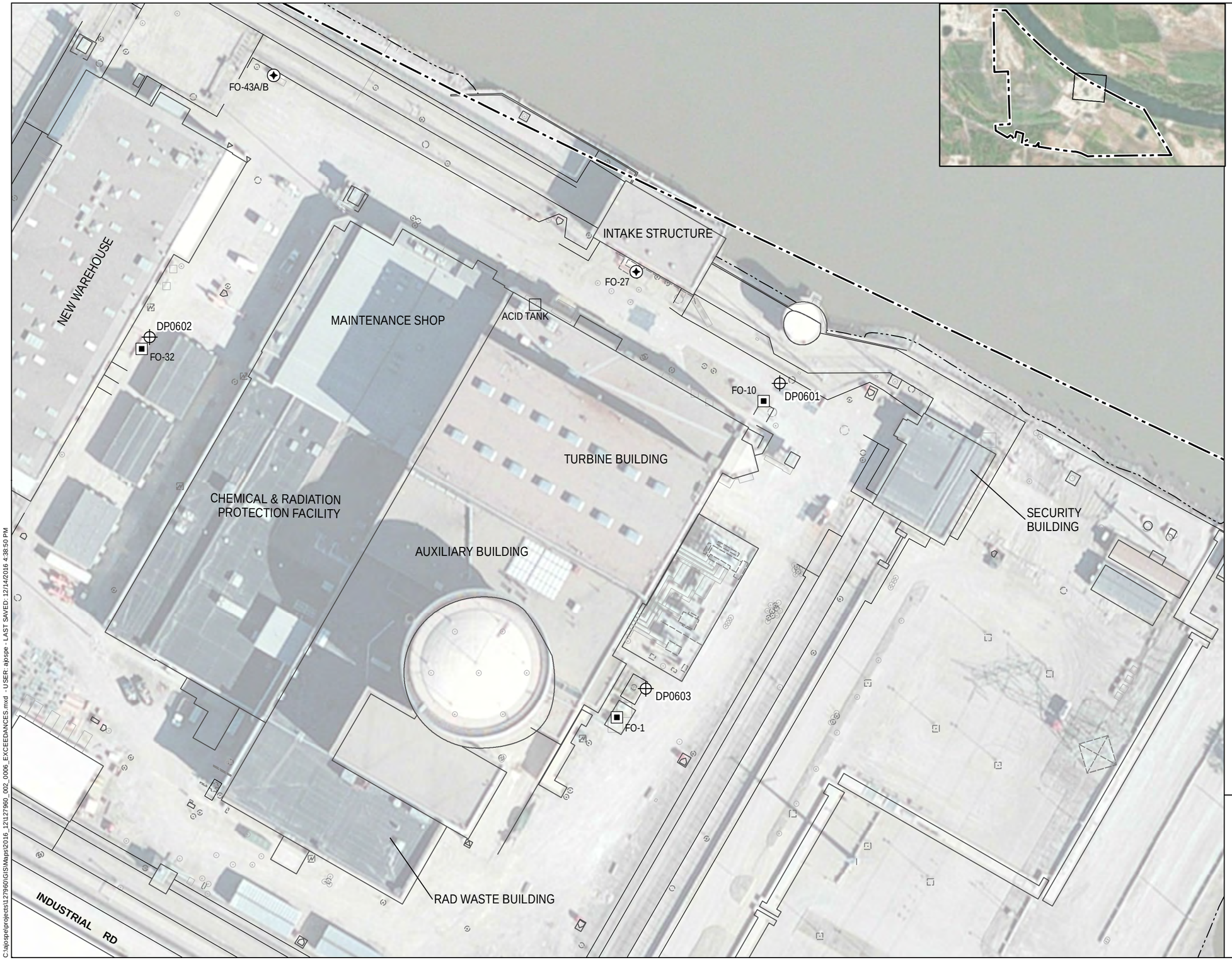

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LEGEND

2016 SAMPLING

- SOIL SAMPLING LOCATION (DIRECT PUSH AND SOIL SAMPLE)
- GROUNDWATER SAMPLING LOCATION
- SEDIMENT SAMPLING LOCATION
- EXCEEDANCE OF OTHER CONSTITUENTS
- EXCEEDANCE FOR ARSENIC
- UNDERGROUND STORAGE TANK
- ABOVE-GROUND STORAGE TANK
- ACID TANK
- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY

NOTES

1. LOCATIONS IN THE FIELD MAY BE ADJUSTED BASE ON SITE CONDITIONS.
2. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
3. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
4. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 40 80 160

SCALE IN FEET

AOI 6: UNDERGROUND STORAGE TANKS, LIMITED INVESTIGATION FINDINGS

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 9
DECEMBER 2016

HALEY ALDRICH

LEGEND

2016 SAMPLING

- SOIL SAMPLING LOCATION (DIRECT PUSH AND SOIL SAMPLE)
- GROUNDWATER SAMPLING LOCATION
- SEDIMENT SAMPLING LOCATION
- EXCEEDANCE OF OTHER CONSTITUENTS
- EXCEEDANCE FOR ARSENIC
- TRANSFORMER
- NPDES OUTFALL
- STORMWATER OUTFALL
- STORMWATER INLET
- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY

NOTES

1. LOCATIONS IN THE FIELD MAY BE ADJUSTED BASE ON SITE CONDITIONS.
2. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
3. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
4. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 15 30 60

SCALE IN FEET

AOI 10: FIRE TRAINING AREA, LIMITED INVESTIGATION FINDINGS

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 10
DECEMBER 2016

HALEY ALDRICH

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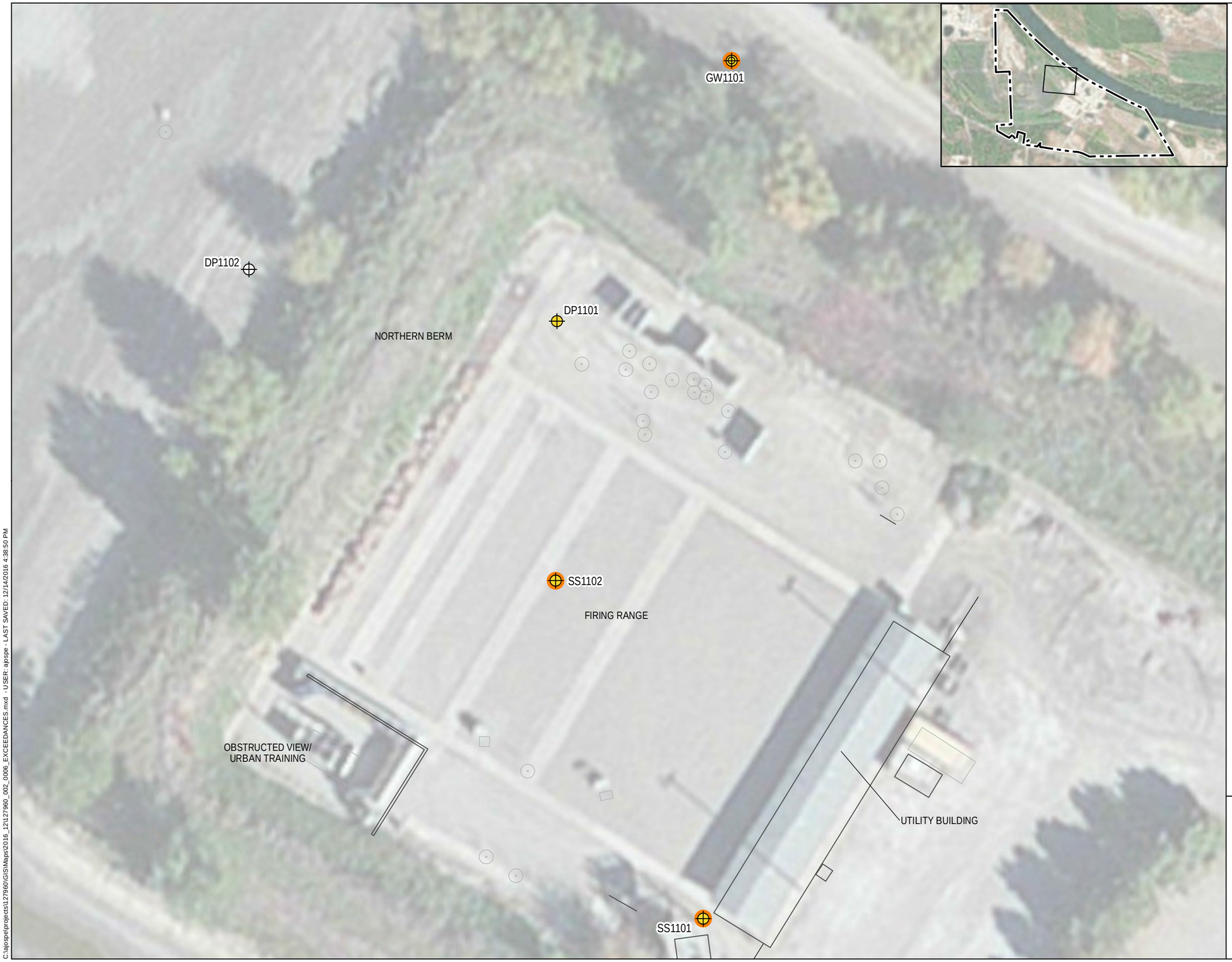

LEGEND

2016 SAMPLING

- SOIL SAMPLING LOCATION (DIRECT PUSH AND SOIL SAMPLE)
- GROUNDWATER SAMPLING LOCATION
- SEDIMENT SAMPLING LOCATION
- EXCEEDANCE OF OTHER CONSTITUENTS
- EXCEEDANCE FOR ARSENIC
- TRANSFORMER
- NPDES OUTFALL
- STORMWATER OUTFALL
- STORMWATER INLET
- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY

NOTES

1. LOCATIONS IN THE FIELD MAY BE ADJUSTED BASE ON SITE CONDITIONS.
2. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
3. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
4. ADDITIONAL LOCATIONS MAY BE ADDED, AS SCHEDULE PERMITS.
5. AERIAL IMAGERY SOURCE: ESRI 2015

PLANT NORTH

TRUE NORTH

0 15 30 60

SCALE IN FEET

AOI 11: FIRING RANGE, LIMITED INVESTIGATION FINDINGS

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 11
DECEMBER 2016

HALEY ALDRICH

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LEGEND

2016 SAMPLING

- SOIL SAMPLING LOCATION (DIRECT PUSH AND SOIL SAMPLE)
- GROUNDWATER SAMPLING LOCATION
- SEDIMENT SAMPLING LOCATION
- EXCEEDANCE OF OTHER CONSTITUENTS
- EXCEEDANCE FOR ARSENIC
- EXISTING BUILDING
- UTILITY
- STREAM OR BODY OF WATER
- PROPERTY BOUNDARY
- WETLAND

NOTES

1. LOCATIONS IN THE FIELD MAY BE ADJUSTED BASE ON SITE CONDITIONS.
2. STREAM DATA SOURCE: NATIONAL HYDROGRAPHY DATASET
3. WETLAND DATA SOURCE: NATIONAL WETLAND INVENTORY
4. AERIAL IMAGERY SOURCE: ESRI

PLANT NORTH

TRUE NORTH

0 150 300 600

SCALE IN FEET

AOI 14: FISH CREEK AND WETLANDS, LIMITED INVESTIGATION FINDINGS

FORT CALHOUN NUCLEAR PLANT
POWER LANE, BLAIR, NEBRASKA

FIGURE 12
DECEMBER 2016

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Appendix A NDEQ VCP Regulations

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]											VCP REMEDIATION GOALS (RGs)							
													Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Acephate	30560-19-1	8.7E-03	i	4.0E-03	i					0		0.10	1	5.6E+01	ca	2.0E+03	ca	7.7E+00	ca	3.4E-02	ca
Acetaldehyde	75-07-0					2.2E-06	i	9.0E-03	i	1			1	1.2E+01	ca	4.4E+02	nc	2.2E+00	ca	8.9E-03	ca
Acetochlor	34256-82-1			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	2.9E+00	nc
Acetone	67-64-1			9.0E-01	i			3.1E+01	a	1			1	1.6E+04	nc	1.0E+05	max	5.4E+03	nc	2.2E+01	nc
Acetone cyanohydrin	75-86-5			3.0E-03	p			6.0E-02	p	1			1	5.2E+01	nc	2.2E+03	nc	1.5E+01	nc	5.9E-02	nc
Acetonitrile	75-05-8							6.0E-02	i	1			1	2.7E+02	nc	4.5E+03	nc	3.1E+01	nc	1.3E-01	nc
Acrolein	107-02-8			5.0E-04	i			2.0E-05	i	1			1	4.8E-02	nc	8.0E-01	nc	1.0E-02	nc	4.2E-05	nc
Acrylamide	79-06-1	5.0E-01	i	2.0E-03	i	1.0E-04	i	6.0E-03	i	0		0.10	1	2.3E-01	ca	3.4E+01	ca	4.3E-02	ca	1.8E-04	ca
Acrylic acid	79-10-7			5.0E-01	i			1.0E-03	i	0		0.10	1	7.5E+03	nc	1.0E+05	max	4.6E+03	nc	1.9E+01	nc
Acrylonitrile	107-13-1	5.4E-01	i	4.0E-02	a	6.8E-05	i	2.0E-03	i	1			1	2.7E-01	ca	1.3E+01	ca	4.5E-02	ca	1.9E-04	ca
Alachlor	15972-60-8	5.6E-02	c	1.0E-02	i					0	S	0.10	1	8.7E+00	ca	3.1E+02	ca	2.0E+00	m	3.3E-02	m
Alar	1596-84-5	1.8E-02	c	1.5E-01	i	5.1E-06	c			0		0.10	1	2.7E+01	ca	9.6E+02	ca	3.7E+00	ca	1.6E-02	ca
Aldicarb	116-06-3			1.0E-03	i					0	S	0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	4.6E-02	nc
Aldicarb sulfone	1646-88-4			1.0E-03	i					0	S	0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	4.0E-02	nc
Aldrin	309-00-2	1.7E+01	i	3.0E-05	i	4.9E-03	i			0	S	0.10	1	2.9E-02	ca	1.0E+00	ca	4.0E-03	ca	1.3E-02	ca
Ally	74223-64-6			2.5E-01	i					0		0.10	1	3.8E+03	nc	1.0E+05	max	2.3E+03	nc	1.8E+01	nc
Allyl alcohol	107-18-6			5.0E-03	i			1.0E-04	x	0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	1.9E-01	nc
Allyl chloride	107-05-1	2.1E-02	c			6.0E-06	c	1.0E-03	i	1			1	5.3E-01	nc	8.9E+00	nc	5.2E-01	nc	3.3E-03	nc
Aluminum	7429-90-5			1.0E+00	p			5.0E-03	p	0			1	1.9E+04	nc	1.0E+05	max	5.0E+01	m		
Aluminum phosphide	20859-73-8			4.0E-04	i					0			1	7.8E+00	nc	4.1E+02	nc	3.7E+00	nc		
Amdro	67485-29-4			3.0E-04	i					0		0.10	1	4.6E+00	nc	1.8E+02	nc	2.7E+00	nc	2.0E+04	nc
Ametryn	834-12-8			9.0E-03	i					0		0.10	1	1.4E+02	nc	5.5E+03	nc	8.2E+01	nc	1.7E+00	nc
m-Aminophenol	591-27-5			8.0E-02	p					0		0.10	1	1.2E+03	nc	4.9E+04	nc	7.3E+02	nc	5.3E+00	nc
Amitraz	33089-61-1			2.5E-03	i					0		0.10	1	3.8E+01	nc	1.5E+03	nc	2.3E+01	nc	2.3E+02	nc
Ammonia (total ammonia, nitrite & nitrate as N)**	7664-41-7							1.0E-01	i	n/a			1					1.0E+04	**	4.0E+01	**
Ammonium sulfamate	7773-06-0			2.0E-01	i					0			1	3.9E+03	nc	1.0E+05	max	1.8E+03	nc		
Aniline	62-53-3	5.7E-03	i	7.0E-03	p	1.6E-06	c	1.0E-03	i	0		0.10	1	8.5E+01	ca	3.0E+03	ca	1.2E+01	ca	8.0E-02	ca
Antimony and compounds	7440-36-0			4.0E-04	i					0			0.15	7.8E+00	nc	4.1E+02	nc	6.0E+00	m		
Antimony pentoxide	1314-60-9			5.0E-04	h					0			0.15	9.8E+00	nc	5.1E+02	nc	6.0E+00	m		
Antimony potassium tartrate	11071-15-1			9.0E-04	h					0			0.15	1.8E+01	nc	9.2E+02	nc	6.0E+00	m		
Antimony tetroxide	1332-81-6			4.0E-04	h					0			0.15	7.8E+00	nc	4.1E+02	nc	6.0E+00	m		
Antimony trioxide	1309-64-4							2.0E-04	i	0			0.15	6.2E+04	nc	1.0E+05	max	6.0E+00	m		
Apollo	74115-24-5			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	1.4E+02	nc
Aramite	140-57-8	2.5E-02	i	5.0E-02	h	7.1E-06	i			0		0.10	1	1.9E+01	ca	6.9E+02	ca	2.7E+00	ca	6.1E-01	ca
Arsenic (inorganic)	7440-38-2	1.5E+00	i	3.0E-04	i	4.3E-03	i	1.5E-05	c	0		0.03	1	3.9E-01	ca	1.6E+01	ca	5.0E+01	m	2.9E+01	m
Arsine	7784-42-1			3.5E-06	c			5.0E-05	i	n/a			1	6.8E-02	nc	3.6E+00	nc	3.2E-02	nc		
Assure	76578-14-8			9.0E-03	i					0		0.10	1	1.4E+02	nc	5.5E+03	nc	8.2E+01	nc	2.6E+01	nc
Asulam	3337-71-1			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	2.3E+00	nc
Atrazine	1912-24-9	2.3E-01	c	3.5E-02	i					0	S	0.10	1	2.1E+00	ca	7.5E+01	ca	3.0E+00	m	3.9E-02	m
Avermectin B1	65195-55-3			4.0E-04	i					0		0.10	1	6.1E+00	nc	2.5E+02	nc	3.7E+00	nc	1.3E+02	nc
Azobenzene	103-33-3	1.1E-01	i			3.1E-05	i			1			1	5.2E+00	ca	2.4E+02	ca	1.2E-01	ca	1.9E-02	ca
Barium and compounds	7440-39-3			2.0E-01	i			5.0E-04	h	0			0.07	3.8E+03	nc	1.0E+05	max	2.0E+03	m	1.6E+03	m
Baygon	114-26-1			4.0E-03	i					0		0.10	1	6.1E+01	nc	2.5E+03	nc	3.7E+01	nc	1.5E-01	nc
Bayleton	43121-43-3			3.0E-02	i					0		0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	4.4E+00	nc
Baythroid	68359-37-5			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	3.0E+00	s	1.2E+03	nc
Benefin	1861-40-1			3.0E-01	i					0		0.10	1	4.6E+03	nc	1.0E+05	max	1.0E+02	s	1.8E+03	nc
Benomyl	17804-35-2			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	8.0E+00	nc
Bentazon	25057-89-0			3.0E-02	i					0		0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	1.2E+00	nc
Benzaldehyde	100-52-7			1.0E-01	i					1			1	2.0E+03	nc	1.0E+05	max	9.1E+02	nc	4.1E+00	nc
Benzene	71-43-2	5.5E-02	i	4.0E-03	i	7.8E-06	i	3.0E-02	i	1			1	1.3E+00	ca	6.3E+01	ca	5.0E+00	m	5.1E-02	m
Benzidine	92-87-5	2.3E+02	i	3.0E-03	i	6.7E-02	i			0		0.10	1	5.0E-04	ca	7.5E-02	ca	9.4E-05	ca	4.8E-06	ca
Benzoic acid	65-85-0			4.0E+00	i					0	S	0.10	1	6.1E+04	nc	1.0E+05	max	3.7E+04	nc	1.7E+02	nc
Benzotrichloride	98-07-7	1.3E+01	i							1			1	4.9E-02	ca	2.2E+00	ca	4.9E-03	ca	2.2E-04	ca
Benzyl alcohol	100-51-6			1.0E-01	p					0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	4.4E+00	nc

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]												VCP REMEDIATION GOALS (RGs)							
														Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Benzyl chloride	100-44-7	1.7E-01	i	2.0E-03	p	4.9E-05	c	1.0E-03	p	1			1	1.1E+00	ca	5.5E+01	ca	7.9E-02	ca	1.7E-03	ca
Beryllium and compounds	7440-41-7			2.0E-03	i	2.4E-03	i	2.0E-05	i	0			0.007	3.9E+01	nc	2.0E+03	nc	4.0E+00	m	5.9E+01	m
Bidrin	141-66-2			1.0E-04	i					0		0.10	1	1.5E+00	nc	6.2E+01	nc	9.1E-01	nc	4.3E-03	nc
Biphenthrin (Talstar)	82657-04-3			1.5E-02	i					0		0.10	1	2.3E+02	nc	9.2E+03	nc	1.0E+02	s	1.2E+04	nc
1,1-Biphenyl	92-52-4			5.0E-02	i					1	S		1	9.8E+02	nc	5.1E+04	nc	4.6E+02	nc	9.5E+01	nc
Bis(2-chloroethyl)ether	111-44-4	1.1E+00	i			3.3E-04	i			1			1	2.4E-01	ca	1.1E+01	ca	1.2E-02	ca	6.3E-05	ca
Bis(chloromethyl)ether	542-88-1	2.2E+02	i			6.2E-02	i			1			1	9.2E-05	ca	4.6E-03	ca	6.2E-05	ca	2.9E-07	ca
Bis(2-chloro-1-methylethyl)ether	108-60-1	7.0E-02	h	4.0E-02	i	1.0E-05	h			1			1	5.0E+00	ca	2.3E+02	ca	3.2E-01	ca	2.4E-03	ca
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	1.4E-02	i	2.0E-02	i	2.4E-06	c			0		0.10	1	3.5E+01	ca	1.2E+03	ca	6.0E+00	m	2.9E+01	m
Bisphenol A	80-05-7			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	6.9E+02	nc
Boron	7440-42-8			2.0E-01	i			2.0E-02	h	0			1	3.9E+03	nc	1.0E+05	max	1.8E+03	nc		
Boron trifluoride	7637-07-2			4.0E-02	c			1.3E-02	c	n/a			1	7.8E+02	nc	4.1E+04	nc	3.7E+02	nc		
Bromate	15541-45-4	7.0E-01	i	4.0E-03	i					n/a			1	9.1E-01	ca	4.1E+01	ca	1.0E+01	m		
Bromobenzene	108-86-1			8.0E-03	i			6.0E-02	i	1			1	8.1E+01	nc	2.1E+03	nc	2.2E+01	nc	3.0E-01	nc
Bromodichloromethane	75-27-4	6.2E-02	i	2.0E-02	i	3.7E-05	c			1			1	3.3E-01	ca	1.6E+01	ca	8.0E+01	m	4.3E-01	m
Bromoform (tribromomethane)	75-25-2	7.9E-03	i	2.0E-02	i	1.1E-06	i			0		0.10	1	6.1E+01	ca	2.2E+03	ca	8.0E+01	m	4.2E-01	m
Bromomethane	74-83-9			1.4E-03	i			5.0E-03	i	1			1	2.2E+00	nc	3.8E+01	nc	2.2E+00	nc	1.1E-02	nc
Bromophos	2104-96-3			5.0E-03	h					0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	3.9E+00	nc
Bromoxynil	1689-84-5			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	3.1E+00	nc
Bromoxynil octanoate	1689-99-2			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	8.0E+01	s	3.2E+01	nc
1,3-Butadiene	106-99-0	3.4E+00	c			3.0E-05	i	2.0E-03	i	1			1	6.1E-02	ca	3.0E+00	ca	1.7E-02	ca	1.9E-04	ca
1-Butanol	71-36-3			1.0E-01	i					0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	3.8E+00	nc
Butylate	2008-41-5			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	8.9E+00	nc
Butyl benzyl phthalate	85-68-7	1.9E-03	p	2.0E-01	i					0		0.10	1	2.6E+02	ca	9.1E+03	ca	6.0E+00	m	1.7E+00	m
Butylphthalyl butylglycolate	85-70-1			1.0E+00	i					0		0.10	1	1.5E+04	nc	1.0E+05	max	8.5E+03	s	4.1E+03	nc
Cacodylic acid	75-60-5			2.0E-02	a					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc		
Cadmium and compounds+++	7440-43-9			1.0E-03	i	1.8E-03	i	1.0E-05	a	0		0.00	0.05	1.8E+01	nc	8.9E+02	nc	5.0E+00	m	7.5E+00	m
Caprolactam	105-60-2			5.0E-01	i					0		0.10	1	7.6E+03	nc	1.0E+05	max	4.6E+03	nc	2.3E+01	nc
Captafol	2425-06-1	1.5E-01	c	2.0E-03	i	4.3E-05	c			0		0.10	1	3.2E+00	ca	1.1E+02	ca	4.5E-01	ca	1.6E-02	ca
Captan	133-06-2	2.3E-03	c	1.3E-01	i	6.6E-07	c			0	S	0.10	1	2.1E+02	ca	7.5E+03	ca	2.9E+01	ca	4.1E-01	ca
Carbaryl	63-25-2			1.0E-01	i					0	S	0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	1.7E+01	nc
Carbofuran	1563-66-2			5.0E-03	i					0	S	0.10	1	7.6E+01	nc	3.1E+03	nc	4.0E+01	m	3.1E-01	m
Carbon disulfide	75-15-0			1.0E-01	i			7.0E-01	i	1			1	2.4E+02	nc	4.5E+03	nc	2.5E+02	nc	1.5E+00	nc
Carbon tetrachloride	56-23-5	7.0E-02	i	4.0E-03	i	6.0E-06	i	1.0E-01	a	1			1	7.2E-01	ca	3.6E+01	ca	5.0E+00	m	3.9E-02	m
Carbosulfan	55285-14-8			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	4.4E+01	nc
Carboxin	5234-68-4			1.0E-01	i					0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	9.8E+00	nc
Chloramben	133-90-4			1.5E-02	i					0		0.10	1	2.3E+02	nc	9.2E+03	nc	1.4E+02	nc	6.6E-01	nc
Chloranil	118-75-2	4.0E-01	h							0		0.10	1	1.2E+00	ca	4.3E+01	ca	1.7E-01	ca	2.7E-03	ca
Chlordane	12789-03-6	3.5E-01	i	5.0E-04	i	1.0E-04	i	7.0E-04	i	0	S	0.04	1	1.6E+00	ca	6.5E+01	ca	2.0E+00	m	2.7E+00	m
Chlorimuron-ethyl	90982-32-4			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	1.3E+00	nc
Chlorine	7782-50-5			1.0E-01	i			1.5E-04	a	n/a			1	2.0E+03	nc	1.0E+05	max	2.5E+05	m		
Chlorine dioxide	10049-04-4			3.0E-02	i			2.0E-04	i	n/a			1	5.9E+02	nc	3.1E+04	nc	2.7E+02	nc		
Chloroacetic acid	79-11-8			2.0E-03	h					0		0.10	1	3.1E+01	nc	1.2E+03	nc	6.0E+01	m	2.4E-01	m
2-Chloroacetophenone	532-27-4							3.0E-05	i	0		0.10	1	9.3E+03	nc	1.0E+05	max				
4-Chloroaniline	106-47-8	2.0E-01	p	4.0E-03	i					0	S	0.10	1	2.4E+00	ca	8.6E+01	ca	3.4E-01	ca	2.9E-03	ca
Chlorobenzene	108-90-7			2.0E-02	i			5.0E-02	p	1			1	8.5E+01	nc	1.7E+03	nc	1.0E+02	m	1.4E+00	m
Chlorobenzilate	510-15-6	1.1E-01	c	2.0E-02	i	3.2E-05	c			0	S	0.10	1	4.4E+00	ca	1.6E+02	ca	6.1E-01	ca	4.0E-02	ca
p-Chlorobenzoic acid	74-11-3			3.0E-02	x					0		0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	1.4E+00	nc
4-Chlorobenzotrifluoride	98-56-6			3.0E-03	p			3.0E-01	p	1			1	5.4E+01	nc	2.4E+03	nc	2.3E+01	nc	1.7E+00	nc
2-Chloro-1,3-butadiene	126-99-8			2.0E-02	h			7.0E-03	h	1			1	2.5E+00	nc	4.3E+01	nc	3.6E+00	nc	3.8E-02	nc
1-Chlorobutane	109-69-3			4.0E-02	p					1			1	7.8E+02	nc	4.1E+04	nc	3.7E+02	nc	3.0E+00	nc
1-Chloro-1,1-difluoroethane	75-68-3							5.0E+01	i	1			1	1.7E+04	nc	1.0E+05	max	2.6E+04	nc	2.6E+02	nc
Chlorodifluoromethane	75-45-6							5.0E+01	i	1			1	1.6E+04	nc	1.0E+05	max	2.6E+04	nc	2.1E+02	nc
Chloroethane	75-00-3							1.0E+01	i	1			1	4.4E+03	nc	7.4E+04	nc	5.2E+03	nc	3.0E+01	nc

NDEQ VCP REMEDIATION GOALS

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CONTAMINANT		TOXICITY INFORMATION[1]												VCP REMEDIATION GOALS (RGs)							
														Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Chloroform	67-66-3	3.1E-02	c	1.0E-02	i	2.3E-05	i	9.8E-02	a	1			1	3.5E-01	ca	1.8E+01	ca	8.0E+01	m	4.4E-01	m
Chloromethane	74-87-3							9.0E-02	i	1			1	3.6E+01	nc	6.1E+02	nc	4.7E+01	nc	2.4E-01	nc
4-Chloro-2-methylaniline hydrochloride	3165-93-3	4.6E-01	h							0		0.10	1	1.1E+00	ca	3.7E+01	ca	1.5E-01	ca	1.7E-03	ca
beta-Chloronaphthalene	91-58-7			8.0E-02	i					1	S		1	1.6E+03	nc	8.2E+04	nc	7.3E+02	nc	7.5E+01	nc
o-Chloronitrobenzene	88-73-3	3.0E-01	p	3.0E-03	p			1.0E-05	x	0		0.10	1	1.6E+00	ca	5.7E+01	ca	2.2E-01	ca	4.2E-03	ca
p-Chloronitrobenzene	100-00-5	6.3E-03	p	1.0E-03	p			6.0E-04	p	0		0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	1.8E-01	nc
2-Chlorophenol	95-57-8			5.0E-03	i					1			1	9.8E+01	nc	5.1E+03	nc	4.1E+01	nc	6.7E-01	nc
Chlorothalonil	1897-45-6	3.1E-03	c	1.5E-02	i	8.9E-07	c			0		0.10	1	1.6E+02	ca	5.6E+03	ca	1.9E+01	ca	8.8E-01	ca
o-Chlorotoluene	95-49-8			2.0E-02	i					1			1	3.9E+02	nc	2.0E+04	nc	1.8E+02	nc	3.6E+00	nc
Chlorpropham	101-21-3			2.0E-01	i					0		0.10	1	3.1E+03	nc	1.0E+05	max	1.8E+03	nc	3.3E+01	nc
Chlorpyrifos	2921-88-2			3.0E-03	i					0	S	0.10	1	4.6E+01	nc	1.8E+03	nc	2.7E+01	nc	8.1E+00	nc
Chlorpyrifos-methyl	5598-13-0			1.0E-02	h					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	8.4E+00	nc
Chlorsulfuron	64902-72-3			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	7.7E+00	nc
Chlorthiophos	60238-56-4			8.0E-04	h					0		0.10	1	1.2E+01	nc	4.9E+02	nc	7.3E+00	nc	3.8E+00	nc
Total Chromium (1:6 ratio Cr VI:Cr III)+++										0			0.013					1.0E+02	m	1.0E+05	m
Chromium III	16065-83-1			1.5E+00	i					0			0.013	2.9E+04	nc	1.0E+05	max	1.0E+02	m	1.0E+05	m
Chromium VI+++	18540-29-9	5.0E-01	j	3.0E-03	i	8.4E-02	i	1.0E-04	i	0			0.025	2.9E-01	ca	5.5E+01	ca	1.0E+02	m	3.8E+01	m
Cobalt	7440-48-4			3.0E-04	p	9.0E-03	p	6.0E-06	p	0			1	5.8E+00	nc	3.0E+02	nc	2.7E+00	nc		
Copper and compounds	7440-50-8			4.0E-02	h					0			1	7.8E+02	nc	4.1E+04	nc	1.3E+03	m		
Crotonaldehyde	123-73-9	1.9E+00	h							1			1	3.4E-01	ca	1.5E+01	ca	3.5E-02	ca	1.4E-04	ca
Cumene (isopropylbenzene)	98-82-8			1.0E-01	i			4.0E-01	i	1			1	5.9E+02	nc	1.2E+04	nc	1.7E+02	nc	5.6E+00	nc
Cyanazine	21725-46-2	8.4E-01	h	2.0E-03	h					0		0.10	1	5.8E-01	ca	2.1E+01	ca	8.0E-02	ca	7.5E-04	ca
Cyanide (free)	57-12-5			2.0E-02	i					1			1	3.9E+02	nc	2.0E+04	nc	2.0E+02	m	8.2E-01	m
Cyanide (hydrogen)	74-90-8			2.0E-02	i			3.0E-03	i	1			1	5.6E+00	nc	9.5E+01	nc	1.6E+00	nc	6.4E-03	nc
Cyanogen	460-19-5			4.0E-02	i					1			1	7.8E+02	nc	4.1E+04	nc	3.7E+02	nc	1.6E+00	nc
Cyanogen bromide	506-68-3			9.0E-02	i					1			1	1.8E+03	nc	9.2E+04	nc	8.2E+02	nc	4.9E+00	nc
Cyanogen chloride	506-77-4			5.0E-02	i					1			1	9.8E+02	nc	5.1E+04	nc	4.6E+02	nc	2.0E+00	nc
Cyclohexane	110-82-7							6.0E+00	i	1			1	2.1E+03	nc	3.5E+04	nc	3.1E+03	nc	6.5E+01	nc
Cyclohexanone	108-94-1			5.0E+00	i					0		0.10	1	7.6E+04	nc	1.0E+05	max	4.6E+04	nc	2.1E+02	nc
Cyclohexylamine	108-91-8			2.0E-01	i					0		0.10	1	3.1E+03	nc	1.0E+05	max	1.8E+03	nc	9.7E+00	nc
Cyhalothrin/Karate	68085-85-8			5.0E-03	i					0		0.10	1	7.6E+01	nc	3.1E+03	nc	5.0E+00	s	6.2E+02	nc
Cypermethrin	52315-07-8			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	4.0E+00	s	2.9E+02	nc
Cyromazine	66215-27-8			7.5E-03	i					0		0.10	1	1.1E+02	nc	4.6E+03	nc	6.8E+01	nc	3.5E-01	nc
Dacthal	1861-32-1			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	2.2E+00	nc
Dalapon	75-99-0			3.0E-02	i					0		0.10	1	4.6E+02	nc	1.8E+04	nc	2.0E+02	m	8.3E-01	m
Danitol	39515-41-8			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	2.3E+02	nc	2.1E+02	nc
DDD	72-54-8	2.4E-01	i			6.9E-05	c			0	S	0.10	1	2.0E+00	ca	7.2E+01	ca	1.1E-01	ca	5.3E-01	ca
DDE	72-55-9	3.4E-01	i			9.7E-05	c			0	S	0.10	1	1.4E+00	ca	5.1E+01	ca	8.6E-02	ca	4.1E-01	ca
DDT	50-29-3	3.4E-01	i	5.0E-04	i	9.7E-05	i			0	S	0.03	1	1.7E+00	ca	7.0E+01	ca	5.7E-02	ca	3.8E-01	ca
Decabromodiphenyl ether	1163-19-5	7.0E-04	i	7.0E-03	i					0		0.10	1	1.1E+02	nc	4.3E+03	nc	1.0E-01	s	7.1E+02	nc
Demeton	8065-48-3			4.0E-05	i					0		0.10	1	6.1E-01	nc	2.5E+01	nc	3.7E-01	nc		
Diallate	2303-16-4	6.1E-02	h							0		0.10	1	8.0E+00	ca	2.8E+02	ca	1.1E+00	ca	3.3E-02	ca
Diazinon	333-41-5			7.0E-04	a					0		0.10	1	1.1E+01	nc	4.3E+02	nc	6.4E+00	nc	7.9E-01	nc
Dibenzofuran	132-64-9			1.0E-03	x					1	S		1	2.0E+01	nc	1.0E+03	nc	9.1E+00	nc	3.4E+00	nc
1,4-Dibromobenzene	106-37-6			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	1.7E+00	nc
Dibromochloromethane	124-48-1	8.4E-02	i	2.0E-02	i	2.7E-05	c			0		0.10	1	5.8E+00	ca	2.1E+02	ca	8.0E+01	m	4.3E-01	m
1,2-Dibromo-3-chloropropane	96-12-8	8.0E-01	p	2.0E-04	p	6.0E-03	p	2.0E-04	i	0		0.10	1	1.4E-01	ca	2.2E+01	ca	2.0E-01	m	1.7E-03	m
1,2-Dibromoethane	106-93-4	2.0E+00	i	9.0E-03	i	6.0E-04	i	9.0E-03	i	1			1	4.0E-02	ca	2.0E+00	ca	5.0E-02	m	2.8E-04	m
Dibutyl phthalate	84-74-2			1.0E-01	i					0		0.10	1	1.5E+03	nc	6.2E+04	nc	6.0E+00	m	3.0E-01	m
Dicamba	1918-00-9			3.0E-02	i					0	S	0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	1.4E+00	nc
1,2-Dichlorobenzene	95-50-1			9.0E-02	i			2.0E-01	h	1			1	5.4E+02	nc	1.2E+04	nc	6.0E+02	m	1.2E+01	m
1,4-Dichlorobenzene	106-46-7	5.4E-03	c	7.0E-02	a	1.1E-05	c	8.0E-01	i	1	S		1	2.9E+00	ca	1.5E+02	ca	7.5E+01	m	1.4E+00	m
3,3-Dichlorobenzidine	91-94-1	4.5E-01	i			3.4E-04	c			0	S	0.10	1	1.1E+00	ca	3.8E+01	ca	1.4E-01	ca	1.8E-02	ca
4,4'-Dichlorobenzophenone	90-98-2			9.0E-03	x					0		0.10	1	1.4E+02	nc	5.5E+03	nc	8.2E+01	nc	1.0E+01	nc

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]											VCP REMEDIATION GOALS (RGs)							
													Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
1,4-Dichloro-2-butene	764-41-0					4.2E-03	p			1			1	7.8E-03	ca	3.9E-01	ca	1.2E-03	ca	1.1E-05	ca
Dichlorodifluoromethane	75-71-8			2.0E-01	i			2.0E-01	h	1			1	5.5E+01	nc	9.3E+02	nc	9.8E+01	nc	3.0E+00	nc
1,1-Dichloroethane	75-34-3	5.7E-03	c	2.0E-01	p	1.6E-06	c			1			1	3.9E+00	ca	2.0E+02	ca	2.4E+00	ca	1.4E-02	ca
1,2-Dichloroethane	107-06-2	9.1E-02	i	2.0E-02	p	2.6E-05	i	2.4E+00	a	1			1	5.1E-01	ca	2.5E+01	ca	5.0E+00	m	2.8E-02	m
1,1-Dichloroethylene	75-35-4			5.0E-02	i			2.0E-01	i	1			1	7.2E+01	nc	1.3E+03	nc	7.0E+00	m	5.0E-02	m
1,2-Dichloroethylene (cis)	156-59-2			1.0E-02	p					1			1	2.0E+02	nc	1.0E+04	nc	7.0E+01	m	4.1E-01	m
1,2-Dichloroethylene (trans)	156-60-5			2.0E-02	i			6.0E-02	p	1			1	4.5E+01	nc	8.1E+02	nc	1.0E+02	m	5.9E-01	m
2,4-Dichlorophenol	120-83-2			3.0E-03	i					0	S	0.10	1	4.6E+01	nc	1.8E+03	nc	2.0E+01	nc	4.7E-01	nc
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	94-82-6			8.0E-03	i					0		0.10	1	1.2E+02	nc	4.9E+03	nc	7.3E+01	nc	5.8E-01	nc
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94-75-7			1.0E-02	i					0	S	0.05	1	1.7E+02	nc	7.7E+03	nc	7.0E+01	m	3.6E-01	m
1,2-Dichloropropane	78-87-5	3.6E-02	c	9.0E-02	a	1.0E-05	c	4.0E-03	i	1			1	1.1E+00	ca	5.3E+01	ca	5.0E+00	m	3.3E-02	m
1,3-Dichloropropene	542-75-6	1.0E-01	i	3.0E-02	i	4.0E-06	i	2.0E-02	i	1			1	2.0E+00	ca	9.5E+01	ca	4.3E-01	ca	3.1E-03	ca
2,3-Dichloropropanol	616-23-9			3.0E-03	i					0		0.10	1	4.6E+01	nc	1.8E+03	nc	2.7E+01	nc	1.2E-01	nc
Dichlorvos	62-73-7	2.9E-01	i	5.0E-04	i	8.3E-05	##	5.0E-04	i	0		0.10	1	1.7E+00	ca	5.9E+01	ca	2.3E-01	ca	1.4E-03	ca
Dicyclopentadiene	77-73-6			8.0E-03	p			7.0E-03	p	1			1	8.0E+00	nc	1.4E+02	nc	3.5E+00	nc	2.4E-01	nc
Dieldrin	60-57-1	1.6E+01	i	5.0E-05	i	4.6E-03	i			0	S	0.10	1	3.0E-02	ca	1.1E+00	ca	3.6E-03	ca	2.9E-03	ca
Diethylene glycol, monobutyl ether	112-34-5			3.0E-02	p			1.0E-04	p	0		0.10	1	4.5E+02	nc	1.8E+04	nc	2.7E+02	nc	1.2E+00	nc
Diethylene glycol, monoethyl ether	111-90-0			6.0E-02	p			3.0E-04	p	0		0.10	1	9.1E+02	nc	3.6E+04	nc	5.5E+02	nc	2.2E+00	nc
Diethylformamide	617-84-5			1.0E-03	p					0		0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	3.7E-02	nc
Di(2-ethylhexyl)adipate	103-23-1	1.2E-03	i	6.0E-01	i					0		0.10	1	4.0E+02	ca	1.4E+04	ca	4.0E+02	m	5.8E+02	m
Diethyl phthalate	84-66-2			8.0E-01	i					0		0.10	1	1.2E+04	nc	1.0E+05	max	6.0E+00	m	4.9E-02	m
Diethylstilbestrol	56-53-1	3.5E+02	c			1.0E-01	c			0	S	0.10	1	1.4E-03	ca	4.9E-02	ca	1.9E-04	ca	2.1E-03	ca
Difenzoquat (Avenge)	43222-48-6			8.0E-02	i					0		0.10	1	1.2E+03	nc	4.9E+04	nc	7.3E+02	nc		
Diflubenzuron	35367-38-5			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	8.0E+01	s	4.1E+00	nc
1,1-Difluoroethane	75-37-6							4.0E+01	i	1			1	1.6E+04	nc	1.0E+05	max	2.1E+04	nc	1.4E+02	nc
Diisopropyl methylphosphonate	1445-75-6			8.0E-02	i					1			1	1.6E+03	nc	8.2E+04	nc	7.3E+02	nc	4.2E+00	nc
Dimethipin	55290-64-7			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	8.0E-01	nc
Dimethoate	60-51-5			2.0E-04	i					0		0.10	1	3.1E+00	nc	1.2E+02	nc	1.8E+00	nc	8.2E-03	nc
3,3'-Dimethoxybenzidine	119-90-4	1.4E-02	h							0		0.10	1	3.5E+01	ca	1.2E+03	ca	4.8E+00	ca	1.2E-01	ca
N-N-Dimethylaniline	121-69-7			2.0E-03	i					1			1	3.9E+01	nc	2.0E+03	nc	1.8E+01	nc	1.3E-01	nc
2,4-Dimethylaniline	95-68-1	7.5E-01	h							0		0.10	1	6.5E-01	ca	2.3E+01	ca	9.0E-02	ca	1.0E-03	ca
2,4-Dimethylaniline hydrochloride	21436-96-4	5.8E-01	h							0		0.10	1	8.4E-01	ca	3.0E+01	ca	1.2E-01	ca	1.3E-03	ca
3,3'-Dimethylbenzidine	119-93-7	1.1E+01	p							0	S	0.10	1	4.4E-02	ca	1.6E+00	ca	6.1E-03	ca	8.0E-04	ca
N,N-Dimethylformamide	68-12-2			1.0E-01	h			3.0E-02	i	0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	3.7E+00	nc
2,4-Dimethylphenol	105-67-9			2.0E-02	i					0	S	0.10	1	3.1E+02	nc	1.2E+04	nc	1.6E+02	nc	3.8E+00	nc
2,6-Dimethylphenol	576-26-1			6.0E-04	i					0		0.10	1	9.2E+00	nc	3.7E+02	nc	5.5E+00	nc	1.3E-01	nc
3,4-Dimethylphenol	95-65-8			1.0E-03	i					0		0.10	1	1.5E+01	nc	6.2E+02	nc	8.1E+00	nc	1.9E-01	nc
Dimethyl terephthalate	120-61-6			1.0E-01	i					1			1	2.0E+03	nc	1.0E+05	max	6.0E+00	m	3.1E-02	m
4,6-Dinitro-o-cyclohexyl phenol	131-89-5			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	1.2E+01	nc
1,2-Dinitrobenzene	528-29-0			1.0E-04	p					0		0.10	1	1.5E+00	nc	6.2E+01	nc	9.1E-01	nc	1.7E-02	nc
1,3-Dinitrobenzene	99-65-0			1.0E-04	i					0	S	0.10	1	1.5E+00	nc	6.2E+01	nc	9.1E-01	nc	1.6E-02	nc
1,4-Dinitrobenzene	100-25-4			1.0E-04	p					0	S	0.10	1	1.5E+00	nc	6.2E+01	nc	9.1E-01	nc	1.6E-02	nc
2,4-Dinitrophenol	51-28-5			2.0E-03	i					0	S	0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	4.1E-01	nc
Dinitrotoluene mixture	25321-14-6	6.8E-01	i							0		0.10	1	7.1E-01	ca	2.5E+01	ca	9.9E-02	ca	2.7E-03	ca
2,4-Dinitrotoluene	121-14-2	3.1E-01	c	2.0E-03	i	8.9E-05	c			0	S	0.10	1	1.6E+00	ca	5.6E+01	ca	2.2E-01	ca	5.9E-03	ca
2,6-Dinitrotoluene	606-20-2			1.0E-03	p					0	S	0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	2.5E-01	nc
Dinoseb	88-85-7			1.0E-03	i					0		0.10	1	1.5E+01	nc	6.2E+02	nc	7.0E+00	m	1.2E+00	m
1,4-Dioxane	123-91-1	1.1E-02	i	1.0E-01	a	7.7E-06	c	3.6E+00	a	0		0.10	1	4.4E+01	ca	1.6E+03	ca	6.1E+00	ca	2.5E-02	ca
Dioxin (2,3,7,8-TCDD)	1746-01-6	1.3E+05	h	1.0E-09	a	3.8E+01	c	4.0E-08	c	0	S	0.03	1	4.5E-06	ca	1.8E-04	ca	3.0E-05	m	3.0E-04	m
Diphenamid	957-51-7			3.0E-02	i					0		0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	5.4E+01	nc
Diphenylamine	122-39-4			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	2.3E+02	nc	8.4E+00	nc
N,N-Diphenyl-1,4 benzenediamine (DPPD)	74-31-7			3.0E-04	x					0		0.10	1	4.6E+00	nc	1.8E+02	nc	2.7E+00	nc	5.7E+00	nc
1,2-Diphenylhydrazine	122-66-7	8.0E-01	i			2.2E-04	i			0		0.10	1	6.1E-01	ca	2.2E+01	ca	8.0E-02	ca	5.1E-03	ca
Diphenyl sulfone	127-63-9			8.0E-04	x					0		0.10	1	1.2E+01	nc	4.9E+02	nc	7.3E+00	nc	3.5E-01	nc

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]											VCP REMEDIATION GOALS (RGs)							
													Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Diquat	85-00-7			2.2E-03	i					0		0.10	1	3.4E+01	nc	1.4E+03	nc	2.0E+01	m	7.5E+00	m
Direct black 38	1937-37-7	7.4E+00	c			2.1E-03	c			0		0.10	1	6.6E-02	ca	2.3E+00	ca	9.1E-03	ca	8.8E+01	ca
Direct blue 6	2602-46-2	7.4E+00	c			2.1E-03	c			0		0.10	1	6.6E-02	ca	2.3E+00	ca	8.2E-04	s	2.9E+02	ca
Direct brown 95	16071-86-6	6.7E+00	c			1.9E-03	c			0		0.10	1	7.2E-02	ca	2.6E+00	ca	9.7E-04	s		
Disulfoton	298-04-4			4.0E-05	i					0		0.10	1	6.1E-01	nc	2.5E+01	nc	3.7E-01	nc	1.4E-02	nc
1,4-Dithiane	505-29-3			1.0E-02	i					1			1	2.0E+02	nc	1.0E+04	nc	9.1E+01	nc	9.0E-01	nc
Diuron	330-54-1			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	1.5E-01	nc
Dodine	2439-10-3			4.0E-03	i					0		0.10	1	6.1E+01	nc	2.5E+03	nc	3.7E+01	nc	3.8E+00	nc
Endosulfan	115-29-7			6.0E-03	i					0	S	0.10	1	9.2E+01	nc	3.7E+03	nc	5.5E+01	nc	1.5E+01	nc
Endothall	145-73-3			2.0E-02	i					0	S	0.10	1	3.1E+02	nc	1.2E+04	nc	1.0E+02	m	4.8E-01	m
Endrin	72-20-8			3.0E-04	i					0	S	0.10	1	4.6E+00	nc	1.8E+02	nc	2.0E+00	m	1.6E+00	m
Epichlorohydrin	106-89-8	9.9E-03	i	6.0E-03	p	1.2E-06	i	1.0E-03	i	1			1	6.0E+00	nc	1.0E+02	nc	5.2E-01	nc	2.3E-03	nc
1,2-Epoxybutane	106-88-7							2.0E-02	i	1			1	5.1E+01	nc	8.6E+02	nc	1.0E+01	nc	4.6E-02	nc
EPTC (S-Ethyl dipropylthiocarbamate)	759-94-4			2.5E-02	i					1			1	4.9E+02	nc	2.6E+04	nc	2.3E+02	nc	2.4E+00	nc
Ethephon (2-chloroethyl phosphonic acid)	16672-87-0			5.0E-03	i					0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	1.9E-01	nc
Ethion	563-12-2			5.0E-04	i					0		0.10	1	7.6E+00	nc	3.1E+02	nc	4.6E+00	nc	1.8E-01	nc
2-Ethoxyethanol	110-80-5			4.0E-01	h			2.0E-01	i	0		0.10	1	6.1E+03	nc	1.0E+05	max	3.7E+03	nc	1.5E+01	nc
2-Ethoxyethanol acetate	111-15-9			3.0E-01	h			3.0E-01	c	0		0.10	1	4.6E+03	nc	1.0E+05	max	2.7E+03	nc	1.1E+01	nc
Ethyl acetate	141-78-6			9.0E-01	i					1			1	1.8E+04	nc	1.0E+05	max	8.2E+03	nc	3.5E+01	nc
Ethyl acrylate	140-88-5	4.8E-02	h							1			1	1.3E+01	ca	6.0E+02	ca	1.4E+00	ca	6.2E-03	ca
Ethylbenzene	100-41-4	1.1E-02	c	1.0E-01	i	2.5E-06	c	1.0E+00	i	1			1	6.3E+00	ca	3.2E+02	ca	7.0E+02	m	1.6E+01	m
Ethyl chloride	75-00-3							1.0E+01	i	1			1	4.4E+03	nc	7.4E+04	nc	5.2E+03	nc	3.0E+01	nc
Ethylene cyanohydrin	109-78-4			3.0E-02	p					0		0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	1.1E+00	nc
Ethylene diamine	107-15-3			9.0E-02	p					0		0.10	1	1.4E+03	nc	5.5E+04	nc	8.2E+02	nc	3.8E+00	nc
Ethylene glycol	107-21-1			2.0E+00	i			4.0E-01	c	0		0.10	1	3.1E+04	nc	1.0E+05	max	1.8E+04	nc	7.4E+01	nc
Ethylene glycol, monobutyl ether	111-76-2			1.0E-01	i			1.6E+00	i	0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	3.8E+00	nc
Ethylene oxide	75-21-8	3.1E-01	c			8.8E-05	c	3.0E-02	c	1			1	2.0E-01	ca	9.9E+00	ca	4.4E-02	ca	1.8E-04	ca
Ethylene thiourea (ETU)	96-45-7	4.5E-02	c	8.0E-05	i	1.3E-05	c			0	S	0.10	1	1.2E+00	nc	4.9E+01	nc	7.3E-01	nc	3.3E-03	nc
Ethyl ether	60-29-7			2.0E-01	i					1			1	3.9E+03	nc	1.0E+05	max	1.8E+03	nc	8.2E+00	nc
Ethyl methacrylate	97-63-2			9.0E-02	h					1			1	1.8E+03	nc	9.2E+04	nc	8.2E+02	nc	3.9E+00	nc
Ethyl p-nitrophenyl phenylphosphorothioate	2104-64-5			1.0E-05	i					0		0.10	1	1.5E-01	nc	6.2E+00	nc	9.1E-02	nc	5.7E-02	nc
Ethylphthalyl ethyl glycolate	84-72-0			3.0E+00	i					0		0.10	1	4.6E+04	nc	1.0E+05	max	2.7E+04	nc	1.2E+03	nc
Express	101200-48-0			8.0E-03	i					0		0.10	1	1.2E+02	nc	4.9E+03	nc	7.3E+01	nc	5.7E-01	nc
Fenamiphos	22224-92-6			2.5E-04	i					0		0.10	1	3.8E+00	nc	1.5E+02	nc	2.3E+00	nc	4.5E-02	nc
Fluometuron	2164-17-2			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	1.8E+00	nc
Fluoride	16984-48-8			4.0E-02	c			1.3E-02	c	0			1	7.8E+02	nc	4.1E+04	nc	1.7E+03	s		
Fluoridone	59756-60-4			8.0E-02	i					0		0.10	1	1.2E+03	nc	4.9E+04	nc	7.3E+02	nc	1.7E+03	nc
Flurprimidol	56425-91-3			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	1.7E+01	nc
Flutolanil	66332-96-5			6.0E-02	i					0		0.10	1	9.2E+02	nc	3.7E+04	nc	5.5E+02	nc	5.8E+01	nc
Fluvalinate	69409-94-5			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	5.0E+00	s	2.7E+03	nc
Folpet	133-07-3	3.5E-03	i	1.0E-01	i					0		0.10	1	1.4E+02	ca	4.9E+03	ca	1.9E+01	ca	9.0E-02	ca
Fomesafen	72178-02-0	1.9E-01	i							0		0.10	1	2.6E+00	ca	9.1E+01	ca	3.5E-01	ca	2.3E-02	ca
Fonofos	944-22-9			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	7.0E-01	nc
Formaldehyde	50-00-0			2.0E-01	i	1.3E-05	i	9.8E-03	a	0		0.10	1	3.1E+03	nc	1.0E+05	max	1.8E+03	nc	7.4E+00	nc
Formic acid	64-18-6			2.0E+00	h			3.0E-03	p	0		0.10	1	3.0E+04	nc	1.0E+05	max	1.8E+04	nc	7.4E+01	nc
Fosetyl-al	39148-24-8			3.0E+00	i					0		0.10	1	4.6E+04	nc	1.0E+05	max	2.7E+04	nc		
Freon 113	76-13-1			3.0E+01	i			3.0E+01	h	1			1	1.3E+04	nc	1.0E+05	max	1.5E+04	nc	7.5E+02	nc
Furan	110-00-9			1.0E-03	i					1			1	2.0E+01	nc	1.0E+03	nc	9.1E+00	nc	6.9E-02	nc
Furazolidone	67-45-8	3.8E+00	h							0		0.10	1	1.3E-01	ca	4.5E+00	ca	1.8E-02	ca	6.8E-04	ca
Furfural	98-01-1			3.0E-03	i			5.0E-02	h	0		0.10	1	4.6E+01	nc	1.8E+03	nc	2.7E+01	nc	1.2E-01	nc
Furium	531-82-8	1.5E+00	c			4.3E-04	c			0		0.10	1	3.2E-01	ca	1.1E+01	ca	4.5E-02	ca	1.2E-03	ca
Furmecyclox	60568-05-0	3.0E-02	i			8.6E-06	c			0		0.10	1	1.6E+01	ca	5.7E+02	ca	2.2E+00	ca	4.7E-02	ca
Glufosinate-ammonium	77182-82-2			4.0E-04	i					0		0.10	1	6.1E+00	nc	2.5E+02	nc	3.7E+00	nc	1.6E-02	nc
Glycidaldehyde	765-34-4			4.0E-04	i			1.0E-03	h	0		0.10	1	6.1E+00	nc	2.5E+02	nc	3.7E+00	nc	1.5E-02	nc

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]										VCP REMEDIATION GOALS (RGs)							
												Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Glyphosate	1071-83-6			1.0E-01	i					0		0.10	1	1.5E+03	nc	6.2E+04	nc	7.0E+02	m	2.8E+00	m
Haloxyfop-methyl	69806-40-2			5.0E-05	i					0		0.10	1	7.6E-01	nc	3.1E+01	nc	4.6E-01	nc	1.0E-01	nc
Harmony	79277-27-3			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	7.2E-01	nc
Heptachlor	76-44-8	4.5E+00	i	5.0E-04	i	1.3E-03	i			0	S	0.10	1	1.1E-01	ca	3.8E+00	ca	4.0E-01	m	6.6E-01	m
Heptachlor epoxide	1024-57-3	9.1E+00	i	1.3E-05	i	2.6E-03	i			0	S	0.10	1	5.3E-02	ca	1.9E+00	ca	2.0E-01	m	8.2E-02	m
Hexabromobenzene	87-82-1			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.6E-01	s	2.1E+00	nc
Hexachlorobenzene	118-74-1	1.6E+00	i	8.0E-04	i	4.6E-04	i			0	S	0.10	1	3.0E-01	ca	1.1E+01	ca	1.0E+00	m	2.5E-01	m
Hexachlorobutadiene	87-68-3	7.8E-02	i	1.0E-03	p	2.2E-05	i			0		0.10	1	6.2E+00	ca	2.2E+02	ca	5.7E-01	ca	2.2E-02	ca
HCH (alpha)	319-84-6	6.3E+00	i	8.0E-03	a	1.8E-03	i			0	S	0.10	1	7.7E-02	ca	2.7E+00	ca	1.1E-02	ca	1.2E-03	ca
HCH (beta)	319-85-7	1.8E+00	i			5.3E-04	i			0	S	0.10	1	2.7E-01	ca	9.6E+00	ca	3.7E-02	ca	4.3E-03	ca
HCH (gamma) Lindane	58-89-9	1.1E+00	c	3.0E-04	i	3.1E-04	c			0	S	0.04	1	5.2E-01	ca	2.1E+01	ca	2.0E-01	m	2.3E-02	m
HCH-technical	608-73-1	1.8E+00	i			5.1E-04	i			0		0.04	1	3.2E-01	ca	1.3E+01	ca	3.7E-02	ca	4.3E-03	ca
Hexachlorocyclopentadiene	77-47-4			6.0E-03	i			2.0E-04	i	0		0.10	1	9.2E+01	nc	3.7E+03	nc	5.0E+01	m	3.1E+00	m
Hexachloroethane	67-72-1	1.4E-02	i	1.0E-03	i	4.0E-06	i			0	S	0.10	1	1.5E+01	nc	6.2E+02	nc	4.1E+00	ca	4.9E-02	ca
Hexachlorophene	70-30-4			3.0E-04	i					0		0.10	1	4.6E+00	nc	1.8E+02	nc	2.7E+00	nc	7.3E+01	nc
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	1.1E-01	i	3.0E-03	i					0		0.10	1	4.4E+00	ca	1.6E+02	ca	6.1E-01	ca	4.6E-03	ca
1,6-Hexamethylene diisocyanate	822-06-0							1.0E-05	i	1			1	1.0E+00	nc	1.7E+01	nc	5.2E-03	nc	1.0E-03	nc
n-Hexane	110-54-3			6.0E-02	h			7.0E-01	v	1			1	1.7E+02	nc	3.1E+03	nc	2.2E+02	nc	3.1E+01	nc
Hexazinone	51235-04-2			3.3E-02	i					0		0.10	1	5.0E+02	nc	2.0E+04	nc	3.0E+02	nc	2.8E+00	nc
Hydrazine, hydrazine sulfate	302-01-2	3.0E+00	i			4.9E-03	i	3.0E-05	p	0			1	2.1E-01	ca	9.5E+00	ca	2.2E-02	ca		
Hydrazine, dimethyl	57-14-7			1.0E-04	x			2.0E-06	x	0		0.10	1	1.5E+00	nc	6.1E+01	nc	9.1E-01	nc	4.1E-03	nc
Hydrogen chloride	7647-01-0							2.0E-02	i	n/a			1								
Hydrogen cyanide	74-90-8			2.0E-02	i			3.0E-03	i	1			1	7.2E+00	nc	1.2E+02	nc	1.6E+00	nc	7.3E-03	nc
Hydrogen sulfide	7783-06-4							2.0E-03	i	n/a			1								
p-Hydroquinone	123-31-9	6.0E-02	p	4.0E-02	p					0		0.10	1	8.1E+00	ca	2.9E+02	ca	1.1E+00	ca	1.5E-02	ca
Imazalil	35554-44-0			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	4.1E+01	nc
Imazaquin	81335-37-7			2.5E-01	i					0		0.10	1	3.8E+03	nc	1.0E+05	max	2.3E+03	nc	2.3E+02	nc
Iprodione	36734-19-7			4.0E-02	i					0		0.10	1	6.1E+02	nc	2.5E+04	nc	3.7E+02	nc	2.2E+00	nc
Iron	7439-89-6			7.0E-01	p					0			1	1.4E+04	nc	1.0E+05	max	3.0E+02	m		
Isobutanol	78-83-1			3.0E-01	i					0		0.10	1	4.6E+03	nc	1.0E+05	max	2.7E+03	nc	1.1E+01	nc
Isophorone	78-59-1	9.5E-04	i	2.0E-01	i			2.0E+00	c	0		0.10	1	5.1E+02	ca	1.8E+04	ca	7.1E+01	ca	4.7E-01	ca
Isopropalin	33820-53-0			1.5E-02	i					0		0.10	1	2.3E+02	nc	9.2E+03	nc	1.1E+02	s	6.3E+01	nc
Isopropyl methyl phosphonic acid	1832-54-8			1.0E-01	i					0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	3.9E+00	nc
Isoxaben	82558-50-7			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	2.5E+01	nc
Kepone	143-50-0	1.0E+01	i	3.0E-04	i	4.6E-03	c			0	S	0.10	1	4.9E-02	ca	1.7E+00	ca	6.7E-03	ca	4.7E-03	ca
Lactofen	77501-63-4			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	1.7E+01	nc
Lead+++	7439-92-1									n/a			1	4.0E+02	nc	7.5E+02	nc	1.5E+01	m		
Lead (tetraethyl)	78-00-2			1.0E-07	i					0			1	2.0E-03	nc	1.0E-01	nc	9.1E-04	nc	6.5E-05	nc
Linuron	330-55-2			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	3.2E-01	nc
Lithium	7439-93-2			2.0E-03	p					0			1	3.9E+01	nc	2.0E+03	nc	1.8E+01	nc		
Londax	83055-99-6			2.0E-01	i					0		0.10	1	3.1E+03	nc	1.0E+05	max	1.8E+03	nc	9.3E+00	nc
Malathion	121-75-5			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	9.6E-01	nc
Maleic anhydride	108-31-6			1.0E-01	i			7.0E-04	c	0	S	0.10	1	1.5E+03	nc	6.1E+04	nc	9.1E+02	nc	3.7E+00	nc
Maleic hydrazide	123-33-1			5.0E-01	i					0		0.10	1	7.6E+03	nc	1.0E+05	max	4.6E+03	nc	1.9E+01	nc
Malononitrile	109-77-3			1.0E-04	p					0		0.10	1	1.5E+00	nc	6.2E+01	nc	9.1E-01	nc	3.8E-03	nc
Mancozeb	8018-01-7			3.0E-02	h					0		0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	7.8E+00	nc
Maneb	12427-38-2			5.0E-03	i					0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	1.3E+00	nc
Manganese (non-food)+++	7439-96-5			2.4E-02	i			5.0E-05	i	0			0.04	4.6E+02	nc	2.2E+04	nc	5.0E+01	m		
Mephosfolan	950-10-7			9.0E-05	h					0		0.10	1	1.4E+00	nc	5.5E+01	nc	8.2E-01	nc	2.4E-02	nc
Mepiquat	24307-26-4			3.0E-02	i					0		0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	1.8E+00	nc
Mercury and compounds	7487-94-7			3.0E-04	i			3.0E-05	c	n/a			0.07	5.9E+00	nc	3.1E+02	nc	2.0E+00	m		
Mercury (elemental)	7439-97-6			1.6E-04	c			3.0E-04	i	n/a			1	3.1E+00	nc	1.6E+02	nc	2.0E+00	m		
Mercury (methyl)	22967-92-6			1.0E-04	i					0		0.10	1	1.5E+00	nc	6.2E+01	nc	9.1E-01	nc		
Merphos	150-50-5			3.0E-05	i					0		0.10	1	4.6E-01	nc	1.8E+01	nc	2.7E-01	nc	5.4E-01	nc

NDEQ VCP REMEDIATION GOALS

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Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]									VCP REMEDIATION GOALS (RGs)							
											Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Merphos oxide	78-48-8			3.0E-05	i					0		0.10	1	4.6E-01	nc	1.8E+01	nc	2.7E-01	nc	2.7E-02	nc
Metalaxyl	57837-19-1			6.0E-02	i					0		0.10	1	9.2E+02	nc	3.7E+04	nc	5.5E+02	nc	3.0E+00	nc
Methacrylonitrile	126-98-7			1.0E-04	i			7.0E-04	h	1			1	8.8E-01	nc	2.1E+01	nc	2.6E-01	nc	1.2E-03	nc
Methamidophos	10265-92-6			5.0E-05	i					0		0.10	1	7.6E-01	nc	3.1E+01	nc	4.6E-01	nc	1.9E-03	nc
Methanol	67-56-1			5.0E-01	i			4.0E+00	c	0		0.10	1	7.6E+03	nc	1.0E+05	max	4.6E+03	nc	1.8E+01	nc
Methidathion	950-37-8			1.0E-03	i					0		0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	4.4E-02	nc
Methomyl	16752-77-5			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	2.3E+02	nc	1.0E+00	nc
Methoxychlor	72-43-5			5.0E-03	i					0	S	0.10	1	7.6E+01	nc	3.1E+03	nc	4.0E+01	m	4.3E+01	m
2-Methoxyethanol	109-86-4			3.0E-03	h			2.0E-02	i	0		0.10	1	4.6E+01	nc	1.8E+03	nc	2.7E+01	nc	1.1E-01	nc
2-Methoxyethanol acetate	110-49-6			2.0E-03	h			9.0E-02	c	0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	7.5E-02	nc
2-Methoxy-5-nitroaniline	99-59-2	4.9E-02	c			1.4E-05	c			0		0.10	1	9.9E+00	ca	3.5E+02	ca	1.4E+00	ca	9.4E-03	ca
Methyl acetate	79-20-9			1.0E+00	h					1			1	2.0E+04	nc	1.0E+05	max	9.1E+03	nc	3.8E+01	nc
Methyl acrylate	96-33-3			3.0E-02	h					1			1	5.9E+02	nc	3.1E+04	nc	2.7E+02	nc	1.2E+00	nc
2-Methylaniline hydrochloride	636-21-5	1.3E-01	c			3.7E-05	c			0		0.10	1	3.7E+00	ca	1.3E+02	ca	5.2E-01	ca	4.4E-03	ca
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	94-74-6			5.0E-04	i					0		0.10	1	7.6E+00	nc	3.1E+02	nc	4.6E+00	nc	2.4E-02	nc
4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)	94-81-5			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	7.2E-01	nc
2-(2-Methyl-4-chlorophenoxy) propionic acid	93-65-2			1.0E-03	i					0		0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	5.4E-02	nc
4,4'-Methylenebisbenzeneamine	101-77-9	1.6E+00	c			4.6E-04	c	2.0E-02	c	0		0.10	1	3.0E-01	ca	1.1E+01	ca	4.2E-02	ca	3.7E-03	ca
4,4'-Methylene bis(2-chloroaniline)	101-14-4	1.0E-01	p	2.0E-03	p	4.3E-04	c			0		0.10	1	1.2E+00	ca	1.7E+02	ca	2.1E-01	ca	4.8E-02	ca
4,4'-Methylene bis(N,N'-dimethyl)aniline	101-61-1	4.6E-02	i			1.3E-05	c			0		0.10	1	1.1E+01	ca	3.7E+02	ca	9.3E-01	ca	1.0E-01	ca
Methylene bromide	74-95-3			1.0E-02	h			4.0E-03	x	1			1	7.3E+00	nc	1.3E+02	nc	2.0E+00	nc	1.0E-02	nc
Methylene chloride	75-09-2	7.5E-03	i	6.0E-02	i	4.7E-07	i	1.0E+00	a	1			1	1.2E+01	ca	6.2E+02	ca	5.0E+00	m	2.6E-02	m
4,4'-Methylenediphenyl isocyanate	101-68-8							6.0E-04	i	0		0.10	1	1.0E+05	max	1.0E+05	max				
Methyl ethyl ketone	78-93-3			6.0E-01	i			5.0E+00	i	1			1	7.5E+03	nc	1.0E+05	max	1.8E+03	nc	7.4E+00	nc
Methyl isobutyl ketone	108-10-1			8.0E-02	h			3.0E+00	i	1			1	1.4E+03	nc	5.6E+04	nc	5.0E+02	nc	2.2E+00	nc
Methyl methacrylate	80-62-6			1.4E+00	i			7.0E-01	i	1			1	1.4E+03	nc	2.5E+04	nc	3.5E+02	nc	1.6E+00	nc
2-Methyl-5-nitroaniline	99-55-8	3.3E-02	h							0		0.10	1	1.5E+01	ca	5.2E+02	ca	2.0E+00	ca	2.3E-02	ca
Methyl parathion	298-00-0			2.5E-04	i					0		0.10	1	3.8E+00	nc	1.5E+02	nc	2.3E+00	nc	7.6E-02	nc
2-Methylphenol	95-48-7			5.0E-02	i			6.0E-01	c	0	S	0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	7.4E+00	nc
3-Methylphenol	108-39-4			5.0E-02	i			6.0E-01	c	0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	7.3E+00	nc
4-Methylphenol	106-44-5			5.0E-03	h			6.0E-01	c	0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	7.3E-01	nc
Methyl phosphonic acid	993-13-5			6.0E-02	x					0		0.10	1	9.2E+02	nc	3.7E+04	nc	5.5E+02	nc	2.2E+00	nc
Methyl styrene (mixture)	25013-15-4			6.0E-03	h			4.0E-02	h	1			1	6.6E+01	nc	1.8E+03	nc	1.5E+01	nc	4.8E-01	nc
Methyl styrene (alpha)	98-83-9			7.0E-02	h					1			1	1.4E+03	nc	7.2E+04	nc	6.4E+02	nc	2.1E+01	nc
Methyl tertbutyl ether (MTBE)	1634-04-4	1.8E-03	c			2.6E-07	c	3.0E+00	i	1			1	5.1E+01	ca	2.5E+03	ca	1.2E+01	ca	5.6E-02	ca
Metolaclor (Dual)	51218-45-2			1.5E-01	i					0		0.10	1	2.3E+03	nc	9.2E+04	nc	1.4E+03	nc	3.2E+01	nc
Metribuzin	21087-64-9			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	2.3E+02	nc	1.4E+00	nc
Mirex	2385-85-5	1.8E+01	c	2.0E-04	i	5.1E-03	c			0		0.10	1	2.7E-02	ca	9.6E-01	ca	3.7E-03	ca	5.3E-02	ca
Molinate	2212-67-1			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	2.1E-01	nc
Molybdenum	7439-98-7			5.0E-03	i					0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc		
Monochloramine	10599-90-3			1.0E-01	i					0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc		
Naled	300-76-5			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	1.7E-01	nc
Napropamide	15299-99-7			1.0E-01	i					0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	1.2E+02	nc
Nickel and compounds	7440-02-0			2.0E-02	i	2.6E-04	c	9.0E-05	a	0			0.04	3.9E+02	nc	2.0E+04	nc	1.8E+02	nc	2.4E+02	nc
Nickel refinery dust				5.0E-02	c	2.4E-04	i	5.0E-05	c	0			0.04	9.2E+02	nc	4.3E+04	nc	4.6E+02	nc		
Nickel subsulfide	12035-72-2	1.7E+00	c	5.0E-02	c	4.8E-04	i			0			0.04	3.8E-01	ca	1.7E+01	ca	4.0E-02	ca		
Nitrate	14797-55-8			1.6E+00	i					n/a			1	3.1E+04	nc	1.0E+05	max	1.0E+04	m		
Nitrite	14797-65-0			1.0E-01	i					n/a			1	2.0E+03	nc	1.0E+05	max	1.0E+03	m		
2-Nitroaniline	88-74-4			1.0E-02	x			5.0E-05	x	0	S	0.10	1	1.5E+02	nc	6.0E+03	nc	9.1E+01	nc	7.7E-01	nc
Nitrobenzene	98-95-3			2.0E-03	i	4.0E-05	i	9.0E-03	i	1			1	5.7E+00	ca	2.9E+02	ca	1.2E-01	ca	1.6E-03	ca
Nitrofurantoin	67-20-9			7.0E-02	h					0		0.10	1	1.1E+03	nc	4.3E+04	nc	6.4E+02	nc	5.5E+00	nc
Nitrofurazone	59-87-0	1.3E+00	c			3.7E-04	c			0		0.10	1	3.7E-01	ca	1.3E+01	ca	5.2E-02	ca	9.3E-04	ca
Nitroglycerin	55-63-0	1.7E-02	p	1.0E-04	p					0		0.10	1	1.5E+00	nc	6.2E+01	nc	9.1E-01	nc	7.9E-03	nc
Nitroguanidine	556-88-7			1.0E-01	i					0		0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	4.4E+00	nc

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]											VCP REMEDIATION GOALS (RGs)							
													Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
2-Nitropropane	79-46-9					2.7E-03	h	2.0E-02	i	1			1	1.5E-02	ca	7.7E-01	ca	1.8E-03	ca	9.4E-06	ca
N-Nitrosodi-n-butylamine	924-16-3	5.4E+00	i			1.6E-03	i			1			1	9.1E-02	ca	4.2E+00	ca	2.4E-03	ca	9.9E-05	ca
N-Nitrosodiethanolamine	1116-54-7	2.8E+00	i			8.0E-04	c			0		0.10	1	1.7E-01	ca	6.2E+00	ca	2.4E-02	ca	9.7E-05	ca
N-Nitrosodiethylamine	55-18-5	1.5E+02	i			4.3E-02	i			0		0.10	1	7.7E-04	ca	1.1E-01	ca	1.4E-04	ca	1.1E-06	ca
N-Nitrosodimethylamine	62-75-9	5.1E+01	i	8.0E-06	p	1.4E-02	i	4.0E-05	x	0		0.10	1	2.3E-03	ca	3.4E-01	ca	4.2E-04	ca	2.1E-06	ca
N-Nitrosodiphenylamine	86-30-6	4.9E-03	i			2.6E-06	c			0	S	0.10	1	9.9E+01	ca	3.5E+03	ca	1.3E+01	ca	1.4E+00	ca
N-Nitroso di-n-propylamine	621-64-7	7.0E+00	i			2.0E-03	c			0	S	0.10	1	6.9E-02	ca	2.5E+00	ca	9.6E-03	ca	1.4E-04	ca
N-Nitroso-N-methylethylamine	10595-95-6	2.2E+01	i			6.3E-03	c			0		0.10	1	2.2E-02	ca	7.8E-01	ca	3.1E-03	ca	1.8E-05	ca
N-Nitrosopyrrolidine	930-55-2	2.1E+00	i			6.1E-04	i			0		0.10	1	2.3E-01	ca	8.2E+00	ca	3.2E-02	ca	2.5E-04	ca
m-Nitrotoluene	99-08-1			1.0E-04	x					0		0.10	1	1.5E+00	nc	6.2E+01	nc	9.1E-01	nc	1.7E-02	nc
o-Nitrotoluene	88-72-2	2.2E-01	p	9.0E-04	p					1			1	2.9E+00	ca	1.3E+02	ca	3.1E-01	ca	5.8E-03	ca
p-Nitrotoluene	99-99-0	1.6E-02	p	4.0E-03	p					0	S	0.10	1	3.0E+01	ca	1.1E+03	ca	4.2E+00	ca	7.8E-02	ca
Norflurazon	27314-13-2			4.0E-02	i					0		0.10	1	6.1E+02	nc	2.5E+04	nc	3.7E+02	nc	4.7E+01	nc
NuStar	85509-19-9			7.0E-04	i					0		0.10	1	1.1E+01	nc	4.3E+02	nc	6.4E+00	nc	2.1E+01	nc
Octabromodiphenyl ether	32536-52-0			3.0E-03	i					0		0.10	1	4.6E+01	nc	1.8E+03	nc	7.4E-02	s	1.1E+02	nc
Octahydro-1357-tetranitro-1357- tetrazocine (HMX)	2691-41-0			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	1.2E+01	nc
Octamethylpyrophosphoramide	152-16-9			2.0E-03	h					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	8.8E-02	nc
Oryzalin	19044-88-3			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	1.7E+01	nc
Oxadiazon	19666-30-9			5.0E-03	i					0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	9.3E+00	nc
Oxamyl	23135-22-0			2.5E-02	i					0	S	0.10	1	3.8E+02	nc	1.5E+04	nc	2.0E+02	m	8.8E-01	m
Oxyfluorfen	42874-03-3			3.0E-03	i					0		0.10	1	4.6E+01	nc	1.8E+03	nc	2.7E+01	nc	4.4E+01	nc
Paclobutrazol	76738-62-0			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	4.9E+00	nc
Paraquat	4685-14-7			4.5E-03	i					0		0.10	1	6.9E+01	nc	2.8E+03	nc	4.1E+01	nc	1.1E+01	nc
Parathion	56-38-2			6.0E-03	h					0	S	0.10	1	9.2E+01	nc	3.7E+03	nc	3.7E+01	nc	3.8E+00	nc
Pebulate	1114-71-2			5.0E-02	h					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	7.3E+00	nc
Pendimethalin	40487-42-1			4.0E-02	i					0		0.10	1	6.1E+02	nc	2.5E+04	nc	3.0E+02	s	8.4E+01	nc
Pentabromo-6-chloro cyclohexane	87-84-3	2.3E-02	h							0		0.10	1	2.1E+01	ca	7.5E+02	ca	2.9E+00	ca	2.7E-01	ca
Pentabromodiphenyl ether	32534-81-9			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	9.0E-04	s	1.6E+01	nc
Pentachlorobenzene	608-93-5			8.0E-04	i					0		0.10	1	1.2E+01	nc	4.9E+02	nc	7.3E+00	nc	1.1E+00	nc
Pentachloronitrobenzene	82-68-8	2.6E-01	h	3.0E-03	i					0		0.10	1	1.9E+00	ca	6.6E+01	ca	1.9E-01	ca	4.7E-02	ca
Pentachlorophenol	87-86-5	1.2E-01	i	3.0E-02	i	5.1E-06	c			0	S	0.25	1	3.0E+00	ca	9.0E+01	ca	1.0E+00	m	2.0E-01	m
Perchlorate	14797-73-0			7.0E-04	i					0			1	1.4E+01	nc	7.2E+02	nc	6.4E+00	nc		
Permethrin	52645-53-1			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	6.0E+00	s	2.2E+03	nc
Phenmedipham	13684-63-4			2.5E-01	i					0		0.10	1	3.8E+03	nc	1.0E+05	max	2.3E+03	nc	2.5E+02	nc
Phenol	108-95-2			3.0E-01	i			2.0E-01	c	0	S	0.10	1	4.6E+03	nc	1.0E+05	max	2.7E+03	nc	3.1E+01	nc
m-Phenylenediamine	108-45-2			6.0E-03	i					0		0.10	1	9.2E+01	nc	3.7E+03	nc	5.5E+01	nc	2.9E-01	nc
p-Phenylenediamine	106-50-3			1.9E-01	h					0		0.10	1	2.9E+03	nc	1.0E+05	max	1.7E+03	nc	9.3E+00	nc
Phenylmercuric acetate	62-38-4			8.0E-05	i					0		0.10	1	1.2E+00	nc	4.9E+01	nc	7.3E-01	nc	4.6E-03	nc
2-Phenylphenol	90-43-7	1.9E-03	h							0		0.10	1	2.6E+02	ca	9.1E+03	ca	3.5E+01	ca	9.7E+00	ca
Phorate	298-02-2			2.0E-04	h					0		0.10	1	3.1E+00	nc	1.2E+02	nc	1.8E+00	nc	4.1E-02	nc
Phosmet	732-11-6			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	8.0E-01	nc
Phosphine	7803-51-2			3.0E-04	i			3.0E-04	i	0			1	5.9E+00	nc	3.1E+02	nc	2.7E+00	nc		
Phosphoric acid	7664-38-2							1.0E-02	i	n/a			1								
Phosphorus (white)	7723-14-0			2.0E-05	i					0			1	3.9E-01	nc	2.0E+01	nc	1.8E-01	nc		
p-Phthalic acid	100-21-0			1.0E+00	h					0		0.10	1	1.5E+04	nc	1.0E+05	max	9.1E+03	nc	6.5E+01	nc
Phthalic anhydride	85-44-9			2.0E+00	i			2.0E-02	c	0		0.10	1	3.0E+04	nc	1.0E+05	max	1.8E+04	nc	8.0E+01	nc
Picloram	1918-02-1			7.0E-02	i					0		0.10	1	1.1E+03	nc	4.3E+04	nc	5.0E+02	m	2.8E+00	m
Pirimiphos-methyl	29232-93-7			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	1.7E+00	nc
Polybrominated biphenyls	59536-65-1	3.0E+01	c	7.0E-06	h	8.6E-03	c			0	S	0.10	1	1.6E-02	ca	5.7E-01	ca	2.2E-03	ca		
Polychlorinated biphenyls (PCBs)	1336-36-3	2.0E+00	i			5.7E-04	c			0		0.14	1	2.2E-01	ca	7.4E+00	ca	5.0E-01	m		
Aroclor 1016	12674-11-2	7.0E-02	i	7.0E-05	i	2.0E-05	i			0		0.14	1	9.8E-01	nc	3.7E+01	nc	6.4E-01	nc	1.2E+00	nc
Aroclor 1221	11104-28-2	2.0E+00	i			5.7E-04	i			1			1	1.9E-01	ca	8.9E+00	ca	6.8E-03	ca	2.3E-03	ca
Aroclor 1232	11141-16-5	2.0E+00	i			5.7E-04	i			1			1	1.9E-01	ca	8.9E+00	ca	6.8E-03	ca	2.3E-03	ca
Aroclor 1242	53469-21-9	2.0E+00	i			5.7E-04	i			0		0.14	1	2.2E-01	ca	7.4E+00	ca	3.4E-02	ca	1.1E-01	ca

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]											VCP REMEDIATION GOALS (RGs)							
													Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Aroclor 1248	12672-29-6	2.0E+00	i			5.7E-04	i			0		0.14	1	2.2E-01	ca	7.4E+00	ca	3.4E-02	ca	1.0E-01	ca
Aroclor 1254	11097-69-1	2.0E+00	i	2.0E-05	i	5.7E-04	i			0		0.14	1	2.2E-01	ca	7.4E+00	ca	3.4E-02	ca	1.8E-01	ca
Aroclor 1260	11096-82-5	2.0E+00	i			5.7E-04	i			0		0.14	1	2.2E-01	ca	7.4E+00	ca	3.4E-02	ca	4.7E-01	ca
Polynuclear aromatic hydrocarbons										n/a			1								
Acenaphthene	83-32-9			6.0E-02	i					1	S		1	1.2E+03	nc	6.1E+04	nc	5.5E+02	nc	1.1E+02	nc
Anthracene	120-12-7			3.0E-01	i					1	S		1	5.9E+03	nc	1.0E+05	max	4.3E+01	s	1.8E+03	nc
Benz[a]anthracene	56-55-3	7.3E-01	n			1.1E-04	c			0	S	0.13	1	1.5E-01	ca	2.1E+01	ca	1.6E-02	ca	1.1E-01	ca
Benzo[b]fluoranthene	205-99-2	7.3E-01	n			1.1E-04	c			0	S	0.13	1	1.5E-01	ca	2.1E+01	ca	1.2E-02	ca	2.8E-01	ca
Benzo[k]fluoranthene	207-08-9	7.3E-02	n			1.1E-04	c			0	S	0.13	1	1.5E+00	ca	2.1E+02	ca	2.9E-01	ca	6.9E+00	ca
Benzo[a]pyrene	50-32-8	7.3E+00	i			1.1E-03	c			0	S	0.13	1	1.5E-02	ca	2.1E+00	ca	2.0E-01	m	4.7E+00	m
Chrysene	218-01-9	7.3E-03	n			1.1E-05	c			0	S	0.13	1	1.5E+01	ca	2.1E+03	ca	1.6E+00	ca	1.1E+01	ca
Dibenz[ah]anthracene	53-70-3	7.3E+00	n			1.2E-03	c			0	S	0.13	1	1.5E-02	ca	2.1E+00	ca	8.9E-04	ca	6.8E-02	ca
Fluoranthene	206-44-0			4.0E-02	i					0	S	0.13	1	5.7E+02	nc	2.2E+04	nc	6.0E+01	nc	1.3E+02	nc
Fluorene	86-73-7			4.0E-02	i					1	S		1	7.8E+02	nc	4.1E+04	nc	3.7E+02	nc	1.4E+02	nc
Indeno[1,2,3-cd]pyrene	193-39-5	7.3E-01	n			1.1E-04	c			0	S	0.13	1	1.5E-01	ca	2.1E+01	ca	1.1E-02	ca	8.9E-01	ca
Naphthalene	91-20-3			2.0E-02	i	3.4E-05	c	3.0E-03	i	1	S		1	4.3E+00	ca	2.2E+02	ca	1.4E-01	ca	9.4E-03	ca
Pyrene	129-00-0			3.0E-02	i					0	S	0.13	1	4.3E+02	nc	1.7E+04	nc	1.4E+02	s	6.0E+02	nc
Prochloraz	67747-09-5	1.5E-01	i	9.0E-03	i					0		0.10	1	3.2E+00	ca	1.1E+02	ca	4.5E-01	ca	4.5E-02	ca
Profluralin	26399-36-0			6.0E-03	h					0		0.10	1	9.2E+01	nc	3.7E+03	nc	5.5E+01	nc	6.7E+01	nc
Prometon	1610-18-0			1.5E-02	i					0		0.10	1	2.3E+02	nc	9.2E+03	nc	1.4E+02	nc	1.3E+00	nc
Prometryn	7287-19-6			4.0E-03	i					0		0.10	1	6.1E+01	nc	2.5E+03	nc	3.7E+01	nc	1.1E+00	nc
Pronamide	23950-58-5			7.5E-02	i					0		0.10	1	1.1E+03	nc	4.6E+04	nc	6.8E+02	nc	1.4E+01	nc
Propachlor	1918-16-7			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	1.4E+00	nc
Propanil	709-98-8			5.0E-03	i					0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	5.0E-01	nc
Propargite	2312-35-8			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	2.7E+02	nc
Propargyl alcohol	107-19-7			2.0E-03	i					0		0.10	1	3.1E+01	nc	1.2E+03	nc	1.8E+01	nc	7.4E-02	nc
Propazine	139-40-2			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	3.2E+00	nc
Propham	122-42-9			2.0E-02	i					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	2.3E+00	nc
Propiconazole	60207-90-1			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	7.9E+00	nc
n-Propylbenzene	103-65-1			1.0E-01	x			1.0E+00	x	1			1	1.1E+03	nc	2.8E+04	nc	3.3E+02	nc	1.2E+01	nc
Propylene glycol	57-55-6			2.0E+01	p					0		0.10	1	1.0E+05	max	1.0E+05	max	1.8E+05	nc	7.4E+02	nc
Propylene glycol, monoethyl ether	1569-02-4			7.0E-01	h					0		0.10	1	1.1E+04	nc	1.0E+05	max	6.4E+03	nc	2.6E+01	nc
Propylene glycol, monomethyl ether	107-98-2			7.0E-01	h			2.0E+00	i	0		0.10	1	1.1E+04	nc	1.0E+05	max	6.4E+03	nc	2.6E+01	nc
Propylene oxide	75-56-9	2.4E-01	i			3.7E-06	i	3.0E-02	i	1			1	2.0E+00	ca	9.2E+01	ca	2.3E-01	ca	9.7E-04	ca
Pursuit	81335-77-5			2.5E-01	i					0		0.10	1	3.8E+03	nc	1.0E+05	max	2.3E+03	nc	4.0E+01	nc
Pydrin	51630-58-1			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	2.4E+01	s	2.9E+03	nc
Pyridine	110-86-1			1.0E-03	i					1			1	2.0E+01	nc	1.0E+03	nc	9.1E+00	nc	6.3E-02	nc
Quinalphos	13593-03-8			5.0E-04	i					0		0.10	1	7.6E+00	nc	3.1E+02	nc	4.6E+00	nc	7.8E-01	nc
Quinoline	91-22-5	3.0E+00	i							0		0.10	1	1.6E-01	ca	5.7E+00	ca	2.2E-02	ca	1.5E-03	ca
Resmethrin	10453-86-8			3.0E-02	i					0		0.10	1	4.6E+02	nc	1.8E+04	nc	3.8E+01	s	3.4E+03	nc
Ronnel	299-84-3			5.0E-02	h					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc	8.3E+01	nc
Rotenone	83-79-4			4.0E-03	i					0		0.10	1	6.1E+01	nc	2.5E+03	nc	3.7E+01	nc	3.8E+02	nc
Savey	78587-05-0			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	2.3E+02	nc	2.0E+01	nc
Selenious Acid	7783-00-8			5.0E-03	i					0			1	9.8E+01	nc	5.1E+03	nc	4.6E+01	nc		
Selenium	7782-49-2			5.0E-03	i			2.0E-02	c	0			1	9.8E+01	nc	5.1E+03	nc	5.0E+01	m	5.2E+00	m
Sethoxydim	74051-80-2			9.0E-02	i					0		0.10	1	1.4E+03	nc	5.5E+04	nc	8.2E+02	nc	1.5E+02	nc
Silver and compounds	7440-22-4			5.0E-03	i					0			0.04	9.8E+01	nc	5.1E+03	nc	1.0E+02	m	1.7E+01	m
Simazine	122-34-9	1.2E-01	h	5.0E-03	i					0		0.10	1	4.0E+00	ca	1.4E+02	ca	4.0E+00	m	4.0E-02	m
Sodium azide	26628-22-8			4.0E-03	i					0			1	7.8E+01	nc	4.1E+03	nc	3.7E+01	nc		
Sodium diethyldithiocarbamate	148-18-5	2.7E-01	h	3.0E-02	i					0		0.10	1	1.8E+00	ca	6.4E+01	ca	2.5E-01	ca		
Sodium fluoroacetate	62-74-8			2.0E-05	i					0		0.10	1	3.1E-01	nc	1.2E+01	nc	1.8E-01	nc	7.4E-04	nc
Sodium metavanadate	13718-26-8			1.0E-03	h					0			1	2.0E+01	nc	1.0E+03	nc	9.1E+00	nc		
Strontium, stable	7440-24-6			6.0E-01	i					0			1	1.2E+04	nc	1.0E+05	max	5.5E+03	nc		
Strychnine	57-24-9			3.0E-04	i					0		0.10	1	4.6E+00	nc	1.8E+02	nc	2.7E+00	nc	6.0E-01	nc

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]											VCP REMEDIATION GOALS (RGs)							
													Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo $(mg/kg\text{-}d)^{-1}$		RfDo (mg/kg-d)		IUR $(\mu g/m^3)^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Styrene	100-42-5			2.0E-01	i			1.0E+00	i	1			1	1.7E+03	nc	4.2E+04	nc	1.0E+02	m	2.2E+00	m
1,1'-Sulfonylbis (4-chlorobenzene)	80-07-9			8.0E-04	p					0		0.10	1	1.2E+01	nc	4.9E+02	nc	7.3E+00	nc	8.6E-01	nc
Systhane	88671-89-0			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	2.3E+02	nc	5.6E+01	nc
2,3,7,8-TCDD (dioxin)	1746-01-6	1.3E+05	c	1.0E-09	a	3.8E+01	c	4.0E-08	c	0		0.10	1	3.7E-06	ca	1.3E-04	ca	9.8E-08	ca	9.7E-07	ca
Tebuthiuron	34014-18-1			7.0E-02	i					0		0.10	1	1.1E+03	nc	4.3E+04	nc	6.4E+02	nc	3.6E+00	nc
Temephos	3383-96-8			2.0E-02	h					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	6.9E+02	nc
Terbacil	5902-51-2			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	7.1E-01	nc
Terbufos	13071-79-9			2.5E-05	h					0		0.10	1	3.8E-01	nc	1.5E+01	nc	2.3E-01	nc	1.0E-02	nc
Terbutryn	886-50-0			1.0E-03	i					0		0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	2.6E-01	nc
1,2,4,5-Tetrachlorobenzene	95-94-3			3.0E-04	i					0		0.10	1	4.6E+00	nc	1.8E+02	nc	2.7E+00	nc	2.5E-01	nc
1,1,1,2-Tetrachloroethane	630-20-6	2.6E-02	i	3.0E-02	i	7.4E-06	i			1	S		1	2.2E+00	ca	1.1E+02	ca	5.2E-01	ca	4.0E-03	ca
1,1,2,2-Tetrachloroethane	79-34-5	2.0E-01	i	4.0E-03	p	5.8E-05	i			1			1	6.5E-01	ca	3.2E+01	ca	6.7E-02	ca	5.2E-04	ca
Tetrachloroethylene (PCE)	127-18-4	2.1E-03	i	6.0E-03	i	2.6E-07	i	4.0E-02	i	1			1	2.5E+01	nc	4.9E+02	nc	5.0E+00	m	4.5E-02	m
2,3,4,6-Tetrachlorophenol	58-90-2			3.0E-02	i					0	S	0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	3.4E+01	nc
p,a,a,a-Tetrachlorotoluene	5216-25-1	2.0E+01	h							0		0.10	1	2.4E-02	ca	8.6E-01	ca	3.4E-03	ca	2.3E-04	ca
Tetrachlorovinphos	961-11-5	2.4E-02	h	3.0E-02	i					0		0.10	1	2.0E+01	ca	7.2E+02	ca	2.8E+00	ca	1.7E-01	ca
Tetraethyldithiopyrophosphate	3689-24-5			5.0E-04	i					0		0.10	1	7.6E+00	nc	3.1E+02	nc	4.6E+00	nc	6.7E-02	nc
Thallium and compounds+++	7440-28-0									0			1					2.0E+00	m	2.8E+00	m
Thiobencarb	28249-77-6			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	6.3E+00	nc
Thiofanox	39196-18-4			3.0E-04	h					0		0.10	1	4.6E+00	nc	1.8E+02	nc	2.7E+00	nc	1.9E-02	nc
Thiophanate-methyl	23564-05-8			8.0E-02	i					0		0.10	1	1.2E+03	nc	4.9E+04	nc	7.3E+02	nc	1.2E+01	nc
Thiram	137-26-8			5.0E-03	i					0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	1.3E+00	nc
Tin and compounds	7440-31-5			6.0E-01	h					0			1	1.2E+04	nc	1.0E+05	max	5.5E+03	nc		
Toluene	108-88-3			8.0E-02	i			5.0E+00	i	1			1	1.3E+03	nc	4.9E+04	nc	1.0E+03	m	1.4E+01	m
p-Toluidine	106-49-0	1.9E-01	h							0	S	0.10	1	2.6E+00	ca	9.1E+01	ca	3.5E-01	ca	3.0E-03	ca
Toxaphene	8001-35-2	1.1E+00	i			3.2E-04	i			0	S	0.10	1	4.4E-01	ca	1.6E+01	ca	3.0E+00	m	9.3E+00	m
Tralomethrin	66841-25-6			7.5E-03	i					0		0.10	1	1.1E+02	nc	4.6E+03	nc	6.8E+01	nc	5.2E+02	nc
Triallate	2303-17-5			1.3E-02	i					0		0.10	1	2.0E+02	nc	8.0E+03	nc	1.2E+02	nc	5.3E+00	nc
Triasulfuron	82097-50-5			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	1.9E+00	nc
1,2,4-Tribromobenzene	615-54-3			5.0E-03	i					0		0.10	1	7.6E+01	nc	3.1E+03	nc	4.6E+01	nc	1.3E+00	nc
Tributyltin oxide (TBTO)	56-35-9			3.0E-04	i					0		0.10	1	4.6E+00	nc	1.8E+02	nc	2.7E+00	nc	2.8E+03	nc
2,4,6-Trichloroaniline	634-93-5	3.4E-02	h							0		0.10	1	1.4E+01	ca	5.1E+02	ca	2.0E+00	ca	3.6E-01	ca
2,4,6-Trichloroaniline hydrochloride	33663-50-2	2.9E-02	h							0		0.10	1	1.7E+01	ca	5.9E+02	ca	2.3E+00	ca	1.3E-01	ca
1,2,4-Trichlorobenzene	120-82-1	2.9E-02	p	1.0E-02	i			2.0E-03	p	1			1	1.8E+01	nc	3.3E+02	nc	7.0E+01	m	4.1E+00	m
1,1,1-Trichloroethane	71-55-6			2.0E+00	i			5.0E+00	i	1			1	2.6E+03	nc	4.5E+04	nc	2.0E+02	m	1.4E+00	m
1,1,2-Trichloroethane	79-00-5	5.7E-02	i	4.0E-03	i	1.6E-05	i			1			1	1.3E+00	ca	6.2E+01	ca	5.0E+00	m	3.2E-02	m
Trichloroethylene (TCE)	79-01-6	4.6E-02	i	5.0E-04	i	4.1E-06	i	2.0E-03	i	1			1	1.3E+00	nc	2.4E+01	nc	5.0E+00	m	3.6E-02	m
Trichlorofluoromethane	75-69-4			3.0E-01	i			7.0E-01	h	1			1	2.3E+02	nc	4.0E+03	nc	3.1E+02	nc	4.1E+00	nc
2,4,5-Trichlorophenol	95-95-4			1.0E-01	i					0	S	0.10	1	1.5E+03	nc	6.2E+04	nc	9.1E+02	nc	6.9E+01	nc
2,4,6-Trichlorophenol	88-06-2	1.1E-02	i	1.0E-03	p	3.1E-06	i			0	S	0.10	1	1.5E+01	nc	6.2E+02	nc	5.2E+00	nc	3.9E-01	nc
2,4,5-Trichlorophenoxyacetic acid	93-76-5			1.0E-02	i					0		0.10	1	1.5E+02	nc	6.2E+03	nc	9.1E+01	nc	7.6E-01	nc
2-(2,4,5-Trichlorophenoxy) propionic acid	93-72-1			8.0E-03	i					0		0.10	1	1.2E+02	nc	4.9E+03	nc	5.0E+01	m	5.5E-01	m
1,1,2-Trichloropropane	598-77-6			5.0E-03	i					1			1	9.8E+01	nc	5.1E+03	nc	4.6E+01	nc	3.6E-01	nc
1,2,3-Trichloropropane	96-18-4	3.0E+01	i	4.0E-03	i			3.0E-04	i	1			1	5.0E-03	ca	9.5E-01	ca	7.2E-04	ca	6.2E-06	ca
1,2,3-Trichloropropene	96-19-5			3.0E-03	x			3.0E-04	p	1			1	2.3E-01	nc	4.0E+00	nc	1.6E-01	nc	1.5E-03	nc
Tridiphane	58138-08-2			3.0E-03	i					0		0.10	1	4.6E+01	nc	1.8E+03	nc	2.7E+01	nc	3.9E+00	nc
Triethylamine	121-44-8							7.0E-03	i	1			1	3.7E+01	nc	6.3E+02	nc	3.7E+00	nc	2.2E-02	nc
Trifluralin	1582-09-8	7.7E-03	i	7.5E-03	i					0		0.10	1	6.3E+01	ca	2.2E+03	ca	8.7E+00	ca	5.8E+00	ca
1,2,4-Trimethylbenzene	95-63-6							7.0E-03	p	1	S		1	1.9E+01	nc	3.1E+02	nc	3.7E+00	nc	1.1E-01	nc
1,3,5-Trimethylbenzene	108-67-8			1.0E-02	x					1			1	2.0E+02	nc	1.0E+04	nc	9.1E+01	nc	2.6E+00	nc
Trimethyl phosphate	512-56-1	3.7E-02	h							0		0.10	1	1.3E+01	ca	4.7E+02	ca	1.8E+00	ca	8.0E-03	ca
1,3,5-Trinitrobenzene	99-35-4			3.0E-02	i					0	S	0.10	1	4.6E+02	nc	1.8E+04	nc	2.7E+02	nc	1.9E+01	nc
Trinitrophenylmethylnitramine	479-45-8			4.0E-03	p					0		0.10	1	6.1E+01	nc	2.5E+03	nc	3.7E+01	nc	6.9E+00	nc
2,4,6-Trinitrotoluene	118-96-7	3.0E-02	i	5.0E-04	i					0		0.10	1	7.6E+00	nc	3.1E+02	nc	2.2E+00	ca	2.6E-01	ca

NDEQ VCP REMEDIATION GOALS

TABLE 1 - DIRECT CONTACT EXPOSURE PATHWAYS

Key : SFo = Oral Slope Factor; RfDo = Oral Reference Dose; IUR = Inhalation Unit Risk; RfC = Inhalation Reference Concentration; i = IRIS; h = HEAST; n = NCEA; x = Withdrawn (reference for value provided); o = Other EPA Source (reference for value provided); p = NCEA PPRTV; R3 = EPA Region 3 RBC Table; R6 = EPA Region 6 MSSL Table; R9 = EPA Region 9 PRG Table; ca = Cancer VCP RG; nc = Noncancer VCP RG; m = MCL-based; s = solubility; sat = Soil Saturation; max = Ceiling limit; DAF = Dilution Attenuation Factor; CAS = Chemical Abstract Services; +++ = Non-Standard Method Applied; see Notes section at bottom of table and Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information

CONTAMINANT		TOXICITY INFORMATION[1]											VCP REMEDIATION GOALS (RGs)							
													Direct Contact Exposure Pathways						Migration to Ground Water	
	CAS No.	SFo (mg/kg-d)$^{-1}$		RfDo (mg/kg-d)		IUR (µg/m^3)$^{-1}$		RfC (mg/m^3)		VOC	S = solid	ABS_d (unitless)	ABS_{GI} (unitless)	Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ground Water (ug/l)		DAF 20 (mg/kg)	
Triphenylphosphine oxide	791-28-6			2.0E-02	p					0		0.10	1	3.1E+02	nc	1.2E+04	nc	1.8E+02	nc	1.5E+01	nc
Tris(2-chloroethyl) phosphate	115-96-8	2.0E-02	p	7.0E-03	p					0		0.10	1	2.4E+01	ca	8.6E+02	ca	3.4E+00	ca	6.6E-02	ca
Uranium (chemical toxicity only)	7440-61-0			3.0E-03	i			3.0E-04	a	0			1	5.9E+01	nc	3.1E+03	nc	2.7E+01	nc		
Vanadium and compounds	7440-62-2			5.0E-03	s			1.0E-04	a	0			0.026	9.7E+01	nc	5.1E+03	nc	3.8E+01	nc		
Vernam	1929-77-7			1.0E-03	i					0		0.10	1	1.5E+01	nc	6.2E+02	nc	9.1E+00	nc	1.5E-01	nc
Vinclozolin	50471-44-8			2.5E-02	i					0		0.10	1	3.8E+02	nc	1.5E+04	nc	2.3E+02	nc	3.5E+00	nc
Vinyl acetate	108-05-4			1.0E+00	h			2.0E-01	i	1			1	2.9E+02	nc	4.9E+03	nc	1.0E+02	nc	4.4E-01	nc
Vinyl bromide	593-60-2					3.2E-05	h	3.0E-03	i	1			1	1.3E-01	ca	6.8E+00	ca	1.5E-01	ca	8.8E-04	ca
Vinyl chloride	75-01-4	7.2E-01	i	3.0E-03	i	4.4E-06	i	1.0E-01	i	1			1	6.3E-02	ca	1.8E+01	ca	2.0E+00	m	1.4E-02	m
Warfarin	81-81-2			3.0E-04	i					0		0.10	1	4.6E+00	nc	1.8E+02	nc	2.7E+00	nc	5.8E-02	nc
Xylenes	1330-20-7			2.0E-01	i			1.0E-01	i	1			1	1.9E+02	nc	3.2E+03	nc	1.0E+04	m	2.0E+02	m
Zinc	7440-66-6			3.0E-01	i					0			1	5.9E+03	nc	1.0E+05	max	5.0E+03	m		
Zinc phosphide	1314-84-7			3.0E-04	i					0			1	5.9E+00	nc	3.1E+02	nc	2.7E+00	nc		
Zineb	12122-67-7			5.0E-02	i					0		0.10	1	7.6E+02	nc	3.1E+04	nc	4.6E+02	nc		
Notes																					

[1]Toxicity factors selected based on the hierarchy described in EPA's "Memorandum Regarding Human Health Toxicity Values in Superfund Risk Assessments." From Michael B. Cook, Director, EPA Office of Superfund Remediation and Technology Innovation. To EPA Superfund National Policy Managers, Regions 1 - 10. OSWER Directive 9285.7-53. December 5, 2003. On-Line Address: http://www.epa.gov/oerrpage/superfund/programs/risk/hhmemo.pdf

EPA Region 3 Risk-Based Concentrations (RBC) Table. Last update: April 14, 2004. On-Line Address: http://epa.gov/reg3hwmd/risk/human/index.htm

EPA Region 6 Human Health Medium-Specific Screening Levels (MSSL) Table. Last update: Janary 13, 2004. On-Line Address: http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm

EPA Region 9 Preliminary Remediation Goals (PRG) Table. Last update: October 1, 2002. On-Line Address: http://epa.gov/region09/waste/sfund/prg/index.htm

** RGs for ammonia were established by NDEQ policy decision based on the ready conversion of ammonia to nittite and nitrate via chemical nitification, the lack of an MCL for ammonia, and the established MCL for nitrate.

+++ Designations (see Appendix A, Protocol for VCP Remediation Goal Lookup Tables, Nebraska Voluntary Cleanup Program for more information):

Cadmium and compounds: RfDo is value for water.

Total Chromium (1:6 ratio Cr VI:Cr III): IRIS IUR for Chromium VI used (since IRIS IUR is based on a 1:6 ratio of chromium VI:chromium III).

Chromium VI: IUR is IRIS value for Chromium VI multiplied by 7 (since IRIS IUR is based on a 1:6 ratio of chromium VI:chromium III).

Lead: VCP RGs calculated using EPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model

Manganese (non-food): RfDo reflects IRIS RfDo for manganese divided by 3, which reflects subtraction of dietary sources of manganese.

Thallium and compounds: RfDo is IRIS RfDo for thallium sulfate adjusted for the molecular weight of thallium

Vinyl chloride (residential): SFo and IUR are IRIS values based on continuous lifetime exposure from birth, derived using the linearized multistage (LMS) method.

Vinyl chloride (industrial): SFo and IUR are IRIS values based on continuous lifetime exposure during adulthood, derived using the linearized multistage (LMS) method.

Appendix B Standard Operating Procedures

1.1 UTILITY CLEARANCE

INTRODUCTION

Invasive field investigation activities such as drilling, soil gas surveys, test excavation or remedial construction activities require location of underground utilities prior to initiating work. Such clearance is sound practice in that it minimizes the potential for damage to underground facilities and more importantly, is protective of the health and safety of personnel. Under no circumstances will invasive activities be allowed to proceed without obtaining proper utility clearance by the appropriate public agencies and/or private entities. **This clearance requirement applies to all work on both public and private property, whether located in a dense urban area or a seemingly out-of-the-way rural location.**

The responsibility of obtaining this clearance lies with the Consultant or Contractor performing the work.

In most states such utility clearance is required by law, and obtaining clearance includes contacting a public or private central clearance agency via a "one-call" telephone service and providing them with proposed exploration location information. This is discussed in more detail herein. It is important to note that public utility agencies may not, and usually don't have information regarding utility locations on private property. As such, utility clearance at the Zion Nuclear Power Station must be cleared using available site drawings, and written approval must be obtained from plant personnel with appropriate knowledge of existing utilities.

PROCEDURES REFERENCED

- 2.2 Soil Borings

PROCEDURE

- Before marking any proposed exploration or underground construction locations, it is critical that all readily-available information on underground utilities and structures be obtained. This includes publicly-available information as well as information in the possession of private landowners. Any drawings obtained must be reviewed in detail for information pertaining to underground utilities.

- Using the information obtained, the site should be viewed in detail for physical evidence of buried lines or structures, including pavement cuts and patches,

variation in or lack of vegetation, variations in grading, etc. (Care must also be taken to avoid overhead utilities as well). Presence of surface elements of buried utilities should be documented, such as manholes, gas or water service valves, catch basins, monuments or other evidence.

- Overhead utility lines must be taken into account when choosing exploration and excavation locations. Most states require a minimum of 10 ft. of clearance between equipment and energized wires. Such separation requirements may also be voltage-based and may vary depending on state or municipality regulations.

  In evaluating clearance from overhead lines, the same restrictions may apply to "drops", or wires on a utility pole connecting overhead and underground lines.

- Using the information obtained and observations made, *proposed* exploration or construction locations should be marked in the field. Marking locations can be accomplished using spray paint on the ground, stakes, or other means**. All markings of proposed locations should be made in white**, in accordance with the generally-accepted universal color code for facilities identification (AWMA 4/99):

  - White: Proposed Excavation or Drilling location
  - Pink: Temporary Survey Markings
  - Red: Electrical Power Lines, Cables, Conduit and Lighting Cables
  - Yellow: Gas, Oil, Steam, Petroleum or Gaseous Materials
  - Orange: Communication, Alarm or Signal Lines, Cables or Conduits
  - Blue: Potable Water
  - Purple: Reclaimed Water, Irrigation and Slurry Lines
  - Green: Sewers and Drain Lines

- In order to effectively evaluate the proposed locations with these entities, detailed, accurate measurements between the proposed locations and existing surface features should be obtained. Such features can be buildings, street intersections, utility poles, guardrails, etc.

- Obtaining the utility clearance generally involves two entities:
  - The designated "One-Call" underground facilities protection organization for the area; and
  - The landowner.

  Both entities must be contacted and the proposed locations evaluated in light of information available for existing underground facilities. The detailed measurement information described above will be required by the "one call" agency. The owners of the applicable, participating underground utilities are obligated to mark their respective facilities at the site in the colors described

above. Utility stake-out activities will typically not commence for approximately 72 hours after the initial request is made.

- The public and private utility entities generally only mark the locations of their respective underground facilities within public rights-of-way. Determination of the locations of these facilities on private property will be the responsibility of the project Consultant or Contractor. If available information does not contain sufficient detail to locate underground facilities with a reasonable amount of confidence, alternate measures may be appropriate, as described below. In some cases, the memory of a long-time employee of a facility on private property may be the best or only source of information. It is incumbent on the Consultant or Contractor to exercise caution and use good judgement when faced with uncertainty.

- **Notes: It is important to note that not all utilities are participants in the "one-call" agency or process. As such, inquiries must be made with the "one-call" agency to determine which entities do not participate, so they can be contacted independently.**

  Most utility Stake-outs have a limited time period for which they remain valid, typically two to three weeks. It is critical that this time period be taken into account to prevent expiration of clearance prior to completion of the invasive activities, and the need to repeat the stake-out process.

- Care must be exercised to document receipt of notice from the involved agencies of the presence or absence of utilities in the vicinity of the proposed locations.

  Most agencies will generally provide a telephone or fax communication indicating the lack of facilities in the project area. **If contact is not made by all of the agencies identified by the "one-call" process, do not assume that such utilities are not present. Re-contact the "one-call" agency to determine the status.**

- For complicated sites with multiple proposed locations and multiple utilities, it is advisable to arrange an on-site meeting with utility representatives. This will minimize the potential for miscommunication amongst the involved parties.

- Completion of the utility stake out process is not a guarantee that underground facilities will not be encountered in excavations or boreholes; in fact, most "one-call" agencies and individual utilities do not offer guarantees, nor do they accept liability for damage that might occur. Accordingly, it is advisable that any invasive activities proceed with extreme caution in the upper four to five feet in the event the clearance has failed to identified an existing facility. This may necessitate hand-excavation or probing to confirm potential presence of shallow

utilities. If uncertainty exists for any given utility, extra activities can be initiated to solve utility clearance concerns. These options include:

- Hand digging, augering or probing to expose or reveal shallow utilities and confirm presence and location. In northern climates this may require advancing to below frost line, typically at least four feet.
- Screening the proposed work areas with utility locating devices, and/or hiring a utility locating service to perform this task. The private utility locating service is a growing industry that has formed a national organization. The National Utility Locate Contractors Association (NULCA) can be reached at 715-635-6004.

EQUIPMENT

- White Spray paint
- Wooden stakes, painted white or containing white flagging
- Color-code key
- Available drawings

REFERENCE

- American Public Works Association, April 1999, Uniform Color Code (http://www.apwa.net/)

1.2 FIELD DATA RECORDING – FIELD BOOKS, LOG FORMS AND ELECTRONIC DATA

INTRODUCTION

This procedure describes protocol for documenting standard investigation activities in the field. Field data serves as the cornerstone for an environmental project, not only for site characterization but also for additional phases of investigation or remedial design. Inaccurate or incomplete field data may create significant problems and additional project costs. In addition, recorded field data becomes a legal record of project work, and should be approached with that in mind. Producing legally defensible data includes proper and appropriate recording of field data as it is obtained in a manner that will preserve it for future use.

This procedure provides guidelines for accurate, thorough collection and preservation of written and electronic field data.

PROCEDURES REFERENCED

- 6.0 Field Instruments - Use And Calibration

PROCEDURE

Typical field data to be recorded generally includes, but is not limited to, the following:

- general field observations;
- numeric field measurements and instrument readings;
- quantity estimates;
- sample locations and corresponding sample numbers;
- relevant comments and details pertaining to the samples collected;
- documentation of activities, procedures and progress achieved;
- contractor pay item quantities;
- weather conditions;
- a listing of personnel involved in site-related activities;
- a log of conversations, site meetings and other communications; and
- field decisions made and pertinent information associated with the decisions.

Written Field Data

Written field data is generally recorded on one of two media: A standardized, pre-printed field log form, or a bound field log book. In general, use of a field log form is preferable as it prompts field personnel to make appropriate observations and record data in a standardized format. This promotes completeness and consistency from one person to the next.

In the absence of an appropriate pre-printed form, the data should be recorded in an organized and structured manner in a dedicated project field log book. Log books must be hard-cover, bound so that pages cannot be added or removed, and should be made from high-grade 50% rag paper with a water-resistant surface.

The following are guidelines for use of field log forms and log books:

1. Information must be factual and complete. Do not abbreviate.

2. All entries will be made in black indelible ink with a ballpoint pen and will be written legibly. Do not use "rollerball" or felt tip-style pens, since the water-soluble ink can run or smear in the presence of moisture.

3. All pages in a log book must be consecutively numbered. Field log forms should also be consecutively numbered.

4. Each day's work must start a new log book page.

5. At the end of each day, the current log book page must be *signed and dated* by the field personnel making the entries.

6. When using field log forms, they must also be *signed and dated*.

7. Make data entries immediately upon obtaining the data. Do not make temporary notes in other locations for later transfer to log forms or log books; this only increases the potential for error or loss of data.

8. Entry errors are to be crossed out with a single line, dated and initialed by the person making the correction.

9. Do not leave blanks on log forms, if no entry is applicable for a given data field, indicate so with "NA" or a dash ("--").

10. At the earliest practical time, photocopies of log forms and log book pages should be made and placed in the project file as a backup in the event the book or forms are lost are damaged.
11. Log books should be dedicated to one project only, i.e., do not record data from multiple projects in one log book.

Electronic Data

Electronic data recording is widely used in environmental investigation and remediation projects. In general, it involves electronic measurement of field information through the use of monitoring instruments, sensors, gauges, and equipment controls. The following is a list of guidelines for proper recording and management of electronic field data:

1. Field data management should follow requirements of a project-specific data management plan (DMP), if one exists.

2. Use only instruments that have been calibrated in accordance with manufacturer's recommendations.

3. Personnel properly trained and experienced in the use of the equipment and software should only perform usage of instruments, controls and computers for the purpose of obtaining field data.

4. Use only fully licensed software on PCs and laptops.

5. Loss of electronic files may mean loss of irreplaceable data. Every effort should be made to back up electronic files obtained in the field as soon as practical. A backup file placed on a disk and kept in a separate location from the original will minimize the potential for loss.

6. Electronic files, once transferred from field instruments or laptops to office computers, should be protected if possible to prevent unwanted or inadvertent manipulation or modification of data. Several levels of protection are usually available for spreadsheets, including making a file "read-only" or assigning a password to access the file.

7. Protect floppy disks from exposure to moisture, excessive heat or cold, magnetic fields, or other potentially damaging conditions.

8. Remote monitoring is often used to obtain stored electronic data from site environmental systems. A thorough discussion of this type of electronic field data recording is beyond the scope of this SOP. Such on-site systems are generally capable of storing a limited amount of data as a comma-delimited or spreadsheet file. Users must remotely access the monitoring equipment files via modem or other access, and download the data. In order to minimize the potential for loss of data, access and downloading of data should be performed frequently enough to insure the data storage capacity of the remote equipment is not exceeded.

EQUIPMENT

- 5” by 7” National 407 Field Book, with high-grade 50% rag paper with water-resistant surface, hard-cover, or equivalent;
- Appropriate field log forms;
- Indelible ball point pen (do not use “rollerball” or felt-tip style pens);
- Straight edge;
- Pocket calculator;
- Laptop computer (if required).

REFERENCES

2.1 DRILLING TECHNIQUES/BACKGROUND INFORMATION

INTRODUCTION

This section will provide a brief description of common methods for conducting subsurface investigations. It should be noted that every drilling technology has its limitations.

PROCEDURES REFERENCED

- 2.2 Soil Borings
- 3.2 Overburden Wells
- 3.4 Well Development

DRILLING METHODS

It is important that the drilling method or methods used minimize disturbance of subsurface materials and not contaminate the subsurface and groundwater. The actual drilling method would be dependent upon site-specific geologic conditions. It is important to note that the drilling equipment selected be decontaminated before and between borehole locations to prevent cross contamination (see SOP 7.0). Where possible drilling methods that minimize waste generation (soil cuttings), and waste water generation (decon water), should be selected for investigation/remedial tasks.

In other settings it may be desirable to dictate drilling procedures that minimize turbidity/maximize the ability to achieve sediment-free groundwater. Generally, rotosonic techniques or rotary spun casing techniques achieve these objectives, or oversizing the borehole/sand pack may be considered, as well.

Rotosonic Drilling

This method consists of a combination of rotation with high frequency vibration to advance a core barrel to a desired depth. Once the vibration is stopped, the core barrel is retrieved, and the sample is vibrated or hydraulically extracted into plastic sleeves or sample trays. Monitoring wells shall be installed through the outer casing with minimal formation disturbance and mixing of formation materials. Rotosonic drilling generally requires less time than more traditional methods and minimizes soil mixing and soil disturbance (preferred for well locations where low turbidity is an important objective). Continuous, relatively undisturbed samples can be obtained through virtually any formation. Conventional sampling tools can be employed as attachments (i.e., hydropunch, split spoon, shelby tube, etc.). No mud, air, water, or other circulating medium is required. The rotosonic method can drill easily through formations such as

rock, sand, clay, or glacial till. The main limitation of this method is the availability of equipment, the large area required (i.e., drill units are quite large), and costs.

Direct Push (Geoprobe™)

Direct push refers to the sampler being "pushed" into the soil material without the use of drilling to remove the soil. This method relies on the amount of the drill weight combined with percussion for advancement of the tool string. Discrete soil samples are continuously obtained as well groundwater and vapor samples can also be collected utilizing this method. Subsurface investigations typically probe to depths of 30 feet or more, although depths will vary based on site-specific geology. This method is used extensively for initial Site screening activities to delineate vertical and horizontal plume presence and can significantly reduce investigative costs. This method is becoming more popular due to the limited cuttings that are produced during the sampling process and the sampling process speed. The use of the Geoprobe™ 6600 also allows for the installation of 2-inch diameter monitoring wells.

Rotary Method

This method consists of a drill rod attached to a drill bit (soils: tricone, drag; rock: button studded, diamond studded) that rotates and cuts through the soils and rock. The cuttings produced are forced to the surface between the borehole wall and the drill rod by drilling fluids that generally consist of water, drilling mud, or air. The drilling fluids not only force the cuttings to the surface but also keep the drilling bit cool. Using rotary methods for well installations can be difficult, as it usually requires several steps to complete the installation. First, the borehole is drilled; then temporarily cased; then the well is installed; and then the temporary casing is removed. In some cases, the borehole may remain open without installing a casing but this will only occur in limited instances (i.e., cohesive soils).

i) Water Rotary

When using water rotary, the potable water supply shall be analyzed for contaminants of concern. Water rotary is the preferred rotary method since the potable water is the only fluid introduced into the borehole during drilling. However, the use of water as a fluid is generally only successful when drilling in cohesive soils. The use of potable water (only) also reduces well development time, when compared to mud rotary.

ii) Air Rotary (typically used in rock)

When using air rotary, the air compressor must have an in-line oil filter system assembly to filter the oil mixed with the air coming from the compressor. This will help eliminate contaminant introduction into the formation. The oil filter system shall be regularly inspected. Air compressors not having an in-line oil filter system are not acceptable for air rotary drilling. A cyclone velocity dissipater or similar air

containment system shall also be used to funnel the cuttings to one location rather than letting the cuttings blow uncontrolled out of the borehole. Air rotary may not be an acceptable method for well installation where certain contaminants are present in the formation. Alternatively, it may be necessary to provide treatment for the air being exhausted from the borehole during the installation process.

iii) Mud Rotary

Mud rotary is the least preferred rotary method because contamination can be introduced into the borehole from the constituents in the drilling mud (i.e., Ohio, Michigan). The drilling muds are generally non-toxic and do not introduce contaminants into the borehole, however, it is possible for mud to commonly infiltrate and affect water quality by sorbing metals and polar organic compounds. Chemical composition and priority pollutants analysis may be obtained from the manufacturer. Mud rotary shall utilize only potable water and pure (no additives) bentonite drilling muds. The viscosity of the drilling mud shall be kept as low as possible in order to expedite well development. Proper well development is essential to ensure the removal of all the drilling mud and to return the formation to its previously undisturbed state.

Hollow-Stem Auger

The hollow-stem continuous-flight auger (HSA) is among the most frequently used in the drilling of monitoring wells (overburden wells) or for placement of overburden casings for bedrock wells.

The primary advantages of hollow-stem augering are that:

- generally, no additional drilling fluids are introduced into the formation;
- representative geologic soil samples can be easily obtained using split-spoon samples in conjunction with the hollow-stem augers; and
- monitoring wells can be installed through the augers eliminating the need for temporary borehole casings.

Disadvantages of hollow-stem augering are:

- creates problems for select parameters;
- large volumes of cuttings are typically generated;
- decon is fairly time consuming/labor intensive; and
- relatively slow when compared to direct-push methods (soil sampling tasks).

Installing monitoring wells through hollow-stem augers is a relatively simple process although precautions need to be taken to ensure that the well is properly backfilled. This can be particularly problematic in cases where flowing sand is present.

Hollow-stem augers are available with inside diameters of 2.5, 3.25, 4.0, 4.25, 6.25, 8.25, and 10.25 inches. The most commonly used are 4.25 inches for 2-inch (5 cm) monitoring wells and 6.25 inches for 4-inch (10 cm) monitoring wells. Boreholes can usually be drilled with hollow-stem augers to depths up to 100 feet (30 m) in unconsolidated clays, silts, and sands. Removing augers in flowing sand conditions while installing monitoring wells may be difficult since the augers have to be removed without being rotated. A bottom plug or pilot bit assembly should be utilized to keep out soils and/or water that have a tendency to plug the bottom of the augers during drilling. If flowing sands are encountered, potable water (analyzed once for contaminants of concern) may be poured into the augers to equalize the pressure to keep the formation materials and water from coming up into the auger once the bottom plug is removed.

Dual-Wall Reverse Circulation Air Method of Drilling

This method consists of two concentric strings of drill pipe (an outer casing and a slightly smaller inner casing). The outer drill pipe is advanced using rotary drilling with a donut-shaped bit attached to the dual casing string cuts an area only the width of the two casings and annulus between. Compressed air is continually forced down the annulus between the inner casing carrying the drill cuttings and groundwater. At the surface, the inner casing is connected to a cyclone hopper where the drill cuttings and groundwater fall out the bottom of the hopper, and air is disbursed out the top. The dual wall provides a fully cased borehole in which to install a monitoring well. The only soil or groundwater materials exposed at any time are those at the drill bit. Therefore, the potential for carrying contamination from one stratum to another is minimal. Depth-specific groundwater samples can be collected during drilling; however, since the groundwater is aerated, analysis for volatile compounds may not be valid.

Well Points

In some limited cases, well points (sand points) are driven into place without the use of augers. This method provides no information on the geologic condition (other than the difficulty of driving which may be related to formation density). Well points are most often used simply to provide dewatering of a geologic unit prior to excavation in the area. Well points are also used in monitoring shallow hydrogeologic conditions such as in stream beds.

REFERENCE

Numerous publications are available describing current monitoring well design and construction procedures.

1. Driscoll, F.G., 1986. Groundwater and Wells, 2nd Edition. Johnson Division.
2. Freeze, R.A. and Cherry, J.A., 1979. Groundwater. Prentice Hall, Inc.
3. EPA/625/6-90/0166 (July 1991), Handbook Ground Water Volume II:Methodology

4. National Water Well Association, 1989. Handbook of Suggested Practices for the Design and Installation of Groundwater Monitoring Wells
5. Environmental Protection Agency (1986), RCRA Groundwater Monitoring Technical Enforcement Guidance Document, OSWER-9950.1

In addition, the following ASTM publications apply:

1. ASTM D5474 Guide for Selection of Data Elements for Ground-Water Investigations
2. ASTM D5787 Practice for Monitoring Well Protection
3. ASTM D5521 Guide for Development of Ground-Water Monitoring Wells in Granular Aquifers
4. ASTM D5978 Guide for Maintenance and Rehabilitation of Ground-Water Monitoring Wells
5. ASTM D5299 Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes and Other Devices for Environmental Activities
6. ASTM D5092 Standard Practice for Design and Installation of Ground Water Monitoring Wells in an Aquifer.

2.2 SOIL BORINGS

INTRODUCTION

The following presents a description of the methods generally employed for the installation of boreholes and the collection of subsurface soil samples. Boreholes are typically installed to define geologic conditions for hydrogeologic and geotechnical evaluation; to allow the installation of monitoring wells and piezometers; and to allow the collection of subsurface soil samples (generally above the water table) for chemical analysis.

Several manual methods are available for the collection of shallow subsurface soil samples (e.g., hand augers, post-hole augers, vibratory hammers). However, the most common methods to advance boreholes are rotosonic drilling techniques, hollow-stem augers (HSA), or the use of a direct-push equipment. SOP 2.1 Drilling Techniques/Background, provides insight into the advantages/disadvantages of these drilling methods.

PROCEDURES REFERENCED

- 1.1 Utility Clearance
- 2.1 Drilling Techniques/Background Information
- 5.1 Soil Sample Collection

BOREHOLE REQUIREMENTS

The following activities must be undertaken prior to installing a borehole.

i) Obtain a site plan and any previous stratigraphic logs. Determine the exact number and location of boreholes to be installed and the depths of samples for chemical analysis.

ii) Coordinate lab services including:
- glassware/sample jars;
- cooler;
- shipping details;
- start date; and
- expected duration.

iii) Establish borehole locations in field using available landmark or by surveying methods if necessary.
iv) Arrange for utility clearance of franchised utilities and site utilities.
v) Determine notification needs with the Project Manager. Notify the regulatory groups, landowner, facility personnel, and laboratory of the sampling event.
vi) Determine the methods for handling and disposal of drill cuttings, wash waters, and spent decontamination fluids.

Once the prior planning and preparation activities are completed, the borehole installation and subsurface soil sampling program can proceed. The typical work sequence is as follows:

- locating and marking of borehole locations (if not already completed);
- equipment decontamination;
- final visual examination of proposed drilling area for utility conflicts/final hand auger or post-hole check to verify utility absence;
- advancement of borehole and collection of the soil sample;
- field screening of soil sample;
- description of soil sample;
- sample preparation and packaging;
- abandonment of boreholes;
- surveying of borehole locations and elevations; and
- field note completion and review.

i) Location and Marking of Boreholes/Final Visual Check

The proposed borehole locations marked on the site plan are located in the field and staked. On most sites, this will likely be done several days in advance of the drill rig arriving on site. Unless boreholes are to be installed on a fixed grid, the proposed locations are usually placed at biased locations.

Once the final location for the proposed boring has been selected and utility clearances are complete, one last visual check of the immediate area should be performed before drilling proceeds. This last visual check should confirm the locations of any adjacent utilities (subsurface or overhead) and verification of adequate clearance. If gravity sewers or conduits exist in the area, any access manholes or chambers should be opened and the conduit/sewer alignments confirmed. Do not enter manholes unless confined space procedures are followed.

ii) Borehole Advancement

If possible, it is prudent to use a hand auger or post-hole digging equipment to a sufficient depth to verify the absence of buried utilities and pipelines. This procedure should clear the area to the full diameter of the drilling equipment that will follow. (**Only if underground utilities are suspected in the area, or requested by client.**)

If it is necessary to relocate any proposed borehole due to terrain, utilities, access, etc., the Field Coordinator/Task Manager must be notified and an alternate location will be selected. If moved, details of new location should be recorded in field log book.

Prior to use and between each borehole location at an environmental site, the drilling and sampling equipment must be decontaminated. All decontamination must be conducted in accordance with the project-specific plans or the methods presented in SOP 7.0

The clean augers/tooling are covered with clean plastic sheeting to prevent contact with foreign materials. For geotechnical, geologic, or hydrogeologic studies where contaminants will not be present, it is sufficient to clean the drilling equipment simply by removing the excess soils.

- Collection of soil samples is one of the most important considerations in selecting drilling methods. Therefore, the need for reviewing drilling techniques (SOP 2.1) and the Site objectives must first be considered. Sections iii) and iv) describe borehole soil sampling procedures using direct-push tooling and hollow stem augering/split spoon sampling (Standard Penetration Testing - SPT), respectively.

iii) Direct-Push/Macro-Core™ Soil Sampler

The operation of the direct-push/Macro-Core™ Soil Sampler (or equivalent) consists of "pushing" the sampler into the subsurface and then retrieved using a direct-push soil probing machine. The collected soil core is contained within an internal soil liner (acetate, polyethylene or Teflon) and removed from the sampler once returned to the ground surface. Sampler length is variable depending on equipment available (2 ft., 4 ft., 5 ft.). Once the soil liner has been removed and the outer sampler de-coned, a new liner is inserted and the sampler reassembled. The clean sampler is then driven back down the same hole to collect the next soil sample.

The Macro-Core™ sampler can be used in either the open-tube or closed-point sampling mode. The open-core sample mode is most commonly used in stable soil conditions. In unstable soils, the piston rod point system prevents collapsed soil from entering the sampler as it is advanced back down the hole. Once at the sample depth, the piston rod is unthreaded and released. The sampler is then driven into the subsurface to fill the sampler with soil, the piston point rides on top of the soil, as it enters the sampler. Once recovered the soil liner with collected soils is opened (cut lengthwise) and examined to collected soil screening information, soil logging information, and soils for chemical analysis.

iv) Standard Penetration Testing (SPT) Sampling and Testing Procedure

This method is used to obtain representative samples of subsurface soil materials and to determine a measure of the in situ relative density of the subsurface soils. The test methods described below must be followed to obtain accurate SPT values. The split spoon is typically driven in advance of a hollow stem auger string which allows collection of the disturbed but representative sample.

SPT sampling is performed by using a split barrel sampler in accordance with ASTM D1586. The split barrel sampler, or split spoon, consists of an 18- or 24-inch long, 2-inch outside diameter tube, which comes apart length-wise into two halves. The split spoon is typically driven in advance of a hollow stem auger string which allows collection of the disturbed but representative soil sample.

Once the borehole is advanced to the target depth and the borehole cleaned of cuttings, representative soil samples are collected in the following manner:

- the split-spoon sampler should be inspected to ensure it is properly cleaned and decontaminated. The driving shoe (tip) should be relatively sharp and free of severe dents and distortions;
- the cleaned split-spoon sampler is attached to the drill rods and lowered into the borehole. Do not allow the sampler to drop onto the soil;
- after the sampler has been lowered to the bottom of the hole, it is given a single blow to seat it and make sure that it is in undisturbed soil. If there still appear to be excessive cuttings in the bottom of the borehole, remove the sampler from the borehole and remove the cuttings; and
- mark the drill rods in three or four successive 6-inch (0.15 m) increments, depending on sampler length, so that the advance of the sampler under the impact of the hammer can be easily observed for each 6-inch (0.15 m) increment.

The sampler is then driven continuously for either 18 or 24 inches (0.45 or 0.60 m) by use of a 140-pound (63.5 kg) hammer. The hammer may be lifted and dropped by either the cathead and rope method, or by using a trip, automatic, or semi-automatic drop system. The hammer should free-fall a distance of 30 inches (±1 inches) (760 mm, ±25 mm) per blow. Measure the drop at least daily to ensure that the drop is correct. To ensure a free-falling hammer, no more than 2 1/4 turns of the rope may be wound around the cathead (see ASTM D1586). The number of blows applied in each 6-inch (0.15 m) increment is counted until one of the following occurs:

- a total of 50 blows have been applied during any one of the 6-inch (0.15 m) increments described above;
- a total of 100 blows have been applied;
- there is no advancement of the sampler during the application of ten successive blows of the hammer (i.e., the spoon is "bouncing" on a stone or bedrock); or

- the sampler has advanced the complete 18 or 24 inches (0.45 or 0.60 m) without the limiting blow counts occurring as described above.

In some cases where the limiting number of blow counts has been exceeded, the Consultant may direct the driller to attempt to drive the sampler more if collection of a greater sample length is essential.

On the field form, record the number of blows required to drive each 6-inch (0.15 m) increment of penetration. The first 6 inches is considered to be a seating drive. The sum of the number of blows required for the second and third 6 inches (0.15 m) of penetration is termed the "standard penetration resistance" or the "N-value".

Note: If the borehole has sloughed and there is caved material in the bottom, the split spoon may push through this under its own weight, but now the spoon is partially "pre-filled". When the spoon is driven the 18 or 24 inches representing its supposedly empty length, the spoon fills completely before the end of the drive interval. Two problems arise:
1. the top part of the sample is not representative of the in-place soil at that depth;
2. the SPT value will be artificially higher toward the bottom of the drive interval since the spoon was packed full. These conditions should be noted on the field log.

The sampler is then removed from the borehole and unthreaded from the drill rods. The open shoe (cutting end) and head of the sampler are partially unthreaded by the drill crew and the sampler is transferred to the geologist/engineer work surface.

Note: A table made out of two sawhorses and a piece of plywood is appropriate, or a drum, both covered with plastic sheeting.

The open shoe and head are removed by hand, and the sampler is tapped so that the tube separates.

Note: Handle each split spoon with clean disposable gloves if environmental issues are being investigated.

Measure and record the length of sample recovered making sure to discount any sloughed material that is present on top of the sample core.
Caution must be used when conducting SPT sampling below the groundwater table, particularly in sand or silt soils. These soils tend to heave or "blow back" up the borehole due to the difference in hydraulic pressures between the inside of the HSA and the undisturbed soil. To equalize the hydraulic pressure, the inside of the HSA must be filled with water or drilling mud. The drilling fluid level within the boring or hollow-stem augers needs to be maintained at or above the in situ groundwater level at all times during drilling, removal of drill rods, and sampling. Since heave or blow back is not always

obvious to the driller, it is essential that the water level in the borehole always be maintained at or above the groundwater level. Heaving conditions and the use of water or mud should be noted on the field logs.

SPT sampling below the water table in sands and silt occasionally results in low SPT values being obtained due to the heaving effect disturbing the soil especially if the water level in the hole has not been maintained at the in situ water level. Suspect low N values should be noted on the field logs. If it is critical to have accurate N values below the water table, other methods can be employed, such as conducting a dynamic cone penetration test. This quick and easy test involves attaching a cone shaped tip to the end of the drill rods, and driving the tip into the ground similar to the SPT method, except that the borehole is not pre-augered. Cones may be driven 20 to 40 feet through a formation without augering. Blow counts are recorded for each foot (0.3 m) of advancement.

A variation of split barrel sampling involves the use of a longer barrel in conjunction with hollow stem augers. The sampling barrel is installed inside the auger with a swivel attachment to limit rotation of the barrel. After completion of a 5-foot auger penetration, the auger is left in place and the barrel retrieved from the borehole. The sampler should be handled and the sample retrieved in the same way as described above for SPT sampling. This method is quicker than SPT split spoon sampling and the sample is virtually undisturbed because the cutting shoe sits ahead of the auger. No SPT information is collected due to soil sample collection during auger run.

Thin-Walled Samplers (Shelby Tubes)

Thin-walled samplers are used to collect relatively undisturbed samples (as compared to split-spoon samples) of soft to stiff clayey soils. Shelby tubes are commonly used. The Shelby Tube has an outside diameter of 2 or 3 inches and is 3 feet long. These undisturbed samples are used for certain laboratory tests of structural properties (consolidation, hydraulic conductivity, shear strength) or other tests that might be influenced by sample disturbance. Procedures for conducting thin-walled tube sampling are provided in ASTM D1587, and are briefly described below.

- the soil deposit being sampled must be cohesive in nature, and relatively free of sand, gravel, and cobble materials, as contact with these materials will damage the sampler;
- clean out the borehole to the sampling elevation using whatever method is preferred that will ensure the material to be sampled is not disturbed. If groundwater is encountered, maintain the liquid level in the borehole at or above groundwater level during the sampling operation;
- bottom discharge bits are not permitted. Side discharge bits may be used, with caution. Jetting through an open-tube sampler to clean out the borehole to sampling elevation is not permitted. Remove loose material from the center of a casing or hollow-stem auger as carefully as possible to avoid disturbance of the material to be sampled;

- place the sample tube so that its bottom rests on the bottom of the hole. Advance the sampler into the formation without rotation by a continuous and relatively rapid motion; usually hydraulic pressure is applied to the top of the drill rods;
- determine the length of advance by the resistance and condition of the formation, but the length shall never exceed 5 to 10 diameters of the tube in sands and 10 to 15 diameters of the tube in clays;
- in no case should the length of advance be greater than the sample-tube length minus an allowance for the sampler head and a minimum of 3 inches for cuttings.
- the tube may be rotated to shear the bottom of the sample 2 to 3 minutes after pressing in, and prior to retrieval to ensure the sample does not slide out of the tube. Lift the weight of the rods off of the tube prior to rotating.
- withdraw the sampler from the formation as carefully as possible in order to minimize disturbance of the sample;
- package and transport the sample in accordance with Paragraph ix).

On occasion it maybe required to extract the sample from the tube in the field.

- a sample extruder, which consists of a clamp arrangement to hold the tube and a hydraulic ram to push the sample through the tube, is usually mounted on the side of the rig. To prevent cross-contamination, be certain that the extruder is field cleaned between each sample;
- the sample is then extruded into a carrying tray; these are often made from a piece of 4-inch or 6-inch diameter PVC pipe cut lengthwise. Be certain that the carrying tray is field cleaned between each sample. The sample is carried to the work station to describe the sample, trim the potentially cross contaminated exterior, and place it in the appropriate container; and
- the Shelby tube may then be thoroughly field cleaned and decontaminated for reuse. Since they are thin-walled, the tubes are easily damaged, crimped, or otherwise distorted during handling or pushing. The Shelby Tube should be inspected before use and any which are significantly damaged should be rejected.

v) Borehole Completion

At the completion of the soil boring, once the soil/groundwater samples have been collected, the borehole annulus is then abandoned. Each boring will be surveyed to establish vertical/horizontal information; field ties (i.e., swing ties) will also be collected to document the boring location. Once completed, a stratigraphic log will be prepared for reporting purposes.

EQUIPMENT

- Drilling Equipment

- Tape Measure

REFERENCE

1. ASTM D420-93 Guide to Site Characterization for Engineering, Design, and Construction Purposes
2. ASTM D1452-80 Practice for Soil Investigation and Sampling by Auger Borings
3. ASTM D1586-84 Test Method for Penetration Test and Split-Barrel Sampling of Soils
4. ASTM D1587-94 Practice for Thin-Walled Tube Geotechnical Sampling of Soils
5. ASTM D2488-93 Practice for Description and Identification of Soils (Visual-Manual Procedure)
6. National Water Well Association, Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells.1989
7. EPA OSWER-9950.1,1986. RCRA Ground-Water Monitoring Technical Enforcement Guidance Document

2.4 BOREHOLE ABANDONMENT/SEALING

INTRODUCTION

The following procedure describes common techniques for the abandonment/sealing of overburden boreholes. Borehole completion may have been performed by hollow stem augering/split spoon sampling, direct push sampling device, solid stem augering or other soil sample collection techniques. The method of borehole abandonment selected for a program will be dependent on a number of factors such as: depth to groundwater, presence of contamination (and degree of contamination i.e., light or dense non-agueous phase liquids - NAPL), confining layer presence and/or physical setting (i.e., open field/vacant land, vs. facility setting). The Work Plan guiding these activities (soil boring/boring closure) will dictate which method of borehole abandonment/sealing is required. The borehole abandonment/sealing techniques reviewed in the following consist of:

- soil cutting backfill;
- bentonite chip backfill; or
- cement/bentonite grout backfill using tremie techniques.

Boreholes need to be abandoned and sealed properly to prevent surface water entry to the groundwater regime, to eliminate any physical hazard, and to prevent/protect groundwater movement from one aquifer to another.

PROCEDURES REFERENCED

- 2.2 Soil Borings

BOREHOLE ABANDONMENT/SEALING PROCEDURE

A. Soil Cutting Backfill

Typically employed when working above groundwater table and at shallow depths.

- The final depth of borehole will be measured and recorded.
- Cuttings are dropped into borehole after augering/sample equipment is removed.
- Drill rod and/or probe rodding is used to compact/compress cuttings to allow return of all cuttings back into borehole.
- Mound final surface of cuttings above ground surface to allow settlements and promote surface water runoff away from boring.
- Borehole abandonment will be documented in field records/notes.

B. Bentonite Chip Backfill

Typically employed when working above or just into the groundwater table

- Excess cuttings have been drummed for disposal or excess cuttings have been spread at ground surface.
- The depth of the borehole will be measured and recorded.
- Bentonite chips will be dropped into borehole as hollow stem augers are removed, or after the boring equipment has been removed from the borehole (solid stem auger, probing tools, split spoon samplers).
- The bentonite chip backfill will be extended to within 1 foot of ground surface, the final borehole space will be backfilled with native soil and mounded slightly to allow settlement and promote surface water runoff away from the boring. Alternatively, the borehole cuttings may be mixed with bentonite to complete the abandonment/sealing task.
- Borehole abandonment will be documented in field records/notes.

C. Cement/Bentonite Grout Backfill

Typically employed when working below the groundwater table, or in an area where a confining layer exists and the potential for groundwater/NAPL movement along a preferential pathway (i.e., former borehole) must be eliminated.

- The final depth of borehole will be measured and recorded.
- The volume of grout required will be calculated from the above measurements.
- A grout mix of one bag (94 lbs.) of Portland Cement and three pounds of bentonite with approximately 7.5 gallons of clean water will be prepared.
- Using a tremie tube placed at the base of the borehole the grout will be pumped until observed at the required elevation. The tremie tube will be raised as the grout level rises (positive displacement technique).
- The bentonite/grout backfill will be extended to within 1 foot of ground surface, the final borehole space will be backfilled with native soil and mounded slightly to allow settlement and promote surface water runoff away from boring.
- Borehole abandonment will be documented, noting depth of borehole; volume of grout used and mix ratio.
- Groundwater displaced from the borehole may or may not required containment depending on borehole setting and/or water quality.

NOTE: AT THE COMPLETION OF BOREHOLE ABANDONMENT/SEALING ACTIVITIES (REGARDLESS OF METHODOLOGY EMPLOYED) IT IS NECESSARY TO CHECK FOR SURFACE SETTLEMENT A FEW DAYS AFTER WORK COMPLETION TO DETERMINE IF THE BOREHOLE AREA REQUIRES "TOPPING OFF".

Restoration

The area around the borehole shall be restored as directed by the plant representative (e.g., asphalt, concrete, vegetation).

Cleanup

The area around the borehole shall be completely cleaned up of any investigation related materials (litter, etc.).

EQUIPMENT/MATERIALS

- Grout pump/mixing equipment
- Test Boring Report

REFERENCE

1. United States Environmental Protection Agency (1992) "Guide to Management of Investigation-Derived Wastes", Quick Reference Fact Sheet
2. ASTM D5299 "Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes and Other Devices for Environmental Activities

3.1 WELL CONSTRUCTION MATERIALS

INTRODUCTION

In environmental subsurface investigations, the information used to evaluate subsurface conditions often relies on the installation of appropriate groundwater monitoring wells. The application and use of the proper well construction materials to the specific well installation is crucial to obtaining representative and reliable groundwater samples.

The two general types of wells are groundwater monitoring wells and pumping (also referred to as recovery, extraction, or withdrawal) wells. The specific use of a groundwater well dictates the types of materials with which it is constructed.

This SOP outlines the general types and use of well construction materials and considerations involved in selecting appropriate materials for specific well installation applications. Installation of these materials is described in detail in the specific well-installation SOPs listed below.

PROCEDURES REFERENCED

- 3.2 Overburden Monitoring Well Installation

MATERIAL DESCRIPTIONS

A. Well Screen

The screen is the portion of the well that contains appropriately sized openings and allows groundwater to enter the well. The screen materials used in groundwater monitoring wells are crucial to ensuring the installation of an efficient, productive, and durable groundwater well.

The diameter of the well screen is generally dependent upon the application of the well. For monitoring wells used in groundwater level measurements and groundwater sampling, screen diameter will generally be 2.0-inch inner-diameter (I.D.) flush-threaded screen segments (piezometers are typically 1.0-inch inner diameter but may also be 2-inch). These screen segments are typically available in 10-foot lengths. Four-inch diameter or larger well screens are usually used for recovery or production well applications where larger diameters permit greater groundwater withdrawal rates. Larger diameter wells also allow a well to serve additional functions such as housing extraction oil recovery systems.

Screen material will be either thermoplastic Schedule 40 PVC (PolyVinylChloride) (ASTM D1785, ASTM D2665, ASTM F480) or Schedule 5 Type 316 stainless steel, depending primarily on the depth of the well and the groundwater quality (degree and nature of contamination). Shallower depths and generally low levels of contaminants in groundwater allow for PVC applications, whereas greater depths and severely degraded groundwater quality, or the presence of free-phase oils or solvents, may necessitate stainless steel due to its greater strength and resistance to chemical degradation. It should be noted that PVC and stainless steel are appropriate for the vast majority of environmental applications, and are generally accepted by regulatory agencies. Well materials other than PVC or stainless steel should be used only in certain instances, to be determined and approved by the Consultant Project Manager on a case-by-case basis.

Certain applications such as investigation of inorganic (metals) concentrations in groundwater, or the presence of low pH (acidic) conditions may preclude the use of stainless steel wells. Stainless steel, which contains molybdenum in addition to its iron content, may leach out metal compounds which could cause to misleading groundwater analysis results.

PVC may likewise leach out or degrade specific thermoplastic elements of its composition which may compromise the well integrity or groundwater analyses. PVC generally performs well in acidic groundwater conditions; however, it may degrade in the presence of certain organic compounds such as ketones, aldehydes or chlorinated compounds in high concentrations. Certain additives to the PVC may also affect groundwater quality.

Well screen slot sizes and well screen type will also be consistent for groundwater monitoring wells. Screen slot size is typically 0.010 inches; 0.020-inch slot size may be more appropriate for coarser formation materials or where the well may serve as a recovery well for free-phase oils. For monitoring applications, slot type should be either factory machine-slotted or continuous-wrap slotted. Perforated, bridge-slotted or louver-slotted well screens are generally not acceptable for most environmental applications and should be avoided.

Screen slot sizes may vary from these two sizes when used in production or recovery (pumping) well applications where the need to maximize groundwater withdrawal is essential. In such cases, screen slot sizes can be manufactured to exact specifications for a particular well based on particle size analysis results and formation transmissivity or permeability.

B. Well Riser Pipes and Casings

Well riser pipe is a solid extension of the well that extends from the screen up to the surface. The riser pipe protects the well screen, prevents outside groundwater from

entering the well, and allows groundwater pumped from down in the open interval to be routed up through the well to the surface.

Well riser pipe should be of the same material and size as the well screen described above. In instances to be determined and approved by the project manager on a case-by-case basis only, differing materials may be approved for use in the same well (e.g. stainless steel well screen connected to PVC riser). Well risers should extend to the surface and should either be cut at grade in flush-mount completions or as an approximately 3-foot stickup to be covered with a steel protective casing.

Well riser pipe sections shall be flush-threaded and fitted with neoprene, rubber, or other appropriately constructed, durable o-rings to properly seal the threaded pipe joints. Glues or cements are not to be used in well construction.

In installations of bedrock monitoring wells, which have an open rock monitoring interval and a permanent well casing that extends from bedrock to the surface, the permanent casing (or casings in telescoping wells) shall be made of carbon steel, low-carbon steel ($\geq$ 0.8% carbon and $\leq$ 0.8% carbon, respectively), or PVC. The well casing should be a minimum of 4 inches in diameter (at least 4-inch diameter for the innermost casing).

C. Sand Packs

The filter pack, or sand pack, installed in a well replaces formation material immediately around a well with a more permeable material (sand). The sand pack separates the well screen from the formation, increases the hydraulic diameter of the well, and prevents fines (silt or clay) from entering or clogging the well screen.

Sand pack of an appropriate size shall be utilized based on the well screen slot size being used. Sand pack size should be chosen so that the majority of the sand (sand pack has inherent variation in its particle grain size distribution) is larger than the screen slot size while sized small enough to prevent deleterious amounts of formation fines from entering the well through the sand pack. Screen slot sizes of 0.010-inch and 0.020-inch typically use a sand pack such as Morie or U.S. Silica #1, #0, #00N, or equivalent.

Sand pack shall be washed silica sand with a silica content of at least 95%. Sands should meet one or more of the following requirements: NSF Standard 61, AWWA B-100, ANSI, or equivalent standards for uniformity and chemical inertness. In cases to be determined and approved by the project manager on a case-by-case basis only, differing sand pack materials may be approved for use in a well. Sand packs used for production and recovery wells with larger screen slot sizes will use larger-particle-sized sand packs of the same type and quality. The slot size and sand pack size for recovery wells should be chosen based on results of formation grain size distribution analysis.

D. Seals

Bentonite and grout seals are installed above the sand pack to isolate the monitoring interval and prevent groundwater from infiltrating into the well screen from other water-bearing zones. Seals also prevent migration of backfill or formation materials downward into the sand pack.

Bentonite is the generic name for a group of a naturally-occurring clay minerals (montmorillonites) that come in a variety of forms: pellets, chips, granulated, or powdered. This material is commercially available as "Wyoming Bentonite". When hydrated it swells to many times its original volume and forms an ultra-low-permeability clay seal.

Bentonite chips or pellets are generally used to create a seal immediately above the sand pack. The chips/pellets are dropped inside the augers or well casing by hand down through the water column onto the top of the sand pack. Care must be taken to prevent "bridging" of the bentonite particles in the casing above the target zone. Measurements of the depth to the top of the seal must be obtained during installation of the seal to ensure its proper position and thickness. In the absence of significant water in a casing or borehole, potable water must be added to hydrate the bentonite. The bentonite seal will be allowed to set for a minimum of one-half hour, in order to hydrate properly, before additional seals (grout) are applied. Once the bentonite has set for one-half hour the grout seal may be placed, as described below.

In saline groundwater environments, such as where ocean water may infiltrate the monitoring interval, a zeolite-based seal material may be used, as saline conditions may hamper the performance of bentonite pellets.

Portland cement grout (grout) forms a concrete-like seal that can be more manageable than bentonite (e.g. able to be pumped through a water pump). Grout is generally placed on top of the hydrated bentonite seal to form a solid cement seal around the well riser up to the surface.

The grout mixture will consist of one 94-pound bag of Portland Cement and 3 to 5 pounds of powdered bentonite added per sack of cement. Two (2) pounds of calcium chloride may also be added (under certain conditions, e.g. very cold days) to accelerate the setting time of the grout, as well as to increase the dry strength of the grout. The grout will be thoroughly mixed with 6.5 gallons of potable water per sack of cement. Grout is generally placed using either the tremie or Halliburton grouting methods. These are described in the specific well installation SOPs.

E. Protective Casings and Surface Seals

Once the well screen, riser, and all seals have been placed to ground surface, the well riser must be protected. This includes protection from vehicles, damage, surface water

infiltration, and weather. This is typically accomplished using either a flush-mount roadbox or a stickup casing.

Flush-mount roadboxes are circular steel casing segments with a heavy-duty steel lid with locking bolts. These units are widely available and come in a number of diameters and lengths, depending on the well diameter. A stickup protective casing is generally a length of carbon or stainless steel pipe with a locking top.

For a typical 2-inch monitoring well, the roadbox should be at least 6 inches in diameter; a stickup casing should be at least 4 inches in diameter. A roadbox should be at least 12 inches in length (they are typically 16 to18 inches long) and is installed flush with the ground surface. A stickup casing should be at least 5 to 6 feet long such that approximately 2.5-3 feet is below ground surface and 2.5-3 feet is protruding above grade. In wells where a permanent steel casing is installed (serves as the well riser pipe) and brought to the ground surface, it may be used as the protective casing provided it is equipped with a semi-permanent, metal, locking cap or cover that can be affixed to the steel casing.

Flush-mount installations should have at least the last 18-inches of the open borehole filled with coarse sand, placed up to ground surface to allow drainage of surface water infiltration down through and out of the roadbox. This also prevents infiltrating surface water from accumulating up over the top of the well riser and draining down into the well. This sand drain is not necessary in the locking-cap stickup casings.

Both roadbox and stick-up casings must be secured in the ground with concrete, which also serves as a surface seal.

In areas of high vehicle traffic activity, protective steel bollards should be installed. This is typically a vertically-oriented, concrete-filled, steel pipe (min. 4-in diameter) cemented at least 3 ft. into the ground, acting as a “guard rail” for the well casing and preventing it from being damaged by vehicles. Three bollards should be placed around a well to provide adequate protection.

EQUIPMENT

- Drilling equipment
- Well screen and riser materials
- Sand pack
- Bentonite pellets/chips
- Powdered bentonite

- Portland cement

REFERENCE

1. ASTM D1785-99, Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

2. ASTM D2665-00, Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.

3. ASTM F480-00, Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80.

4. ASTM A53/A53M-01 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless for Ordinary Uses.

5. Campbell, M.D., and Lehr, J.H., Water Well Technology, McGraw Hill, 1973.

6. Cold Weather Concreting, ACI Committee 306, Materials Journal, Volume 85, Issue 4, July 1, 1988.

7. Driscoll, Fletcher G., Groundwater and Wells, Johnson Filtration Systems, Inc., 1986.

8. Freeze, R. Allen, and Cherry, John A., Groundwater, Prentice-Hall, 1979.

9. USEPA, 1986, RCRA Groundwater Monitoring Technical Enforcement Guidance Document, Office of Solid Waste and Emergency Response, 1986.

3.2 PROCEDURES FOR OVERBURDEN MONITORING WELL INSTALLATION

INTRODUCTION

This procedure presents the drilling, installation, and completion of overburden monitoring wells. The design and installation of monitoring wells involves the drilling of boreholes into various types of geologic formations. Designing and installing monitoring wells may require different drilling methods and installation in the overburden. However, due to specific site and monitoring requirements, the procedure may be revised as necessary to reflect these site-specific needs. Prior planning is required for the selection of the appropriate drilling method and selection of well materials.

PROCEDURES REFERENCED

- 2.5 Soil Classification
- 3.4 Well Development
- 5.1 Soil Sampling
- 7.0 Equipment Decontamination

DRILLING PROCEDURES

- Drilling and sampling equipment arriving on site will be decontaminated prior to drilling in accordance with the Decontamination and Waste Disposal Procedure.
- Drilling generated waste materials will be disposed according to the Decontamination and Waste Disposal Procedure.
- Record construction and geologic information on the attached subsurface boring log.
- The depth to the target interval may be determined from an existing adjacent monitoring well/boring or from information obtained from split spoon sampling

of the borehole. The criteria for determining the target interval to be monitored will be presented in the Project Work Plan. An 8-inch diameter borehole will be advanced to the target interval using a minimum 4¼-inch inside diameter (I.D.) hollow-stem auger.

- In the instances where the borehole is advanced deeper than the target interval, a bentonite pellet seal will be installed to bring the bottom of the boring to within 6 inches of the target interval. Six inches of filter sand will then be placed above the bentonite seal prior to further well installation.

- In some areas where the water table is known to be at or near the top of bedrock, the base of the overburden well will be installed at the top of bedrock.

- Continuous split-spoon samples may be collected, if required by applicable project Work Plan. (see Subsurface Soil Sampling Procedure). If collected, soil samples will be classified in accordance with the Soil Classification Procedure.

WELL CONSTRUCTION

- The well construction procedures presented below are the recommended standards. However, due to variations in subsurface conditions, changes in these well construction standards may be necessary in order to facilitate the installation of the protective casing.

- Overburden wells will be constructed of either 2-inch Schedule 40 Flush-threaded Virgin PVC or type 316 Stainless Steel. Type of well material to use will be dependent upon known subsurface conditions. Wells constructed of PVC are preferable; however in situations where sufficient levels of chlorinated solvents are present to affect the PVC well integrity, stainless steel will be the material of choice. Wells of mixed construction materials are not acceptable. The well screen will consist of machine slot or continuous wrap PVC or Stainless Steel with screen slot size appropriate for the type of subsurface material. It is anticipated that PVC will be used at the site.

- The bottom of the well screen will be placed to the bottom of the borehole. Ideally, the top of the well screen should be greater than 4 feet below grade. As the augers are slowly removed, clean washed silica sand filter pack will be placed in the annular space around the well screen and casing from the base of the screen to at least 2 feet above the screen.

- In wells that exhibit a water table elevation above the sand pack, a minimum of 2-foot thick layer of bentonite pellets will be placed above the sand pack. The seal will be hydrated and allowed to set for approximately 30 minutes.

- Cement/bentonite grout will be placed from the top of the bentonite seal to a point 5 feet below existing ground surface where conditions allow. The grout will be prepared in the ratio of one bag (94 pounds) of Type I or Type II Portland Cement to 3 to 5 pounds of bentonite powder mixed with approximately 7 gallons of potable water.

- Accurate measurements of the material depths will be made by sounding the annulus during installation. The volume of materials needed will be calculated and compared to the actual volume used. Material depths will be recorded on the well installation report log (attached).

- The well casing will be secured with a vented lockable cap. If the well is located in a high traffic area, the casing will be protected by 9-inch flush-mounted roadway box set in a concrete seal. Alternatively, in low traffic areas, the well casing may be cut above grade and completed with 4 or 6-inch diameter steel protective casing with approximately 3 feet of stick up, set in a concrete surface seal.

- For flush-mounted wells, a 9-inch diameter, water-tight protector will be installed complete with a sand drain. A lockable gripper plug will top the PVC casing.

- After installation, the monitoring well will be labeled with the well identification and a reference point for water level and depth measurements will be notched into the well casing. The well will be allowed to sit for at least 24 hours prior to well development, and for one week between development and groundwater sampling.

EQUIPMENT

- Drilling Equipment
- Well Supplies
- Subsurface Boring Log
- Overburden Well Log
- Tape Measure

REFERENCE

1. American Society for Testing and Materials (1991), Standard D1452-80, "Practice for Soil Investigation and Sampling by Auger Borings", Annual Book of ASTM Standard, Section 4, Volume 04.08.

2. American Society for Testing and Materials (1991), Standard D2113-83 (87), "Diamond Core Drilling for Site Investigations", Annual Book of ASTM Standards, Section 4, Volume 04.08.

3. American Society for Testing and Materials (1991), Standard D5092, "Practices for Design and Installation of Ground Water Monitoring Wells in Aquifers", Annual Book of ASTM Standard, Section 4, Volume 04.08.

4. New York State Department of Environmental Conservation (1988), Draft Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program, Division of Mineral Resources.

5. Environmental Protection Agency (1986), RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, OSWER-9950.1.

6. Environmental Protection Agency (1987), A Compendium of Superfund Field Operations Methods, EPA/540/P-87/001.

7. Environmental Protection Agency (1988), Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, EPA/540/G-89/004.

3.3 WELL DECOMMISSIONING PROCEDURES

INTRODUCTION

This procedure is for the decommissioning/abandonment of groundwater monitoring wells that have been installed in overburden, top of bedrock, or deep bedrock formations. Well decommissioning refers to the procedure used to properly abandon or remove the monitoring well from the formation while taking the proper precautions to help eliminate cross-contamination.

The methods for properly abandoning monitoring wells are either by leaving the well materials in place and pressure grouting with a cement/bentonite slurry directly into the well or by over-drilling with augers, removing the well material and back filling with a cement bentonite slurry.

PROCEDURES REFERENCED

- 3.2 Procedures for Overburden Well Installation
- 7.0 Equipment Decontamination

WELL DECOMMISSIONING PROCEDURES

1. Pressure Grouting

- The borehole log from the monitoring well needs to be obtained to determine the well construction in order to prepare the proper materials and calculate the quantity of cement/bentonite slurry that will be required.

- The cement pad and the well protector around the monitoring pad needs to be removed and the immediate area around the monitoring well dug out. The riser pipe is to be cut off approximately one to two-feet below ground surface.

- A tremie pipe will be placed into the well completely to the bottom. A cement/bentonite slurry will then be pressure grouted in to the monitoring well backfilling completely to the surface. The grout will be prepared in the ratio of one bag (94 pounds) of Type I or Type II Portland Cement to 3 to 5 pounds of bentonite powder mixed with approximately 7 gallons of potable water. The grout will be allowed to sit for approximately one hour to allow any settlement of the cement/bentonite slurry and then augment if needed.

2. Overdrilling

- Based on the diameter of the monitoring well, this information can be obtained from the well completion diagram, the proper sized augers need to be specified.

- The cement pad and the well protector around the monitoring pad needs to be removed and the immediate area around the monitoring well dug out. The riser pipe is to be cut off approximately one to two-feet below ground surface.

- The augers are then placed over the riser pipe of the monitoring well and then drilling commences. The drilling continues until the final depth to which the monitoring well was installed is reached. The well materials are then removed (pulled) from the augers.

- A Cement/bentonite grout will be placed from the bottom of the borehole to the top of the augers. As each flight of augers is removed from the ground, the cement/bentonite grout will continue to be placed in the augers, to the top. This will continue until all the augers have been removed from the borehole. The grout will be prepared in the ratio of one bag (94 pounds) of Type I or Type II Portland Cement to 3 to 5 pounds of bentonite powder mixed with approximately 7 gallons of potable water.

- Documentation/Notification requirements include modification of the well log to reflect closure and if necessary notification to the appropriate regulatory agency.

WASTE DISPOSAL

- All material generated during well decommissioning procedures will be collected and contained on site in roll-off boxes or 55-gallon drums for future analysis and appropriate disposal.

- Personal protective equipment, such as gloves, disposable clothing, and other disposable equipment, resulting from personnel cleaning procedures and from soil sampling and handling activities, will be placed in plastic bags. These bags will be transferred into appropriately labeled 55-gallon drums or a covered roll-off box for appropriate disposal.

EQUIPMENT

- Drilling Equipment
- Well Supplies
- Monitoring Well Abandonment Form
- Tape Measure

REFERENCE

1. Michigan Department of Public Health, Ground Water Quality Control Section – Division Of Water Supply (1988), Michigan Water Well Grouting Manual, MDPH GW-3-302

2. ASTM D5229, "Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes and other Devices for Environmental Activities".

3.4 WELL DEVELOPMENT PROCEDURES

INTRODUCTION

This procedure is for the development of groundwater monitoring wells that have been installed in overburden, top of bedrock, or deep bedrock formations. Before a newly constructed well can be used for water-quality sampling, measuring water levels, or aquifer testing, it must be developed. Well development refers to the procedure used to clear the well and formation around the screen of fine-grained materials (sands, silts, and clays) produced during drilling or naturally occurring in the formation.

Well development is completed to remove fine-grained materials from the well but in such a manner as to not introduce fines from the formation into the sand pack. Well development continues until the well responds to water level changes in the formation (i.e., a good hydraulic connection is established between the well and formation) and the well produces clear, sediment-free water to the extent practical.

PROCEDURES REFERENCED

- 3.2 Procedures for Monitoring Well Installation

WELL DEVELOPMENT PROCEDURES

- The well development procedures presented below are the recommended standards. However, due to variations in conditions, changes in these well development standards may be necessary in order to facilitate the successful completion of developing the monitoring well. Well development can be accomplished by using in-place pumps or using manual equipment; either peristaltic, bladder, or other appropriate pumps depending on well depth.

- Don appropriate safety equipment.

- Attach appropriate pump and lower tubing into well.

- Turn on pump. If well runs dry, shut off pump and allow to recover.

- Surging will be performed by raising and lowering the pump in the well to open and close the check valve in the pump several times to pull fine-grained material from the well. Collect the groundwater sample in a glass jar to determine relative

turbidity, and measure and record the temperature, pH, and specific electrical conductance.

- The fourth and fifth steps will be repeated until groundwater is relatively silt-free; no further change is noted; and the temperature, pH, and specific conductance readings have stabilized to within 10% or 10 well volumes and 5 times the volume of water used to complete the well have been removed.

- The developing equipment will be raised two feet and then Steps 4 and 5 will be repeated.

- Step 6 will be repeated until entire well screen has been developed.

WASTE DISPOSAL

- All water generated during cleaning and development procedures will be collected and contained on site in 55-gallon drums for future analysis and appropriate disposal.

- Personal protective equipment, such as gloves, disposable clothing, and other disposable equipment, resulting from personnel cleaning procedures and from soil sampling and handling activities, will be placed in plastic bags. These bags will be transferred into appropriately labeled 55-gallon drums or a covered roll-off box for appropriate disposal.

EQUIPMENT

- Appropriate health and safety equipment
- Knife
- Power source (generator)
- Field book
- Well Development Form
- Well keys
- Graduated pails
- Pump and tubing
- Cleaning supplies (including non-phosphate soap, buckets, brushes, laboratory-supplied distilled/deionized water, tap water, cleaning solvent, aluminum foil, plastic sheeting, etc.)
- Water level meter
- pH/temperature/conductivity meter
- Clear glass jars (e.g., drillers' jars)

REFERENCE

1. Environmental Protection Agency (1986), RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, OSWER-9950.1.

2. Environmental Protection Agency (1987), A Compendium of Superfund Field Operations Methods, EPA/540/P-87/001.

3. Environmental Protection Agency (1988), Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, EPA/540/G-89/004.

5.1 SOIL SAMPLE COLLECTION FOR LABORATORY ANALYSIS

INTRODUCTION

The following procedure describes typical soil sample collection methods for submission of samples to a laboratory for chemical analysis. Two sample situations are presented: soil sampling from surficial soils and soil sampling from sub-surface samplers such as a split-spoon sampler or a direct push sampler.

Soil sampling procedures may vary from project to project due to different parameters of concern, different guidance provided by the state/province where the site is located, or the specific objectives for the project. Therefore, it is essential that the sampling team members carefully review the Non-Radiological Site Characterization Work Plan requirements and the rationale behind the program. The primary goal of soil sampling is to collect representative samples for examination and chemical analysis (if required).

Grab Versus Composite Samples

A grab sample is collected to identify and quantify compounds at a specific location or interval. The sample is comprised of no more than the minimum amount of soil necessary to make up the volume of sample dictated by the required sample analyses.

PROCEDURES REFERENCED

- 2.1 Drilling Techniques/Background Information
- 2.2 Soil Borings
- 5.6 Sample Handling and Shipping
- 7.0 Equipment Decontamination

SAMPLE COLLECTION

1.0 Surficial Soil Sample Collection

1.1 Sample Strategy -Random, Biased, and Grid-Based Sampling

Unless there is a strong indication of contaminant presence, such as staining, then soil sample locations may be randomly selected from several areas within the site.

If any areas show evidence of contamination, such as staining or vegetative stress, biased samples will be collected from each area to characterize the contamination present in each area. Background and control samples are also biased, since they are collected in locations typical of non-Site-impacted conditions.

When soil sampling investigations involve large areas, a grid-based soil sampling program is used. There is no single grid size that is appropriate for all sites. Common grid sizes are developed on 50-foot and 100-foot centers. It is acceptable to integrate several different grid sizes in a single investigation.

For surficial soil sampling programs, it is also important to consider the presence of structures and drainage pathways that might affect contaminant migration. It is sometimes desirable to select sampling locations in low lying areas which are capable of retaining some surface water flow since these areas could provide samples which are representative of historic site conditions (worst-case scenario if surface water flow was a concern).

1.2 Sample Interval

Surficial soils are generally considered to be soil between ground surface and 6 to 12 inches below ground surface. However, for risk assessment purposes, regulatory authorities often consider soil from ground surface to 2 feet below ground surface to be surficial soil. The exact interval to be considered as surficial soil is often a matter of discussion with the regulatory authorities that review the RFI Work Plan. The sample interval is important to the manner in which the data are ultimately interpreted. Another important factor is the type of soil. If there are different types of soil present at the site, this may have a bearing on the sample interval. For example, it may be important to separately sample a layer of material with high organic carbon content that overlies a layer of fine-grained soil.

1.3 Surface Sampling Procedure

Soil sampling techniques are dependent upon the sample interval of interest, the type of soil material to be sampled, and the requirements for handling the sample after retrieval.

The most common method for collection of surficial soil samples involves the use of a stainless steel trowel. Soil samples may also be collected with spoons and push tubes. The sampling equipment is cleaned between sample locations. A typical surficial soil sampling protocol is outlined below:

- Surficial soil samples will be collected using a pre-cleaned stainless steel trowel or other appropriate tool. Each sample will consist of soil from the surface to the depth specified within the Work Plan;

- A new pair of disposable gloves will be used at each sample location;

- Any surficial debris (i.e., grass cover, gravel) should be removed from the area where the sample is to be collected using a separate pre-cleaned device. Gravel presents difficulties for the laboratory in terms of sample preparation and is typically not representative of contaminant concentrations in nearby soil.

- A pre-cleaned sampling tool will be used to remove the sample from the layer of exposed soil.

- When only one sample container is required, the collected soil will be placed directly into the clean, pre-labeled sample jar. When more than one sample container requires filling or samples will be split for duplicate analyses; the soils will first be homogenized in a pre-cleaned stainless steel bowl; and then placed into the respective sample containers. It is important that soil samples be mixed as thoroughly as possible to ensure that the sample is as representative as possible of the sample interval. When round bowls are used for sample mixing, mixing is achieved by stirring the material in a circular motion and occasionally turning the material over. Soil samples collected for volatile organic compounds analyses shall <u>not</u> be mixed.

- Samples will be placed on ice or cooler packs in laboratory supplied shipping coolers after collection.

  Exception is noted for the collection of volatile organic compounds (VOC's) which require special sample collection methods. VOC's are collected directly into a sample vial (triplicate volume typically required) without headspace, or collected using an EnCore Sampler™ (triplicate samples collected per manufacturers instructions). Samples for VOC's are typically collected first, without homogenization or extra handling to limit the loss of volatile constituents.

  The VOC sample collection methodology will be identified in the Work Plan, which will dictate the sample method. The methodology for VOC sampling varies from area to area, so carefull review of this issue in advance of the field efforts is required.

2.0 Sub-Surface Sample Collection

Sub-surface soil sample collection is typically performed with the help of a drill unit, direct-push probing unit, or hand-driven/held samplers. Typically a boring is advanced incrementally to permit intermittent or continuous sampling to the required depth of chemical sample collection; or alternatively sampling may be initiated if certain conditions are observed (i.e. chemical presence or volatile presence identified from monitoring). Sample collection criteria and locations, are normally stipulated by the Work Plan.

Any drilling procedure that provides a suitably clean and stable hole before insertion of the sampler and assures that the penetration test or other sampling technique is performed on essentially undisturbed soil is acceptable. The drilling method is to be selected based on the subsurface conditions. Each of the following procedures have proven to be acceptable for specific subsurface conditions:

- Conventional drilling with continuous flight hollow-stem auger method (with inside diameter between 2.2 and 6.5 inches) using split spoon samplers (Standard Penetration Test – SPT) or Shelby tube samplers; or
- direct - push samplers, advanced using a percussion/vibratory hammer (Geoprobe ^{TM} or equivalent); or
- hand – held/driven split spoon sampling equipment or portable hammer and split spoon sampling equipment (final depth will be limited).

Several drilling methods are not acceptable. These include: jetting through an open tube sampler and then sampling when the desired depth is reached; use of continuous flight solid auger equipment below the groundwater table in non-cohesive soils; casing driven below the sampling depth prior to sampling; and advancing a borehole with bottom discharge bits.

The following subsections describe the specific methods for completing split spoon sampling, shelby tube sampling, and direct-push sampling. Section 2.4 describes the soil sampling procedure for chemical analysis, once a soil core is recovered from any of the above sample collection devices.

2.1 Split – Spoon Sampling Method

This method is used to obtain representative samples of subsurface soil materials for sample collection. The test methods described below must be followed to ensure that the soils captured in the split-spoon or shelby tube are relatively undisturbed/representative of the desired soil interval and obtain accurate Standard Penetration Test (SPT) values. The SPT values reflect the sub-surface soils density and is typically measured when performing geo-technical work or environmental borings. This information although not

directly relevant to the collection of chemical samples, is collected because it is beneficail in terms of stratigraphy interpretation and understanding the conditions below grade.

The split barrel sampler, or split spoon, consists of an 18- or 24-inch long, 2-inch outside diameter tube, which comes apart length wise into two halves. Larger spoons are available for use when a larger sample volume is required (4-inch diameter spoons).

Once the borehole is advanced, by an appropriate method (e.g. hollow stem augers), to the target depth and the borehole cleaned of cuttings, representative soil samples are collected in the following manner:

- the split-spoon sampler should be inspected to ensure it is properly cleaned and decontaminated. The driving shoe (tip) should be relatively sharp and free of severe dents and distortions;
- the cleaned split-spoon sampler is attached to the drill rods and lowered into the borehole. Do not allow the sampler to drop onto the soil;
- after the sampler has been lowered to the bottom of the hole, it is given a single blow to seat it and make sure that it is in undisturbed soil. If there still appear to be excessive cuttings in the bottom of the borehole, remove the sampler from the borehole and remove the cuttings; and
- mark the drill rods in three or four successive 6-inch (0.15 m) increments, depending on sampler length, so that the advance of the sampler under the impact of the hammer can be easily observed for each 6-inch (0.15 m) increment.

The sampler is then driven continuously for either 18 or 24 inches (0.45 or 0.60 m) by use of a 140-pound (63.5 kg) hammer. The hammer may be lifted and dropped by either the cathead and rope method, or by using a trip, automatic, or semi-automatic drop system.

The hammer should free-fall a distance of 30 inches (±1 inches) (760 mm, ±25 mm) per blow. Measure the drop at least daily to ensure that the drop is correct. To ensure a free-falling hammer, no more than 2 1/4 turns of the rope may be wound around the cathead (see ASTM D1586-84). The number of blows applied in each 6-inch (0.15 m) increment is counted until one of the following occurs:

- a total of 50 blows have been applied during any one of the 6-inch (0.15 m) increments described above;
- a total of 100 blows have been applied;
- there is no advancement of the sampler during the application of ten successive blows of the hammer (i.e., the spoon is "bouncing" on a stone or bedrock); or
- the sampler has advanced the complete 18 or 24 inches (0.45 or 0.60 m) without the limiting blow counts occurring as described above.

In some cases where the limiting number of blow counts has been exceeded, the field supervisor may direct the driller to attempt to drive the sampler more if collection of a greater sample length is essential.

On the field form, record the number of blows required to drive each 6-inch (0.15 m) increment of penetration. The first 6 inches is considered to be a seating drive. The sum of the number of blows required for the second and third 6 inches (0.15 m) of penetration is termed the "standard penetration resistance" or the "N-value".

Note: If the borehole has sloughed and there is caved material in the bottom, the split spoon may push through this under its own weight, but now the spoon is partially "pre-filled". When the spoon is driven the 18 or 24 inches representing its supposedly empty length, the spoon fills completely before the end of the drive interval. Two problems arise:

1. the top part of the sample is not representative of the in-place soil at that depth; and

2. the SPT value will be artificially higher toward the bottom of the drive interval since the spoon was packed full. These conditions should be noted on the field log.

The sampler is then removed from the borehole and unthreaded from the drill rods. The open shoe (cutting end) and head of the sampler are partially unthreaded by the drill crew and the sampler is transferred to the field supervisors work surface.

The open shoe and head are removed by hand, and the sampler is tapped so that the spoon separates.

Measure and record the length of sample recovered making sure to discount any sloughed material that is present on top of the sample core.

Caution must be used when conducting SPT sampling below the groundwater table, particularly in sand or silt soils. These soils tend to heave or "blow back" up the borehole due to the difference in hydraulic pressures between the inside of the HSA and the undisturbed soil. To equalize the hydraulic pressure, the inside of the HSA must be filled with water. The drilling fluid level within the boring or hollow-stem augers needs to be maintained at or above the in-situ groundwater level at all times during drilling, removal of drill rods, and sampling. Since heave or blow back is not always obvious to the driller, it is essential that the water level in the borehole always be maintained at or above the groundwater level.

Section 2.4 describes the soil sampling procedure for chemical analysis, once a soil core is recovered from a split spoon sampler.

2.2 Thin-Walled (Shelby Tubes) Sample Method

Thin-walled samplers are used to collect relatively undisturbed samples (as compared to split-spoon samples) of soft to stiff clayey soils. Shelby tubes are commonly used. The

shelby tube has an outside diameter of 2 or 3 inches and is 3 feet long. These undisturbed samples are used for certain laboratory tests of structural properties (consolidation, hydraulic conductivity, shear strength) or other tests (such as collection of soils for chemical analysis) that might be influenced by sample disturbance. Procedures for conducting thin-walled tube sampling are provided in ASTM D1587-94, and are briefly described below.

- the soil deposit being sampled must be cohesive in nature, and relatively free of sand, gravel, and cobble materials, as contact with these materials will damage the sampler;

- clean out the borehole to the sampling elevation using whatever method is preferred that will ensure the material to be sampled is not disturbed. If groundwater is encountered, maintain the liquid level in the borehole at or above groundwater level during the sampling operation;

- bottom discharge bits are not permitted. Side discharge bits may be used, with caution. Jetting through an open-tube sampler to clean out the borehole to sampling elevation is not permitted. Remove loose material from the center of a casing or hollow-stem auger as carefully as possible to avoid disturbance of the material to be sampled;

- place the sample tube so that its bottom rests on the bottom of the hole. Advance the sampler into the formation without rotation by a continuous and relatively rapid motion; usually hydraulic pressure is applied to the top of the drill rods;

- determine the length of advance by the resistance and condition of the formation, but the length shall never exceed 5 to 10 diameters of the tube in sands and 10 to 15 diameters of the tube in clays;

- in no case should the length of advance be greater than the sample-tube length minus an allowance for the sampler head and a minimum of 3 inches for cuttings.

- the tube may be rotated to shear the bottom of the sample 2 to 3 minutes after pressing in, and prior to retrieval to ensure the sample does not slide out of the tube. Lift the weight of the rods off of the tube prior to rotating.

- withdraw the sampler from the formation as carefully as possible in order to minimize disturbance of the sample.

On occasion it may be required that extraction of the sample from the tube be conducted in the field for chemical sample collection. The following procedure should be followed.

- a sample extruder, which consists of a clamp arrangement to hold the tube and a hydraulic ram to push the sample through the tube, is usually mounted on the side of

the rig. To prevent cross-contamination, be certain that the extruder is field cleaned between each sample;

- the sample is then extruded into a carrying tray; these are often made from a piece of 4-inch or 6-inch diameter PVC pipe cut lengthwise. Be certain that the carrying tray is field cleaned between each sample. The sample is carried to the workstation to describe the sample, trim the potentially cross-contaminated exterior, and select the area for sample collection (see section 2.4 collection procedure).

- the shelby tube may then be thoroughly field cleaned and decontaminated for reuse. Since they are thin-walled, the tubes are easily damaged, crimped, or otherwise distorted during handling or pushing. The shelby tube should be inspected before use and any which are significantly damaged should be rejected.

Section 2.4 describes the soil sampling procedure for chemical analysis, once a soil core is recovered from a shelby tube sampler.

2.3 Direct- Push Sample Method

The operation of the direct-push samplers (i.e. Macro-Core ™ Soil Sampler or equivalent) consists of "pushing and/or vibrating" the sampler into the subsurface using a direct-push unit (i.e. Geoprobe ™ soil probing machine or equivalent). The sampler is typically a hollow tube with a threaded drive head, and threaded cutting shoe; provided with an internal sleeve (i.e.liner) that the soil sample is captured in.

Once driven to the required depth, the sampler body/soil liner and soil core is removed from the borehole for inspection and sample collection. Once above grade the sampler is opened by the probe operator and the liner removed and cut open (opened with a dual blade cutting tool), to expose the soil for inspection and sampling.

The sampler body and ends are decontaminated and a new liner is inserted and the sampler reassembled for collection of the next interval. The clean sampler is then advanced back down the same hole to collect the next soil sample. The Macro-Core ™ sampler can be used in either the open-tube or closed-point sampling mode. The open-tube is the most commonly used method, typically employed in stable soil conditions when the borehole does not collapse. The closed-point system seals the cutting shoe opening until the sampler is at the next sample interval, this prevents collapsed soil from entering the sampler as it is advanced back down the hole. Once at the sample depth, the closed-point is unthreaded and released from the cutting shoe area, such that it rides on top of the soil core as it is being driven into the next interval.

Section 2.4 describes the soil sampling procedure for chemical analysis, once a soil core is recovered from a direct-push sampler.

2.4 Soil Core Chemical Sample Collection Procedure

The following describes the collection of soil samples for chemical analysis from a split spoon soil core, shelby tube soil core, or direct-push sample core.

- record soil core recovery and soil stratigraphy data;
- discard upper and lower ends of sample core (3 inches ±);
- if clayey soils are present use a pre-cleaned stainless steel knife to cut the remaining core longitudinally, alternatively if sandy soils are present, use a clean stainless steel spoon to scrape away the soil surface;
- screen the exposed soil surface with a PID to monitor for the presence of volatile organics;
- with a sample knife or spoon, remove soil from the center portion of the core and place in the sample jar (when only one aliquot is required), or
- when more than one aliquot is required place soils in a pre-cleaned stainless steel bowl for homogenization;
- do not sample large stones and natural vegetative debris;
- homogenize the soil and place directly into the sample jars
- properly label sample container; and
- place collected samples on ice or cooler packs in laboratory supplied shipping coolers.

When only one sample container is required, the collected soil will be placed directly into the clean, pre-labeled sample jar. When more than one sample container requires filling or samples will be split for duplicate analyses; the soils will first be homogenized in a pre-cleaned stainless steel bowl; and then placed into the respective sample containers. It is important that soil samples be mixed as thoroughly as possible to ensure that the sample is as representative as possible of the sample interval. When round bowls are used for sample mixing, mixing is achieved by stirring the material in a circular motion and occasionally turning the material over. Soil samples collected for volatile organic compounds analyses shall <u>not</u> be mixed.

Exception is noted for the collection of volatile organic compounds (VOC's) which require special sample collection methods. VOC's are collected directly into a sample vial (triplicate volume typically required) without headspace, or collected in triplicate using an EnCore Sampler™ (triplicate samples collected per manufacturers instructions). Samples for VOC's are typically collected first, without homogenization or extra handling to limit the loss of volatile constituents.
The VOC sample collection methodology will be identified in the Work Plan, which will dictate the sample method. The methodology for VOC sampling varies from area to area, so carefull review of this issue in advance of the field efforts is required.

FIELD NOTES

All conditions at the time of sample collection should be properly documented in the field log book. This should include a thorough description of the collection method, sample characteristics, including grain size, color, and general appearance, as well as date/time of sampling and labeling information. The location of the sampling point should be described in a sketch and three measurements (swing ties) should be taken to adjacent permanent structures so that the sample location can be readily identified in the field at a future date if necessary. It is often advisable to have a licensed land surveyor accurately survey the locations.

DECONTAMINATION

In all sampling scenarios measures to prevent cross-contamination must be employed. The sampling device selected must be constructed of an inert material with smooth surfaces that can be readily cleaned.

Heavy equipment used for test pit operations must also be cleaned between each location when collecting samples for chemical analysis.

EQUIPMENT

- Drilling equipment and soil sampling tools
- Decontamination fluids and rinse water
- Subsurface Boring Log
- Tape Measure
- Water Level Probe
- Appropriate sampling containers

REFERENCE

1. American Society for Testing and Materials (1991), Standard D1452-80, "Practice for Soil Investigation and Sampling by Auger Borings", Annual Book of ASTM Standard, Section 4, Volume 04.08.

2. Environmental Protection Agency (1986), RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, OSWER-9950.1.

3. Environmental Protection Agency (1987), A Compendium of Superfund Field Operations Methods, EPA/540/P-87/001.

4. ASTM D1452-80 Practice for Soil Investigation and Sampling by Auger Borings.

5. ASTM D1586-84 Test Method for Penetration Test and Split-Barrel Sampling of Soils

6. ASTM D1587-94 Practice for Thin Walled Tube Geotechnical Sampling of Soils

7. ASTM D2488-93 Practice for Description and Identification of Soils (Visual-Manual Procedure)

8. ASTM D4700-91 Guide for Soil Sampling from the Vadose Zone

5.2 GROUNDWATER SAMPLE COLLECTION FOR LABORATORY ANALYSIS

INTRODUCTION

This procedure is for the collection of groundwater samples for laboratory analysis.

The following describes two techniques for groundwater sampling: "Low Stress/Low Flow Methods" and "Typical Sample Methods."

"Low Stress/Low Flow" methods will be employed when it is critical to collect groundwater samples where sediment/colloid presence is significant, particularly in fine-grained formations. Analyses typically sensitive to turbidity/sediment issues are Polychlorinated biphenyls (PCBs), Semi-volatile compounds (SVOCs) and metals.

The "Typical Sample Methods" will be employed where the collection of parameters less sensitive to turbidity/sediment issues are being collected (volatile organics - VOCs, and general chemistry).

NOTE: If Non-aqueous phase liquids (NAPL) (light or dense) are detected in a monitoring well, groundwater sample collection will not be conducted and the Project Manager must be contacted to determine a course of action.

PROCEDURES REFERENCED

- 7.0 Equipment Decontamination

PREPARATORY REQUIREMENTS

- Verify well identification and location using borehole log details and location layout figures. Note the condition of the well and inform the Project Coordinator of any necessary repair work required.
- Prior to opening the well cap, measure the breathing space above the well casing with a PID to establish baseline levels. Repeat this measurement once the well cap is opened. If either of these measurements exceeds the air quality criteria in the health and safety plan, field personnel should adjust their PPE accordingly.
- Prior to commencing the groundwater purging/sampling tasks, a water level must be obtained to determine the well volume for hydraulic purposes. In some settings it maybe

necessary to allow the water level time to equilibrate. This condition exists if a watertight seal exists at the well cap and the water level has fluctuated above the top of screen; creating a vacuum or pressurized area in this air space. Three water level checks will verify static water level conditions or changing conditions.

- Calculate the water volume in the well. Typically overburden well volumes consider only the quantity of water standing in the well screen and riser; bedrock well volumes are calculated on the quantity of water within the open corehole and within the overburden casing.
- Estimate natural groundwater flow rate into well to determine the approximate pumping rate for purging/sampling activities.

WELL PURGING AND STABILIZATION MONITORING (LOW STRESS/LOW FLOW METHOD)

- The preferred method for groundwater sampling will be the low stress/low flow method described below.
- Bladder pumps/submersible variable rate pumps (i.e., Grundfos™ Rediflo or equivalent) are typically employed.
- Slowly lower the pump, safety cable, tubing and electrical lines into the well to the depth specified by the project requirements. The pump intake must be at the mid-point of the well screen to prevent disturbance and resuspension of any sediment in the screen base.
- Before starting the pump, measure the water level again with the pump in the well leaving the water level measuring device in the well when completed.
- Purge the well at 100 to a maximum of 500 milliliters per minute (ml/min). During purging, the water level should be monitored approximately every 5 minutes, or as appropriate. A steady flow rate should be maintained that results in drawdown of 0.3 feet or less. The rate of pumping should not exceed the natural flow rate conditions of the well being sampled. Care should be taken to maintain pump suction and to avoid entrainment of air in the tubing. Record adjustments made to the pumping rates and water levels immediately after each adjustment.
- During the purging of the well, monitor and record the field indicator parameters (pH, temperature, conductivity, oxidation-reduction (redox) reaction potential (ORP), dissolved oxygen (DO), and turbidity) approximately every five minutes. Stabilization is considered to be achieved when the final groundwater flow rate is achieved, and three consecutive readings for each parameters are within the following limits:
  - pH ±0.1 pH units of the average value of the three readings;
  - temperature ±3 percent of the average value of the three readings;
  - conductivity ±0.005 milliSiemen per centimeter (mS/cm) of the average value of the three readings for conductivity <1 mS/cm and ±0.01 mS/cm of the average value of the three readings for conductivity >1 mS/cm;

- ORP ±10 millivolts (mV) of the average value of the three readings;
- DO±10 percent of the average value of the three readings; and
- turbidity ±10 percent of the average value of the three readings, or a final value of less than 5 nephelometric turbidity units (NTU).

- Should stabilization not be achieved for all field parameters, purging is continued until a maximum of 20 well screen volumes have been purged from the well. Since low-flow purging (LFP) likely will not draw groundwater from a significant distance above or below the pump intake, the screen volume is based upon a 5-foot (1.4 m) screen length. After purging 20 well screen volumes, purging is continued if the purge water remains visually turbid and appears to be clearing, or if stabilization parameters are varying slightly outside of the stabilization criteria listed above and appear to be approaching stabilization.
- If low-turbidity samples are critical to the project goals, purging will be extended until turbidity has been reduced to 5 NTU or less.
- The pump must not be removed from the well between purging and sampling.

WELL PURGING AND STABILIZATION MONITORING (TYPICAL METHOD)

- Typically peristaltic pumps or bladder pumps or submersible pumps are preferred. In most cases bailer use is not desirable.
- Pump placement is typically performed at the mid-point of the screen.
- Purge the well until three consecutive well volume measurements of temperature and specific conductivity are approximately plus or minus 10 percent and if the pH values are within 1 pH unit of the last three value averages, and the groundwater turbidity values are less than 5 NTU. If stabilization has not occurred within the first five well volumes removed, continue purging and monitoring until eight well volumes have been pumped.
- Groundwater turbidity may be evaluated by a visual examination for sediment/silt presence or use of a nephlometer. Work Plan specific goals may exist for turbidity values that may require extending the purging, or require an alternate pumping system.
- Monitoring well purging is accomplished by using in-place pumps or by a peristaltic, bladder or other appropriate pump, depending on the well depth. The pump/hose assembly or bailer used for purging should be lowered into the top of the standing water column and not deep into the column. Typically pump placement at the mid-point of the screen is adequate.

SAMPLING TECHNIQUES

- If an alternate pump is utilized, the first pump discharge volumes should be discarded to allow the equipment a period of acclimation to the groundwater.
- Samples are typically collected directly from the pump with the groundwater being discharged directly into the appropriate sample container. Avoid handling the interior of the bottle or bottle cap and don new gloves for each well sampled to avoid contamination of the sample.
- Order of sample collection:
  - Volatile organic compounds
  - Semi-volatile organic compounds
  - Total organic carbon (TOC)
  - Total organic halogens (TOX)
  - Extractable organics
  - Total metals
  - Dissolved metals
  - Phenols
  - Cyanide
  - Sulfate and chloride
  - Nitrate and ammonia
  - Radionuclides
- For low stress/low flow sampling, samples should be collected at a flow rate between 100 and 500 mL/min and such that drawdown of the water level within the well does not exceed the maximum allowable drawdown of 0.3 feet.
- The pumping rate used to collect a sample for VOCs should not exceed 100 mL/min. Samples should be transferred directly to the final container 40 mL glass vials completely full and topped with a teflon cap. Once capped the vial must be inverted and tapped to check for headspace/air presence (bubbles). If air is present the sample vial will be discarded, and re-collected until free of air.
- Field filtration will be performed if dictated by the project Work Plan.
- Sample labels/sample identification
- All samples must be labeled with:
  - A unique sample number
  - Date and time
  - Parameters to be analyzed
  - Project Reference ID
  - Samplers initials
- Labels should be secured to the bottle and should be written in indelible inks.

EQUIPMENT/MATERIALS

- pH meter, Conductivity meter, Dissolved Oxygen (DO) meter, Oxidation-reduction (redox) reaction potential (ORP) meter, Nephlometer, Temperature guage
- Field filtration units (if required)
- Purging/sampling equipment
  - Peristaltic Pump (not suitable for VOCs[1]/SVOCs or depths >25 feet);
  - Suction Pumps (not suitable for LFP, VOCs/SVOCs, or depths >25 feet);
  - Submersible Pumps (suitable for VOCs/SVOCs only at low flow rates);
  - Air Lift Pumps (not suitable for VOCs/SVOCs); and
  - Bladder Pumps (suitable for LFR and VOCs/SVOCs);
- Water Level Probe
- Sampling Materials (containers, log book/forms, coolers, chain-of-custody)
- Work Plan
- Health and Safety Plan

NOTE[1]: PERISTALTIC PUMP USE FOR VOC COLLECTION IS NOT ACCEPTABLE ON EPA/RCRA SITES; THIS TECHNIQUE HAS GAINED ACCEPTANCE IN SELECT AREAS WHERE IT IS PERMISSIBLE TO COLLECT VOCS USING A PERISTALTIC PUMP AT A LOW FLOW RATE (EX. MICHIGAN).

FIELD NOTES

- Field notes must document all the events, equipment used, and measurements collected during the sampling activities. SOP 1.2 describes the data/recording procedure for field activities. The log book should document the following for each well sampled:
  - Identification of well
  - Well depth
  - Static water level depth and measurement technique
  - Sounded well depth
  - Presence of immiscible layers and detection/collection method
  - Well yield – high or low
  - Purge volume and pumping rate
  - Time well purged
  - Measured field parameters
  - Purge/sampling device used

- Well sampling sequence
- Sampling appearance
- Sample odors
- Sample volume
- Types of sample containers and sample identification
- Preservative(s) used
- Parameters requested for analysis
- Field analysis data and method(s)
- Sample distribution and transporter
- Laboratory shipped to
- Chain of custody number for shipment to laboratory
- Field observations on sampling event
- Name collector(s)
- Climatic conditions including air temperature
- Problems encountered and any deviations made from the established sampling protocol.

A standard log form for documentation and reporting groundwater purging and sampling events are presented on Form 6.3-01 (Well Purging Field Information Form), 6.3-02 (Sample Collection Data Sheet), and 6.3-03 (Monitoring Well Record for Low-Flow Purging).

GROUNDWATER/DECON FLUID DISPOSAL

- Groundwater disposal methods will vary on a case-by-case basis but may range from:
  - Off-site treatment at private treatment/disposal facilities or public owned treatment facilities
  - On-site treatment at Facility operated facilities
  - Direct discharge to the surrounding ground surface, allowing groundwater infiltration to the underlying subsurface regime
- Decon fluids should be segregated and collected separately from wash waters/groundwater containers.

REFERENCE

1. ASTM D5474 Guide for selection of Data Elements for Groundwater Investigations
2. ASTM D4696 Guide for pore-liquid sampling from the vadose zone
3. ASTM D5979 Guide for conceptualization and characterization of groundwater systems

4. ASTM D5903 Guide for planning and preparing for a groundwater sampling event
5. ASTM D4448 Standard guide for sampling groundwater wells
6. ASTM D6001 Standard guide for direct push water sampling for geo-environmental investigations.
7. USEPA Low-flow (minimal drawdown) ground-water sampling procedures (EPA/540/S-95/504)
8. USEPA RCRA Groundwater Monitoring: Draft Technical guidance (EPA/530-R-93-001)

5.6 SAMPLE NAMING, HANDLING, AND SHIPPING

INTRODUCTION

Sample management is the continuous care given to each sample from the point of collection to receipt at the analytical laboratory. Good sample management ensures that samples are properly recorded, properly labeled, and not lost, broken, or exposed to conditions that may affect the sample's integrity.

All sample submissions must be accompanied with a chain-of-custody (COC) document to record sample collection and submission.

The following sections provide the minimum standards for sample management.

PROCEDURES REFERENCED

A) Field Handling

Prior to entering the field area where sampling is to be conducted, especially at sites with defined exclusion zones, the sampler should ensure that all materials necessary to complete the sampling are on hand.

If samples must be maintained at a specified temperature after collection, proper coolers and ice/cool-packs must be brought out to the field. Consideration should be given to keeping reserve cooling media on hand if sampling events will be of long duration. Conversely, when sampling in extremely cold weather, proper protection of water samples, trip blanks, and field blanks must be considered.

Personnel performing groundwater sampling tasks must check the sample preparation and preservation requirements to ensure compliance with the Quality Assurance Project Plan. Typical sample preparation may involve pH adjustment (i.e., preservation), sample filtration and preservation, or simply cooling to 4°C. Sample preparation requirements vary from site to site and vary depending upon the analytical method for which the samples will be analyzed.

The sampling personnel must also confirm before the sample event, the amount of bottle filling required for the respective sample containers. VOC samples must not have any headspace within the sample collection vial; whereas when collecting select analytes (i.e., metals) a headspace must be provided to allow addition of the required preservative.

B) Sample Labeling

Samples must be properly labeled as soon as practical after collection.

Note that the data shown on the sample label is the minimum data required. The sample label data requirements are listed below for clarity.

i) Project name.
ii) Sample number.
iii) Sampler's initials.
iv) Date of sample collection.
v) Time of sample collection.
vi) Analysis required.
vii) Preservatives.

Quite often the analytical laboratory supplying the containers will provide blank sample labels. If these are adequate and convenient they can be used.

Under certain field conditions it is impractical to complete and attach sample labels to the container at the point of sample collection. However, to ensure that samples are not confused, a clear notation should be made on the container with a permanent marker indicating the last three digits of the sample number. If the containers are too soiled or small for marking, the container can be put into a "zip-lock" bag which can then be labeled.

No one sample number format is adequate for every type of sampling activity. Prior to the start of every project or sub-sampling event within the project, Project Managers and field personnel should devise a sample number format. Sample number formats should be as simple and short as possible. Sample number formats will reduce transcription errors by both Consultants and lab personnel. The sample number format should be comprehensive enough to allow for easy location of detailed sample data within the Site log books. Sample format must also be consistent with any future data management activities.

Unless otherwise instructed, labels should not contain specific names of the sample source (i.e., "Well No. 16"). Provision of such specific data on the label can produce biased lab results.

Sample Labels/Sample Identification

All samples must be labeled with:

- a unique sample number (never to be re-used, nor likely to be);
- date and time;
- parameters to be analyzed; and

- sampler's initials.

Labels should be secured to the bottle and should be written in indelible ink. It is also desirable to place wide clear tape over the label before packing in a cooler for label protection during transportation.

The unique sample identification number may follow the format recommended below, or a specific sample protocol for labeling may be specified in the project RFI Work Plan.

XXXX-XXXXXX-XXXX

This format has been selected to maximize the information content of the sample number. Minor modifications are certainly reasonable.

i) XXXX – Employee four-digit identification number
ii) XXXXXX – Sample Date – Month/Date/Year
iii) XXXX – Time (military)

Note that for Field Duplicates, Field Blanks, Equipment Blanks, Trip Blanks, Field Replicate, Known Duplicate, and Material Blank time will NOT be used. Instead we will use a sample number (ie. 0001, 0002, 0003), reset every day. This will simplify sample naming for the QA/QC samples and avoid identifying the parent sample for blind duplicates.

The decision of how to assign sample numbers will be made at the beginning of a job or phase, and should be consistent throughout the job.

C) Packaging

When possible, sample container preparation and packing for shipment should be completed in a well-organized and clean area, free of any potential cross-contaminants.

Sample containers should be prepared for shipment as follows:

i) Containers should be wiped clean of all debris/water using paper towels (paper towels must be disposed of with other contaminated materials).
ii) Clear, wide packing tape should be placed over the sample label for protection.

While there is no one "best" way to pack samples for shipment, the following packing guidelines should be followed.

i) Plan time to pack your samples (and make delivery to shipper if applicable). Proper packing and manifesting takes time. A day's worth of sampling can be easily wasted due to a few minutes of neglect when packing the samples.
ii) Always opt for more coolers and more padding rather than crowd samples. The cost associated with the packing and shipment of additional coolers is usually

always small in comparison with the cost of having to re-sample due to breakage during shipment.

iii) Do not bulk pack. Each sample must be individually padded.

iv) Large glass containers (1 liter and up) require much more space between containers.

v) Ice is not a packing material due to the reduction in volume when it melts.

The following is a list of standard guidelines that must be followed when packing samples for shipment.

i) When using ice for a cooling media, always double bag the ice in "Zip-Lock" bags.

ii) Double-check to ensure trip and temperature blanks have been included for all shipments containing VOCs, or where otherwise specified in the QA/QC plan.

iii) Enclose the Chain-of-Custody form in a "Zip-Lock" bag.

iv) Ensure custody seals (two, minimum) are placed on each cooler. Coolers with hinged lids should have both seals placed on the opening edge of the lid. Coolers with "free" lids should have seals placed on opposite diagonal corners of the lid. Place clear tape over custody seals.

v) Ensure that all "Hazardous Material" stickers/markings have been removed from coolers being used which previously contained such materials.

Note: Never store sterile sample containers in enclosures containing equipment which use any form of fuel or volatile petroleum based product. An alternate means of secure storage must be planned for. When conducting sampling in freezing conditions at sites without a heated storage area (free of potential cross contaminants), trip blanks not being used in a QA/QC role should be isolated from coolers immediately after receipt. Trip blanks should be double-bagged and kept from freezing.

D) Chain-of-Custody Records

Chain-of-custody forms will be completed for all samples collected. The form documents the transfer of sample containers.

The chain-of-custody record, completed at the time of sampling, will contain, but not be limited to, the sample number, date and time of sampling, and the name of the sampler. The chain-of-custody document will be signed and dated by the sampler when transferring the samples.

Each sample cooler being shipped to the laboratory will contain a chain-of-custody form. The chain-of-custody form will consist of four copies which will be distributed as follows: The shipper will maintain a copy while the other three copies will be enclosed in a waterproof envelop within the cooler with the samples. The cooler will then be sealed

properly for shipment. The laboratory, upon receiving the samples, will complete the three remaining copies. The laboratory will maintain one copy for their records. One copy will be returned to the Field Coordinator upon receipt of the samples by the laboratory. One copy will be returned with the data deliverables package.

Chain-of-custody (COC) records are legal documents. They must be completed and handled accordingly.

The following list provides guidance for the completion and handling of all COCs.

i) COCs used should be Consultant-standard forms or those supplied by the analytical laboratory. Do not use any COC forms from other labs, even if the heading is blocked out.
ii) COCs must be completed in black ballpoint ink only.
iii) COCs must be completed neatly using printed text.
iv) If a simple mistake is made, line out the error with a single line and initial and date next to it.
v) Each separate sample entry must be sequentially numbered.
vi) The use of "Ditto" or quotation marks to indicate repetitive information in columnar entries should be avoided. If numerous repetitive entries must be made in the same column, place a continuous vertical arrow between the first entry and the next different entry.
vii) When more than one COC form is used for a single shipment, each form must be consecutively numbered using the "Page ___ of ___" format.
viii) If necessary, place additional instructions directly onto the COC. Do not enclose separate loose instructions.
ix) Include a contact name and phone number on the COC in case there is a problem with the shipment.
x) Do not indicate the source of the sample as this may produce a biased lab result.
xi) Before using an acronym on a COC, define clearly the full interpretation of your designation [i.e., Polychlorinated Biphenyls - (PCBs)].

E) <u>Shipment</u>

In all but a few cases the QA/QC plan for the field work will require shipment of samples by overnight carrier. A great many problems can be avoided by proper advance planning. Prior to the start of the field sampling, the carrier should be contacted to determine if pickup can be made at the field site location. If pickup at the field site can be made, the "no-later-than" time for having the shipment ready must be determined.

If no pick-up is available at the Site, the nearest pick-up or drop-off location should be determined. Again, the "no-later-than" time for each location should be determined.

Sample shipments must not be left at unsecured or questionable drop locations (i.e., if the cooler will not fit in a remote drop box do not leave the cooler unattended next to the

drop box). Some overnight carriers do not in fact provide "overnight" shipment to/from some locations. Do not assume; call the carrier in advance before the start of the field work.

Copies of all shipment manifests must be maintained in the field file.

6.0 FIELD INSTRUMENTS – USE AND CALIBRATION

INTRODUCTION

A significant number of field activities involve usage of electronic instruments to monitor for environmental screening and health and safety purposes. It is imperative the instruments are used and maintained properly to optimize their performance and minimize the potential for inaccuracies in the data obtained, and to insure worker's health and safety is not compromised.

This SOP provides guidance on the usage, maintenance and calibration of electronic field equipment, whether for equipment owned by the Consultant or Contractor, or equipment obtained from a rental agency.

PROCEDURES REFERENCED

- 1.2 Field Data Recording

PROCEDURE

- All monitoring equipment will be in proper working order, and operated for the purpose for which it was intended, in accordance with manufacturer's recommendations.

- Field personnel will be responsible for insuring the equipment is maintained and calibrated in the field to extent practical, or returned for office or manufacturer maintenance or calibration if warranted. Calibration is discussed in greater detail below.

- A copy of the Operating Instructions, Maintenance and Service manual and calibration log, if available, for each instrument used on a project will be kept on site at all times.

- Instruments will be operated only by personnel trained in the proper usage and calibration. In the event certification of training is required, personnel will have documentation of such certification with them on site at all times.

- Personnel must be aware that certain instruments are rated for operation within a limited range of conditions such as temperature and humidity. Usage of such instruments in conditions outside these ranges will only proceed with proper approval by a project manager and/or Health and Safety supervisor as appropriate.

- Instruments that contain radioactive source material, such as x-ray fluorescence analyzers or moisture-density gauges require specific transportation, handling and usage procedures that are generally associated with a license from the Nuclear Regulatory Commission (NRC) or an NRC-Agreement State. Under no circumstance will operation of such instruments be allowed on site unless by properly authorized and trained personnel, using the proper personal dosimetry badges or monitoring instruments.

  Calibration:

  Calibration of an electronic instrument is critical to insure it is operating properly for its intended use. Such instruments are often sensitive to changes in temperature or humidity, or chemical vapors in the working atmosphere, and as a result their response and ability to monitor conditions and provide data can change significantly.

  Calibration: Calibration of instruments shall be performed once at the beginning of every day and one additional time during the day. This includes the following parameters:

    - Frequency
    - Use of proper calibration Gases or Chemical Standards
    - Requirements for Factory Calibration

  Calibration Gas Safety: Several instruments such as photoionization detectors (PIDs), flame ionization detectors (FIDs), oxygen meters, explosimeters, combustible gas indicators and many others require use of calibration gasses contained in compressed gas cylinders. Many of these gases are combustible or explosive. Care shall be taken to minimize the potential for injury from the use of such compressed gases. Transport, handling and storage of cylinders, where necessary, shall be performed in accordance with applicable DOT regulations and site requirements.

  Calibration will only be performed in areas free of sources of spark, flame or excessive heat. Smoking will not be allowed in the vicinity of calibration gas usage areas. In situations where an extreme temperature differential exists, the unit should be brought to the temperature it is used in and calibrated at that temperature.

  Documentation of Calibration: Instrument calibration activities and maintenance activities will be documented on the appropriate field forms. In addition, protocol for documentation outlined in the Field Data Recording Procedure will be followed.

- Intrinsically Safe Requirements

Certain work locations may be such that dangerous, ignitable or explosive conditions exist. In such cases, it may be necessary to utilize only equipment that is rated as "Intrinsically Safe." Intrinsically safe instrumentation is designed with limited electrical and thermal energy levels to eliminate the potential for ignition of hazardous mixtures.

For site work requiring operation of monitoring instruments in Class I, Division I locations (as defined by the National Fire Protection Agency (NFPA)) only instrumentation rated as Intrinsically Safe will be used. Such equipment (including all accessories and ancillary equipment) must be rated to conform to Underwriter's Laboratories (UL) Standard 913, for use in a Class I, Division 1 Groups A, B, C, and D locations. It is also recommended the equipment conform with CSA Standard 22.2, No. 157-92.

- Upon completion of the field activities, equipment shall be returned to the possession of the Consultant, Contractor or Rental Agency accompanied by a written summary of any problems encountered with its use or calibration.

- Equipment shall be properly prepared for shipping, including insuring that residual gases (if applicable) are removed from the instrument, and accompanying containers of compressed gases or fluids are properly labeled and sealed.

- Equipment Decontamination

  Equipment that comes in contact with Site media (water level meters, water quality meters) must be cleaned **before** removal from the site to ensure that chemicals are not transferred to other sites. It is the responsibility of the person who requisitioned the equipment to ensure appropriate cleaning before returning the equipment. Equipment decontamination procedures are typically site-specific for unique site compounds.

EQUIPMENT

- Monitoring equipment specific to work plan tasks.
- Manufacturer's instructions, operation and maintenance information.
- Associated calibration gases, aqueous standards, etc.
- Appropriate shipping containers to facilitate transport without damage to equipment.

REFERENCE

- Underwriter's Laboratories, Inc. (http://www.ul.com/hazloc/define.htm) Standard UL 913.
- National Fire Protection Agency (http://www.nfpa.org/index.html)
- Canadian Standards Association (CSA) (http://www.csa.ca) Standard 22.2 No. 157

7.0 EQUIPMENT DECONTAMINATION

INTRODUCTION

This procedure describes decontamination of field equipment potentially exposed to contaminants. Proper decontamination is required to reduce the risk of transfer of contaminants from areas of contamination to other areas and to minimize the potential for cross-contamination that would compromise sample quality. The degree of decontamination required will be dependent on the nature of the activity, equipment used and on the amount of exposure to contaminants.

PROCEDURES REFERENCED

- 2.2 - Soil Borings
- 5.1 - Soil Sample Collection
- 5.2 - Groundwater Sampling
- 6.0 - Field Instruments – Use And Calibration

PROCEDURE

A. General Procedure Discussion

Decontamination activities must be performed in a controlled area outside any exclusion zones established on the site. Care must be taken to minimize the potential for transfer of contaminated materials to the ground or onto other materials. Regardless of the size or nature of the equipment being decontaminated, the process will utilize a series of steps that involve removal of gross material (dirt, grease, oil etc.), washing with a detergent, and multiple rinsing steps. In lieu of a series of washes and rinse steps, steam cleaning with low-volume, high-pressure equipment (i.e. steam cleaner) is acceptable.

Drill rigs, backhoes and other exploration equipment, and all monitoring equipment (rented or not) in contact with the sampling media must be decontaminated prior to initiating site activities, in-between exploration locations to minimize cross-contamination potential, and prior to mobilizing off site after completion of site work. Heavy equipment is generally best decontaminated with a combination of steam-cleaning equipment and detergent scrubbing. Particular attention should be paid to parts in direct contact with contaminants, e.g. shovels, tires, augers, drilling decks, etc.

Control and containerization of all decontamination fluids is critical. A decontamination pad must be constructed that is appropriate for the size and type of equipment being

decontaminated. At a minimum, the decontamination pad will have the following elements:

- an impermeable barrier capable of containing decontaminated fluids;
- a low point where fluids will collect and can be pumped into appropriate containers;
- durability to withstand equipment such as vehicle and foot traffic;
- appropriate ancillary equipment such as racks to place decontaminated equipment to drain without further exposure to contaminated fluids;
- Labels to alert personnel as to the potential presence of contaminated materials.

B. Decontamination of Specific Sampling Equipment

The following specific decontamination procedure is recommended:

- Brush loose soil off of equipment;
- Wash equipment with laboratory grade detergent (i.e. Alconox or equivalent);
- Rinse with tap water (three rinses minimum);
- Rinse equipment with reagent grade methanol for VOC samples (this requirement may not be appropriate for sites where methanol is a contaminant of concern);
- Rinse equipment with nitric acid for metal samples (especially important for sites with potentially high metals concentrations);
- Rinse equipment with distilled water;
- Allow water to evaporate before reusing equipment; and
- Wrap equipment in aluminum foil when not being used.

C. Decontamination of Monitoring Equipment

Because monitoring equipment is difficult to decontaminate, care should be exercised to *prevent* contamination. Sensitive monitoring instruments should be protected when they are at risk of exposure to contaminants. This may include enclosing them in plastic bags allowing an opening for the sample intake. Ventilation ports should not be covered.

If contamination does occur, decontamination of the equipment will be required; however, immersion in decon fluids is not possible. As such, care must be taken to wipe the instruments down with detergent-wetted wipes or sponges, and then with deionized water-wetted wipes or sponges.

D. Disposal of Wash Solutions and Contaminated Equipment

All contaminated wash water, rinsates, solids and materials used in the decontaminated process that cannot be effectively decontaminated (such as polyethylene sheeting) will be containerized and disposed of in accordance with applicable regulations and site requirements. All containers will be labeled with an indelible marker as to contents and date of placement in the container, and any appropriate stickers required (such as PCBs).

Sampling of containerized wastes will be performed immediately upon completion of the investigations to minimize storage time on site. Storage of decon wastes on site will not exceed 90 days under any circumstances.

EQUIPMENT

Decontamination equipment and solutions are generally selected based on ease of decontamination and disposability.

- Polyethylene sheeting;
- Metal racks to hold equipment;
- Soft-bristle scrub brushes or long-handle brushes for removing gross contamination and scrubbing with wash solutions;
- Large galvanized wash tubs, stock tanks, or wading pools for wash and rinse solutions;
- Plastic buckets or garden sprayers for rinse solutions;
- Large plastic garbage cans or other similar containers lined with plastic bags can be used to store contaminated clothing;
- Contaminated liquids and solids should be segregated and containerized in DOT-approved plastic or metal drums, appropriate for offsite shipping/disposal if necessary.

REFERENCE

- ASTM D5088 - Practice for Decontamination of Field Equipment Used at Non-Radioactive Waste Sites

Appendix C Data Validation

Data Usability Summary Report (DUSR)
Fort Calhoun NGS Blair, NE
Analytical Laboratory: TestAmerica, Inc. - St. Louis, MO
Sample Delivery Group # 160-19727-1

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA 540-R-2016-001)
- USEPA National Functional Guidelines for Superfund Organic Methods Data Review (EPA 540-R-2016-002)

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996, or Standard Methods for the Examination of Water and Wastewater, Eds 18-20.

This DUSR pertains to the following samples:

Sample ID
SD140300
SD140200
SD140100
SD140100 DUP

Sample ID
GW1101-20161024
GW1004-20161024

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	Perfluorinated Alkyl Acids	EPA 537	14/28 days
2.	Mercury	EPA 7470A	28 days
3.	ICP Metals	EPA 6010C	180 days
4.	Perchlorate	EPA 314.0	28 days
5.	VOCs	EPA 8260B	14 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- NDEQ Regulations
- Holding Times
- Project-specific Reporting Limits
- Blank Sample Analysis
- System Monitoring Compound Recoveries
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Field Duplicate Sample Analysis
- Sample Data Reporting Format
- Data Qualifiers
- Summary

NDEQ Regulations

Reporting limits were all compared to the NDEQ action levels. All reporting limits were below NDEQ limits (Nebraska VCP Remedial Goals), with the following exceptions. Results were reported to the MDL.

Analyte	NDEQ Action Level (ug/L)	Reporting Limit (RL)	Method Detection Limit (MDL)	Status
Naphthalene (GW1004)	0.14	5.0	0.85	**MDL > NDEQ Limit**
Antimony (GW1101)	6.0	200	60	**MDL > NDEQ Limit**
Beryllium (GW1101)	4.0	100	30	**MDL > NDEQ Limit**
Cadmium (GW1101)	5.0	100	30	**MDL > NDEQ Limit**
Selenium (GW1101)	50	300	160	**MDL > NDEQ Limit**
Silver (GW1101)	100	200	60	MDL below limits.
Thallium (GW1101)	2.0	400	100	**MDL > NDEQ Limit**
Perchlorate (GW1101)	6.4	12	4.0	MDL below limits.

The lab cannot report any lower than this for Napthalene. The metals were all diluted 10x for GW1101 due to high concentrations of other target analytes, thereby raising the reporting limits. The sample could not be run straight due to these high concentrations.

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group, with the following exception(s):

During the analysis of VOCs (EPA Method 8260B) preservation and/or technical holding times were exceeded for project samples shown below. Sample results should be qualified according to the actions specified in the following table:

Lab ID	Sample ID	Matrix	Action
160-19727-6	GW1004-20161024	Water	See Action #1 Below

Action #1

Sample was receieved with insufficient preservation for VOCs. Vials were not checked until time of analysis in order to avoid potential loss of volatile constituents. Sample was analyzed outside the 7 day unpreserved holding time. Qualify results "J-/R".

During the analysis of Perfluorinated Acids (EPA Method 537) preservation and/or technical holding times were exceeded for project samples shown below. Sample results should be qualified according to the actions specified in the following table:

Lab ID	Sample ID	Matrix	Action
160-19727-6	GW1004-20161024	Water	See Action #1 Below

Action #1

Sample contained excessive sediment. The aqueous portion was decanted to a new bottle prior to spiking and extractions. No qualification is recommended.

During the analysis of Metals (EPA Methods 6010B/6020/7470A/7471A) preservation and/or technical holding times were exceeded for project samples shown below. Sample results should be qualified according to the actions specified in the following table:

Lab ID	Sample ID	Matrix	Action
160-19727-5	GW1101-20161024	Water	See Action Below

Action:

Sample was receieved with insufficient preservation for metals and mercury. Nitric acid was added by the laboratory to adjust the pH under 2, but as 4 days passed between collection and delivery to the laboratory, results should be considered estimated "J-/UJ".

Project-specific Reporting Limits

The reporting limits for the samples within this Sample Delivery Group (SDG) met or exceeded the minimum reporting limit requirements specified by the Project-specific Quality Assurance Project Plan (QAPP). If a QAPP does not exist, all dilutions were still reviewed and found to be justified. Any exceptions are noted below:

During the analysis of Metals (EPA Methods 6010B/6020/7470A/7471A) the reporting limits were greater than the Project-specific Quality Assurance Project Plan (QAPP) criteria. The following project sample data as specified in the following table were affected:

Target Analyte(s)	QAPP RL	Sample ID	Lab Package RL	Reason	Action
All Metals	1x	GW1101-20161024	10x	Abundance of non-trgt analyte	No further action

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is found to be influenced by the amount found in any associated blank. USEPA method specific guidelines are followed when evaluating any detect found in a blank. Common laboratory contaminants include methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters. Target analytes were not detected in associated blank samples (trip, equipment, or method) collected, prepared and/or analyzed concurrently with the project samples, with the following exception(s):

Blank	Target Analyte(s)	Concn.	Affected Sample(s)	Qualifiers
Method Blank 277175	Mercury	0.0727 J ug/L	GW1101-20161024	J+ Due to multiple deficiencies, flag "J"

System Monitoring Compound Recoveries

System monitoring/surrogate compounds are added to each sample prior to analysis of organic parameters to confirm the efficiency of the sample preparation procedure. The calculated recovery for each surrogate compound was evaluated to confirm the accuracy of the reported results. The calculated recovery of these compounds fell within the laboratory specific quality control criteria. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria, with the following exception(s):

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R Criteria	%R	%RPD	Affected Sample(s)
GW1004-20161024	MS/MSD	BTEX + Naphthalene	Various	Within	Within	None, all within limit.

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R Criteria	%R	%RPD	Affected Sample(s)
SD140100 DUP	MS/MSD	Perfluorinated Acids	Various	Within	Within	None, all within limits.

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R	Affected Sample(s)	Positive Results	Non Detect (ND)
160-19589-D-12	MS/MSD	Perchlorate	Low	None, not HA Sample.		

Field Duplicate Sample Analysis

The overall variability attributable to the sampling procedure, sample matrix, and laboratory procedures, was evaluated by assessing the relative percent difference (RPD) data from field duplicate samples. All calculated RPD values were within matrix specific data quality objectives, with the exception of results qualified “J” as shown in the table(s) below:

Target Analyte(s)	Original Sample ID. SD140100	FD Sample ID. SD140100 DUP	%RPD	Flag Original and FD sample results with:
Perfluorooctanesulfonic acid	0.23 J ug/kg	0.2 U ug/kg	NA	None, Abs. Diff < RL
Perfluorooctanoic Acid	0.63 ug/kg	0.39 ug/kg	NA	None, Abs. Diff < RL
Perfluorohexanesulfonic acid	0.19 U ug/kg	0.19 U ug/kg	NA	None, Both ND.
Perfluorobutane Sulfonate	0.17 U ug/kg	0.16 U ug/kg	NA	None, Both ND.
Perfluoroheptanoic acid	0.36 ug/kg	0.26 J ug/kg	NA	None, Abs. Diff < RL
Perfluorononanoic Acid	0.6 ug/kg	0.46 ug/kg	NA	None, Abs. Diff < RL

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format or equivalent. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Samples that contain results between the MDL and RL were flagged as estimated, "J", by the laboratory. The data user should be aware that there is a possibility of false positive or mis-identification at the quantitation levels. The laboratory also qualified results when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Date: 12/12/2016

Data Usability Summary Report (DUSR)
Fort Calhoun Nuclear Station
Analytical Laboratory: GEL Laboratories LLC. - Charleston, SC
Sample Delivery Group # 409254

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA 540-R-2016-001)
- USEPA National Functional Guidelines for Superfund Organic Methods Data Review (EPA 540-R-2016-002)

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996, or Standard Methods for the Examination of Water and Wastewater, Eds 18-20.

This DUSR pertains to the following samples:

Sample ID	Sample ID	Sample ID
DP010109	DP060212	DP110202
DP010216	DP060212DUP	DP110204
DP010307	DP060321	DP110206
DP020114	DP100113	DP110214
DP020207	DP100212	SD140100
DP020209	DP100310	SD140100 DUP
DP020312	DP110100	SD140200
DP020312DUP	DP110102	SD140300
DP020413	DP110104	SS050100
DP050113	DP110106	SS110100
DP050213	DP110113	SS110200
DP060113	DP110200	TB102616

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	Perchlorate	EPA 314.0	28 days
2.	ICP Metals (Total and SPLP)	EPA 6010C	180 days
3.	Mercury (Total)	EPA 7471A	28 days
4.	VOCs	EPA 8260B	14 days
5.	SVOCs	EPA 8270D	14 days
6.	Mercury (SPLP)	EPA 7470A	28 days
7.	PCBs	EPA 8082A	14 days ext/40 days analysis
8.	PAHs	EPA 8270D SIM	14 days ext/40 days analysis
9.	TPH(d)	EPA 8015C	14 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Case Narrative
- NDEQ Regulations
- Holding Times
- Project-specific Reporting Limits
- Blank Sample Analysis
- System Monitoring Compound Recoveries
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Field Duplicate Sample Analysis
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Case Narrative

The laboratory included the below notes of interest in the method case narratives:

- The trip blank was a soil trip blank that did not have any soil added. Therefore, the laboratory added 5g of sand as the sample aliquot for calculation purposes.
- Samples 013-018 were slightly muddy. 019 was very wet. 026-028 contained moist soil. 028 appeared greasy while concentrating on the TurboVap and did not concentrate to 1ml.
- During PCB analysis, all samples were cleaned using both alumina in order to remove oil and other high molecular weight interferences and activated copper in order to remove sulfur.
- Method SW-846 3050B (prep method for metals) is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

NDEQ Regulations

Reporting limits were all compared to the NDEQ action levels. All reporting limits were below NDEQ limits (Nebraska VCP Remedial Goals), with the following exceptions. Results were reported to the MDL.

Analyte	NDEQ Action Level (mg/kg)	Reporting Limit (RL)	Method Detection Limit (MDL)	Status
Benzo(b)fluoranthene	0.15	1.050	0.523	**MDL > NDEQ Limit**

Sample SS050100 was diluted 200x due to the presence of non-target analytes. This dilution elevated the reporting limit above NDEQ standards. Samples run straight were reported at limits below the NDEQ standards.

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group, with the following exception(s):

During the analysis of VOCs (EPA Method 8260B) preservation and/or technical holding times were exceeded for project samples shown below. Sample results should be qualified according to the actions specified in the following table:

Lab ID	Sample ID	Matrix	Action
409254015	SD140100	Soil	See Action #1 Below
409254016	SD140100 DUP	Soil	See Action #1 Below
409254014	SD140200	Soil	See Action #1 Below
409254013	SD140300	Soil	See Action #1 Below
409254011	SS110100	Soil	See Action #1 Below
409254012	SS110200	Soil	See Action #1 Below

Action #1

Soil samples were collected for VOC analysis using O2SI soil kit. These kits are frozen on arrival to the laboratory to arrest the 48 hour holding time. Samples collected on 10/24 (listed above) were delivered to the lab beyond the 48 hour holding time. The results for these samples should be qualified estimated, "J-/UJ".

Project-specific Reporting Limits

The reporting limits for the samples within this Sample Delivery Group (SDG) met or exceeded the minimum reporting limit requirements specified by the Project-specific Quality Assurance Project Plan (QAPP). If a QAPP does not exist, all dilutions were still reviewed and found to be justified. Any exceptions are noted below:

During the analysis of SVOCs (EPA Method 8270C) the reporting limits were greater than the Project-specific Quality Assurance Project Plan (QAPP) criteria. The following project sample data as specified in the following table were affected:

Target Analyte(s)	QAPP RL	Sample ID	Lab Package RL	Reason	Action
All PAHs	1x	SS050100	200x	Abundance of non-trgt analyte	No further action

During the analysis of PCBs (EPA Method 8082) the reporting limits were greater than the Project-specific Quality Assurance Project Plan (QAPP) criteria. The following project sample data as specified in the following table were affected:

Target Analyte(s)	QAPP RL	Sample ID	Lab Package RL	Reason	Action
All PCBs	1x	SS050100	10x	Diluted due to extract thickness	No Futher Action

During the analysis of Metals (EPA Methods 6010B/6020/7470A/7471A) the reporting limits were greater than the Project-specific Quality Assurance Project Plan (QAPP) criteria. The following project sample data as specified in the following table were affected:

Target Analyte(s)	QAPP RL	Sample ID	Lab Package RL	Reason	Action
Beryllium	1x	DP010216	20x	Dilution req'd by sample matrix	No further action
Beryllium	1x	409254011 - 19	10x	Dilution req'd by sample matrix	No further action
Antimony	1x	DP010216	10x	Dilution req'd by sample matrix	No further action
Silver	1x	SS110100	10x	Dilution req'd by sample matrix	No further action
Thallium	1x	409254012, 17-20	10x	Dilution req'd by sample matrix	No further action

The samples were prepared at a 10x dilution or greater to minimize potential interferences arising from the SPLP leaching solution.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is found to be influenced by the amount found in any associated blank. USEPA method specific guidelines are followed when evaluating any detect found in a blank. Common laboratory contaminants include methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters. Target analytes were not detected in associated blank samples (trip, equipment, or method) collected, prepared and/or analyzed concurrently with the project samples, with the following exception(s):

Blank	Target Analyte(s)	Concn.	Affected Sample(s)	Qualifiers
TB102616	Tetrachloroethene	0.4 J ug/kg	**409254011-13, 15, 29, 38**	U
Trip Blank	Methylene chloride	2.79 J ug/kg	None, samples all ND.	None.
Method Blank - VOCs 1612391	Methylene chloride	2.14 J ug/kg	None. Associated samples are all ND.	None.
Method Blank - DRO 1612127	TPH - DRO	3190 J ug/kg	**DP060212**	U
			DP060113	U
			DP060321	U
			DP060212DUP	J+

Blank	Target Analyte(s)	Concn.	Affected Sample(s)	Qualifiers
Method Blank	Calcium, Total	20200 J ug/kg	None, samples >10x blank	None.
1203657595	Sodium, Total	17500 J ug/kg	None, samples >10x blank	Nione.
	Zinc, Total	662 J ug/kg	None, samples >10x blank	Nione.
Method Blank	Sodium, Total	21800 J ug/kg	**DP020207**	J+
1203657600			**DP020209**	J+
			DP020413	J+
			DP020114	J+

System Monitoring Compound Recoveries

System monitoring/surrogate compounds are added to each sample prior to analysis of organic parameters to confirm the efficiency of the sample preparation procedure. The calculated recovery for each surrogate compound was evaluated to confirm the accuracy of the reported results. The calculated recovery of these compounds fell within the laboratory specific quality control criteria, with the following exception(s):

Semi-Volatile Surrogate Percent Recovery Criteria			
Surrogate		**Aqueous Matrix (%)**	**Solid Matrix (%)**
5-alpha-Androstane	S01	- -	30 - 118

			Acid		Base/Neutral	
Project Sample ID	**Matrix**	**S01 %R**	**Positive Results**	**Non Detect (ND)**	**Positive Results**	**Non Detect (ND)**
SS050100	SO	0	None, sample diluted ≥5x (200x)			

PCB Surrogate Percent Recovery Criteria			
Surrogate		**Aqueous Matrix (%)**	**Solid Matrix (%)**
Tetrachloro-m-xylene	S01	- -	30 - 120
Decachlorobiphenyl	S02	- -	32 - 139

				Applies to List S01		Applies to List S02	
Project Sample ID	**Matrix**	**S01 %R**	**S02 %R**	**Positive Results**	**Non Detect (ND)**	**Positive Results**	**Non Detect (ND)**
SS050100 (Col. 1)	Soil	33	46	None, sample diluted ≥5x (10x)			
SS050100 (Col. 2)	Soil	25	42	None, sample diluted ≥5x (10x)			

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria, with the following exception(s):

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R Criteria	%R	%RPD	Affected Sample(s)
DP060321	MS	TPH - DRO	32 - 127	97		**DP060321**
	MSD	TPH - DRO	32 - 127	65	**32**	

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R Criteria	%R	%RPD	Affected Sample(s)
SD140300	MS/MSD	All PAHs	Various	Within	Within	None, all within limits.
WST03-17-127184	MS/MSD	All SVOCs	Various	Low	High	None, not HA sample.

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R Criteria	%R	%RPD	Affected Sample(s)
DP050113	MS/MSD	Aroclor 1016	29 - 135	Within	Within	None, within limits.
	MS/MSD	Aroclor 1260	29 - 135	Within	Within	

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R	Affected Sample(s)	Positive Results	Non Detect (ND)
DP010216	MS	SPLP Metals	Within	None within limits.		
DP110100	MS	Manganese, Total	-45.3	None, sample >4x spike		
409254001		Potassium, Total	189	**All Project Samples**	J+	
		Zinc, Total	65.7	**All but DP010109**	J	UJ
		Aluminum, Total	732	None, sample >4x spike		
		Barium, Total	149	**All but DP010109**	J+	
		Calcium, Total	-371	None, sample >4x spike		
		Iron, Total	299	None, sample >4x spike		
		Lead, Total	-3630	None, sample >4x spike		
DP010109	MS	Aluminum, Total	642	None, sample >4x spike		
409254022		Antimony, Total	73.2	**All Project Samples**	J	UJ
		Calcium, Total	-16.5	None, sample >4x spike		
		Iron, Total	135	None, sample >4x spike		
		Magnesium, Total	140	None, sample >4x spike		
		Manganese, Total	402	None, sample >4x spike		
		Potassium, Total	133	**All Project Samples**	J+	
DP110100	PS	Barium, Total	90.1	None, within limits.		
409254001		Potassium, Total	104	None, within limits.		
		Zinc, Total	91.7	None, within limits.		
DP010109	PS	Antimony, Total	93.8	None, within limits.		
409254022		Potassium, Total	91	None, within limits.		

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R	Affected Sample(s)	Positive Results	Non Detect (ND)
DP010216 - SPLP	MS	Mercury	48.1	**All SPLP Results**	J-	UJ
SS110100 - Totals	MS	Mercury	107	None, within limits.		
DP010216 - SPLP	PS	Mercury	110	None, within limits.		

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R	Affected Sample(s)	Positive Results	Non Detect (ND)
SS110100	MS	Perchlorate	103	None, within limits.		

Duplicate Sample Analysis

The replicate percent difference (RPD) was evaluated for each duplicate sample pair to monitor the reproducibility of the data. The RPD for each sample pair was within the QA/QC limit of 30% for aqueous samples and 50% for solid matrices, for those target analytes with sample concentrations >5X the MDL, with the following exception(s):

Sample ID	Matrix	Target Analyte(s)	RPD	Affected Sample(s)
DP110100	SO	Antimony, Total	38.5	**All Project Samples**
		Lead, Total	153	**All Project Samples**
		Manganese, Total	20.4	**All Project Samples**
DP010109	SO	Aluminum, Total	21.8	**All Project Samples**
		Arsenic, Total	24.9	**All Project Samples**
		Barium, Total	23.4	**All Project Samples**
		Cadmium, Total	32.5	None, Abs. Diff < RL.
		Copper, Total	24.1	**All Project Samples**
		Lead, Total	20.8	**All Project Samples**
		Silver, Total	33.4	**All Project Samples**
DP010216 - SPLP	SO	Arsenic, Total	32.3	None, Abs. Diff < RL.

Sample ID	Matrix	Target Analyte(s)	RPD	Affected Sample(s)
SS110100 - Totals	SO	Mercury	19	None, within limits.
DP010216 - SPLP	SO	Mercury	NA	None, Both ND.

Sample ID	Matrix	Target Analyte(s)	RPD	Affected Sample(s)
SS110100	SO	Perchlorate	NA	None, Both ND.

Action:

Analytes with RPDs greater than 20% should be qualified "J" and non-detects qualified "UJ".

Field Duplicate Sample Analysis

The overall variability attributable to the sampling procedure, sample matrix, and laboratory procedures, was evaluated by assessing the relative percent difference (RPD) data from field duplicate samples. All calculated RPD values were within matrix specific data quality objectives, with the exception of results qualified "J" as shown in the table(s) below:

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	SD140100	SD140100 DUP		
2-Butanone (MEK)	4.48 J ug/kg	8.58 U ug/kg	NA	None, Abs. Diff < RL
Acetone	15.5 ug/kg	7.28 J ug/kg	NA	None, Abs. Diff < RL
Tetrachloroethene	0.539 J ug/kg	1.72 U ug/kg	NA	None, Abs. Diff < RL

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	DP060212	DP060212DUP		
TPH - DRO	6840 J ug/kg	9100 ug/kg	NA	None, Abs. Diff < RL

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	SD140100	SD140100 DUP		
Anthracene	5.34 U ug/kg	4.2 J ug/kg	NA	None, Abs. Diff < RL
Benzo(b)fluoranthene	3.2 J ug/kg	3.67 J ug/kg	NA	None, Abs. Diff < RL
Chrysene	5.34 U ug/kg	2.62 J ug/kg	NA	None, Abs. Diff < RL
Fluoranthene	3.74 J ug/kg	6.3 ug/kg	NA	None, Abs. Diff < RL
Phenanthrene	3.74 J ug/kg	5.25 U ug/kg	NA	None, Abs. Diff < RL
Pyrene	3.2 J ug/kg	4.2 J ug/kg	NA	None, Abs. Diff < RL

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	DP020312	DP020312DUP		
Aroclor-1260 (PCB-1260)	1.5 U ug/kg	1.48 U ug/kg	NA	None, Both ND.
Aroclor-1254 (PCB-1254)	1.5 U ug/kg	1.48 U ug/kg	NA	None, Both ND.
Aroclor-1221 (PCB-1221)	1.5 U ug/kg	1.48 U ug/kg	NA	None, Both ND.
Aroclor-1232 (PCB-1232)	1.5 U ug/kg	1.48 U ug/kg	NA	None, Both ND.
Aroclor-1248 (PCB-1248)	1.5 U ug/kg	1.48 U ug/kg	NA	None, Both ND.
Aroclor-1016 (PCB-1016)	1.5 U ug/kg	1.48 U ug/kg	NA	None, Both ND.
Aroclor-1242 (PCB-1242)	1.5 U ug/kg	1.48 U ug/kg	NA	None, Both ND.

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	SD140100	SD140100 DUP		
Aluminum, Total	10300000 ug/kg	10000000 ug/kg	3%	None, RPD < 50%
Antimony, Total	480 U ug/kg	506 U ug/kg	NA	None, Both ND.
Arsenic, Total	10900 ug/kg	11400 ug/kg	4%	None, RPD < 50%
Barium, Total	244000 ug/kg	243000 ug/kg	0%	None, RPD < 50%
Beryllium, Total	1460 U ug/kg	1530 U ug/kg	NA	None, Both ND.
Cadmium, Total	740 ug/kg	708 ug/kg	NA	None, Abs. Diff < RL
Calcium, Total	32900000 ug/kg	26700000 ug/kg	21%	None, RPD < 50%
Chromium, Total	16100 ug/kg	15600 ug/kg	3%	None, RPD < 50%
Cobalt, Total	9260 ug/kg	9360 ug/kg	1%	None, RPD < 50%
Copper, Total	24300 ug/kg	23400 ug/kg	4%	None, RPD < 50%
Iron, Total	19800000 ug/kg	19500000 ug/kg	2%	None, RPD < 50%
Lead, Total	14900 ug/kg	15000 ug/kg	1%	None, RPD < 50%
Magnesium, Total	10300000 ug/kg	9400000 ug/kg	9%	None, RPD < 50%
Manganese, Total	706000 ug/kg	668000 ug/kg	6%	None, RPD < 50%
Nickel, Total	23100 ug/kg	23000 ug/kg	0%	None, RPD < 50%
Potassium, Total	2060000 ug/kg	1960000 ug/kg	5%	None, RPD < 50%
Selenium, Total	1950 ug/kg	2360 ug/kg	NA	None, Abs. Diff < RL
Silver, Total	217 ug/kg	328 ug/kg	41%	None, Abs. Diff < RL
Sodium, Total	263000 ug/kg	248000 ug/kg	6%	None, RPD < 50%
Thallium, Total	728 U ug/kg	766 U ug/kg	NA	None, Both ND.
Vanadium, Total	33300 ug/kg	33200 ug/kg	0%	None, RPD < 50%
Zinc, Total	106000 ug/kg	108000 ug/kg	2%	None, RPD < 50%

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	SD140100	SD140100 DUP		
Mercury	35.5 ug/kg	36.5 ug/kg	3%	None, RPD < 50%

Target Analyte(s)	Original Sample ID.	FD Sample ID.	%RPD	Flag Original and FD sample results with:
	SD140100	SD140100 DUP		
Perchlorate	21.6 U ug/kg	21.1 U ug/kg	NA	None, Both ND.

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format or equivalent. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Samples that contain results between the MDL and RL were flagged as estimated, "J", by the laboratory. The data user should be aware that there is a possibility of false positive or mis-identification at the quantitation levels. The laboratory also qualified results when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Date: 12/13/2016

Appendix D Boring Logs

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0101

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 25, 2016
Finish October 25, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 46.8	0.0 5.0	1.0		-STONE AND GRAVEL-										
						Dense mix of stone and gravel and brown medium to fine SAND										
						Dense brown fine SAND and silt, dry										
5		G2 48	5.0 10.0			Similar to above										
						Dense clay-like black fine SILT										
				7.2		-STONE-										
						Dense dark brown fine SILT, moist										
						Gray-brown medium to fine SAND, some silt, moist										
10		G3 57.6	10.0 15.0			Gray-brown fine SAND and silt, wet										
						Loose red-brown medium SAND, wet										
15		G4 48	15.0 20.0			Similar to above										
20				20.0		BOTTOM OF EXPLORAITON 20.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 20.0
Rock Cored (ft) -
Samples 4G

Boring No. DP0101

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0102

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 24, 2016
Finish October 24, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 27.6	0.0 5.0	1.2		-STONE AND GRAVEL-										
						Very dense clay-like brown fine SAND and silt										
				4.4		-STONE-										
5		G2 38.4	5.0 10.0			Very dense brown fine SAND and silt Similar to above										
						Similar, except less dense, moist										
						Gray SILT and stone Very dense clay-like brown fine SAND and silt, moist										
10		G3 39.6	10.0 15.0			Dense clay-like brown fine SAND and silt, moist										
						Brown fine to medium SAND and silt, moist										
15		G4 55.2	15.0 20.0			Dense black medium to fine SAND and silt, moist Similar to above										
						Black medium SAND, some silt, some organic odor, wet Black medium to fine SAND and silt, some organic odor, wet										
20				20.0		BOTTOM OF EXPLORAITON 20.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 20.0
Rock Cored (ft) -
Samples 4G

Boring No. DP0102

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0103

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 25, 2016
Finish October 25, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 31.2	0.0 5.0	0.8		-STONE AND GRAVEL-										
						Brown fine SAND, some silt, some gravel, dry										
						Dense gray-brown fine SAND and silt, wet										
5		G2 21.6	5.0 8.0			Similar to above										
						Note: Refusal on stone at 8.0 ft.										
				8.0		BOTTOM OF EXPLORATION 8.0 FT										

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water	O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Splitspoon Sample G - Geoprobe	Riser Pipe Screen Filter Sand Cuttings Grout Concrete Bentonite Seal	Overburden (ft) 8.0 Rock Cored (ft) - Samples 2G **Boring No. DP0103**

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0201

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 26, 2016
Finish October 26, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 60	0.0 5.0			-STONE AND GRAVEL-										
				1.4		Dense brown medium to fine SAND, some silt										
						Gray fine SAND and silt, some pieces of wood										
						Brown to light brown medium to coarse SAND, gray at 5.0 ft with some silt										
5		G2 50.4	5.0 10.0			Dense gray fine SAND and silt, moist										
						Dense light brown medium SAND, moist, some layers of rust color										
						Similar to above, except some silt										
10		G3 60	10.0 15.0			Similar to above										
						Light to dark brown medium SAND, wet at 14.0 ft										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 15.0
Rock Cored (ft) -
Samples 3G

Boring No. DP0201

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0202

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 26, 2016
Finish October 26, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 49.2	0.0 5.0	0.8		-STONE AND GRAVEL-										
						Loose dark brown medium SAND, some gravel										
						Dense dark brown medium to fine SAND and silt, some gravel										
						Loose coarse SAND and gravel, slight fuel odor, moist										
5		G2 37.2	5.0 10.0			Similar to above										
						Dense gray fine SAND and silt, slight fuel odor										
						Dense brown medium SAND, moist										
10		G3 56.4	10.0 15.0			Dense clay-like dark brown fine to medium SAND and silt Note: Stone and gravel cave in.										
						Brown to light brown medium to coarse SAND, moist, wet at 14.9 ft										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water	O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Splitspoon Sample G - Geoprobe	Riser Pipe Screen Filter Sand Cuttings Grout Concrete Bentonite Seal	Overburden (ft) 15.0 Rock Cored (ft) - Samples 3G **Boring No. DP0202**

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0203

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 25, 2016
Finish October 25, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 36	0.0 5.0			-STONE/GRAVEL/SAND-										
				1.2		Very dense dark brown fine SAND, some silt										
						Dense brown medium SAND, moist, some orange staining										
						Dense dark brown medium to fine SAND and silt, moist										
5		G2 27.6	5.0 10.0			Dense clay-like dark brown fine SAND and silt, moist										
10		G3 49.2	10.0 15.0			Similar to above, except wet at 12.8 ft										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water	O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Splitspoon Sample G - Geoprobe	Riser Pipe Screen Filter Sand Cuttings Grout Concrete Bentonite Seal	Overburden (ft) 15.0 Rock Cored (ft) - Samples 3G **Boring No. DP0203**

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0204

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 25, 2016
Finish October 25, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 25.2	0.0 5.0			-STONE/GRAVEL/SAND-										
				1.3		Loose gray-brown medium to fine SAND, dry										
						Dense brown medium to fine SAND, some silt, dry										
5		G2 45.6	5.0 10.0			Clay-like gray-brown fine SAND and silt, wet										
10		G3 38.4	10.0 15.0			Gray-brown fine SAND and silt, wet										
						Medium SAND, dark black staining										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 15.0
Rock Cored (ft) -
Samples 3G

Boring No. DP0204

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0501

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 25, 2016
Finish October 25, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 45.6	0.0 5.0			-STONE AND GRAVEL-										
				1.6		Gray SAND Brown to gray-brown medium to fine SAND, some silt, dry										
5		G2 30	5.0 10.0			Dense brown medium to fine SAND and silt, moist										
10		G3 38.4	10.0 15.0			Loose brown and gray-brown medium to fine SAND, some silt, moist Loose brown meidum SAND, wet, some rust staining Gray medium to fine SAND, some silt, wet										
15				15.0		BOTTOM OF EXPLOATION 15.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	15.0
Rock Cored (ft)	-
Samples	3G

Boring No. DP0501

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0502

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 25, 2016
Finish October 25, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 37.2	0.0 5.0	0.8		-STONE AND GRAVEL-										
						Mix of brown medium SAND and gravel										
						Dense brown medium to fine SAND, dry										
5		G2 45.6	5.0 10.0			Very dense gray-brown fine SAND and silt, dry Similar to above										
						Similar to above, except less dense, wet										
						Similar to above, except very dense, moist										
10		G3 43.2	10.0 15.0			Similar to above										
						Loose gray medium SAND, moist										
						Gray and red-brown medium SAND, some silt, moist										
						Similar to above, except wet										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water	O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Splitspoon Sample G - Geoprobe	Riser Pipe Screen Filter Sand Cuttings Grout Concrete Bentonite Seal	Overburden (ft) 15.0 Rock Cored (ft) - Samples 3G **Boring No. DP0502**

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0601

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 26, 2016
Finish October 26, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						Note: Hydrovac'd for utility clearance.										
5																
10		G1 45.6	10.0 15.0			Loose gray-brown SAND and gravel, cave in Brown to dark brown medium SAND, trace silt, wet										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 15.0
Rock Cored (ft) -
Samples 1G

Boring No. DP0601

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0602

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 26, 2016
Finish October 26, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						Note: Hydrovac'd for utility clearance.										
5																
10		G1 33.6	10.0 15.0			Note: Cave in material. Gray medium SAND, trace silt, wet Similar to above, except some silt										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 15.0
Rock Cored (ft) -
Samples 1G

Boring No. DP0602

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP0603

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 26, 2016
Finish October 26, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						Note: Hydrovac'd for utility clearance.										
5																
10																
		G1 37.2	12.0 17.0			Dense brown medium SAND, moist, gray at 17.0 ft										
15																
		G2 45.6	17.0 22.0			Loose gray to brown medium SAND, moist										
20						Dense brown medium to fine SAND and silt, wet										
						Gray medium SAND, slight fuel odor, wet										
				22.0		BOTTOM OF EXPLORATION 22.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 22.0
Rock Cored (ft) -
Samples 2G

Boring No. DP0603

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP1001

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 24, 2016
Finish October 24, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 31.2	0.0 5.0	0.3		-CONCRETE-										
						Very dense dark gray fine SILT										
						Very dense gray fine SILT, dry										
5		G2 31.2	5.0 10.0			Very dense clay-like gray fine SILT, dry to moist										
						Dense clay-like brown fine SILT										
10		G3 40.8	10.0 15.0			Similar to above, except some sand										
						Dense clay-like gray fine SILT, wet										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 15.0
Rock Cored (ft) -
Samples 3G

Boring No. DP1001

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP1002

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 25, 2016
Finish October 25, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 45.6	0.0 5.0	0.3		-STONE-										
						Dense brown fine SILT, some sand										
						Very dense gray-brown to dark brown fine SAND and silt										
5		G2 34.8	5.0 10.0			Similar to above										
						Dense clay-like gray-brown fine SILT										
						Similar to above, except more dense										
10		G3 60	10.0 15.0			Dense clay-like dark brown and gray fine SAND and silt										
						Brown medium to fine SAND, some silt, wet										
						Dense dark brown fine SAND and silt										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 15.0
Rock Cored (ft) -
Samples 3G

Boring No. DP1002

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP1003

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 25, 2016
Finish October 25, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 45.6	0.0 5.0	0.3		-STONE-										
						Dense clay-like brown fine SILT										
						Very dense clay-like gray-brown fine SILT										
5		G2 26.4	5.0 10.0			Similar to above										
						Dense clay-like dark brown fine SILT										
10		G3 60	10.0 15.0			Dark brown fine SAND and silt, moist, some rust staining										
						Dense gray-brown medium to fine SILT, some sand, wet										
15				15.0		BOTTOM OF EXPLORATIOn 15.0 FT										

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 15.0
Rock Cored (ft) -
Samples 3G

Boring No. DP1003

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP1101

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 24, 2016
Finish October 24, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 28.8	0.0 5.0			Gray-brown medium to fine SAND and silt										
5		G2 31.2	5.0 10.0			Similar to above Loose light brown coarse SAND Brown fine SAND and silt Loose light brown medium to coarse SAND										
10		G3 31.2	10.0 15.0			Dense brown fine SAND and silt Similar to above Dense brown medium SAND Brown medium to fine SAND and silt, wet										
15				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 15.0
Rock Cored (ft) -
Samples 3G

Boring No. DP1101

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

HALEY ALDRICH

GEOPROBE REPORT

Boring No. DP1102

Project	Fort Calhoun Station, Blair, NE
Client	OPPD
Contractor	Saber Drilling

File No. 127960-002
Sheet No. 1 of 1
Start October 24, 2016
Finish October 24, 2016
Driller J. Wilkinson
H&A Rep. M. Van Noordennen
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		S	-	Rig Make & Model: GeoProbe
Inside Diameter (in.)		1 3/8	-	Bit Type:
Hammer Weight (lb)			-	Drill Mud:
Hammer Fall (in.)			-	Casing:
				Hoist/Hammer:
				PID Make & Model: MiniRAE3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Color, GROUP NAME, max. particle size†, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		G1 38.4	0.0 5.0			Brown fine SAND and silt, dry										
						Similar to above, except wet Brown to light brown medium to coarse SAND, moist										
5		G2 31.2	5.0 10.0			Similar to above Dense brown fine sandy SILT, wet										
						Light brown medium to coarse SAND, moist Dark brown fine sandy SILT, wet Brown to light brown medium to coarse SAND, moist										
10		G3 45.6	10.0 15.0			Similar to above Brown medium SAND, tightly packed, moist										
15		G4 43.2	15.0 20.0			Brown medium to coarse SAND, thightly packed, wet										
20				20.0		BOTTOM OF EXPLORATION 20.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 20.0
Rock Cored (ft) -
Samples 4G

Boring No. DP1102

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

† **Note: Maximum particle size is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-GEOPROBE-09 HA-LIB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \\ROC\COMMON\127960-FT_CALHOUN\GINT\127960-002_GP.GPJ Jan 9, 17

Appendix E Laboratory Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-19727-1
Client Project/Site: Fort Calhoun NGS Blair, NE

For:
Haley & Aldrich, Inc.
100 Corporate Palce
Suite 105
Rocky Hill, Connecticut 06067-1803

Attn: Miles van Noordennen

Authorized for release by:
11/14/2016 6:02:10 PM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-19727-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Haley & Aldrich, Inc.

Project: Fort Calhoun NGS Blair, NE

Report Number: 160-19727-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 10/28/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 4.9 C.

Receipt Exceptions

The following sample was received with insufficient preservation: GW1101 (160-19727-5). Nitric acid preservative was added by the laboratory, and the sample(s) pH was adjusted to < 2 SU.

VOLATILE ORGANIC COMPOUNDS (GC MS)

Sample GW1004 (160-19727-6) was analyzed for volatile organic compounds (GC MS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 11/05/2016.

Analytical Batch: 277750

Sample was presumed to be preserved to a pH < 2. Due to the potential loss of volatile constituents, VOA vials are not checked for pH

Job ID: 160-19727-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

preservation until the time of analysis. Sample pH was not less than 2. Sample was analyzed outside the 7 day, unpreserved, holding time. GW1004 (160-19727-6), (160-19727-A-6 MS) and (160-19727-A-6 MSD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCHLORATE

Sample GW1101 (160-19727-5) was analyzed for perchlorate in accordance with EPA Method 314.0. The samples were analyzed on 11/09/2016.

Analytical Batch: 278496

The following matrix spike duplicate (MSD) recovered below the lower acceptance limit of 80% (72%) in Perchlorate batch 160-278496: (160-19589-D-12 MS) and (160-19589-D-12 MSD) The matrix spike (MS) recovered within acceptance limits at 85%, and the RPD between the MS and MSD was within 20% criteria. This MSD recovery excursion is attributed to sample matrix interference, because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERFLUORINATED HYDROCARBONS

Sample GW1004 (160-19727-6) was analyzed for Perfluorinated Hydrocarbons in accordance with EPA 537 (modified). The samples were prepared on 10/31/2016 and analyzed on 11/02/2016 and 11/03/2016.

Samples SD140300 (160-19727-1), SD140200 (160-19727-2), SD140100 (160-19727-3) and SD140100 DUP (160-19727-4) were analyzed for Perfluorinated Hydrocarbons (LC/MS) in accordance with EPA 537 (modified). The samples were prepared on 10/31/2016 and analyzed on 11/03/2016.

Analytical Batch: 135762

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-135232. An LCS/LCSD was performed to demonstrate precision.

Due to the excessive of sediment in the sample bottle, the aqueous portion of these samples was decanted to new bottle prior to spiking and the extraction. GW1004 (160-19727-6)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)

Sample GW1101 (160-19727-5) was analyzed for total metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/08/2016 and analyzed on 11/09/2016.

Analytical Batch: 278522

The initial calibration verification (ICV) result for batch analytical batch 160-278522 was above the upper control limit for Thallium. Sample results were below the reporting limit, and have been reported as qualified data. (ICV 160-278522/5)

Due to the high concentration of Calcium, matrix spike duplicate (MSD) for preparation batch 160-278261 and analytical batch 160-278522 could not be evaluated for accuracy and precision. (160-19687-D-3-C MSD)

The following samples were diluted to bring the concentration of target analytes within the calibration range: GW1101 (160-19727-5). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Sample GW1101 (160-19727-5) was analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 10/31/2016.

Analytical Batch: 277175

Job ID: 160-19727-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Mercury was detected in method blank MB 160-276813/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples SD140300 (160-19727-1), SD140200 (160-19727-2), SD140100 (160-19727-3) and SD140100 DUP (160-19727-4) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 11/08/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TestAmeric
13715 Rider Tra
Earth City, MO
Phone (314) 29

160-19727 Chain of Custody

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Client Contact: Miles van Noordennen
Company: Haley & Aldrich, Inc.
Address: 100 Corporate Palce Suite 105
City: Rocky Hill
State, Zip: CT, 06067-1803
Phone: 860-290-3114(Tel)
Email: MvanNoordennen@haleyaldrich.com
Project Name: Fort Calhoun NGS Blair, NE
Site:

M. van Noordennen
860-810-3152

Lab PM: Awalt, Jayna K
E-Mail: jayna.awalt@testamericainc.com

Carrier Tracking No(s):

COC No: 160-4680-2325.1
Page: Page 1 of 2 1
Job #: 120960

Due Date Requested:
TAT Requested (days): Std TAT
PO #: Purchase Order not required
WO #:
Project #: 16005733
SSOW#:

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, UCMR List	6010C, 7470A	314.0 - Perchlorate	8260C - VOCs (GC/MS)	8270D_SIM - PAH	8260C - BTEX List + Napthalene	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	A	N	A		
SD140300	10-24-16	1143	G	Solid	N	N	X						1	500P
SD140200	10-24-16	1158	G	Solid	N	N	X						1	
SD140100	10-24-16	1235	G	Solid	N	N	X						1	
SD140100DUP	10-24-16	1235	G	Solid	N	Y	X						1	
				Solid										
				Solid										
GW1101	10-24-16	1042	G	Water	N	N		X	X				2	250P, 250P
GW1004	10-24-16	1456	G	Water	N	N	X					X	4	250P, 3xVial
				Water										
				Water										
				Water										

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) IV

Special Instructions/QC Requirements: None

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: FedEx

	Date/Time	Company		Date/Time	Company
Relinquished by:	10.27.16 0815	HHA	Received by:	10/28/16 0850	TM
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Phone (314) 298-8566 Fax (314) 298-8757

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Awalt, Jayna K	Carrier Tracking No(s):	COC No: 160-96546.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jayna.awalt@testamericainc.com	State of Origin: Nebraska	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Louisiana		Job #: 160-19727-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 11/15/2016			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Fort Calhoun NGS Blair, NE	Project #: 16005733			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/Shake_Bath_14D PFAS, UCMR List	PFC_IDA/3535_IVWT PFAS, UCMR List	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
SD140300 (160-19727-1)	10/24/16	11:43 Central		Solid			X		1	
SD140200 (160-19727-2)	10/24/16	11:58 Central		Solid			X		1	
SD140100 (160-19727-3)	10/24/16	12:35 Central		Solid			X		1	
SD140100 DUP (160-19727-4)	10/24/16	12:35 Central		Solid			X		1	
GW1004 (160-19727-6)	10/24/16	14:56 Central		Water				X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/28/16 0800	M	[signature]	10/29/16 0900	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.5

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 160-19727-1

Login Number: 19727
List Number: 1
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Sample -5 was received unpreserved. Nitric acid was added to adjust pH to <2.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 160-19727-1

Login Number: 19727
List Number: 2
Creator: Shockley, Wesley S

List Source: TestAmerica Sacramento
List Creation: 10/29/16 03:29 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Fort Calhoun NGS Blair, NE

TestAmerica Job ID: 160-19727-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SL
314.0	Perchlorate (IC)	EPA	TAL SL
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
6010C	Metals (ICP)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Fort Calhoun NGS Blair, NE

TestAmerica Job ID: 160-19727-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-19727-1	SD140300	Solid	10/24/16 11:43	10/28/16 08:50
160-19727-2	SD140200	Solid	10/24/16 11:58	10/28/16 08:50
160-19727-3	SD140100	Solid	10/24/16 12:35	10/28/16 08:50
160-19727-4	SD140100 DUP	Solid	10/24/16 12:35	10/28/16 08:50
160-19727-5	GW1101	Water	10/24/16 10:42	10/28/16 08:50
160-19727-6	GW1004	Water	10/24/16 14:56	10/28/16 08:50

Client Sample ID: SD140300

Lab Sample ID: 160-19727-1
Date Collected: 10/24/16 11:43
Matrix: Solid
Date Received: 10/28/16 08:50
Percent Solids: 49.4

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.41	0.21	ug/Kg	☼	10/31/16 10:42	11/03/16 02:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.41	0.24	ug/Kg	☼	10/31/16 10:42	11/03/16 02:21	1
Perfluoroheptanoic acid (PFHpA)	ND		0.41	0.18	ug/Kg	☼	10/31/16 10:42	11/03/16 02:21	1
Perfluorooctanoic acid (PFOA)	**0.27**	**J**	0.41	0.21	ug/Kg	☼	10/31/16 10:42	11/03/16 02:21	1
Perfluorooctanesulfonic acid (PFOS)	**0.50**		0.41	0.26	ug/Kg	☼	10/31/16 10:42	11/03/16 02:21	1
Perfluorononanoic acid (PFNA)	**0.25**	**J**	0.41	0.17	ug/Kg	☼	10/31/16 10:42	11/03/16 02:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*87*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:21*	*1*
13C4-PFHpA	*84*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:21*	*1*
13C4 PFOA	*85*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:21*	*1*
13C4 PFOS	*86*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:21*	*1*
13C5 PFNA	*91*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:21*	*1*

Client Sample ID: SD140200

Lab Sample ID: 160-19727-2
Date Collected: 10/24/16 11:58
Matrix: Solid
Date Received: 10/28/16 08:50
Percent Solids: 61.9

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.32	0.17	ug/Kg	☼	10/31/16 10:42	11/03/16 02:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.32	0.19	ug/Kg	☼	10/31/16 10:42	11/03/16 02:28	1
Perfluoroheptanoic acid (PFHpA)	**0.14**	**J**	0.32	0.14	ug/Kg	☼	10/31/16 10:42	11/03/16 02:28	1
Perfluorooctanoic acid (PFOA)	**0.39**		0.32	0.17	ug/Kg	☼	10/31/16 10:42	11/03/16 02:28	1
Perfluorooctanesulfonic acid (PFOS)	**0.29**	**J**	0.32	0.20	ug/Kg	☼	10/31/16 10:42	11/03/16 02:28	1
Perfluorononanoic acid (PFNA)	**0.62**		0.32	0.13	ug/Kg	☼	10/31/16 10:42	11/03/16 02:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*75*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:28*	*1*
13C4-PFHpA	*82*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:28*	*1*
13C4 PFOA	*80*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:28*	*1*
13C4 PFOS	*74*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:28*	*1*
13C5 PFNA	*84*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:28*	*1*

Client Sample ID: SD140100

Lab Sample ID: 160-19727-3
Date Collected: 10/24/16 12:35
Matrix: Solid
Date Received: 10/28/16 08:50
Percent Solids: 62.4

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.32	0.17	ug/Kg	☼	10/31/16 10:42	11/03/16 02:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.32	0.19	ug/Kg	☼	10/31/16 10:42	11/03/16 02:36	1
Perfluoroheptanoic acid (PFHpA)	**0.36**		0.32	0.14	ug/Kg	☼	10/31/16 10:42	11/03/16 02:36	1
Perfluorooctanoic acid (PFOA)	**0.63**		0.32	0.16	ug/Kg	☼	10/31/16 10:42	11/03/16 02:36	1
Perfluorooctanesulfonic acid (PFOS)	**0.23**	**J**	0.32	0.20	ug/Kg	☼	10/31/16 10:42	11/03/16 02:36	1
Perfluorononanoic acid (PFNA)	**0.60**		0.32	0.13	ug/Kg	☼	10/31/16 10:42	11/03/16 02:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*80*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:36*	*1*
13C4-PFHpA	*85*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:36*	*1*

Client Sample ID: SD140100

Lab Sample ID: 160-19727-3
Date Collected: 10/24/16 12:35
Matrix: Solid
Date Received: 10/28/16 08:50
Percent Solids: 62.4

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*86*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:36*	*1*
13C4 PFOS	*78*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:36*	*1*
13C5 PFNA	*86*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:36*	*1*

Client Sample ID: SD140100 DUP

Lab Sample ID: 160-19727-4
Date Collected: 10/24/16 12:35
Matrix: Solid
Date Received: 10/28/16 08:50
Percent Solids: 62.2

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.32	0.16	ug/Kg	☼	10/31/16 10:42	11/03/16 02:43	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.32	0.19	ug/Kg	☼	10/31/16 10:42	11/03/16 02:43	1
Perfluoroheptanoic acid (PFHpA)	**0.26**	**J**	0.32	0.14	ug/Kg	☼	10/31/16 10:42	11/03/16 02:43	1
Perfluorooctanoic acid (PFOA)	**0.39**		0.32	0.16	ug/Kg	☼	10/31/16 10:42	11/03/16 02:43	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.32	0.20	ug/Kg	☼	10/31/16 10:42	11/03/16 02:43	1
Perfluorononanoic acid (PFNA)	**0.46**		0.32	0.13	ug/Kg	☼	10/31/16 10:42	11/03/16 02:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*80*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:43*	*1*
13C4-PFHpA	*87*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:43*	*1*
13C4 PFOA	*87*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:43*	*1*
13C4 PFOS	*78*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:43*	*1*
13C5 PFNA	*90*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:43*	*1*

Client Sample ID: GW1101

Lab Sample ID: 160-19727-5
Date Collected: 10/24/16 10:42
Matrix: Water
Date Received: 10/28/16 08:50

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		12	4.0	ug/L			11/09/16 21:32	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**360000**		4000	1000	ug/L		11/08/16 13:16	11/09/16 18:16	10
Antimony	ND		200	60	ug/L		11/08/16 13:16	11/09/16 18:16	10
Arsenic	**550**		200	80	ug/L		11/08/16 13:16	11/09/16 18:16	10
Barium	**19000**		1000	300	ug/L		11/08/16 13:16	11/09/16 18:16	10
Beryllium	ND		100	30	ug/L		11/08/16 13:16	11/09/16 18:16	10
Cadmium	ND		100	30	ug/L		11/08/16 13:16	11/09/16 18:16	10
Calcium	**960000**		20000	6000	ug/L		11/08/16 13:16	11/09/16 18:16	10
Chromium	**1700**		200	60	ug/L		11/08/16 13:16	11/09/16 18:16	10
Cobalt	**600**	**J**	1000	300	ug/L		11/08/16 13:16	11/09/16 18:16	10
Copper	**590**		500	140	ug/L		11/08/16 13:16	11/09/16 18:16	10
Iron	**1100000**		2000	600	ug/L		11/08/16 13:16	11/09/16 18:16	10
Lead	**730**		200	60	ug/L		11/08/16 13:16	11/09/16 18:16	10
Magnesium	**300000**		20000	6000	ug/L		11/08/16 13:16	11/09/16 18:16	10
Manganese	**27000**		300	80	ug/L		11/08/16 13:16	11/09/16 18:16	10
Nickel	**1500**		800	200	ug/L		11/08/16 13:16	11/09/16 18:16	10
Potassium	**66000**	**J**	100000	30000	ug/L		11/08/16 13:16	11/09/16 18:16	10
Selenium	ND		300	160	ug/L		11/08/16 13:16	11/09/16 18:16	10

Client Sample ID: GW1101

Date Collected: 10/24/16 10:42
Date Received: 10/28/16 08:50

Lab Sample ID: 160-19727-5
Matrix: Water

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		200	60	ug/L		11/08/16 13:16	11/09/16 18:16	10
Sodium	**63000**		20000	6000	ug/L		11/08/16 13:16	11/09/16 18:16	10
Thallium	ND	^	400	100	ug/L		11/08/16 13:16	11/09/16 18:16	10
Vanadium	**1400**		1000	300	ug/L		11/08/16 13:16	11/09/16 18:16	10
Zinc	**3100**		400	120	ug/L		11/08/16 13:16	11/09/16 18:16	10

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.64**	**B**	0.20	0.060	ug/L		10/31/16 09:16	10/31/16 17:28	1

Client Sample ID: GW1004

Date Collected: 10/24/16 14:56
Date Received: 10/28/16 08:50

Lab Sample ID: 160-19727-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.0	0.25	ug/L			11/05/16 03:01	1
Ethylbenzene	ND		5.0	0.30	ug/L			11/05/16 03:01	1
Toluene	ND		5.0	1.0	ug/L			11/05/16 03:01	1
Xylenes, Total	ND		10	0.85	ug/L			11/05/16 03:01	1
Naphthalene	ND		5.0	0.85	ug/L			11/05/16 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*71 - 139*		*11/05/16 03:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*76 - 121*		*11/05/16 03:01*	*1*
Toluene-d8 (Surr)	*106*		*80 - 129*		*11/05/16 03:01*	*1*
Dibromofluoromethane (Surr)	*110*		*80 - 121*		*11/05/16 03:01*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	**270**		2.8	1.3	ng/L		10/31/16 11:07	11/02/16 19:51	1
Perfluoroheptanoic acid (PFHpA)	**380**		2.8	1.1	ng/L		10/31/16 11:07	11/02/16 19:51	1
Perfluorooctanoic acid (PFOA)	**280**		2.8	1.1	ng/L		10/31/16 11:07	11/02/16 19:51	1
Perfluorononanoic acid (PFNA)	**100**		2.8	0.92	ng/L		10/31/16 11:07	11/02/16 19:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*78*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:51*	*1*
13C4-PFHpA	*67*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:51*	*1*
13C4 PFOA	*75*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:51*	*1*
13C5 PFNA	*71*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:51*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	**1600**		28	12	ng/L		10/31/16 11:07	11/03/16 14:37	10
Perfluorooctanesulfonic acid (PFOS)	**520**		28	18	ng/L		10/31/16 11:07	11/03/16 14:37	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*96*		*25 - 150*	*10/31/16 11:07*	*11/03/16 14:37*	*10*
13C4 PFOA	*97*		*25 - 150*	*10/31/16 11:07*	*11/03/16 14:37*	*10*
13C4 PFOS	*94*		*25 - 150*	*10/31/16 11:07*	*11/03/16 14:37*	*10*

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 160-277750/9
Matrix: Water
Analysis Batch: 277750

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.0	0.25	ug/L			11/04/16 19:56	1
Ethylbenzene	ND		5.0	0.30	ug/L			11/04/16 19:56	1
Toluene	ND		5.0	1.0	ug/L			11/04/16 19:56	1
Xylenes, Total	ND		10	0.85	ug/L			11/04/16 19:56	1
Naphthalene	ND		5.0	0.85	ug/L			11/04/16 19:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*71 - 139*		*11/04/16 19:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*76 - 121*		*11/04/16 19:56*	*1*
Toluene-d8 (Surr)	*105*		*80 - 129*		*11/04/16 19:56*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 121*		*11/04/16 19:56*	*1*

Lab Sample ID: LCS 160-277750/4
Matrix: Water
Analysis Batch: 277750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			50.0	49.5		ug/L		99	80 - 120		
Ethylbenzene			50.0	54.2		ug/L		108	80 - 120		
Toluene			50.0	49.6		ug/L		99	80 - 120		
Xylenes, Total			100	108		ug/L		108	80 - 121		
Naphthalene			50.0	50.7		ug/L		101	79 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*71 - 139*
1,2-Dichloroethane-d4 (Surr)	*95*		*76 - 121*
Toluene-d8 (Surr)	*102*		*80 - 129*
Dibromofluoromethane (Surr)	*104*		*80 - 121*

Lab Sample ID: LCSD 160-277750/5
Matrix: Water
Analysis Batch: 277750

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			50.0	49.1		ug/L		98	80 - 120	1	20
Ethylbenzene			50.0	52.0		ug/L		104	80 - 120	4	20
Toluene			50.0	48.4		ug/L		97	80 - 120	2	20
Xylenes, Total			100	104		ug/L		104	80 - 121	3	20
Naphthalene			50.0	53.8		ug/L		108	79 - 133	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*71 - 139*
1,2-Dichloroethane-d4 (Surr)	*99*		*76 - 121*
Toluene-d8 (Surr)	*100*		*80 - 129*
Dibromofluoromethane (Surr)	*105*		*80 - 121*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 160-19727-6 MS
Matrix: Water
Analysis Batch: 277750

Client Sample ID: GW1004
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		50.0	49.7		ug/L		99	80 - 120
Ethylbenzene	ND		50.0	53.5		ug/L		107	80 - 121
Toluene	ND		50.0	49.2		ug/L		98	75 - 134
Xylenes, Total	ND		100	106		ug/L		106	80 - 124
Naphthalene	ND		50.0	54.2		ug/L		108	54 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*71 - 139*
1,2-Dichloroethane-d4 (Surr)	*97*		*76 - 121*
Toluene-d8 (Surr)	*99*		*80 - 129*
Dibromofluoromethane (Surr)	*105*		*80 - 121*

Lab Sample ID: 160-19727-6 MSD
Matrix: Water
Analysis Batch: 277750

Client Sample ID: GW1004
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		50.0	51.5		ug/L		103	80 - 120	3	20
Ethylbenzene	ND		50.0	53.3		ug/L		107	80 - 121	0	20
Toluene	ND		50.0	50.0		ug/L		100	75 - 134	2	20
Xylenes, Total	ND		100	109		ug/L		109	80 - 124	2	20
Naphthalene	ND		50.0	56.2		ug/L		112	54 - 150	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*88*		*71 - 139*
1,2-Dichloroethane-d4 (Surr)	*104*		*76 - 121*
Toluene-d8 (Surr)	*98*		*80 - 129*
Dibromofluoromethane (Surr)	*109*		*80 - 121*

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 160-278496/5
Matrix: Water
Analysis Batch: 278496

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		12	4.0	ug/L			11/09/16 20:10	1

Lab Sample ID: LCS 160-278496/6
Matrix: Water
Analysis Batch: 278496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	50.0	52.1		ug/L		104	85 - 115

Method: 314.0 - Perchlorate (IC) - DL

Lab Sample ID: 160-19589-D-12 MS
Matrix: Water
Analysis Batch: 278496

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate - DL	960	F1	1000	1810		ug/L		85	80 - 120

Lab Sample ID: 160-19589-D-12 MSD
Matrix: Water
Analysis Batch: 278496

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate - DL	960	F1	1000	1690	F1	ug/L		72	80 - 120	7	15

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-135225/1-A
Matrix: Solid
Analysis Batch: 136003

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 135225

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.10	ug/Kg		10/31/16 10:42	11/03/16 02:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.12	ug/Kg		10/31/16 10:42	11/03/16 02:06	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.088	ug/Kg		10/31/16 10:42	11/03/16 02:06	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.10	ug/Kg		10/31/16 10:42	11/03/16 02:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.13	ug/Kg		10/31/16 10:42	11/03/16 02:06	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.083	ug/Kg		10/31/16 10:42	11/03/16 02:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*91*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:06*	*1*
13C4-PFHpA	*101*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:06*	*1*
13C4 PFOA	*100*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:06*	*1*
13C4 PFOS	*90*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:06*	*1*
13C5 PFNA	*97*		*25 - 150*	*10/31/16 10:42*	*11/03/16 02:06*	*1*

Lab Sample ID: LCS 320-135225/2-A
Matrix: Solid
Analysis Batch: 136003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 135225

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid (PFBS)	3.50	3.98		ug/Kg		114	69 - 139
Perfluorohexanesulfonic acid (PFHxS)	3.60	3.75		ug/Kg		104	53 - 157
Perfluoroheptanoic acid (PFHpA)	3.96	4.23		ug/Kg		107	69 - 148
Perfluorooctanoic acid (PFOA)	3.96	3.98		ug/Kg		101	54 - 144
Perfluorooctanesulfonic acid (PFOS)	3.68	3.74		ug/Kg		102	47 - 154
Perfluorononanoic acid (PFNA)	3.96	4.39		ug/Kg		111	75 - 134

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
18O2 PFHxS	*94*		*25 - 150*
13C4-PFHpA	*102*		*25 - 150*
13C4 PFOA	*99*		*25 - 150*

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-135225/2-A
Matrix: Solid
Analysis Batch: 136003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 135225

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFOS	91		25 - 150
13C5 PFNA	98		25 - 150

Lab Sample ID: 160-19727-4 MS
Matrix: Solid
Analysis Batch: 136003

Client Sample ID: SD140100 DUP
Prep Type: Total/NA
Prep Batch: 135225

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid (PFBS)	ND		5.73	7.42		ug/Kg	☼	130	69 - 139
Perfluorohexanesulfonic acid (PFHxS)	ND		5.90	6.06		ug/Kg	☼	103	53 - 157
Perfluoroheptanoic acid (PFHpA)	0.26	J	6.48	7.01		ug/Kg	☼	104	69 - 148
Perfluorooctanoic acid (PFOA)	0.39		6.48	6.67		ug/Kg	☼	97	54 - 144
Perfluorooctanesulfonic acid (PFOS)	ND		6.01	6.34		ug/Kg	☼	105	47 - 154
Perfluorononanoic acid (PFNA)	0.46		6.48	7.45		ug/Kg	☼	108	75 - 134

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
18O2 PFHxS	76		25 - 150
13C4-PFHpA	83		25 - 150
13C4 PFOA	83		25 - 150
13C4 PFOS	75		25 - 150
13C5 PFNA	87		25 - 150

Lab Sample ID: 160-19727-4 MSD
Matrix: Solid
Analysis Batch: 136003

Client Sample ID: SD140100 DUP
Prep Type: Total/NA
Prep Batch: 135225

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	ND		5.67	7.49		ug/Kg	☼	132	69 - 139	1	30
Perfluorohexanesulfonic acid (PFHxS)	ND		5.84	6.11		ug/Kg	☼	105	53 - 157	1	30
Perfluoroheptanoic acid (PFHpA)	0.26	J	6.41	7.02		ug/Kg	☼	105	69 - 148	0	30
Perfluorooctanoic acid (PFOA)	0.39		6.41	7.01		ug/Kg	☼	103	54 - 144	5	30
Perfluorooctanesulfonic acid (PFOS)	ND		5.95	6.25		ug/Kg	☼	105	47 - 154	1	30
Perfluorononanoic acid (PFNA)	0.46		6.41	7.60		ug/Kg	☼	111	75 - 134	2	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
18O2 PFHxS	76		25 - 150
13C4-PFHpA	83		25 - 150
13C4 PFOA	82		25 - 150
13C4 PFOS	75		25 - 150
13C5 PFNA	83		25 - 150

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: MB 320-135232/1-A
Matrix: Water
Analysis Batch: 135762

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 135232

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		10/31/16 11:07	11/02/16 19:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		10/31/16 11:07	11/02/16 19:13	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		10/31/16 11:07	11/02/16 19:13	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		10/31/16 11:07	11/02/16 19:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		10/31/16 11:07	11/02/16 19:13	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		10/31/16 11:07	11/02/16 19:13	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*103*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:13*	*1*
13C4-PFHpA	*107*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:13*	*1*
13C4 PFOA	*106*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:13*	*1*
13C4 PFOS	*102*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:13*	*1*
13C5 PFNA	*102*		*25 - 150*	*10/31/16 11:07*	*11/02/16 19:13*	*1*

Lab Sample ID: LCS 320-135232/2-A
Matrix: Water
Analysis Batch: 135762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 135232

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	39.8		ng/L		113	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	37.7		ng/L		103	58 - 138
Perfluoroheptanoic acid (PFHpA)	40.0	41.0		ng/L		102	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	38.6		ng/L		96	63 - 141
Perfluorooctanesulfonic acid (PFOS)	37.1	37.1		ng/L		100	47 - 162
Perfluorononanoic acid (PFNA)	40.0	42.7		ng/L		107	71 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
18O2 PFHxS	*103*		*25 - 150*
13C4-PFHpA	*103*		*25 - 150*
13C4 PFOA	*102*		*25 - 150*
13C4 PFOS	*103*		*25 - 150*
13C5 PFNA	*102*		*25 - 150*

Lab Sample ID: LCSD 320-135232/3-A
Matrix: Water
Analysis Batch: 135762

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 135232

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	38.7		ng/L		109	55 - 147	3	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.9		ng/L		101	58 - 138	2	30
Perfluoroheptanoic acid (PFHpA)	40.0	42.0		ng/L		105	63 - 135	2	30
Perfluorooctanoic acid (PFOA)	40.0	39.8		ng/L		100	63 - 141	3	30
Perfluorooctanesulfonic acid (PFOS)	37.1	38.4		ng/L		103	47 - 162	3	30
Perfluorononanoic acid (PFNA)	40.0	43.2		ng/L		108	71 - 140	1	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
18O2 PFHxS	*105*		*25 - 150*
13C4-PFHpA	*102*		*25 - 150*
13C4 PFOA	*101*		*25 - 150*
13C4 PFOS	*102*		*25 - 150*
13C5 PFNA	*100*		*25 - 150*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 160-278261/1-A
Matrix: Water
Analysis Batch: 278522

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 278261

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		200	50	ug/L		11/08/16 13:16	11/09/16 17:31	1
Antimony	ND		10	3.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Arsenic	ND		10	4.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Barium	ND		50	15	ug/L		11/08/16 13:16	11/09/16 17:31	1
Beryllium	ND		5.0	1.5	ug/L		11/08/16 13:16	11/09/16 17:31	1
Cadmium	ND		5.0	1.5	ug/L		11/08/16 13:16	11/09/16 17:31	1
Calcium	ND		1000	300	ug/L		11/08/16 13:16	11/09/16 17:31	1
Chromium	ND		10	3.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Cobalt	ND		50	15	ug/L		11/08/16 13:16	11/09/16 17:31	1
Copper	ND		25	7.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Iron	ND		100	30	ug/L		11/08/16 13:16	11/09/16 17:31	1
Lead	ND		10	3.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Magnesium	ND		1000	300	ug/L		11/08/16 13:16	11/09/16 17:31	1
Manganese	ND		15	4.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Nickel	ND		40	10	ug/L		11/08/16 13:16	11/09/16 17:31	1
Potassium	ND		5000	1500	ug/L		11/08/16 13:16	11/09/16 17:31	1
Selenium	ND		15	8.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Silver	ND		10	3.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Sodium	ND		1000	300	ug/L		11/08/16 13:16	11/09/16 17:31	1
Thallium	ND	^	20	5.0	ug/L		11/08/16 13:16	11/09/16 17:31	1
Vanadium	ND		50	15	ug/L		11/08/16 13:16	11/09/16 17:31	1
Zinc	ND		20	6.0	ug/L		11/08/16 13:16	11/09/16 17:31	1

Lab Sample ID: LCS 160-278261/2-A
Matrix: Water
Analysis Batch: 278522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 278261

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10000	10000		ug/L		100	80 - 120
Antimony	500	499		ug/L		100	80 - 120
Arsenic	1000	979		ug/L		98	80 - 120
Barium	1000	1040		ug/L		104	80 - 120
Beryllium	1000	1020		ug/L		102	80 - 120
Cadmium	1000	991		ug/L		99	80 - 120
Calcium	10000	10400		ug/L		104	80 - 120
Chromium	1000	1020		ug/L		102	80 - 120
Cobalt	1000	1040		ug/L		104	80 - 120
Copper	1000	1010		ug/L		101	80 - 120
Iron	10000	10400		ug/L		104	80 - 120
Lead	1000	1060		ug/L		106	80 - 120
Magnesium	10000	9990		ug/L		100	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 160-278261/2-A
Matrix: Water
Analysis Batch: 278522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 278261

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	1000	1030		ug/L		103	80 - 120
Nickel	1000	1050		ug/L		105	80 - 120
Potassium	10000	9890		ug/L		99	80 - 120
Selenium	500	498		ug/L		100	80 - 120
Silver	200	202		ug/L		101	80 - 120
Sodium	10000	10100		ug/L		101	80 - 120
Thallium	200	220	^	ug/L		110	80 - 120
Vanadium	1000	1030		ug/L		103	80 - 120
Zinc	1000	1020		ug/L		102	80 - 120

Lab Sample ID: 160-19687-D-3-B MS
Matrix: Water
Analysis Batch: 278522

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 278261

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	150	J	10000	10100		ug/L		99	75 - 125
Antimony	ND		500	517		ug/L		103	75 - 125
Arsenic	6.4	J	1000	1030		ug/L		102	75 - 125
Barium	90		1000	1110		ug/L		102	75 - 125
Beryllium	ND		1000	1010		ug/L		101	75 - 125
Cadmium	ND		1000	1040		ug/L		104	75 - 125
Calcium	75000		10000	83100	4	ug/L		79	75 - 125
Chromium	3.1	J	1000	1040		ug/L		104	75 - 125
Cobalt	ND		1000	1050		ug/L		105	75 - 125
Copper	ND		1000	1030		ug/L		103	75 - 125
Iron	100		10000	10300		ug/L		102	75 - 125
Lead	12		1000	1090		ug/L		107	75 - 125
Magnesium	42000		10000	51100	4	ug/L		93	75 - 125
Manganese	19		1000	1020		ug/L		100	75 - 125
Nickel	ND		1000	1060		ug/L		106	75 - 125
Potassium	ND		10000	11200		ug/L		112	75 - 125
Selenium	ND		500	518		ug/L		104	75 - 125
Silver	ND		200	207		ug/L		103	75 - 125
Sodium	11000		10000	20100		ug/L		92	75 - 125
Thallium	ND	^	200	220	^	ug/L		110	75 - 125
Vanadium	ND		1000	1000		ug/L		100	75 - 125
Zinc	19	J	1000	1080		ug/L		106	75 - 125

Lab Sample ID: 160-19687-D-3-C MSD
Matrix: Water
Analysis Batch: 278522

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 278261

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	150	J	10000	10200		ug/L		101	75 - 125	2	20
Antimony	ND		500	514		ug/L		103	75 - 125	1	20
Arsenic	6.4	J	1000	1020		ug/L		102	75 - 125	0	20
Barium	90		1000	1130		ug/L		104	75 - 125	2	20
Beryllium	ND		1000	1020		ug/L		102	75 - 125	1	20
Cadmium	ND		1000	1030		ug/L		103	75 - 125	2	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 160-19687-D-3-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 278522 — **Prep Batch: 278261**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	75000		10000	80700	4	ug/L		54	75 - 125	3	20
Chromium	3.1	J	1000	1030		ug/L		102	75 - 125	2	20
Cobalt	ND		1000	1030		ug/L		103	75 - 125	1	20
Copper	ND		1000	1030		ug/L		103	75 - 125	0	20
Iron	100		10000	10400		ug/L		103	75 - 125	1	20
Lead	12		1000	1070		ug/L		105	75 - 125	2	20
Magnesium	42000		10000	51600	4	ug/L		99	75 - 125	1	20
Manganese	19		1000	1030		ug/L		101	75 - 125	1	20
Nickel	ND		1000	1040		ug/L		104	75 - 125	2	20
Potassium	ND		10000	11300		ug/L		113	75 - 125	2	20
Selenium	ND		500	518		ug/L		104	75 - 125	0	20
Silver	ND		200	207		ug/L		104	75 - 125	0	20
Sodium	11000		10000	20400		ug/L		95	75 - 125	2	20
Thallium	ND	^	200	218	^	ug/L		109	75 - 125	1	20
Vanadium	ND		1000	1020		ug/L		102	75 - 125	2	20
Zinc	19	J	1000	1070		ug/L		105	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 160-276813/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277175 — **Prep Batch: 276813**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0727	J	0.20	0.060	ug/L		10/31/16 09:16	10/31/16 16:43	1

Lab Sample ID: LCS 160-276813/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277175 — **Prep Batch: 276813**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.81		ug/L		96	80 - 120

Lab Sample ID: 160-19516-B-1-D MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277175 — **Prep Batch: 276813**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		5.00	4.67		ug/L		93	80 - 120

Lab Sample ID: 160-19516-B-1-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 277175 — **Prep Batch: 276813**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		5.00	4.68		ug/L		94	80 - 120	0	20

GC/MS VOA

Analysis Batch: 277750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-6	GW1004	Total/NA	Water	8260C	
MB 160-277750/9	Method Blank	Total/NA	Water	8260C	
LCS 160-277750/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 160-277750/5	Lab Control Sample Dup	Total/NA	Water	8260C	
160-19727-6 MS	GW1004	Total/NA	Water	8260C	
160-19727-6 MSD	GW1004	Total/NA	Water	8260C	

HPLC/IC

Analysis Batch: 278496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-5	GW1101	Total/NA	Water	314.0	
MB 160-278496/5	Method Blank	Total/NA	Water	314.0	
LCS 160-278496/6	Lab Control Sample	Total/NA	Water	314.0	
160-19589-D-12 MS - DL	Matrix Spike	Total/NA	Water	314.0	
160-19589-D-12 MSD - DL	Matrix Spike Duplicate	Total/NA	Water	314.0	

LCMS

Prep Batch: 135225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-1	SD140300	Total/NA	Solid	SHAKE	
160-19727-2	SD140200	Total/NA	Solid	SHAKE	
160-19727-3	SD140100	Total/NA	Solid	SHAKE	
160-19727-4	SD140100 DUP	Total/NA	Solid	SHAKE	
MB 320-135225/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-135225/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
160-19727-4 MS	SD140100 DUP	Total/NA	Solid	SHAKE	
160-19727-4 MSD	SD140100 DUP	Total/NA	Solid	SHAKE	

Prep Batch: 135232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-6 - DL	GW1004	Total/NA	Water	3535	
160-19727-6	GW1004	Total/NA	Water	3535	
MB 320-135232/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-135232/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-135232/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 135762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-6	GW1004	Total/NA	Water	537 (modified)	135232
MB 320-135232/1-A	Method Blank	Total/NA	Water	537 (modified)	135232
LCS 320-135232/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	135232
LCSD 320-135232/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	135232

Analysis Batch: 136003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-1	SD140300	Total/NA	Solid	537 (modified)	135225
160-19727-2	SD140200	Total/NA	Solid	537 (modified)	135225
160-19727-3	SD140100	Total/NA	Solid	537 (modified)	135225

LCMS (Continued)

Analysis Batch: 136003 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-4	SD140100 DUP	Total/NA	Solid	537 (modified)	135225
MB 320-135225/1-A	Method Blank	Total/NA	Solid	537 (modified)	135225
LCS 320-135225/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	135225
160-19727-4 MS	SD140100 DUP	Total/NA	Solid	537 (modified)	135225
160-19727-4 MSD	SD140100 DUP	Total/NA	Solid	537 (modified)	135225

Analysis Batch: 136008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-6 - DL	GW1004	Total/NA	Water	537 (modified)	135232

Metals

Prep Batch: 276813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-5	GW1101	Total/NA	Water	7470A	
MB 160-276813/1-A	Method Blank	Total/NA	Water	7470A	
LCS 160-276813/2-A	Lab Control Sample	Total/NA	Water	7470A	
160-19516-B-1-D MS	Matrix Spike	Total/NA	Water	7470A	
160-19516-B-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 277175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-5	GW1101	Total/NA	Water	7470A	276813
MB 160-276813/1-A	Method Blank	Total/NA	Water	7470A	276813
LCS 160-276813/2-A	Lab Control Sample	Total/NA	Water	7470A	276813
160-19516-B-1-D MS	Matrix Spike	Total/NA	Water	7470A	276813
160-19516-B-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	276813

Prep Batch: 278261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-5	GW1101	Total/NA	Water	3010A	
MB 160-278261/1-A	Method Blank	Total/NA	Water	3010A	
LCS 160-278261/2-A	Lab Control Sample	Total/NA	Water	3010A	
160-19687-D-3-B MS	Matrix Spike	Total/NA	Water	3010A	
160-19687-D-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	3010A	

Analysis Batch: 278522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-5	GW1101	Total/NA	Water	6010C	278261
MB 160-278261/1-A	Method Blank	Total/NA	Water	6010C	278261
LCS 160-278261/2-A	Lab Control Sample	Total/NA	Water	6010C	278261
160-19687-D-3-B MS	Matrix Spike	Total/NA	Water	6010C	278261
160-19687-D-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	6010C	278261

General Chemistry

Analysis Batch: 136744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-1	SD140300	Total/NA	Solid	D 2216	
160-19727-2	SD140200	Total/NA	Solid	D 2216	

General Chemistry (Continued)

Analysis Batch: 136744 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-19727-3	SD140100	Total/NA	Solid	D 2216	
160-19727-4	SD140100 DUP	Total/NA	Solid	D 2216	
320-23338-A-4 DU	Duplicate	Total/NA	Solid	D 2216	

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Fort Calhoun NGS Blair, NE

TestAmerica Job ID: 160-19727-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	12DCE	TOL	DBFM
Lab Sample ID	Client Sample ID	(71-139)	(76-121)	(80-129)	(80-121)
160-19727-6	GW1004	100	104	106	110
160-19727-6 MS	GW1004	89	97	99	105
160-19727-6 MSD	GW1004	88	104	98	109
LCS 160-277750/4	Lab Control Sample	89	95	102	104
LCSD 160-277750/5	Lab Control Sample Dup	91	99	100	105
MB 160-277750/9	Method Blank	100	98	105	105

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Fort Calhoun NGS Blair, NE

TestAmerica Job ID: 160-19727-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)				
Lab Sample ID	Client Sample ID	18O2 PFHx (25-150)	13C4-PFHp (25-150)	13C4 PFOA (25-150)	13C4 PFOS (25-150)	13C5 PFNA (25-150)
160-19727-1	SD140300	87	84	85	86	91
160-19727-2	SD140200	75	82	80	74	84
160-19727-3	SD140100	80	85	86	78	86
160-19727-4	SD140100 DUP	80	87	87	78	90
160-19727-4 MS	SD140100 DUP	76	83	83	75	87
160-19727-4 MSD	SD140100 DUP	76	83	82	75	83
LCS 320-135225/2-A	Lab Control Sample	94	102	99	91	98
MB 320-135225/1-A	Method Blank	91	101	100	90	97

Surrogate Legend

18O2 PFHxS = 18O2 PFHxS
13C4-PFHpA = 13C4-PFHpA
13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
13C5 PFNA = 13C5 PFNA

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)				
Lab Sample ID	Client Sample ID	18O2 PFHx (25-150)	13C4-PFHp (25-150)	13C4 PFOA (25-150)	13C4 PFOS (25-150)	13C5 PFNA (25-150)
160-19727-6	GW1004	78	67	75		71
160-19727-6 - DL	GW1004	96		97	94	
LCS 320-135232/2-A	Lab Control Sample	103	103	102	103	102
LCSD 320-135232/3-A	Lab Control Sample Dup	105	102	101	102	100
MB 320-135232/1-A	Method Blank	103	107	106	102	102

Surrogate Legend

18O2 PFHxS = 18O2 PFHxS
13C4-PFHpA = 13C4-PFHpA
13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
13C5 PFNA = 13C5 PFNA

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November 18, 2016

Mr. Miles van Noordennen
AMEC Environment & Infrastructure
100 Corporate Place, Suite 105
Rocky Hill, Connecticut 06067

Re: Fort Calhoun Nuclear Station
Work Order: 409254

Dear Mr. Noordennen:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 27, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4453.

Sincerely,

Kaitlyn Stone for
Edith Kent
Project Manager

Purchase Order: 127960-002
Chain of Custody: FCS-001, FCS-002, FCS-003 and FCS-004
Enclosures

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Case Narrative

Receipt Narrative
for
Haley & Aldrich, Inc.
SDG: 409254

November 18, 2016

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on October 27, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. The client was notified that samples 409254011(SS110100), 409254012(SS110200), 409254013(SD140300), 409254014(SD140200), 409254015(SD140100), and 409254016(SD140100DUP) were received out of holding time for low level VOAs. The client directed the lab to proceed with analysis.

Sample Identification: The laboratory received the following samples:

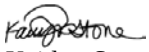
Laboratory ID	Client ID
409254001	DP110100
409254002	DP110102
409254003	DP110104
409254004	DP110106
409254005	DP110113
409254006	DP110200
409254007	DP110202
409254008	DP110204
409254009	DP110206
409254010	DP110214
409254011	SS110100
409254012	SS110200
409254013	SD140300
409254014	SD140200
409254015	SD140100
409254016	SD140100DUP
409254017	DP100113
409254018	DP100212
409254019	DP100310
409254020	DP010216
409254021	DP010216
409254022	DP010109
409254023	DP010109
409254024	DP010307
409254025	DP010307
409254026	DP050113
409254027	DP050213

409254028	SS050100
409254029	DP020312
409254030	DP020312
409254031	DP020312DUP
409254032	DP020413
409254033	DP020413
409254034	DP020207
409254035	DP020207
409254036	DP020209
409254037	DP020209
409254038	DP020114
409254039	DP020114
409254040	DP060321
409254041	DP060113
409254042	DP060212
409254043	DP060212DUP
409254044	TB102616

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Diesel Range Organics, GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Project Management.



Kaitlyn Stone for
Edith Kent
Project Manager

Chain of Custody and Supporting Documentation

Page: 3 of
Project #: 127960
GEL Quote #: GELP16-1160
COC Number (1): FCS-003
PO Number: 127960-002

GEL Chain of Custody and Analytical Request

GEL Work Order Number: 409254

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Haley + Aldrich Phone #: 860-812-3152
Project/Site Name: Fort Calhoun Station Fax #:
Address: Blair, NE
Collected by: M. vanNoordennen Send Results To: online

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	TAL Metals (6010/7471)	SRLP Metals (6010/7470)	PAH - 8270	PCB - 8082	VOCs - 8260	SVOCs - 8270	<-- Preservative Type (6)
DP010109	10-25-16	1114	N	N	SO	N	N	2	X	X					
DP010307	10-25-16	1150	N	N	SO	N	N	2	X	X					
DP050113	10-25-16	1214	N	N	SO	N	N	1			X	X			
DP050213	10-25-16	1234	N	N	SO	N	N	1			X	X			
SS050100	10-25-16	1248	N	N	SO	N	N	1			X	X			
DP020312	10-25-16	1325	N	N	SO	N	N	6	X	X		X	X	X	
DP020312DUP	10-25-16	1325	FD	N	SO	N	N	1				X			
DP020413	10-25-16	1400	N	N	SO	N	N	6	X	X		X	X	X	
DP020207	10-26-16	0946	N	N	SO	N	N	6	X	X		X	X	X	
DP020209	10-26-16	0953	N	N	SO	N	N	6	X	X		X	X	X	

Comments
Note: extra sample is required for sample specific QC

TAT Requested: Normal: X Rush: Specify: (Subject to Surcharge) Fax Results: Yes / (No)

Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / (Level 4)

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

None

Sample Collection Time Zone: Eastern Pacific (Central) Mountain Other

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1		10-26-16	1240	P. Kent	10.27.16	0900
2						
3						

Sample Shipping and Delivery Details

GEL PM: Edie Kent
Method of Shipment: FedEx Date Shipped: 10-26-16
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. *8260B* - 3, *6010B/7470A* - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

Page: 4 of
Project #: 127960
GEL Quote #: GELP16-1160
COC Number (1): FCS-004
PO Number: 127960-002

GEL Chain of Custody and Analytical Request

GEL Work Order Number:

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Haley + Aldrich Phone #: 860 812 3152
Project/Site Name: Fort Calhoun Station Fax #:
Address: Blair, NE
Collected by: M. VanNoordenne Send Results To: Online

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	VOCs - 8260	SVOCs - 8270	TAL Metals (6010/7470)	SPLP Metals (1312/7470)	PCBs - 8082	TPH-DRO 8015	Comments / Preservative Type (6)
DP020114	10-26-16	1054	N	N	SO	N	N	6	X	X	X	X	X		
DP060321	10-26-16	1231	N	N	SO	N	N	1						X	
DP060113	10-26-16	1253	N	N	SO	N	N	1						X	
DP060212	10-26-16	1322	N	N	SO	N	N	1						X	
DP060212DUP	10-26-16	1322	FD	N	SO	N	N	1						X	
~~TB06~~ MW 0211 TB102616	10-26-16	1240	TB	N	TB	N	N	4	X						

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Comments
Note: extra sample is required for sample specific QC

TAT Requested: Normal: X Rush: Specify: (Subject to Surcharge)
Fax Results: Yes / No
Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

None

Sample Collection Time Zone: Eastern / Central / Mountain / Pacific / Other

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1			1 P. Ment	10.27.16	0900
2			2		
3			3		

Sample Shipping and Delivery Details

GEL PM: Edie Kent
Method of Shipment: FedEx Date Shipped:
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

Page: 1 of
Project #: 127960
GEL Quote #: GELP16-1160
COC Number (1): FCS-001
PO Number: 127960-002

GEL Chain of Custody and Analytical Request

GEL Work Order Number:

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Haley & Aldrich Phone #: 860-817-3152
Project/Site Name: Fort Calhoun Station Fax #:
Address: Blair, NE
Collected by: M. VanNoordenne Send Results To: online

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	Total Lead - 6010	TCLP Lead - 1311/6010	<-- Preservative Type (6)	Comments
DP110100	10-24-16	0938	N	N	SO	N	N	2	X	X	*HOLD TCLP*	Note: extra sample is required for sample specific QC
DP110102	10-24-16	0941	N	N	SO	N	N	2	X	X	*HOLD TCLP*	
DP110104	10-24-16	0948	N	N	SO	N	N	2	X	X	*HOLD TCLP*	
DP110106	10-24-16	0950	N	N	SO	N	N	2	X	X	*HOLD TCLP*	
DP110113	10-24-16	0954	N	N	SO	N	N	2	X	X	*HOLD TCLP*	
DP110200	10-24-16	1128	N	N	SO	N	N	2	X	X	*HOLD TCLP*	
DP110202	10-24-16	1130	N	N	SO	N	N	2	X	X	*HOLD TCLP*	
DP110204	10-24-16	1134	N	N	SO	N	N	2	X	X	*HOLD TCLP*	
DP110206	10-24-16	1137	N	N	SO	N	N	2	X	X	*HOLD TCLP*	
DP110214	10-24-16	1140	N	N	SO	N	N	2	X	X	*HOLD TCLP*	

TAT Requested: Normal: X Rush: Specify: (Subject to Surcharge) Fax Results: Yes / (No)

Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / (Level 4)

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

None

Sample Collection Time Zone
Eastern Pacific
(Central) Other
Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	10.26.16	1740	P. Client	10.27.16	0900
2						
3						

Sample Shipping and Delivery Details

GEL PM: Edie Kent
Method of Shipment: FedEx Date Shipped: 10-26-16
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite

3.) Field Filtered: For liquid matrices, indicate with a - **Y** - for yes the sample was field filtered or - **N** - for sample was not field filtered.

4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B**, **6010B/7470A**) and number of containers provided for each (i.e. *8260B* - **3**, *6010B/7470A* - **1**).

6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

Page: 2 of
Project #: 122960
GEL Quote #: GELP16-1160
COC Number (1): FCS-002
PO Number: 122960-002

GEL Chain of Custody and Analytical Request

GEL Work Order Number:

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Haley + Aldrich Phone #: 860-817-3152
Project/Site Name: Fort Calhoun Station Fax #:
Address: Bla.r, NE
Collected by: M. VanNoordennen Send Results To: Online

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Sample ID (* For composites - indicate start and stop date/time)	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	Total number of containers	TAL Metals 6010B/7471B	VOCs - 8260	Perchlorate - 314.0	TCLP Metals - 1311/6010B/7470A	PAH - 8270	SPLP Metals 1312/6010B/7470A					<-- Preservative Type (6)	Comments
SS110100	10-24-16	1004	N	N	SO	N	N	6	X	X	X	X								* HOLD TCLP *
SS110200	10-24-16	1054	N	N	SO	N	N	6	X	X	X	X								* HOLD TCLP *
SD140300	10-24-16	1143	N	N	SD	N	N	5	X	X	X		X							
SD140200	10-24-16	1158	N	N	SD	N	N	5	X	X	X		X							
SD140100	10-24-16	1235	N	N	SD	N	N	5	X	X	X		X							
SD140100DUP	10-24-16	1235	FD	N	SD	N	N	5	X	X	X		X							
DP100113	10-24-16	1430	N	N	SO	N	N	1	X				X							
DP100212	10-25-16	0942	N	N	SO	N	N	1	X				X							
DP100310	10-25-16	1004	N	N	SO	N	N	1	X				X							
DP010216	10-25-16	1038	N	N	SO	N	N	2	X					X						

TAT Requested: Normal: X Rush: Specify: (Subject to Surcharge) Fax Results: Yes / (No)

Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / (Level 4)

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

None

Sample Collection Time Zone: Eastern Pacific (Central) Other _____ Mountain

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1	[signature]	10.26.16	1240	[signature]	10.27.16	0900
2						
3						

Sample Shipping and Delivery Details

GEL PM: Edie Kent
Method of Shipment: FedEx Date Shipped: 10-26-16
Airbill #:
Airbill #:

1.) Chain of Custody Number = Client Determined

2.) QC Codes: **N** = Normal Sample, **TB** = Trip Blank, **FD** = Field Duplicate, **EB** = Equipment Blank, **MS** = Matrix Spike Sample, **MSD** = Matrix Spike Duplicate Sample, **G** = Grab, **C** = Composite

3.) Field Filtered: For liquid matrices, indicate with a - **Y** - for yes the sample was field filtered or - **N** - for sample was not field filtered.

4.) Matrix Codes: **DW**=Drinking Water, **GW**=Groundwater, **SW**=Surface Water, **WW**=Waste Water, **W**=Water, **SO**=Soil, **SD**=Sediment, **SL**=Sludge, **SS**=Solid Waste, **O**=Oil, **F**=Filter, **P**=Wipe, **U**=Urine, **F**=Fecal, **N**=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. **8260B, 6010B/7470A**) and number of containers provided for each (i.e. *8260B* - **3**, *6010B/7470A* - **1**).

6.) Preservative Type: **HA** = Hydrochloric Acid, **NI** = Nitric Acid, **SH** = Sodium Hydroxide, **SA** = Sulfuric Acid, **AA** = Ascorbic Acid, **HX** = Hexane, **ST** = Sodium Thiosulfate, If no preservative is added = leave field blank

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: HAAL	**SDG/AR/COC/Work Order:** 409254
Received By: P. Dent	**Date Received:** 10.27.16

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 21cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 1°C
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 201404337
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			✓	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?			✓	Sample ID's and containers affected:
7	VOA vials contain acid preservation?			✓	(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?			✓	Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
13	Number of containers received match number indicated on COC? PD 10/27/16	✓		✓	Sample ID's affected: Did not receive Evap Loss For TB
14	Are sample containers identifiable as GEL provided?	✓			
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7775 6303 4257 7775 6303 4279 7775 6303 4728

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials VS Date 10/28/16 Page 1 of 1

GL-CHL-SR-001 Rev 3

Subject: Re: samples received 10/27/16 Please Advise
From: Brielle Luthman <Brielle.Luthman@gel.com>
Date: 10/27/2016 2:39 PM
To: "van Noordennen, Miles" <MvanNoordennen@haleyaldrich.com>
CC: "team.kent" <team.kent@gel.com>

Soil kits have a holding time of 48 hours. We will proceed with analysis on all samples. Thanks for the quick response

Brielle

On 10/27/2016 2:10 PM, van Noordennen, Miles wrote:

> Please proceed with analysis. I thought the kits had a holding time of 7 days?
>
> Sent from my iPhone
>
> > On Oct 27, 2016, at 1:00 PM, Brielle Luthman<https://urldefense.proofpoint.com/v2/url?u=http-3A__Brielle.Luthman-40gel.com&d=DQIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=pKZCt6_GbNB8plXireAn1oxlP2DOQMvMyaEMFkeLdss&m=I16DuWHHKLEVK3AwF0Vn3CyOLUl2bxPC7znr5W0VI4w&s=o29UvNRlQAHNP5S47AnJEzsgIETEA4iwjbP3ZbXIcV0&e=> wrote:
> >
> > Hi Miles,
> >
> > We received a shipment today for PO 127960-002 GEL workorder 409254 and the volatile soil kits that were collected on 10/24/16 were received at GEL out of holding. Would you like us to proceed with analysis?
> >
> > Thanks,
> > Brielle
> >
> > --
> > Brielle Luthman
> > Project Manager Assistant
> > GEL Laboratories, LLC
> > 2040 Savage Road
> > Charleston, SC (USA) 29407
> > Main: 843.556.8171 x4487
> > Fax: 843.766.1178
> > Email: Brielle.Luthman@gel.com
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Laboratory Certifications

List of current GEL Certifications as of 18 November 2016

State	Certification
Alaska	UST−0110
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122016−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−16−11
Utah NELAP	SC000122016−21
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
Haley & Aldrich, Inc. (HAAL)
SDG #: 409254

Product: **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method: SW846 8260B
Analytical Procedure: GL-OA-E-038 REV# 23
Analytical Batch: 1612391

Preparation Method: SW846 5035A
Preparation Procedure: GL-OA-E-039 REV# 11
Preparation Batch: 1612389

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
409254011	SS110100
409254012	SS110200
409254013	SD140300
409254014	SD140200
409254015	SD140100
409254016	SD140100DUP
409254029	DP020312
409254032	DP020413
409254034	DP020207
409254036	DP020209
409254038	DP020114
409254044	TB102616
1203660807	Method Blank (MB)
1203660808	Laboratory Control Sample (LCS)
1203660809	Laboratory Control Sample Duplicate (LCSD)
1203666128	Method Blank (MB)
1203666129	Method Blank (MB)
1203666130	Laboratory Control Sample (LCS)
1203666131	Laboratory Control Sample (LCS)

Samples 409254011,012,013,014,015,016,029,032,034,036 and 038 in this SDG were analyzed on a "dry weight corrected" basis. Sample 409254044 in this SDG was analyzed on an "as received" basis.
Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Blank (MB) Statement
Target analytes were detected in the blank 1203660807 (MB) below the reporting limit.

Technical Information

Sample Re-extraction/Re-analysis
Samples 409254029 (DP020312) and 409254036 (DP020209) were re-analyzed due to unacceptable surrogate or

internal standard recoveries in the initial analysis. The re-analyses confirmed/and or passed and were reported.

Miscellaneous Information

Additional Comments
The samples were collected in O2SI soil kits. HAAL sample 409254044 (TB102616) was a soil trip blank that did not have soil added, therefore 5g was used as the sample aliquot for calculation purposes.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

HAAL002 Haley & Aldrich, Inc.

Client SDG: 409254 GEL Work Order: 409254

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
B The target analyte was detected in the associated blank.
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name: Erin Haubert**

Date: 23 NOV 2016 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 10:04**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254011**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**4.2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS110100**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 10:04**	**Aliquot:**	**5.6 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G215.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.932	ug/kg	0.310	0.932
79-34-5	1,1,2,2-Tetrachloroethane	U	0.932	ug/kg	0.310	0.932
79-00-5	1,1,2-Trichloroethane	U	0.932	ug/kg	0.310	0.932
75-34-3	1,1-Dichloroethane	U	0.932	ug/kg	0.310	0.932
75-35-4	1,1-Dichloroethylene	U	0.932	ug/kg	0.310	0.932
87-61-6	1,2,3-Trichlorobenzene	U	0.932	ug/kg	0.310	0.932
120-82-1	1,2,4-Trichlorobenzene	U	0.932	ug/kg	0.310	0.932
96-12-8	1,2-Dibromo-3-chloropropane	U	0.932	ug/kg	0.466	0.932
106-93-4	1,2-Dibromoethane	U	0.932	ug/kg	0.310	0.932
95-50-1	1,2-Dichlorobenzene	U	0.932	ug/kg	0.310	0.932
107-06-2	1,2-Dichloroethane	U	0.932	ug/kg	0.310	0.932
78-87-5	1,2-Dichloropropane	U	0.932	ug/kg	0.310	0.932
541-73-1	1,3-Dichlorobenzene	U	0.932	ug/kg	0.310	0.932
106-46-7	1,4-Dichlorobenzene	U	0.932	ug/kg	0.310	0.932
123-91-1	1,4-Dioxane	U	46.6	ug/kg	15.5	46.6
78-93-3	2-Butanone	U	4.66	ug/kg	1.55	4.66
591-78-6	2-Hexanone	U	4.66	ug/kg	1.55	4.66
108-10-1	4-Methyl-2-pentanone	U	4.66	ug/kg	1.55	4.66
67-64-1	Acetone	U	4.66	ug/kg	1.55	4.66
71-43-2	Benzene	U	0.932	ug/kg	0.310	0.932
74-97-5	Bromochloromethane	U	0.932	ug/kg	0.310	0.932
75-27-4	Bromodichloromethane	U	0.932	ug/kg	0.310	0.932
75-25-2	Bromoform	U	0.932	ug/kg	0.310	0.932
74-83-9	Bromomethane	U	0.932	ug/kg	0.310	0.932
75-15-0	Carbon disulfide	U	4.66	ug/kg	1.55	4.66
56-23-5	Carbon tetrachloride	U	0.932	ug/kg	0.310	0.932
108-90-7	Chlorobenzene	U	0.932	ug/kg	0.310	0.932
75-00-3	Chloroethane	U	0.932	ug/kg	0.310	0.932
67-66-3	Chloroform	U	0.932	ug/kg	0.310	0.932
74-87-3	Chloromethane	U	0.932	ug/kg	0.310	0.932
110-82-7	Cyclohexane	U	0.932	ug/kg	0.310	0.932
124-48-1	Dibromochloromethane	U	0.932	ug/kg	0.310	0.932
75-71-8	Dichlorodifluoromethane	U	0.932	ug/kg	0.310	0.932
100-41-4	Ethylbenzene	U	0.932	ug/kg	0.310	0.932
98-82-8	Isopropylbenzene	U	0.932	ug/kg	0.310	0.932
79-20-9	Methyl acetate	U	4.66	ug/kg	1.55	4.66
108-87-2	Methylcyclohexane	U	0.932	ug/kg	0.310	0.932
75-09-2	Methylene chloride	U	4.66	ug/kg	1.55	4.66

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 10:04**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254011**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**4.2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS110100**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 10:04**	**Aliquot:**	**5.6 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G215.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.932	ug/kg	0.310	0.932
127-18-4	Tetrachloroethylene	J	0.317	ug/kg	0.310	0.932
108-88-3	Toluene	U	0.932	ug/kg	0.310	0.932
79-01-6	Trichloroethylene	U	0.932	ug/kg	0.310	0.932
75-69-4	Trichlorofluoromethane	U	0.932	ug/kg	0.310	0.932
76-13-1	Trichlorotrifluoroethane	U	4.66	ug/kg	1.55	4.66
75-01-4	Vinyl chloride	U	0.932	ug/kg	0.310	0.932
156-59-2	cis-1,2-Dichloroethylene	U	0.932	ug/kg	0.310	0.932
10061-01-5	cis-1,3-Dichloropropylene	U	0.932	ug/kg	0.310	0.932
179601-23-1	m,p-Xylenes	U	1.86	ug/kg	0.622	1.86
95-47-6	o-Xylene	U	0.932	ug/kg	0.310	0.932
1634-04-4	tert-Butyl methyl ether	J	0.336	ug/kg	0.310	0.932
156-60-5	trans-1,2-Dichloroethylene	U	0.932	ug/kg	0.310	0.932
10061-02-6	trans-1,3-Dichloropropylene	U	0.932	ug/kg	0.310	0.932

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254012**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.4**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS110200**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:24**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 10:54**	**Aliquot:**	**6.7 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G216.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.903	ug/kg	0.301	0.903
79-34-5	1,1,2,2-Tetrachloroethane	U	0.903	ug/kg	0.301	0.903
79-00-5	1,1,2-Trichloroethane	U	0.903	ug/kg	0.301	0.903
75-34-3	1,1-Dichloroethane	U	0.903	ug/kg	0.301	0.903
75-35-4	1,1-Dichloroethylene	U	0.903	ug/kg	0.301	0.903
87-61-6	1,2,3-Trichlorobenzene	U	0.903	ug/kg	0.301	0.903
120-82-1	1,2,4-Trichlorobenzene	U	0.903	ug/kg	0.301	0.903
96-12-8	1,2-Dibromo-3-chloropropane	U	0.903	ug/kg	0.452	0.903
106-93-4	1,2-Dibromoethane	U	0.903	ug/kg	0.301	0.903
95-50-1	1,2-Dichlorobenzene	U	0.903	ug/kg	0.301	0.903
107-06-2	1,2-Dichloroethane	U	0.903	ug/kg	0.301	0.903
78-87-5	1,2-Dichloropropane	U	0.903	ug/kg	0.301	0.903
541-73-1	1,3-Dichlorobenzene	U	0.903	ug/kg	0.301	0.903
106-46-7	1,4-Dichlorobenzene	U	0.903	ug/kg	0.301	0.903
123-91-1	1,4-Dioxane	U	45.2	ug/kg	15.1	45.2
78-93-3	2-Butanone	U	4.52	ug/kg	1.51	4.52
591-78-6	2-Hexanone	U	4.52	ug/kg	1.51	4.52
108-10-1	4-Methyl-2-pentanone	U	4.52	ug/kg	1.51	4.52
67-64-1	Acetone	U	4.52	ug/kg	1.51	4.52
71-43-2	Benzene	U	0.903	ug/kg	0.301	0.903
74-97-5	Bromochloromethane	U	0.903	ug/kg	0.301	0.903
75-27-4	Bromodichloromethane	U	0.903	ug/kg	0.301	0.903
75-25-2	Bromoform	U	0.903	ug/kg	0.301	0.903
74-83-9	Bromomethane	U	0.903	ug/kg	0.301	0.903
75-15-0	Carbon disulfide	U	4.52	ug/kg	1.51	4.52
56-23-5	Carbon tetrachloride	U	0.903	ug/kg	0.301	0.903
108-90-7	Chlorobenzene	U	0.903	ug/kg	0.301	0.903
75-00-3	Chloroethane	U	0.903	ug/kg	0.301	0.903
67-66-3	Chloroform	U	0.903	ug/kg	0.301	0.903
74-87-3	Chloromethane	U	0.903	ug/kg	0.301	0.903
110-82-7	Cyclohexane	U	0.903	ug/kg	0.301	0.903
124-48-1	Dibromochloromethane	U	0.903	ug/kg	0.301	0.903
75-71-8	Dichlorodifluoromethane	U	0.903	ug/kg	0.301	0.903
100-41-4	Ethylbenzene	U	0.903	ug/kg	0.301	0.903
98-82-8	Isopropylbenzene	U	0.903	ug/kg	0.301	0.903
79-20-9	Methyl acetate	U	4.52	ug/kg	1.51	4.52
108-87-2	Methylcyclohexane	U	0.903	ug/kg	0.301	0.903
75-09-2	Methylene chloride	U	4.52	ug/kg	1.51	4.52

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254012**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.4**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS110200**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:24**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 10:54**	**Aliquot:**	**6.7 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G216.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.903	ug/kg	0.301	0.903
127-18-4	Tetrachloroethylene	J	0.506	ug/kg	0.301	0.903
108-88-3	Toluene	U	0.903	ug/kg	0.301	0.903
79-01-6	Trichloroethylene	U	0.903	ug/kg	0.301	0.903
75-69-4	Trichlorofluoromethane	U	0.903	ug/kg	0.301	0.903
76-13-1	Trichlorotrifluoroethane	U	4.52	ug/kg	1.51	4.52
75-01-4	Vinyl chloride	U	0.903	ug/kg	0.301	0.903
156-59-2	cis-1,2-Dichloroethylene	U	0.903	ug/kg	0.301	0.903
10061-01-5	cis-1,3-Dichloropropylene	U	0.903	ug/kg	0.301	0.903
179601-23-1	m,p-Xylenes	U	1.81	ug/kg	0.602	1.81
95-47-6	o-Xylene	U	0.903	ug/kg	0.301	0.903
1634-04-4	tert-Butyl methyl ether	U	0.903	ug/kg	0.301	0.903
156-60-5	trans-1,2-Dichloroethylene	U	0.903	ug/kg	0.301	0.903
10061-02-6	trans-1,3-Dichloropropylene	U	0.903	ug/kg	0.301	0.903

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254013**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140300**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:52**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 11:43**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G217.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.64	ug/kg	0.547	1.64
79-34-5	1,1,2,2-Tetrachloroethane	U	1.64	ug/kg	0.547	1.64
79-00-5	1,1,2-Trichloroethane	U	1.64	ug/kg	0.547	1.64
75-34-3	1,1-Dichloroethane	U	1.64	ug/kg	0.547	1.64
75-35-4	1,1-Dichloroethylene	U	1.64	ug/kg	0.547	1.64
87-61-6	1,2,3-Trichlorobenzene	U	1.64	ug/kg	0.547	1.64
120-82-1	1,2,4-Trichlorobenzene	U	1.64	ug/kg	0.547	1.64
96-12-8	1,2-Dibromo-3-chloropropane	U	1.64	ug/kg	0.822	1.64
106-93-4	1,2-Dibromoethane	U	1.64	ug/kg	0.547	1.64
95-50-1	1,2-Dichlorobenzene	U	1.64	ug/kg	0.547	1.64
107-06-2	1,2-Dichloroethane	U	1.64	ug/kg	0.547	1.64
78-87-5	1,2-Dichloropropane	U	1.64	ug/kg	0.547	1.64
541-73-1	1,3-Dichlorobenzene	U	1.64	ug/kg	0.547	1.64
106-46-7	1,4-Dichlorobenzene	U	1.64	ug/kg	0.547	1.64
123-91-1	1,4-Dioxane	U	82.2	ug/kg	27.4	82.2
78-93-3	2-Butanone	J	3.16	ug/kg	2.74	8.22
591-78-6	2-Hexanone	U	8.22	ug/kg	2.74	8.22
108-10-1	4-Methyl-2-pentanone	U	8.22	ug/kg	2.74	8.22
67-64-1	Acetone		14.8	ug/kg	2.74	8.22
71-43-2	Benzene	U	1.64	ug/kg	0.547	1.64
74-97-5	Bromochloromethane	U	1.64	ug/kg	0.547	1.64
75-27-4	Bromodichloromethane	U	1.64	ug/kg	0.547	1.64
75-25-2	Bromoform	U	1.64	ug/kg	0.547	1.64
74-83-9	Bromomethane	U	1.64	ug/kg	0.547	1.64
75-15-0	Carbon disulfide	U	8.22	ug/kg	2.74	8.22
56-23-5	Carbon tetrachloride	U	1.64	ug/kg	0.547	1.64
108-90-7	Chlorobenzene	U	1.64	ug/kg	0.547	1.64
75-00-3	Chloroethane	U	1.64	ug/kg	0.547	1.64
67-66-3	Chloroform	U	1.64	ug/kg	0.547	1.64
74-87-3	Chloromethane	U	1.64	ug/kg	0.547	1.64
110-82-7	Cyclohexane	U	1.64	ug/kg	0.547	1.64
124-48-1	Dibromochloromethane	U	1.64	ug/kg	0.547	1.64
75-71-8	Dichlorodifluoromethane	U	1.64	ug/kg	0.547	1.64
100-41-4	Ethylbenzene	U	1.64	ug/kg	0.547	1.64
98-82-8	Isopropylbenzene	U	1.64	ug/kg	0.547	1.64
79-20-9	Methyl acetate		10.7	ug/kg	2.74	8.22
108-87-2	Methylcyclohexane	U	1.64	ug/kg	0.547	1.64
75-09-2	Methylene chloride	U	8.22	ug/kg	2.74	8.22

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254013**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140300**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:52**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 11:43**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G217.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.64	ug/kg	0.547	1.64
127-18-4	Tetrachloroethylene	J	0.739	ug/kg	0.547	1.64
108-88-3	Toluene	U	1.64	ug/kg	0.547	1.64
79-01-6	Trichloroethylene	U	1.64	ug/kg	0.547	1.64
75-69-4	Trichlorofluoromethane	U	1.64	ug/kg	0.547	1.64
76-13-1	Trichlorotrifluoroethane	U	8.22	ug/kg	2.74	8.22
75-01-4	Vinyl chloride	U	1.64	ug/kg	0.547	1.64
156-59-2	cis-1,2-Dichloroethylene	U	1.64	ug/kg	0.547	1.64
10061-01-5	cis-1,3-Dichloropropylene	U	1.64	ug/kg	0.547	1.64
179601-23-1	m,p-Xylenes	U	3.29	ug/kg	1.10	3.29
95-47-6	o-Xylene	U	1.64	ug/kg	0.547	1.64
1634-04-4	tert-Butyl methyl ether	U	1.64	ug/kg	0.547	1.64
156-60-5	trans-1,2-Dichloroethylene	U	1.64	ug/kg	0.547	1.64
10061-02-6	trans-1,3-Dichloropropylene	U	1.64	ug/kg	0.547	1.64

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:58**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254014**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**44.5**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140200**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 17:21**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 11:58**	**Aliquot:**	**4.7 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G218.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.92	ug/kg	0.638	1.92
79-34-5	1,1,2,2-Tetrachloroethane	U	1.92	ug/kg	0.638	1.92
79-00-5	1,1,2-Trichloroethane	U	1.92	ug/kg	0.638	1.92
75-34-3	1,1-Dichloroethane	U	1.92	ug/kg	0.638	1.92
75-35-4	1,1-Dichloroethylene	U	1.92	ug/kg	0.638	1.92
87-61-6	1,2,3-Trichlorobenzene	U	1.92	ug/kg	0.638	1.92
120-82-1	1,2,4-Trichlorobenzene	U	1.92	ug/kg	0.638	1.92
96-12-8	1,2-Dibromo-3-chloropropane	U	1.92	ug/kg	0.958	1.92
106-93-4	1,2-Dibromoethane	U	1.92	ug/kg	0.638	1.92
95-50-1	1,2-Dichlorobenzene	U	1.92	ug/kg	0.638	1.92
107-06-2	1,2-Dichloroethane	U	1.92	ug/kg	0.638	1.92
78-87-5	1,2-Dichloropropane	U	1.92	ug/kg	0.638	1.92
541-73-1	1,3-Dichlorobenzene	U	1.92	ug/kg	0.638	1.92
106-46-7	1,4-Dichlorobenzene	U	1.92	ug/kg	0.638	1.92
123-91-1	1,4-Dioxane	U	95.8	ug/kg	31.9	95.8
78-93-3	2-Butanone	J	6.44	ug/kg	3.19	9.58
591-78-6	2-Hexanone	U	9.58	ug/kg	3.19	9.58
108-10-1	4-Methyl-2-pentanone	U	9.58	ug/kg	3.19	9.58
67-64-1	Acetone		25.5	ug/kg	3.19	9.58
71-43-2	Benzene	U	1.92	ug/kg	0.638	1.92
74-97-5	Bromochloromethane	U	1.92	ug/kg	0.638	1.92
75-27-4	Bromodichloromethane	U	1.92	ug/kg	0.638	1.92
75-25-2	Bromoform	U	1.92	ug/kg	0.638	1.92
74-83-9	Bromomethane	U	1.92	ug/kg	0.638	1.92
75-15-0	Carbon disulfide	U	9.58	ug/kg	3.19	9.58
56-23-5	Carbon tetrachloride	U	1.92	ug/kg	0.638	1.92
108-90-7	Chlorobenzene	U	1.92	ug/kg	0.638	1.92
75-00-3	Chloroethane	U	1.92	ug/kg	0.638	1.92
67-66-3	Chloroform	U	1.92	ug/kg	0.638	1.92
74-87-3	Chloromethane	U	1.92	ug/kg	0.638	1.92
110-82-7	Cyclohexane	U	1.92	ug/kg	0.638	1.92
124-48-1	Dibromochloromethane	U	1.92	ug/kg	0.638	1.92
75-71-8	Dichlorodifluoromethane	U	1.92	ug/kg	0.638	1.92
100-41-4	Ethylbenzene	U	1.92	ug/kg	0.638	1.92
98-82-8	Isopropylbenzene	U	1.92	ug/kg	0.638	1.92
79-20-9	Methyl acetate	U	9.58	ug/kg	3.19	9.58
108-87-2	Methylcyclohexane	U	1.92	ug/kg	0.638	1.92
75-09-2	Methylene chloride	U	9.58	ug/kg	3.19	9.58

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:58**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254014**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**44.5**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140200**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 17:21**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 11:58**	**Aliquot:**	**4.7 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G218.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.92	ug/kg	0.638	1.92
127-18-4	Tetrachloroethylene	U	1.92	ug/kg	0.638	1.92
108-88-3	Toluene	U	1.92	ug/kg	0.638	1.92
79-01-6	Trichloroethylene	U	1.92	ug/kg	0.638	1.92
75-69-4	Trichlorofluoromethane	U	1.92	ug/kg	0.638	1.92
76-13-1	Trichlorotrifluoroethane	U	9.58	ug/kg	3.19	9.58
75-01-4	Vinyl chloride	U	1.92	ug/kg	0.638	1.92
156-59-2	cis-1,2-Dichloroethylene	U	1.92	ug/kg	0.638	1.92
10061-01-5	cis-1,3-Dichloropropylene	U	1.92	ug/kg	0.638	1.92
179601-23-1	m,p-Xylenes	U	3.83	ug/kg	1.28	3.83
95-47-6	o-Xylene	U	1.92	ug/kg	0.638	1.92
1634-04-4	tert-Butyl methyl ether	U	1.92	ug/kg	0.638	1.92
156-60-5	trans-1,2-Dichloroethylene	U	1.92	ug/kg	0.638	1.92
10061-02-6	trans-1,3-Dichloropropylene	U	1.92	ug/kg	0.638	1.92

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254015**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**37.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 17:50**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 12:35**	**Aliquot:**	**5.5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G219.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.46	ug/kg	0.485	1.46
79-34-5	1,1,2,2-Tetrachloroethane	U	1.46	ug/kg	0.485	1.46
79-00-5	1,1,2-Trichloroethane	U	1.46	ug/kg	0.485	1.46
75-34-3	1,1-Dichloroethane	U	1.46	ug/kg	0.485	1.46
75-35-4	1,1-Dichloroethylene	U	1.46	ug/kg	0.485	1.46
87-61-6	1,2,3-Trichlorobenzene	U	1.46	ug/kg	0.485	1.46
120-82-1	1,2,4-Trichlorobenzene	U	1.46	ug/kg	0.485	1.46
96-12-8	1,2-Dibromo-3-chloropropane	U	1.46	ug/kg	0.729	1.46
106-93-4	1,2-Dibromoethane	U	1.46	ug/kg	0.485	1.46
95-50-1	1,2-Dichlorobenzene	U	1.46	ug/kg	0.485	1.46
107-06-2	1,2-Dichloroethane	U	1.46	ug/kg	0.485	1.46
78-87-5	1,2-Dichloropropane	U	1.46	ug/kg	0.485	1.46
541-73-1	1,3-Dichlorobenzene	U	1.46	ug/kg	0.485	1.46
106-46-7	1,4-Dichlorobenzene	U	1.46	ug/kg	0.485	1.46
123-91-1	1,4-Dioxane	U	72.9	ug/kg	24.3	72.9
78-93-3	2-Butanone	J	4.48	ug/kg	2.43	7.29
591-78-6	2-Hexanone	U	7.29	ug/kg	2.43	7.29
108-10-1	4-Methyl-2-pentanone	U	7.29	ug/kg	2.43	7.29
67-64-1	Acetone		15.5	ug/kg	2.43	7.29
71-43-2	Benzene	U	1.46	ug/kg	0.485	1.46
74-97-5	Bromochloromethane	U	1.46	ug/kg	0.485	1.46
75-27-4	Bromodichloromethane	U	1.46	ug/kg	0.485	1.46
75-25-2	Bromoform	U	1.46	ug/kg	0.485	1.46
74-83-9	Bromomethane	U	1.46	ug/kg	0.485	1.46
75-15-0	Carbon disulfide	U	7.29	ug/kg	2.43	7.29
56-23-5	Carbon tetrachloride	U	1.46	ug/kg	0.485	1.46
108-90-7	Chlorobenzene	U	1.46	ug/kg	0.485	1.46
75-00-3	Chloroethane	U	1.46	ug/kg	0.485	1.46
67-66-3	Chloroform	U	1.46	ug/kg	0.485	1.46
74-87-3	Chloromethane	U	1.46	ug/kg	0.485	1.46
110-82-7	Cyclohexane	U	1.46	ug/kg	0.485	1.46
124-48-1	Dibromochloromethane	U	1.46	ug/kg	0.485	1.46
75-71-8	Dichlorodifluoromethane	U	1.46	ug/kg	0.485	1.46
100-41-4	Ethylbenzene	U	1.46	ug/kg	0.485	1.46
98-82-8	Isopropylbenzene	U	1.46	ug/kg	0.485	1.46
79-20-9	Methyl acetate	U	7.29	ug/kg	2.43	7.29
108-87-2	Methylcyclohexane	U	1.46	ug/kg	0.485	1.46
75-09-2	Methylene chloride	U	7.29	ug/kg	2.43	7.29

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254015**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**37.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 17:50**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 12:35**	**Aliquot:**	**5.5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G219.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.46	ug/kg	0.485	1.46
127-18-4	Tetrachloroethylene	J	0.539	ug/kg	0.485	1.46
108-88-3	Toluene	U	1.46	ug/kg	0.485	1.46
79-01-6	Trichloroethylene	U	1.46	ug/kg	0.485	1.46
75-69-4	Trichlorofluoromethane	U	1.46	ug/kg	0.485	1.46
76-13-1	Trichlorotrifluoroethane	U	7.29	ug/kg	2.43	7.29
75-01-4	Vinyl chloride	U	1.46	ug/kg	0.485	1.46
156-59-2	cis-1,2-Dichloroethylene	U	1.46	ug/kg	0.485	1.46
10061-01-5	cis-1,3-Dichloropropylene	U	1.46	ug/kg	0.485	1.46
179601-23-1	m,p-Xylenes	U	2.92	ug/kg	0.972	2.92
95-47-6	o-Xylene	U	1.46	ug/kg	0.485	1.46
1634-04-4	tert-Butyl methyl ether	U	1.46	ug/kg	0.485	1.46
156-60-5	trans-1,2-Dichloroethylene	U	1.46	ug/kg	0.485	1.46
10061-02-6	trans-1,3-Dichloropropylene	U	1.46	ug/kg	0.485	1.46

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254016**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100DUP**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 18:19**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 12:35**	**Aliquot:**	**4.6 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G220.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.72	ug/kg	0.571	1.72
79-34-5	1,1,2,2-Tetrachloroethane	U	1.72	ug/kg	0.571	1.72
79-00-5	1,1,2-Trichloroethane	U	1.72	ug/kg	0.571	1.72
75-34-3	1,1-Dichloroethane	U	1.72	ug/kg	0.571	1.72
75-35-4	1,1-Dichloroethylene	U	1.72	ug/kg	0.571	1.72
87-61-6	1,2,3-Trichlorobenzene	U	1.72	ug/kg	0.571	1.72
120-82-1	1,2,4-Trichlorobenzene	U	1.72	ug/kg	0.571	1.72
96-12-8	1,2-Dibromo-3-chloropropane	U	1.72	ug/kg	0.858	1.72
106-93-4	1,2-Dibromoethane	U	1.72	ug/kg	0.571	1.72
95-50-1	1,2-Dichlorobenzene	U	1.72	ug/kg	0.571	1.72
107-06-2	1,2-Dichloroethane	U	1.72	ug/kg	0.571	1.72
78-87-5	1,2-Dichloropropane	U	1.72	ug/kg	0.571	1.72
541-73-1	1,3-Dichlorobenzene	U	1.72	ug/kg	0.571	1.72
106-46-7	1,4-Dichlorobenzene	U	1.72	ug/kg	0.571	1.72
123-91-1	1,4-Dioxane	U	85.8	ug/kg	28.6	85.8
78-93-3	2-Butanone	U	8.58	ug/kg	2.86	8.58
591-78-6	2-Hexanone	U	8.58	ug/kg	2.86	8.58
108-10-1	4-Methyl-2-pentanone	U	8.58	ug/kg	2.86	8.58
67-64-1	Acetone	J	7.28	ug/kg	2.86	8.58
71-43-2	Benzene	U	1.72	ug/kg	0.571	1.72
74-97-5	Bromochloromethane	U	1.72	ug/kg	0.571	1.72
75-27-4	Bromodichloromethane	U	1.72	ug/kg	0.571	1.72
75-25-2	Bromoform	U	1.72	ug/kg	0.571	1.72
74-83-9	Bromomethane	U	1.72	ug/kg	0.571	1.72
75-15-0	Carbon disulfide	U	8.58	ug/kg	2.86	8.58
56-23-5	Carbon tetrachloride	U	1.72	ug/kg	0.571	1.72
108-90-7	Chlorobenzene	U	1.72	ug/kg	0.571	1.72
75-00-3	Chloroethane	U	1.72	ug/kg	0.571	1.72
67-66-3	Chloroform	U	1.72	ug/kg	0.571	1.72
74-87-3	Chloromethane	U	1.72	ug/kg	0.571	1.72
110-82-7	Cyclohexane	U	1.72	ug/kg	0.571	1.72
124-48-1	Dibromochloromethane	U	1.72	ug/kg	0.571	1.72
75-71-8	Dichlorodifluoromethane	U	1.72	ug/kg	0.571	1.72
100-41-4	Ethylbenzene	U	1.72	ug/kg	0.571	1.72
98-82-8	Isopropylbenzene	U	1.72	ug/kg	0.571	1.72
79-20-9	Methyl acetate	U	8.58	ug/kg	2.86	8.58
108-87-2	Methylcyclohexane	U	1.72	ug/kg	0.571	1.72
75-09-2	Methylene chloride	U	8.58	ug/kg	2.86	8.58

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254016**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100DUP**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 18:19**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 12:35**	**Aliquot:**	**4.6 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G220.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.72	ug/kg	0.571	1.72
127-18-4	Tetrachloroethylene	U	1.72	ug/kg	0.571	1.72
108-88-3	Toluene	U	1.72	ug/kg	0.571	1.72
79-01-6	Trichloroethylene	U	1.72	ug/kg	0.571	1.72
75-69-4	Trichlorofluoromethane	U	1.72	ug/kg	0.571	1.72
76-13-1	Trichlorotrifluoroethane	U	8.58	ug/kg	2.86	8.58
75-01-4	Vinyl chloride	U	1.72	ug/kg	0.571	1.72
156-59-2	cis-1,2-Dichloroethylene	U	1.72	ug/kg	0.571	1.72
10061-01-5	cis-1,3-Dichloropropylene	U	1.72	ug/kg	0.571	1.72
179601-23-1	m,p-Xylenes	U	3.43	ug/kg	1.14	3.43
95-47-6	o-Xylene	U	1.72	ug/kg	0.571	1.72
1634-04-4	tert-Butyl methyl ether	U	1.72	ug/kg	0.571	1.72
156-60-5	trans-1,2-Dichloroethylene	U	1.72	ug/kg	0.571	1.72
10061-02-6	trans-1,3-Dichloropropylene	U	1.72	ug/kg	0.571	1.72

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 15:48**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/25/2016 13:25**	**Aliquot:**	**6.6 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H313.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.03	ug/kg	0.341	1.03
79-34-5	1,1,2,2-Tetrachloroethane	U	1.03	ug/kg	0.341	1.03
79-00-5	1,1,2-Trichloroethane	U	1.03	ug/kg	0.341	1.03
75-34-3	1,1-Dichloroethane	U	1.03	ug/kg	0.341	1.03
75-35-4	1,1-Dichloroethylene	U	1.03	ug/kg	0.341	1.03
87-61-6	1,2,3-Trichlorobenzene	U	1.03	ug/kg	0.341	1.03
120-82-1	1,2,4-Trichlorobenzene	U	1.03	ug/kg	0.341	1.03
96-12-8	1,2-Dibromo-3-chloropropane	U	1.03	ug/kg	0.513	1.03
106-93-4	1,2-Dibromoethane	U	1.03	ug/kg	0.341	1.03
95-50-1	1,2-Dichlorobenzene	U	1.03	ug/kg	0.341	1.03
107-06-2	1,2-Dichloroethane	U	1.03	ug/kg	0.341	1.03
78-87-5	1,2-Dichloropropane	U	1.03	ug/kg	0.341	1.03
541-73-1	1,3-Dichlorobenzene	U	1.03	ug/kg	0.341	1.03
106-46-7	1,4-Dichlorobenzene	U	1.03	ug/kg	0.341	1.03
123-91-1	1,4-Dioxane	U	51.3	ug/kg	17.1	51.3
78-93-3	2-Butanone	U	5.13	ug/kg	1.71	5.13
591-78-6	2-Hexanone	U	5.13	ug/kg	1.71	5.13
108-10-1	4-Methyl-2-pentanone	U	5.13	ug/kg	1.71	5.13
67-64-1	Acetone	J	2.45	ug/kg	1.71	5.13
71-43-2	Benzene	U	1.03	ug/kg	0.341	1.03
74-97-5	Bromochloromethane	U	1.03	ug/kg	0.341	1.03
75-27-4	Bromodichloromethane	U	1.03	ug/kg	0.341	1.03
75-25-2	Bromoform	U	1.03	ug/kg	0.341	1.03
74-83-9	Bromomethane	U	1.03	ug/kg	0.341	1.03
75-15-0	Carbon disulfide	U	5.13	ug/kg	1.71	5.13
56-23-5	Carbon tetrachloride	U	1.03	ug/kg	0.341	1.03
108-90-7	Chlorobenzene	U	1.03	ug/kg	0.341	1.03
75-00-3	Chloroethane	U	1.03	ug/kg	0.341	1.03
67-66-3	Chloroform	U	1.03	ug/kg	0.341	1.03
74-87-3	Chloromethane	U	1.03	ug/kg	0.341	1.03
110-82-7	Cyclohexane	U	1.03	ug/kg	0.341	1.03
124-48-1	Dibromochloromethane	U	1.03	ug/kg	0.341	1.03
75-71-8	Dichlorodifluoromethane	U	1.03	ug/kg	0.341	1.03
100-41-4	Ethylbenzene	U	1.03	ug/kg	0.341	1.03
98-82-8	Isopropylbenzene	U	1.03	ug/kg	0.341	1.03
79-20-9	Methyl acetate	U	5.13	ug/kg	1.71	5.13
108-87-2	Methylcyclohexane	U	1.03	ug/kg	0.341	1.03
75-09-2	Methylene chloride	U	5.13	ug/kg	1.71	5.13

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 15:48**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/25/2016 13:25**	**Aliquot:**	**6.6 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H313.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.03	ug/kg	0.341	1.03
127-18-4	Tetrachloroethylene	J	0.472	ug/kg	0.341	1.03
108-88-3	Toluene	U	1.03	ug/kg	0.341	1.03
79-01-6	Trichloroethylene	U	1.03	ug/kg	0.341	1.03
75-69-4	Trichlorofluoromethane	U	1.03	ug/kg	0.341	1.03
76-13-1	Trichlorotrifluoroethane	U	5.13	ug/kg	1.71	5.13
75-01-4	Vinyl chloride	U	1.03	ug/kg	0.341	1.03
156-59-2	cis-1,2-Dichloroethylene	U	1.03	ug/kg	0.341	1.03
10061-01-5	cis-1,3-Dichloropropylene	U	1.03	ug/kg	0.341	1.03
179601-23-1	m,p-Xylenes	U	2.05	ug/kg	0.684	2.05
95-47-6	o-Xylene	U	1.03	ug/kg	0.341	1.03
1634-04-4	tert-Butyl methyl ether	U	1.03	ug/kg	0.341	1.03
156-60-5	trans-1,2-Dichloroethylene	U	1.03	ug/kg	0.341	1.03
10061-02-6	trans-1,3-Dichloropropylene	U	1.03	ug/kg	0.341	1.03

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/25/2016 14:00**	**Aliquot:**	**7.1 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G222.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.855	ug/kg	0.285	0.855
79-34-5	1,1,2,2-Tetrachloroethane	U	0.855	ug/kg	0.285	0.855
79-00-5	1,1,2-Trichloroethane	U	0.855	ug/kg	0.285	0.855
75-34-3	1,1-Dichloroethane	U	0.855	ug/kg	0.285	0.855
75-35-4	1,1-Dichloroethylene	U	0.855	ug/kg	0.285	0.855
87-61-6	1,2,3-Trichlorobenzene	U	0.855	ug/kg	0.285	0.855
120-82-1	1,2,4-Trichlorobenzene	U	0.855	ug/kg	0.285	0.855
96-12-8	1,2-Dibromo-3-chloropropane	U	0.855	ug/kg	0.428	0.855
106-93-4	1,2-Dibromoethane	U	0.855	ug/kg	0.285	0.855
95-50-1	1,2-Dichlorobenzene	U	0.855	ug/kg	0.285	0.855
107-06-2	1,2-Dichloroethane	U	0.855	ug/kg	0.285	0.855
78-87-5	1,2-Dichloropropane	U	0.855	ug/kg	0.285	0.855
541-73-1	1,3-Dichlorobenzene	U	0.855	ug/kg	0.285	0.855
106-46-7	1,4-Dichlorobenzene	U	0.855	ug/kg	0.285	0.855
123-91-1	1,4-Dioxane	U	42.8	ug/kg	14.3	42.8
78-93-3	2-Butanone	J	4.16	ug/kg	1.43	4.28
591-78-6	2-Hexanone	U	4.28	ug/kg	1.43	4.28
108-10-1	4-Methyl-2-pentanone	U	4.28	ug/kg	1.43	4.28
67-64-1	Acetone		29.8	ug/kg	1.43	4.28
71-43-2	Benzene	U	0.855	ug/kg	0.285	0.855
74-97-5	Bromochloromethane	U	0.855	ug/kg	0.285	0.855
75-27-4	Bromodichloromethane	U	0.855	ug/kg	0.285	0.855
75-25-2	Bromoform	U	0.855	ug/kg	0.285	0.855
74-83-9	Bromomethane	U	0.855	ug/kg	0.285	0.855
75-15-0	Carbon disulfide	U	4.28	ug/kg	1.43	4.28
56-23-5	Carbon tetrachloride	U	0.855	ug/kg	0.285	0.855
108-90-7	Chlorobenzene	U	0.855	ug/kg	0.285	0.855
75-00-3	Chloroethane	U	0.855	ug/kg	0.285	0.855
67-66-3	Chloroform	U	0.855	ug/kg	0.285	0.855
74-87-3	Chloromethane	U	0.855	ug/kg	0.285	0.855
110-82-7	Cyclohexane	U	0.855	ug/kg	0.285	0.855
124-48-1	Dibromochloromethane	U	0.855	ug/kg	0.285	0.855
75-71-8	Dichlorodifluoromethane	U	0.855	ug/kg	0.285	0.855
100-41-4	Ethylbenzene	U	0.855	ug/kg	0.285	0.855
98-82-8	Isopropylbenzene	U	0.855	ug/kg	0.285	0.855
79-20-9	Methyl acetate	U	4.28	ug/kg	1.43	4.28
108-87-2	Methylcyclohexane	U	0.855	ug/kg	0.285	0.855
75-09-2	Methylene chloride	U	4.28	ug/kg	1.43	4.28

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/25/2016 14:00**	**Aliquot:**	**7.1 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G222.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.855	ug/kg	0.285	0.855
127-18-4	Tetrachloroethylene	U	0.855	ug/kg	0.285	0.855
108-88-3	Toluene	U	0.855	ug/kg	0.285	0.855
79-01-6	Trichloroethylene	U	0.855	ug/kg	0.285	0.855
75-69-4	Trichlorofluoromethane	U	0.855	ug/kg	0.285	0.855
76-13-1	Trichlorotrifluoroethane	U	4.28	ug/kg	1.43	4.28
75-01-4	Vinyl chloride	U	0.855	ug/kg	0.285	0.855
156-59-2	cis-1,2-Dichloroethylene	U	0.855	ug/kg	0.285	0.855
10061-01-5	cis-1,3-Dichloropropylene	U	0.855	ug/kg	0.285	0.855
179601-23-1	m,p-Xylenes	U	1.71	ug/kg	0.570	1.71
95-47-6	o-Xylene	U	0.855	ug/kg	0.285	0.855
1634-04-4	tert-Butyl methyl ether	U	0.855	ug/kg	0.285	0.855
156-60-5	trans-1,2-Dichloroethylene	U	0.855	ug/kg	0.285	0.855
10061-02-6	trans-1,3-Dichloropropylene	U	0.855	ug/kg	0.285	0.855

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 19:46**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 09:46**	**Aliquot:**	**6.4 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G223.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.978	ug/kg	0.326	0.978
79-34-5	1,1,2,2-Tetrachloroethane	U	0.978	ug/kg	0.326	0.978
79-00-5	1,1,2-Trichloroethane	U	0.978	ug/kg	0.326	0.978
75-34-3	1,1-Dichloroethane	U	0.978	ug/kg	0.326	0.978
75-35-4	1,1-Dichloroethylene	U	0.978	ug/kg	0.326	0.978
87-61-6	1,2,3-Trichlorobenzene	U	0.978	ug/kg	0.326	0.978
120-82-1	1,2,4-Trichlorobenzene	U	0.978	ug/kg	0.326	0.978
96-12-8	1,2-Dibromo-3-chloropropane	U	0.978	ug/kg	0.489	0.978
106-93-4	1,2-Dibromoethane	U	0.978	ug/kg	0.326	0.978
95-50-1	1,2-Dichlorobenzene	U	0.978	ug/kg	0.326	0.978
107-06-2	1,2-Dichloroethane	U	0.978	ug/kg	0.326	0.978
78-87-5	1,2-Dichloropropane	U	0.978	ug/kg	0.326	0.978
541-73-1	1,3-Dichlorobenzene	U	0.978	ug/kg	0.326	0.978
106-46-7	1,4-Dichlorobenzene	U	0.978	ug/kg	0.326	0.978
123-91-1	1,4-Dioxane	U	48.9	ug/kg	16.3	48.9
78-93-3	2-Butanone		7.63	ug/kg	1.63	4.89
591-78-6	2-Hexanone	U	4.89	ug/kg	1.63	4.89
108-10-1	4-Methyl-2-pentanone	U	4.89	ug/kg	1.63	4.89
67-64-1	Acetone		41.2	ug/kg	1.63	4.89
71-43-2	Benzene	U	0.978	ug/kg	0.326	0.978
74-97-5	Bromochloromethane	U	0.978	ug/kg	0.326	0.978
75-27-4	Bromodichloromethane	U	0.978	ug/kg	0.326	0.978
75-25-2	Bromoform	U	0.978	ug/kg	0.326	0.978
74-83-9	Bromomethane	U	0.978	ug/kg	0.326	0.978
75-15-0	Carbon disulfide	U	4.89	ug/kg	1.63	4.89
56-23-5	Carbon tetrachloride	U	0.978	ug/kg	0.326	0.978
108-90-7	Chlorobenzene	U	0.978	ug/kg	0.326	0.978
75-00-3	Chloroethane	U	0.978	ug/kg	0.326	0.978
67-66-3	Chloroform	U	0.978	ug/kg	0.326	0.978
74-87-3	Chloromethane	U	0.978	ug/kg	0.326	0.978
110-82-7	Cyclohexane	U	0.978	ug/kg	0.326	0.978
124-48-1	Dibromochloromethane	U	0.978	ug/kg	0.326	0.978
75-71-8	Dichlorodifluoromethane	U	0.978	ug/kg	0.326	0.978
100-41-4	Ethylbenzene	U	0.978	ug/kg	0.326	0.978
98-82-8	Isopropylbenzene	U	0.978	ug/kg	0.326	0.978
79-20-9	Methyl acetate	U	4.89	ug/kg	1.63	4.89
108-87-2	Methylcyclohexane	U	0.978	ug/kg	0.326	0.978
75-09-2	Methylene chloride	U	4.89	ug/kg	1.63	4.89

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 19:46**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 09:46**	**Aliquot:**	**6.4 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G223.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.978	ug/kg	0.326	0.978
127-18-4	Tetrachloroethylene	U	0.978	ug/kg	0.326	0.978
108-88-3	Toluene	U	0.978	ug/kg	0.326	0.978
79-01-6	Trichloroethylene	U	0.978	ug/kg	0.326	0.978
75-69-4	Trichlorofluoromethane	U	0.978	ug/kg	0.326	0.978
76-13-1	Trichlorotrifluoroethane	U	4.89	ug/kg	1.63	4.89
75-01-4	Vinyl chloride	U	0.978	ug/kg	0.326	0.978
156-59-2	cis-1,2-Dichloroethylene	U	0.978	ug/kg	0.326	0.978
10061-01-5	cis-1,3-Dichloropropylene	U	0.978	ug/kg	0.326	0.978
179601-23-1	m,p-Xylenes	U	1.96	ug/kg	0.652	1.96
95-47-6	o-Xylene	U	0.978	ug/kg	0.326	0.978
1634-04-4	tert-Butyl methyl ether	U	0.978	ug/kg	0.326	0.978
156-60-5	trans-1,2-Dichloroethylene	U	0.978	ug/kg	0.326	0.978
10061-02-6	trans-1,3-Dichloropropylene	U	0.978	ug/kg	0.326	0.978

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/03/2016 17:06**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 09:53**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**110316V4\4H415.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.17	ug/kg	0.389	1.17
79-34-5	1,1,2,2-Tetrachloroethane	U	1.17	ug/kg	0.389	1.17
79-00-5	1,1,2-Trichloroethane	U	1.17	ug/kg	0.389	1.17
75-34-3	1,1-Dichloroethane	U	1.17	ug/kg	0.389	1.17
75-35-4	1,1-Dichloroethylene	U	1.17	ug/kg	0.389	1.17
87-61-6	1,2,3-Trichlorobenzene	U	1.17	ug/kg	0.389	1.17
120-82-1	1,2,4-Trichlorobenzene	U	1.17	ug/kg	0.389	1.17
96-12-8	1,2-Dibromo-3-chloropropane	U	1.17	ug/kg	0.584	1.17
106-93-4	1,2-Dibromoethane	U	1.17	ug/kg	0.389	1.17
95-50-1	1,2-Dichlorobenzene	U	1.17	ug/kg	0.389	1.17
107-06-2	1,2-Dichloroethane	U	1.17	ug/kg	0.389	1.17
78-87-5	1,2-Dichloropropane	U	1.17	ug/kg	0.389	1.17
541-73-1	1,3-Dichlorobenzene	U	1.17	ug/kg	0.389	1.17
106-46-7	1,4-Dichlorobenzene	U	1.17	ug/kg	0.389	1.17
123-91-1	1,4-Dioxane	U	58.4	ug/kg	19.5	58.4
78-93-3	2-Butanone	U	5.84	ug/kg	1.95	5.84
591-78-6	2-Hexanone	U	5.84	ug/kg	1.95	5.84
108-10-1	4-Methyl-2-pentanone	U	5.84	ug/kg	1.95	5.84
67-64-1	Acetone	U	5.84	ug/kg	1.95	5.84
71-43-2	Benzene	U	1.17	ug/kg	0.389	1.17
74-97-5	Bromochloromethane	U	1.17	ug/kg	0.389	1.17
75-27-4	Bromodichloromethane	U	1.17	ug/kg	0.389	1.17
75-25-2	Bromoform	U	1.17	ug/kg	0.389	1.17
74-83-9	Bromomethane	U	1.17	ug/kg	0.389	1.17
75-15-0	Carbon disulfide	U	5.84	ug/kg	1.95	5.84
56-23-5	Carbon tetrachloride	U	1.17	ug/kg	0.389	1.17
108-90-7	Chlorobenzene	U	1.17	ug/kg	0.389	1.17
75-00-3	Chloroethane	U	1.17	ug/kg	0.389	1.17
67-66-3	Chloroform	U	1.17	ug/kg	0.389	1.17
74-87-3	Chloromethane	U	1.17	ug/kg	0.389	1.17
110-82-7	Cyclohexane	U	1.17	ug/kg	0.389	1.17
124-48-1	Dibromochloromethane	U	1.17	ug/kg	0.389	1.17
75-71-8	Dichlorodifluoromethane	U	1.17	ug/kg	0.389	1.17
100-41-4	Ethylbenzene	U	1.17	ug/kg	0.389	1.17
98-82-8	Isopropylbenzene	U	1.17	ug/kg	0.389	1.17
79-20-9	Methyl acetate	U	5.84	ug/kg	1.95	5.84
108-87-2	Methylcyclohexane	U	1.17	ug/kg	0.389	1.17
75-09-2	Methylene chloride	U	5.84	ug/kg	1.95	5.84

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/03/2016 17:06**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 09:53**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**110316V4\4H415.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.17	ug/kg	0.389	1.17
127-18-4	Tetrachloroethylene	U	1.17	ug/kg	0.389	1.17
108-88-3	Toluene	U	1.17	ug/kg	0.389	1.17
79-01-6	Trichloroethylene	U	1.17	ug/kg	0.389	1.17
75-69-4	Trichlorofluoromethane	U	1.17	ug/kg	0.389	1.17
76-13-1	Trichlorotrifluoroethane	U	5.84	ug/kg	1.95	5.84
75-01-4	Vinyl chloride	U	1.17	ug/kg	0.389	1.17
156-59-2	cis-1,2-Dichloroethylene	U	1.17	ug/kg	0.389	1.17
10061-01-5	cis-1,3-Dichloropropylene	U	1.17	ug/kg	0.389	1.17
179601-23-1	m,p-Xylenes	U	2.34	ug/kg	0.779	2.34
95-47-6	o-Xylene	U	1.17	ug/kg	0.389	1.17
1634-04-4	tert-Butyl methyl ether	U	1.17	ug/kg	0.389	1.17
156-60-5	trans-1,2-Dichloroethylene	U	1.17	ug/kg	0.389	1.17
10061-02-6	trans-1,3-Dichloropropylene	U	1.17	ug/kg	0.389	1.17

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 16:46**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 10:54**	**Aliquot:**	**5.3 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H315.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.963	ug/kg	0.321	0.963
79-34-5	1,1,2,2-Tetrachloroethane	U	0.963	ug/kg	0.321	0.963
79-00-5	1,1,2-Trichloroethane	U	0.963	ug/kg	0.321	0.963
75-34-3	1,1-Dichloroethane	U	0.963	ug/kg	0.321	0.963
75-35-4	1,1-Dichloroethylene	U	0.963	ug/kg	0.321	0.963
87-61-6	1,2,3-Trichlorobenzene	U	0.963	ug/kg	0.321	0.963
120-82-1	1,2,4-Trichlorobenzene	U	0.963	ug/kg	0.321	0.963
96-12-8	1,2-Dibromo-3-chloropropane	U	0.963	ug/kg	0.481	0.963
106-93-4	1,2-Dibromoethane	U	0.963	ug/kg	0.321	0.963
95-50-1	1,2-Dichlorobenzene	U	0.963	ug/kg	0.321	0.963
107-06-2	1,2-Dichloroethane	U	0.963	ug/kg	0.321	0.963
78-87-5	1,2-Dichloropropane	U	0.963	ug/kg	0.321	0.963
541-73-1	1,3-Dichlorobenzene	U	0.963	ug/kg	0.321	0.963
106-46-7	1,4-Dichlorobenzene	U	0.963	ug/kg	0.321	0.963
123-91-1	1,4-Dioxane	U	48.1	ug/kg	16.0	48.1
78-93-3	2-Butanone	U	4.81	ug/kg	1.60	4.81
591-78-6	2-Hexanone	U	4.81	ug/kg	1.60	4.81
108-10-1	4-Methyl-2-pentanone	U	4.81	ug/kg	1.60	4.81
67-64-1	Acetone	U	4.81	ug/kg	1.60	4.81
71-43-2	Benzene	U	0.963	ug/kg	0.321	0.963
74-97-5	Bromochloromethane	U	0.963	ug/kg	0.321	0.963
75-27-4	Bromodichloromethane	U	0.963	ug/kg	0.321	0.963
75-25-2	Bromoform	U	0.963	ug/kg	0.321	0.963
74-83-9	Bromomethane	U	0.963	ug/kg	0.321	0.963
75-15-0	Carbon disulfide	U	4.81	ug/kg	1.60	4.81
56-23-5	Carbon tetrachloride	U	0.963	ug/kg	0.321	0.963
108-90-7	Chlorobenzene	U	0.963	ug/kg	0.321	0.963
75-00-3	Chloroethane	U	0.963	ug/kg	0.321	0.963
67-66-3	Chloroform	U	0.963	ug/kg	0.321	0.963
74-87-3	Chloromethane	U	0.963	ug/kg	0.321	0.963
110-82-7	Cyclohexane	U	0.963	ug/kg	0.321	0.963
124-48-1	Dibromochloromethane	U	0.963	ug/kg	0.321	0.963
75-71-8	Dichlorodifluoromethane	U	0.963	ug/kg	0.321	0.963
100-41-4	Ethylbenzene	U	0.963	ug/kg	0.321	0.963
98-82-8	Isopropylbenzene	U	0.963	ug/kg	0.321	0.963
79-20-9	Methyl acetate	U	4.81	ug/kg	1.60	4.81
108-87-2	Methylcyclohexane	U	0.963	ug/kg	0.321	0.963
75-09-2	Methylene chloride	U	4.81	ug/kg	1.60	4.81

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 16:46**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 10:54**	**Aliquot:**	**5.3 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H315.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.963	ug/kg	0.321	0.963
127-18-4	Tetrachloroethylene	J	0.433	ug/kg	0.321	0.963
108-88-3	Toluene	U	0.963	ug/kg	0.321	0.963
79-01-6	Trichloroethylene	U	0.963	ug/kg	0.321	0.963
75-69-4	Trichlorofluoromethane	U	0.963	ug/kg	0.321	0.963
76-13-1	Trichlorotrifluoroethane	U	4.81	ug/kg	1.60	4.81
75-01-4	Vinyl chloride	U	0.963	ug/kg	0.321	0.963
156-59-2	cis-1,2-Dichloroethylene	U	0.963	ug/kg	0.321	0.963
10061-01-5	cis-1,3-Dichloropropylene	U	0.963	ug/kg	0.321	0.963
179601-23-1	m,p-Xylenes	U	1.93	ug/kg	0.642	1.93
95-47-6	o-Xylene	U	0.963	ug/kg	0.321	0.963
1634-04-4	tert-Butyl methyl ether	U	0.963	ug/kg	0.321	0.963
156-60-5	trans-1,2-Dichloroethylene	U	0.963	ug/kg	0.321	0.963
10061-02-6	trans-1,3-Dichloropropylene	U	0.963	ug/kg	0.321	0.963

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:40**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254044**	**Date Received:**	**10/27/2016 09:00**		
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**TB102616**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 17:15**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 12:40**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone	U	5.00	ug/kg	1.67	5.00
591-78-6	2-Hexanone	U	5.00	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/kg	1.67	5.00
67-64-1	Acetone	U	5.00	ug/kg	1.67	5.00
71-43-2	Benzene	U	1.00	ug/kg	0.333	1.00
74-97-5	Bromochloromethane	U	1.00	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/kg	0.333	1.00
75-25-2	Bromoform	U	1.00	ug/kg	0.333	1.00
74-83-9	Bromomethane	U	1.00	ug/kg	0.333	1.00
75-15-0	Carbon disulfide	U	5.00	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/kg	0.333	1.00
108-90-7	Chlorobenzene	U	1.00	ug/kg	0.333	1.00
75-00-3	Chloroethane	U	1.00	ug/kg	0.333	1.00
67-66-3	Chloroform	U	1.00	ug/kg	0.333	1.00
74-87-3	Chloromethane	U	1.00	ug/kg	0.333	1.00
110-82-7	Cyclohexane	U	1.00	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/kg	0.333	1.00
100-41-4	Ethylbenzene	U	1.00	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/kg	0.333	1.00
79-20-9	Methyl acetate	U	5.00	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane	U	1.00	ug/kg	0.333	1.00
75-09-2	Methylene chloride	J	2.79	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:40**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254044**	**Date Received:**	**10/27/2016 09:00**		
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**TB102616**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 17:15**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 12:40**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.00	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene	J	0.400	ug/kg	0.333	1.00
108-88-3	Toluene	U	1.00	ug/kg	0.333	1.00
79-01-6	Trichloroethylene	U	1.00	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride	U	1.00	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/kg	0.667	2.00
95-47-6	o-Xylene	U	1.00	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 409254

Matrix Type: SOLID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1203660808	LCS for batch 1612389	98	101	103
1203660809	LCSD for batch 1612389	99	100	99
1203660807	MB for batch 1612389	98	101	100
409254011	SS110100	105	102	104
409254012	SS110200	107	100	100
409254013	SD140300	100	105	113
409254014	SD140200	110	102	104
409254015	SD140100	103	104	115
409254016	SD140100DUP	104	107	112
409254032	DP020413	113	101	103
409254034	DP020207	114	100	100
1203666130	LCS for batch 1612389	100	98	100
1203666128	MB for batch 1612389	90	93	93
409254029	DP020312	104	98	98
409254038	DP020114	99	99	98
409254044	TB102616	94	95	95
1203666131	LCS for batch 1612389	91	94	91
1203666129	MB for batch 1612389	90	91	92
409254036	DP020209	108	105	108

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(81%-124%)
TOL	= Toluene-d8	(81%-120%)
BFB	= Bromofluorobenzene	(70%-130%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203660808
Instrument: VOA6.I
Analysis Date: 11/01/2016 10:35
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	95.0	95	72-124
67-64-1	LCS	Acetone	250	0.0	206	82	60-143
79-20-9	LCS	Methyl acetate	250	0.0	223	89	69-130
75-15-0	LCS	Carbon disulfide	250	0.0	267	107	69-137
78-93-3	LCS	2-Butanone	250	0.0	226	90	61-140
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	226	90	65-123
591-78-6	LCS	2-Hexanone	250	0.0	238	95	61-147
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	60.4	121	38-165
74-87-3	LCS	Chloromethane	50.0	0.0	52.3	105	59-135
75-01-4	LCS	Vinyl chloride	50.0	0.0	54.8	110	63-140
74-83-9	LCS	Bromomethane	50.0	0.0	55.9	112	63-137
75-00-3	LCS	Chloroethane	50.0	0.0	55.2	110	67-129
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	57.5	115	66-141
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	48.0	96	64-129
75-09-2	LCS	Methylene chloride	50.0	0.0	48.3	97	66-120
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	48.1	96	76-127
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	48.0	96	69-124
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	47.1	94	71-124
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	47.3	95	73-124
74-97-5	LCS	Bromochloromethane	50.0	0.0	47.0	94	76-123
67-66-3	LCS	Chloroform	50.0	0.0	47.3	95	75-123
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	50.7	101	73-137

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203660808
Instrument: VOA6.I
Analysis Date: 11/01/2016 10:35
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
110-82-7	LCS	Cyclohexane	50.0	0.0	51.0	102	66-137
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	51.6	103	71-140
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	44.8	90	72-121
71-43-2	LCS	Benzene	50.0	0.0	47.2	94	71-123
79-01-6	LCS	Trichloroethylene	50.0	0.0	48.3	97	72-127
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	46.8	94	72-120
108-87-2	LCS	Methylcyclohexane	50.0	0.0	52.0	104	71-134
75-27-4	LCS	Bromodichloromethane	50.0	0.0	47.5	95	76-129
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	48.9	98	78-129
108-88-3	LCS	Toluene	50.0	0.0	47.1	94	70-121
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	49.1	98	78-127
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	45.8	92	74-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	49.1	98	68-129
124-48-1	LCS	Dibromochloromethane	50.0	0.0	48.3	97	78-134
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	48.4	97	78-121
108-90-7	LCS	Chlorobenzene	50.0	0.0	47.1	94	72-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	48.7	97	72-123
95-47-6	LCS	o-Xylene	50.0	0.0	46.6	93	72-124
100-42-5	LCS	Styrene	50.0	0.0	46.5	93	72-127
75-25-2	LCS	Bromoform	50.0	0.0	50.5	101	74-133
98-82-8	LCS	Isopropylbenzene	50.0	0.0	50.2	100	69-127
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	47.9	96	72-123

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203660808
Instrument: VOA6.I
Analysis Date: 11/01/2016 10:35
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	47.7	95	70-119
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	47.0	94	70-119
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	48.8	98	70-139
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	48.9	98	69-128
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	48.7	97	71-125
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	46.8	94	73-117

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample Duplicate
Client ID: LCSD for batch 1612389
Matrix: SOIL
Lab Sample ID 1203660809
Instrument: VOA6.I
Analysis Date: 11/01/2016 11:04
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No	Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	LCSD m,p-Xylenes	100	0.0	92.2	92	72-124	3	0-20
67-64-1	LCSD Acetone	250	0.0	204	82	60-143	1	0-20
79-20-9	LCSD Methyl acetate	250	0.0	223	89	69-130	0	0-20
75-15-0	LCSD Carbon disulfide	250	0.0	258	103	69-137	3	0-20
78-93-3	LCSD 2-Butanone	250	0.0	225	90	61-140	0	0-20
108-10-1	LCSD 4-Methyl-2-pentanone	250	0.0	228	91	65-123	1	0-20
591-78-6	LCSD 2-Hexanone	250	0.0	240	96	61-147	1	0-20
75-71-8	LCSD Dichlorodifluoromethane	50.0	0.0	56.0	112	38-165	8	0-20
74-87-3	LCSD Chloromethane	50.0	0.0	50.5	101	59-135	4	0-20
75-01-4	LCSD Vinyl chloride	50.0	0.0	52.4	105	63-140	5	0-20
74-83-9	LCSD Bromomethane	50.0	0.0	53.7	107	63-137	4	0-20
75-00-3	LCSD Chloroethane	50.0	0.0	52.5	105	67-129	5	0-20
75-69-4	LCSD Trichlorofluoromethane	50.0	0.0	53.9	108	66-141	6	0-20
75-35-4	LCSD 1,1-Dichloroethylene	50.0	0.0	46.1	92	64-129	4	0-20
75-09-2	LCSD Methylene chloride	50.0	0.0	47.5	95	66-120	2	0-20
1634-04-4	LCSD tert-Butyl methyl ether	50.0	0.0	47.3	95	76-127	2	0-20
156-60-5	LCSD trans-1,2-Dichloroethylene	50.0	0.0	46.0	92	69-124	4	0-20
75-34-3	LCSD 1,1-Dichloroethane	50.0	0.0	46.0	92	71-124	2	0-20
156-59-2	LCSD cis-1,2-Dichloroethylene	50.0	0.0	45.7	91	73-124	3	0-20
74-97-5	LCSD Bromochloromethane	50.0	0.0	46.4	93	76-123	1	0-20
67-66-3	LCSD Chloroform	50.0	0.0	45.3	91	75-123	4	0-20
71-55-6	LCSD 1,1,1-Trichloroethane	50.0	0.0	48.6	97	73-137	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample Duplicate
Client ID: LCSD for batch 1612389
Matrix: SOIL
Lab Sample ID 1203660809
Instrument: VOA6.I
Analysis Date: 11/01/2016 11:04
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No	Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
110-82-7	LCSD Cyclohexane	50.0	0.0	48.6	97	66-137	5	0-20
56-23-5	LCSD Carbon tetrachloride	50.0	0.0	49.4	99	71-140	5	0-20
107-06-2	LCSD 1,2-Dichloroethane	50.0	0.0	44.1	88	72-121	2	0-20
71-43-2	LCSD Benzene	50.0	0.0	45.4	91	71-123	4	0-20
79-01-6	LCSD Trichloroethylene	50.0	0.0	47.1	94	72-127	2	0-20
78-87-5	LCSD 1,2-Dichloropropane	50.0	0.0	45.4	91	72-120	3	0-20
108-87-2	LCSD Methylcyclohexane	50.0	0.0	49.2	98	71-134	6	0-20
75-27-4	LCSD Bromodichloromethane	50.0	0.0	46.1	92	76-129	3	0-20
10061-01-5	LCSD cis-1,3-Dichloropropylene	50.0	0.0	47.2	94	78-129	4	0-20
108-88-3	LCSD Toluene	50.0	0.0	45.5	91	70-121	3	0-20
10061-02-6	LCSD trans-1,3-Dichloropropylene	50.0	0.0	48.2	96	78-127	2	0-20
79-00-5	LCSD 1,1,2-Trichloroethane	50.0	0.0	45.7	91	74-120	0	0-20
127-18-4	LCSD Tetrachloroethylene	50.0	0.0	47.3	95	68-129	4	0-20
124-48-1	LCSD Dibromochloromethane	50.0	0.0	47.2	94	78-134	2	0-20
106-93-4	LCSD 1,2-Dibromoethane	50.0	0.0	47.8	96	78-121	1	0-20
108-90-7	LCSD Chlorobenzene	50.0	0.0	45.8	92	72-120	3	0-20
100-41-4	LCSD Ethylbenzene	50.0	0.0	47.0	94	72-123	4	0-20
95-47-6	LCSD o-Xylene	50.0	0.0	45.4	91	72-124	3	0-20
100-42-5	LCSD Styrene	50.0	0.0	46.1	92	72-127	1	0-20
75-25-2	LCSD Bromoform	50.0	0.0	49.2	98	74-133	2	0-20
98-82-8	LCSD Isopropylbenzene	50.0	0.0	47.1	94	69-127	6	0-20
79-34-5	LCSD 1,1,2,2-Tetrachloroethane	50.0	0.0	46.6	93	72-123	3	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample Duplicate
Client ID: LCSD for batch 1612389
Matrix: SOIL
Lab Sample ID 1203660809
Instrument: VOA6.I
Analysis Date: 11/01/2016 11:04
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No	Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
541-73-1	LCSD 1,3-Dichlorobenzene	50.0	0.0	44.8	90	70-119	6	0-20
106-46-7	LCSD 1,4-Dichlorobenzene	50.0	0.0	44.6	89	70-119	5	0-20
96-12-8	LCSD 1,2-Dibromo-3-chloropropane	50.0	0.0	47.9	96	70-139	2	0-20
87-61-6	LCSD 1,2,3-Trichlorobenzene	50.0	0.0	45.9	92	69-128	6	0-20
120-82-1	LCSD 1,2,4-Trichlorobenzene	50.0	0.0	45.1	90	71-125	8	0-20
95-50-1	LCSD 1,2-Dichlorobenzene	50.0	0.0	44.9	90	73-117	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203666130
Instrument: VOA4.I
Analysis Date: 11/02/2016 11:25
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	87.9	88	72-124
67-64-1	LCS	Acetone	250	0.0	236	95	60-143
79-20-9	LCS	Methyl acetate	250	0.0	221	89	69-130
75-15-0	LCS	Carbon disulfide	250	0.0	212	85	69-137
78-93-3	LCS	2-Butanone	250	0.0	240	96	61-140
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	222	89	65-123
591-78-6	LCS	2-Hexanone	250	0.0	244	97	61-147
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	45.6	91	38-165
74-87-3	LCS	Chloromethane	50.0	0.0	41.9	84	59-135
75-01-4	LCS	Vinyl chloride	50.0	0.0	48.8	98	63-140
74-83-9	LCS	Bromomethane	50.0	0.0	48.0	96	63-137
75-00-3	LCS	Chloroethane	50.0	0.0	47.1	94	67-129
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	47.6	95	66-141
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	42.1	84	64-129
75-09-2	LCS	Methylene chloride	50.0	0.0	41.7	83	66-120
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	47.3	95	76-127
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	45.3	91	69-124
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	45.9	92	71-124
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	47.0	94	73-124
74-97-5	LCS	Bromochloromethane	50.0	0.0	47.9	96	76-123
67-66-3	LCS	Chloroform	50.0	0.0	46.3	93	75-123
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	44.3	89	73-137

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203666130
Instrument: VOA4.I
Analysis Date: 11/02/2016 11:25
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
110-82-7	LCS	Cyclohexane	50.0	0.0	44.9	90	66-137
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	46.0	92	71-140
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	46.8	94	72-121
71-43-2	LCS	Benzene	50.0	0.0	44.7	89	71-123
79-01-6	LCS	Trichloroethylene	50.0	0.0	45.9	92	72-127
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	47.2	94	72-120
108-87-2	LCS	Methylcyclohexane	50.0	0.0	44.5	89	71-134
75-27-4	LCS	Bromodichloromethane	50.0	0.0	48.7	97	76-129
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	47.1	94	78-129
108-88-3	LCS	Toluene	50.0	0.0	44.6	89	70-121
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	49.4	99	78-127
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	46.3	93	74-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	43.8	88	68-129
124-48-1	LCS	Dibromochloromethane	50.0	0.0	50.1	100	78-134
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	48.4	97	78-121
108-90-7	LCS	Chlorobenzene	50.0	0.0	44.8	90	72-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	43.6	87	72-123
95-47-6	LCS	o-Xylene	50.0	0.0	42.7	85	72-124
100-42-5	LCS	Styrene	50.0	0.0	44.8	90	72-127
75-25-2	LCS	Bromoform	50.0	0.0	50.9	102	74-133
98-82-8	LCS	Isopropylbenzene	50.0	0.0	44.2	88	69-127
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	45.6	91	72-123

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203666130
Instrument: VOA4.I
Analysis Date: 11/02/2016 11:25
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	44.0	88	70-119
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	44.1	88	70-119
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	48.0	96	70-139
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	46.3	93	69-128
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	45.0	90	71-125
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	44.8	90	73-117

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203666131
Instrument: VOA4.I
Analysis Date: 11/03/2016 11:45
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	88.0	88	72-124
67-64-1	LCS	Acetone	250	0.0	215	86	60-143
79-20-9	LCS	Methyl acetate	250	0.0	209	84	69-130
75-15-0	LCS	Carbon disulfide	250	0.0	211	84	69-137
78-93-3	LCS	2-Butanone	250	0.0	221	88	61-140
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	215	86	65-123
591-78-6	LCS	2-Hexanone	250	0.0	235	94	61-147
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	41.9	84	38-165
74-87-3	LCS	Chloromethane	50.0	0.0	42.9	86	59-135
75-01-4	LCS	Vinyl chloride	50.0	0.0	48.5	97	63-140
74-83-9	LCS	Bromomethane	50.0	0.0	47.8	96	63-137
75-00-3	LCS	Chloroethane	50.0	0.0	47.2	94	67-129
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	47.8	96	66-141
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	42.0	84	64-129
75-09-2	LCS	Methylene chloride	50.0	0.0	40.5	81	66-120
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	45.2	90	76-127
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	45.2	90	69-124
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	45.3	91	71-124
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	46.0	92	73-124
74-97-5	LCS	Bromochloromethane	50.0	0.0	45.3	91	76-123
67-66-3	LCS	Chloroform	50.0	0.0	45.6	91	75-123
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	44.0	88	73-137

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203666131
Instrument: VOA4.I
Analysis Date: 11/03/2016 11:45
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
110-82-7	LCS	Cyclohexane	50.0	0.0	44.3	89	66-137
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	45.5	91	71-140
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	44.4	89	72-121
71-43-2	LCS	Benzene	50.0	0.0	44.0	88	71-123
79-01-6	LCS	Trichloroethylene	50.0	0.0	45.5	91	72-127
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	46.5	93	72-120
108-87-2	LCS	Methylcyclohexane	50.0	0.0	44.1	88	71-134
75-27-4	LCS	Bromodichloromethane	50.0	0.0	46.9	94	76-129
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	45.6	91	78-129
108-88-3	LCS	Toluene	50.0	0.0	45.2	90	70-121
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	47.9	96	78-127
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	45.2	90	74-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	44.3	89	68-129
124-48-1	LCS	Dibromochloromethane	50.0	0.0	48.2	96	78-134
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	46.5	93	78-121
108-90-7	LCS	Chlorobenzene	50.0	0.0	44.3	89	72-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	44.5	89	72-123
95-47-6	LCS	o-Xylene	50.0	0.0	43.0	86	72-124
100-42-5	LCS	Styrene	50.0	0.0	44.4	89	72-127
75-25-2	LCS	Bromoform	50.0	0.0	47.5	95	74-133
98-82-8	LCS	Isopropylbenzene	50.0	0.0	44.0	88	69-127
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	43.8	88	72-123

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612389
Matrix: SOIL
Lab Sample ID 1203666131
Instrument: VOA4.I
Analysis Date: 11/03/2016 11:45
Dilution: 1
Analyst: ACJ
Prep Batch ID: 1612389
Purge Vol: 5 mL
Batch ID: 1612391

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	43.2	86	70-119
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	43.4	87	70-119
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	45.4	91	70-139
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	43.3	87	69-128
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	42.0	84	71-125
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	43.2	86	73-117

Method Blank Summary

SDG Number:	**409254**	**Client:**	**HAAL002**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 1612389**	**Instrument ID:**	**VOA6.I**	**Data File:**	**110116V6\6G209B.D**
Lab Sample ID:	**1203660807**	**Prep Date:**	**11/01/2016 08:30**	**Analyzed:**	**11/01/16 13:00**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1612389	1203660808	110116V6\6G204L.D	11/01/16	1035
02	LCSD for batch 1612389	1203660809	110116V6\6G205D.D	11/01/16	1104
03	SS110100	409254011	110116V6\6G215.D	11/01/16	1622
04	SS110200	409254012	110116V6\6G216.D	11/01/16	1624
05	SD140300	409254013	110116V6\6G217.D	11/01/16	1652
06	SD140200	409254014	110116V6\6G218.D	11/01/16	1721
07	SD140100	409254015	110116V6\6G219.D	11/01/16	1750
08	SD140100DUP	409254016	110116V6\6G220.D	11/01/16	1819
09	DP020413	409254032	110116V6\6G222.D	11/01/16	1917
10	DP020207	409254034	110116V6\6G223.D	11/01/16	1946

Method Blank Summary

SDG Number:	**409254**	**Client:**	**HAAL002**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 1612389**	**Instrument ID:**	**VOA4.I**	**Data File:**	**110216V4\4H308BH.D**
Lab Sample ID:	**1203666128**	**Prep Date:**	**11/02/2016 08:30**	**Analyzed:**	**11/02/16 13:22**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
12	LCS for batch 1612389	1203666130	110216V4\4H304LH.D	11/02/16	1125
13	DP020312	409254029	110216V4\4H313.D	11/02/16	1548
14	DP020114	409254038	110216V4\4H315.D	11/02/16	1646
15	TB102616	409254044	110216V4\4H316.D	11/02/16	1715

Method Blank Summary

SDG Number:	**409254**	**Client:**	**HAAL002**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 1612389**	**Instrument ID:**	**VOA4.I**	**Data File:**	**110316V4\4H407BH.D**
Lab Sample ID:	**1203666129**	**Prep Date:**	**11/03/2016 08:30**	**Analyzed:**	**11/03/16 13:13**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
17	LCS for batch 1612389	1203666131	110316V4\4H404LH.D	11/03/16	1145
18	DP020209	409254036	110316V4\4H415.D	11/03/16	1706

Instrument Performance Check

BROMOFLUOROBENZENE

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: VOA4.I **Injection Date/Time:** 31-OCT-16 16:24

Column Description: DB-624 **Lab File ID** 103116V4\4H101.D

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	19.6
75	30.0 - 60.0% of mass 95	44.8
95	Base Peak, 100% Relative Abundance	100
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0
174	50.0 - 100.0% of mass 95	71.6
175	5.0 -9.0% of mass 174	6.5
176	95.0 - 101.0% of mass 174	96
177	5.0 - 9.0% of mass 176	7.5

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
ICALMIX[A]	W4VM161031-01	103116V4\4H102.D	31-OCT-16 16:55
ICALMIX[A]	W4VM161031-02	103116V4\4H103.D	31-OCT-16 17:24
ICALMIX[A]	W4VM161031-03	103116V4\4H104.D	31-OCT-16 17:53
ICALMIX[A]	W4VM161031-04	103116V4\4H105.D	31-OCT-16 18:22
ICALMIX[A]	W4VM161031-05	103116V4\4H106.D	31-OCT-16 18:52
ICALMIX[A]	W4VM161031-06	103116V4\4H107.D	31-OCT-16 19:21
ICALMIX[A]	W4VM161031-07	103116V4\4H108.D	31-OCT-16 19:49
ICALMIX[A]	W4VM161031-08	103116V4\4H109.D	31-OCT-16 20:19
ICALMIX[A]	W4VM161031-09	103116V4\4H110.D	31-OCT-16 20:48
ICVMIX[A]01	W4VM161031-10	103116V4\4H112.D	31-OCT-16 21:46
ICALMIX[B]	W4VM161031-11	103116V4\4H113.D	31-OCT-16 22:15
ICALMIX[B]	W4VM161031-12	103116V4\4H114.D	31-OCT-16 22:45
ICALMIX[B]	W4VM161031-13	103116V4\4H115.D	31-OCT-16 23:14
ICALMIX[B]	W4VM161031-14	103116V4\4H116.D	31-OCT-16 23:43
ICALMIX[B]	W4VM161031-15	103116V4\4H117.D	01-NOV-16 00:12
ICALMIX[B]	W4VM161031-16	103116V4\4H118.D	01-NOV-16 00:41

Instrument Performance Check

BROMOFLUOROBENZENE

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: VOA4.I **Injection Date/Time:** 01-NOV-16 08:50

Column Description: DB-624 **Lab File ID** 110116V4\4H201.D

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	20
75	30.0 - 60.0% of mass 95	45.7
95	Base Peak, 100% Relative Abundance	100
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0
174	50.0 - 100.0% of mass 95	70.3
175	5.0 -9.0% of mass 174	7.1
176	95.0 - 101.0% of mass 174	95.3
177	5.0 - 9.0% of mass 176	7

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
ICVMIX[B]02	W4VM161101-01	110116V4\4H202.D	01-NOV-16 09:21

Instrument Performance Check

BROMOFLUOROBENZENE

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: VOA4.I **Injection Date/Time:** 02-NOV-16 09:58

Column Description: DB-624 **Lab File ID** 110216V4\4H301.D

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	18.9
75	30.0 - 60.0% of mass 95	45
95	Base Peak, 100% Relative Abundance	100
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.4
174	50.0 - 100.0% of mass 95	68.4
175	5.0 -9.0% of mass 174	7.1
176	95.0 - 101.0% of mass 174	95.1
177	5.0 - 9.0% of mass 176	7.9

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
CCVMIX[A]01	W4VM161102-01	110216V4\4H302.D	02-NOV-16 10:27
BLK02LCS	1203666130	110216V4\4H304LH.D	02-NOV-16 11:25
CCVMIX[B]02	W4VM161102-05	110216V4\4H306.D	02-NOV-16 12:24
BLK02	1203666128	110216V4\4H308BH.D	02-NOV-16 13:22
DP020312	409254029	110216V4\4H313.D	02-NOV-16 15:48
DP020114	409254038	110216V4\4H315.D	02-NOV-16 16:46
TB102616	409254044	110216V4\4H316.D	02-NOV-16 17:15

Instrument Performance Check

BROMOFLUOROBENZENE

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: VOA4.I **Injection Date/Time:** 03-NOV-16 10:17

Column Description: DB-624 **Lab File ID** 110316V4\4H401.D

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	20.4
75	30.0 - 60.0% of mass 95	48.9
95	Base Peak, 100% Relative Abundance	100
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0
174	50.0 - 100.0% of mass 95	69.4
175	5.0 -9.0% of mass 174	7.7
176	95.0 - 101.0% of mass 174	95.7
177	5.0 - 9.0% of mass 176	7.4

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
CCVMIX[A]03	W4VM161103-01	110316V4\4H402.D	03-NOV-16 10:46
BLK03LCS	1203666131	110316V4\4H404LH.D	03-NOV-16 11:45
CCVMIX[B]04	W4VM161103-04	110316V4\4H405.D	03-NOV-16 12:14
BLK03	1203666129	110316V4\4H407BH.D	03-NOV-16 13:13
DP020209	409254036	110316V4\4H415.D	03-NOV-16 17:06

Instrument Performance Check

BROMOFLUOROBENZENE

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: VOA6.I **Injection Date/Time:** 13-OCT-16 16:42

Column Description: DB-624 **Lab File ID** 101316V6\6D401.D

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	24.9
75	30.0 - 60.0% of mass 95	50.3
95	Base Peak, 100% Relative Abundance	100
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0
174	50.0 - 100.0% of mass 95	77
175	5.0 -9.0% of mass 174	9
176	95.0 - 101.0% of mass 174	99.6
177	5.0 - 9.0% of mass 176	6.3

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
ICALMIX[A]	W6VM161013-01	101316V6\6D402.D	13-OCT-16 17:11
ICALMIX[A]	W6VM161013-02	101316V6\6D403.D	13-OCT-16 17:39
ICALMIX[A]	W6VM161013-03	101316V6\6D404.D	13-OCT-16 18:08
ICALMIX[A]	W6VM161013-04	101316V6\6D405.D	13-OCT-16 18:37
ICALMIX[A]	W6VM161013-05	101316V6\6D406.D	13-OCT-16 19:06
ICALMIX[A]	W6VM161013-06	101316V6\6D407.D	13-OCT-16 19:35
ICALMIX[A]	W6VM161013-07	101316V6\6D408.D	13-OCT-16 20:03
ICALMIX[A]	W6VM161013-08	101316V6\6D409.D	13-OCT-16 20:32
ICALMIX[A]	W6VM161013-09	101316V6\6D410.D	13-OCT-16 21:01
ICALMIX[B]	W6VM161013-12	101316V6\6D413.D	13-OCT-16 22:27
ICALMIX[B]	W6VM161013-13	101316V6\6D414.D	13-OCT-16 22:56
ICALMIX[B]	W6VM161013-14	101316V6\6D415.D	13-OCT-16 23:25
ICALMIX[B]	W6VM161013-15	101316V6\6D416.D	13-OCT-16 23:54
ICALMIX[B]	W6VM161013-16	101316V6\6D417.D	14-OCT-16 00:22
ICALMIX[B]	W6VM161013-17	101316V6\6D418.D	14-OCT-16 00:52
ICALMIX[B]	W6VM161013-18	101316V6\6D419.D	14-OCT-16 01:20
ICVMIX[B]01	W6VM161013-19	101316V6\6D421.D	14-OCT-16 02:18

Instrument Performance Check

BROMOFLUOROBENZENE

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: VOA6.I **Injection Date/Time:** 14-OCT-16 09:30

Column Description: DB-624 **Lab File ID** 101416V6\6D501.D

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	22
75	30.0 - 60.0% of mass 95	47.2
95	Base Peak, 100% Relative Abundance	100
96	5.0 - 9.0% of mass 95	6.1
173	Less than 2.0% of mass 174	0.9
174	50.0 - 100.0% of mass 95	74.3
175	5.0 -9.0% of mass 174	8
176	95.0 - 101.0% of mass 174	97.5
177	5.0 - 9.0% of mass 176	6.5

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
ICVMIX[A]02	W6VM161014-01	101416V6\6D502.D	14-OCT-16 09:59

Instrument Performance Check

BROMOFLUOROBENZENE

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: VOA6.I **Injection Date/Time:** 01-NOV-16 09:08

Column Description: DB-624 **Lab File ID** 110116V6\6G201.D

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	24.6
75	30.0 - 60.0% of mass 95	48
95	Base Peak, 100% Relative Abundance	100
96	5.0 - 9.0% of mass 95	7.7
173	Less than 2.0% of mass 174	0
174	50.0 - 100.0% of mass 95	73.4
175	5.0 -9.0% of mass 174	7.5
176	95.0 - 101.0% of mass 174	100.5
177	5.0 - 9.0% of mass 176	8.2

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
CCVMIX[A]01	W6VM161101-01	110116V6\6G202.D	01-NOV-16 09:37
BLK01LCS	1203660808	110116V6\6G204L.D	01-NOV-16 10:35
BLK01LCSD	1203660809	110116V6\6G205D.D	01-NOV-16 11:04
CCVMIX[B]02	W6VM161101-05	110116V6\6G206.D	01-NOV-16 11:33
BLK01	1203660807	110116V6\6G209B.D	01-NOV-16 13:00
SS110100	409254011	110116V6\6G215.D	01-NOV-16 16:22
SS110200	409254012	110116V6\6G216.D	01-NOV-16 16:24
SD140300	409254013	110116V6\6G217.D	01-NOV-16 16:52
SD140200	409254014	110116V6\6G218.D	01-NOV-16 17:21
SD140100	409254015	110116V6\6G219.D	01-NOV-16 17:50
SD140100DUP	409254016	110116V6\6G220.D	01-NOV-16 18:19
DP020413	409254032	110116V6\6G222.D	01-NOV-16 19:17
DP020207	409254034	110116V6\6G223.D	01-NOV-16 19:46

Internal Standard
Area and RT Summary

Lab Name : GEL Laboratories LLC

Client SDG: 409254

Instrument: VOA4.I

STD Analysis Time: 02-NOV-16 10:27

GC Column: DB-624

Data File: 110216V4\4H302.D

	Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
	Area #	RT #	Area #	RT #	Area #	RT #
12 Hour STD	1162907	10.3	859639	13.5	455873	15.9
Upper Limit	2325814	10.8	1719278	14.0	911746	16.4
Lower Limit	581454	9.83	429820	13.0	227937	15.4
Sample ID						
BLK02LCS	1165495	10.3	851584	13.5	448758	15.9
BLK02	1143362	10.3	823292	13.5	423115	15.9
DP020312	1092772	10.3	773910	13.5	392295	15.9
DP020114	1131661	10.3	799908	13.5	411993	15.9
TB102616	1140923	10.3	819972	13.5	423435	15.9

Area Upper Limit = +100% of internal standard area
Area Lower Limit = - 50% of internal standard area

RT Upper Limit = + 0.50 minutes of internal standard RT
RT Lower Limit = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk

* Value outside of QC Limits

Internal Standard
Area and RT Summary

Lab Name : GEL Laboratories LLC

Client SDG: 409254

Instrument: VOA4.I

STD Analysis Time: 03-NOV-16 10:46

GC Column: DB-624

Data File: 110316V4\4H402.D

	Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
	Area #	RT #	Area #	RT #	Area #	RT #
12 Hour STD	1176019	10.3	869583	13.5	457978	15.9
Upper Limit	2352038	10.8	1739166	14.0	915956	16.4
Lower Limit	588010	9.83	434792	13.0	228989	15.4
Sample ID						
BLK03LCS	1125183	10.3	805821	13.5	427840	15.9
BLK03	1162222	10.3	844132	13.5	437477	15.9
DP020209	1063915	10.3	745451	13.5	360676	15.9

Area Upper Limit = +100% of internal standard area
Area Lower Limit = - 50% of internal standard area

RT Upper Limit = + 0.50 minutes of internal standard RT
RT Lower Limit = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Value outside of QC Limits

Internal Standard
Area and RT Summary

Lab Name : GEL Laboratories LLC

Client SDG: 409254

Instrument: VOA6.I

STD Analysis Time: 01-NOV-16 09:37

GC Column: DB-624

Data File: 110116V6\6G202.D

	Fluorobenzene		Chlorobenzene-d5		1,4-Dichlorobenzene-d4	
	Area #	RT #	Area #	RT #	Area #	RT #
12 Hour STD	1822715	9.44	1412183	12.6	745710	15.1
Upper Limit	3645430	9.94	2824366	13.1	1491420	15.6
Lower Limit	911358	8.94	706092	12.1	372855	14.6
Sample ID						
BLK01LCS	1820995	9.44	1415124	12.6	732505	15.1
BLK01LCSD	1800284	9.44	1390236	12.6	747102	15.1
BLK01	1796311	9.44	1361879	12.6	704101	15.1
SS110100	1692788	9.45	1258163	12.6	620984	15.1
SS110200	1659193	9.44	1273501	12.6	676715	15.1
SD140300	1547967	9.44	1118738	12.6	475055	15.1
SD140200	1590224	9.44	1210418	12.6	612752	15.1
SD140100	1457795	9.44	1035860	12.6	425135	15.1
SD140100DUP	1402220	9.44	1005733	12.6	443926	15.1
DP020413	1511601	9.44	1163989	12.6	597925	15.1
DP020207	1303748	9.44	1013750	12.6	537243	15.1

Area Upper Limit = +100% of internal standard area
Area Lower Limit = - 50% of internal standard area

RT Upper Limit = + 0.50 minutes of internal standard RT
RT Lower Limit = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Value outside of QC Limits

Sample Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 10:04**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254011**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**4.2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS110100**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 10:04**	**Aliquot:**	**5.6 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G215.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.932	ug/kg	0.310	0.932
79-34-5	1,1,2,2-Tetrachloroethane	U	0.932	ug/kg	0.310	0.932
79-00-5	1,1,2-Trichloroethane	U	0.932	ug/kg	0.310	0.932
75-34-3	1,1-Dichloroethane	U	0.932	ug/kg	0.310	0.932
75-35-4	1,1-Dichloroethylene	U	0.932	ug/kg	0.310	0.932
87-61-6	1,2,3-Trichlorobenzene	U	0.932	ug/kg	0.310	0.932
120-82-1	1,2,4-Trichlorobenzene	U	0.932	ug/kg	0.310	0.932
96-12-8	1,2-Dibromo-3-chloropropane	U	0.932	ug/kg	0.466	0.932
106-93-4	1,2-Dibromoethane	U	0.932	ug/kg	0.310	0.932
95-50-1	1,2-Dichlorobenzene	U	0.932	ug/kg	0.310	0.932
107-06-2	1,2-Dichloroethane	U	0.932	ug/kg	0.310	0.932
78-87-5	1,2-Dichloropropane	U	0.932	ug/kg	0.310	0.932
541-73-1	1,3-Dichlorobenzene	U	0.932	ug/kg	0.310	0.932
106-46-7	1,4-Dichlorobenzene	U	0.932	ug/kg	0.310	0.932
123-91-1	1,4-Dioxane	U	46.6	ug/kg	15.5	46.6
78-93-3	2-Butanone	U	4.66	ug/kg	1.55	4.66
591-78-6	2-Hexanone	U	4.66	ug/kg	1.55	4.66
108-10-1	4-Methyl-2-pentanone	U	4.66	ug/kg	1.55	4.66
67-64-1	Acetone	U	4.66	ug/kg	1.55	4.66
71-43-2	Benzene	U	0.932	ug/kg	0.310	0.932
74-97-5	Bromochloromethane	U	0.932	ug/kg	0.310	0.932
75-27-4	Bromodichloromethane	U	0.932	ug/kg	0.310	0.932
75-25-2	Bromoform	U	0.932	ug/kg	0.310	0.932
74-83-9	Bromomethane	U	0.932	ug/kg	0.310	0.932
75-15-0	Carbon disulfide	U	4.66	ug/kg	1.55	4.66
56-23-5	Carbon tetrachloride	U	0.932	ug/kg	0.310	0.932
108-90-7	Chlorobenzene	U	0.932	ug/kg	0.310	0.932
75-00-3	Chloroethane	U	0.932	ug/kg	0.310	0.932
67-66-3	Chloroform	U	0.932	ug/kg	0.310	0.932
74-87-3	Chloromethane	U	0.932	ug/kg	0.310	0.932
110-82-7	Cyclohexane	U	0.932	ug/kg	0.310	0.932
124-48-1	Dibromochloromethane	U	0.932	ug/kg	0.310	0.932
75-71-8	Dichlorodifluoromethane	U	0.932	ug/kg	0.310	0.932
100-41-4	Ethylbenzene	U	0.932	ug/kg	0.310	0.932
98-82-8	Isopropylbenzene	U	0.932	ug/kg	0.310	0.932
79-20-9	Methyl acetate	U	4.66	ug/kg	1.55	4.66
108-87-2	Methylcyclohexane	U	0.932	ug/kg	0.310	0.932
75-09-2	Methylene chloride	U	4.66	ug/kg	1.55	4.66

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 10:04**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254011**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**4.2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS110100**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 10:04**	**Aliquot:**	**5.6 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G215.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.932	ug/kg	0.310	0.932
127-18-4	Tetrachloroethylene	J	0.317	ug/kg	0.310	0.932
108-88-3	Toluene	U	0.932	ug/kg	0.310	0.932
79-01-6	Trichloroethylene	U	0.932	ug/kg	0.310	0.932
75-69-4	Trichlorofluoromethane	U	0.932	ug/kg	0.310	0.932
76-13-1	Trichlorotrifluoroethane	U	4.66	ug/kg	1.55	4.66
75-01-4	Vinyl chloride	U	0.932	ug/kg	0.310	0.932
156-59-2	cis-1,2-Dichloroethylene	U	0.932	ug/kg	0.310	0.932
10061-01-5	cis-1,3-Dichloropropylene	U	0.932	ug/kg	0.310	0.932
179601-23-1	m,p-Xylenes	U	1.86	ug/kg	0.622	1.86
95-47-6	o-Xylene	U	0.932	ug/kg	0.310	0.932
1634-04-4	tert-Butyl methyl ether	J	0.336	ug/kg	0.310	0.932
156-60-5	trans-1,2-Dichloroethylene	U	0.932	ug/kg	0.310	0.932
10061-02-6	trans-1,3-Dichloropropylene	U	0.932	ug/kg	0.310	0.932

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G215.D
Acq On : 01 Nov 2016 16:22
Operator : ACJ
InstName : VOA6
Sample : |409254011|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.6G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

11/09/2016

Quant Time: Nov 02 09:20:00 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.446	9.440	1.000	1692788	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.629	1.000	1258163	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	620984	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.446	9.440	1.000	1692788	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.628	1.000	1258163	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	620984	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	585486	52.59	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.879	1706246	50.85	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	652221	51.93	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	105%
45) Toluene-d8	50.000	81 - 120	102%
63) Bromofluorobenzene	50.000	70 - 130	104%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.001	0.000	0	N.D.		
3) Chloromethane	50	4.281	4.282	0.453	189	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether	59	5.830	5.830	0.617	368	N.D.		
9) Acetone	43	6.203	6.197	0.657	1434	N.D.		
10) 1,1-Dichloroethylene		0.000	6.191	0.000	0	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.575	6.550	0.696	1458	N.D.		
13) Methyl acetate	43	6.569	6.575	0.695	247	N.D.		
14) Carbon disulfide	76	6.550	6.550	0.693	1406	N.D.		
15) Methylene chloride	84	6.758	6.764	0.715	16049	N.D.		
16) tert-Butyl methyl ether	73	7.062	7.050	0.748	12187	0.36	ug/L	97
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.367	7.367	0.780	469	N.D.		
19) Vinyl acetate	43	7.593	7.538	0.804	134	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.196	8.160	0.868	4296	N.D.		
22) cis-1,2-Dichloroethylene	61	8.190	8.209	0.867	818	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform	83	8.519	8.520	0.902	749	N.D.		
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		0.000	8.873	0.000	0	N.D.		
28) 1,1-Dichloropropene		0.000	8.946	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.172	9.172	0.971	166	N.D.		
32) Benzene	78	9.178	9.184	0.972	985	N.D.		
33) Cyclohexene	67	9.300	9.294	0.985	326	N.D.		
34) n-Butyl alcohol	56	9.513	9.568	1.007	125	N.D.		
35) Trichloroethylene	95	9.830	9.830	1.041	239	N.D.		
36) 2-Pentanone		0.000	9.928	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G215.D
Acq On : 01 Nov 2016 16:22
Operator : ACJ
InstName : VOA6
Sample : |409254011|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.6G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 02 09:20:00 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.		
46) Toluene	91	11.171	11.172	0.885	3729	N.D.		
47) trans-1,3-Dichloroprop...		0.000	11.342	0.000	0	N.D.		
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.		
49) 2-Hexanone	43	11.750	11.745	0.930	198	N.D.		
50) 1,3-Dichloropropane		0.000	11.751	0.000	0	N.D.		
51) Tetrachloroethylene	164	11.757	11.763	0.931	2929	0.34	ug/L	90
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.		
54) Chlorobenzene	112	12.659	12.665	1.002	786	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.		
56) Ethylbenzene	91	12.750	12.732	1.010	1026	N.D.		
57) m,p-Xylenes	106	12.842	12.842	1.017	1103	N.D.		
58) o-Xylene	91	13.281	13.275	1.052	521	N.D.		
59) Styrene	104	13.287	13.281	1.052	2893	N.D.		
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene	105	13.640	13.641	0.906	193	N.D.		
64) 1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	131	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene	156	14.037	14.043	0.932	526	N.D.		
67) n-Propylbenzene	91	14.073	14.067	0.935	765	N.D.		
68) 1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	204	N.D.		
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.		
70) 4-Chlorotoluene	91	14.317	14.317	0.951	1441	N.D.		
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	14.634	14.634	0.972	782	N.D.		
73) sec-Butylbenzene	105	14.817	14.817	0.984	147	N.D.		
74) 4-Isopropyltoluene		0.000	14.592	0.000	0	N.D.		
75) 1,3-Dichlorobenzene	146	14.994	14.994	0.996	1170	N.D.		
76) 1,4-Dichlorobenzene	146	15.085	15.085	1.002	2834	N.D.		
77) n-Butylbenzene	91	15.372	15.372	1.021	311	N.D.		
78) 1,2-Dichlorobenzene	146	15.500	15.494	1.030	711	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	17.286	17.280	1.148	1075	N.D.		
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.		
82) Naphthalene	128	17.633	17.628	1.171	2158	N.D.		
83) 1,2,3-Trichlorobenzene	180	17.950	17.945	1.192	545	N.D.		
85) Acrolein		0.000	6.026	0.000	0	N.D.		
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.		
87) Isopropyl Alcohol	45	6.331	6.282	0.670	136	N.D.		
88) Allyl chloride	41	6.623	6.611	0.701	413	N.D.		
89) tert-Butyl Alcohol	59	6.782	6.770	0.718	8164	N.D.		
90) Acrylonitrile		0.000	7.014	0.000	0	N.D.		
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	7.672	0.000	0	N.D.		
93) Ethyl tert-butyl ether	59	7.946	7.965	0.841	564	N.D.		
94) Ethyl acetate	43	8.196	8.178	0.868	4296	N.D.		
95) Propionitrile		0.000	8.245	0.000	0	N.D.		
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.		
97) Tetrahydrofuran	42	8.532	8.526	0.903	3218	N.D.		
98) Isobutyl alcohol		0.000	8.873	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G215.D
Acq On : 01 Nov 2016 16:22
Operator : ACJ
InstName : VOA6
Sample : |409254011|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.6G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 02 09:20:00 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

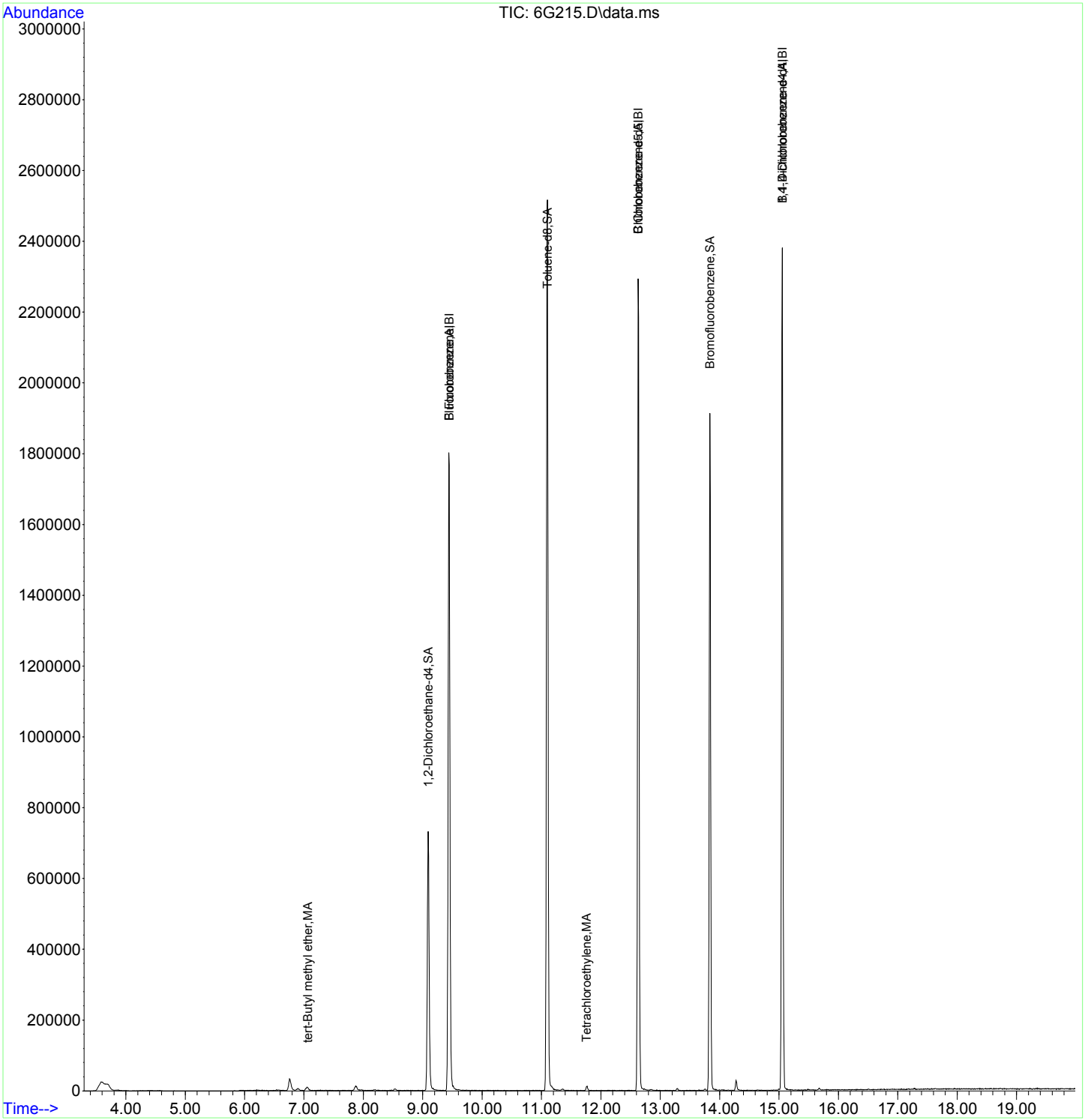
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.	
100)	Methyl methacrylate	69	10.080	10.068	1.067	106	N.D.	
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.	
102)	2-Nitropropane		0.000	10.543	0.000	0	N.D.	
104)	Ethyl methacrylate		0.000	11.348	0.000	0	N.D.	
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107)	cis-1,4-Dichloro-2-butene		0.000	13.689	0.000	0	N.D.	
108)	Cyclohexanone		0.000	13.793	0.000	0	N.D.	
109)	trans-1,4-Dichloro-2-b...		0.000	13.976	0.000	0	N.D.	
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.	
111)	Benzyl chloride	91	15.201	15.201	1.010	907	Below Cal #	73
112)	bis(2-Chloroisopropyl)...	45	15.670	15.591	1.041	118	N.D.	

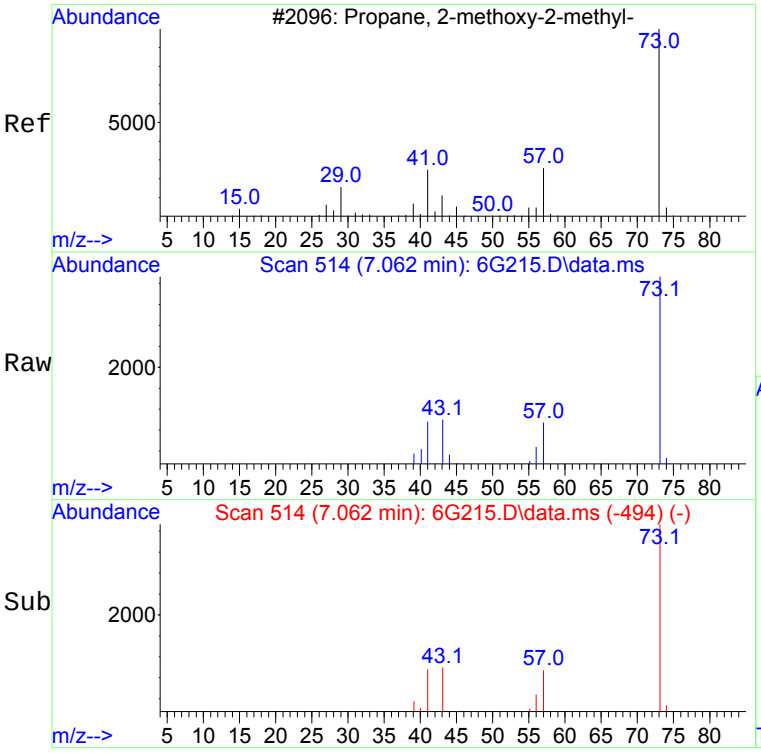
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G215.D
Acq On : 01 Nov 2016 16:22
Operator : ACJ
InstName : VOA6
Sample : |409254011|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.6G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 02 09:20:00 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

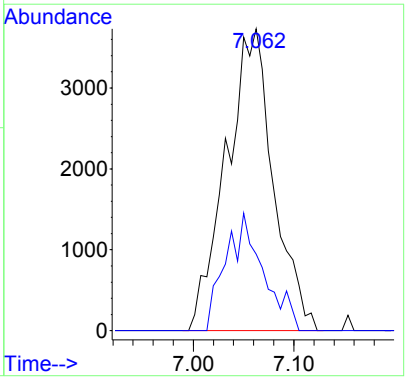


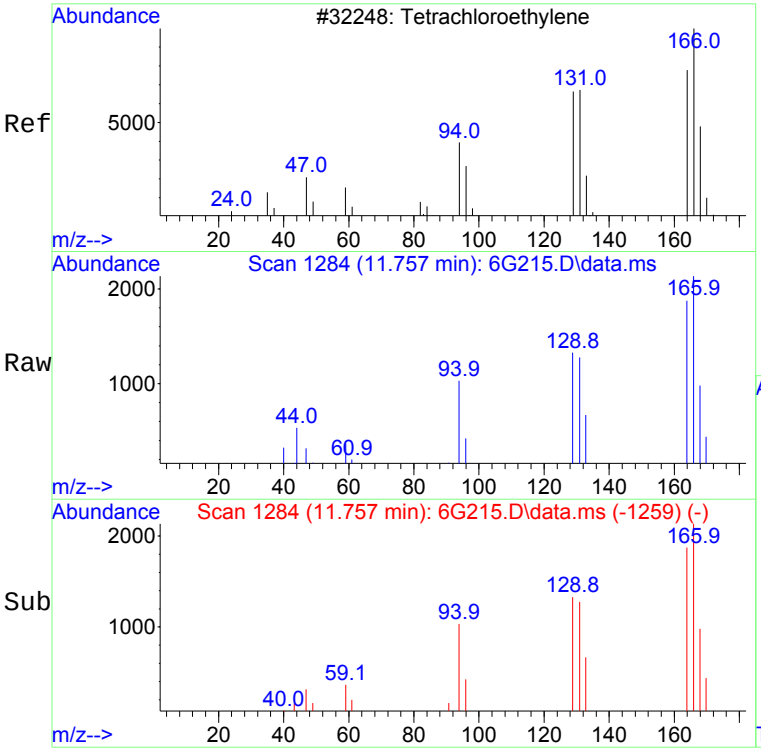


#16
tert-Butyl methyl ether
Concen: 0.36 ug/L
RT: 7.062 min Scan# 514
Delta R.T. 0.012 min
Lab File: 6G215.D
Acq: 01 Nov 2016 16:22

Tgt Ion: 73 Resp: 12187

Ion	Ratio	Lower	Upper
73	100		
57	31.1	0.0	59.4

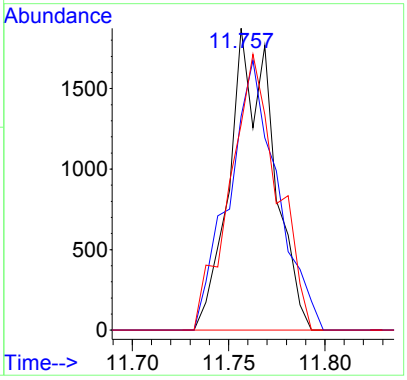




#51
Tetrachloroethylene
Concen: 0.34 ug/L
RT: 11.757 min Scan# 1284
Delta R.T. -0.006 min
Lab File: 6G215.D
Acq: 01 Nov 2016 16:22

Tgt Ion:164 Resp: 2929

Ion	Ratio	Lower	Upper
164	100		
129	99.8	61.6	121.6
131	99.3	59.4	119.4



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254012**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.4**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS110200**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:24**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 10:54**	**Aliquot:**	**6.7 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G216.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.903	ug/kg	0.301	0.903
79-34-5	1,1,2,2-Tetrachloroethane	U	0.903	ug/kg	0.301	0.903
79-00-5	1,1,2-Trichloroethane	U	0.903	ug/kg	0.301	0.903
75-34-3	1,1-Dichloroethane	U	0.903	ug/kg	0.301	0.903
75-35-4	1,1-Dichloroethylene	U	0.903	ug/kg	0.301	0.903
87-61-6	1,2,3-Trichlorobenzene	U	0.903	ug/kg	0.301	0.903
120-82-1	1,2,4-Trichlorobenzene	U	0.903	ug/kg	0.301	0.903
96-12-8	1,2-Dibromo-3-chloropropane	U	0.903	ug/kg	0.452	0.903
106-93-4	1,2-Dibromoethane	U	0.903	ug/kg	0.301	0.903
95-50-1	1,2-Dichlorobenzene	U	0.903	ug/kg	0.301	0.903
107-06-2	1,2-Dichloroethane	U	0.903	ug/kg	0.301	0.903
78-87-5	1,2-Dichloropropane	U	0.903	ug/kg	0.301	0.903
541-73-1	1,3-Dichlorobenzene	U	0.903	ug/kg	0.301	0.903
106-46-7	1,4-Dichlorobenzene	U	0.903	ug/kg	0.301	0.903
123-91-1	1,4-Dioxane	U	45.2	ug/kg	15.1	45.2
78-93-3	2-Butanone	U	4.52	ug/kg	1.51	4.52
591-78-6	2-Hexanone	U	4.52	ug/kg	1.51	4.52
108-10-1	4-Methyl-2-pentanone	U	4.52	ug/kg	1.51	4.52
67-64-1	Acetone	U	4.52	ug/kg	1.51	4.52
71-43-2	Benzene	U	0.903	ug/kg	0.301	0.903
74-97-5	Bromochloromethane	U	0.903	ug/kg	0.301	0.903
75-27-4	Bromodichloromethane	U	0.903	ug/kg	0.301	0.903
75-25-2	Bromoform	U	0.903	ug/kg	0.301	0.903
74-83-9	Bromomethane	U	0.903	ug/kg	0.301	0.903
75-15-0	Carbon disulfide	U	4.52	ug/kg	1.51	4.52
56-23-5	Carbon tetrachloride	U	0.903	ug/kg	0.301	0.903
108-90-7	Chlorobenzene	U	0.903	ug/kg	0.301	0.903
75-00-3	Chloroethane	U	0.903	ug/kg	0.301	0.903
67-66-3	Chloroform	U	0.903	ug/kg	0.301	0.903
74-87-3	Chloromethane	U	0.903	ug/kg	0.301	0.903
110-82-7	Cyclohexane	U	0.903	ug/kg	0.301	0.903
124-48-1	Dibromochloromethane	U	0.903	ug/kg	0.301	0.903
75-71-8	Dichlorodifluoromethane	U	0.903	ug/kg	0.301	0.903
100-41-4	Ethylbenzene	U	0.903	ug/kg	0.301	0.903
98-82-8	Isopropylbenzene	U	0.903	ug/kg	0.301	0.903
79-20-9	Methyl acetate	U	4.52	ug/kg	1.51	4.52
108-87-2	Methylcyclohexane	U	0.903	ug/kg	0.301	0.903
75-09-2	Methylene chloride	U	4.52	ug/kg	1.51	4.52

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254012**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.4**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS110200**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:24**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 10:54**	**Aliquot:**	**6.7 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G216.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.903	ug/kg	0.301	0.903
127-18-4	Tetrachloroethylene	J	0.506	ug/kg	0.301	0.903
108-88-3	Toluene	U	0.903	ug/kg	0.301	0.903
79-01-6	Trichloroethylene	U	0.903	ug/kg	0.301	0.903
75-69-4	Trichlorofluoromethane	U	0.903	ug/kg	0.301	0.903
76-13-1	Trichlorotrifluoroethane	U	4.52	ug/kg	1.51	4.52
75-01-4	Vinyl chloride	U	0.903	ug/kg	0.301	0.903
156-59-2	cis-1,2-Dichloroethylene	U	0.903	ug/kg	0.301	0.903
10061-01-5	cis-1,3-Dichloropropylene	U	0.903	ug/kg	0.301	0.903
179601-23-1	m,p-Xylenes	U	1.81	ug/kg	0.602	1.81
95-47-6	o-Xylene	U	0.903	ug/kg	0.301	0.903
1634-04-4	tert-Butyl methyl ether	U	0.903	ug/kg	0.301	0.903
156-60-5	trans-1,2-Dichloroethylene	U	0.903	ug/kg	0.301	0.903
10061-02-6	trans-1,3-Dichloropropylene	U	0.903	ug/kg	0.301	0.903

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G216.D
Acq On : 01 Nov 2016 16:24
Operator : ACJ
InstName : VOA6
Sample : |409254012|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.7G N/A SOIL
ALS Vial : 16 Sample Multiplier: 1

11/09/2016

Quant Time: Nov 02 09:20:02 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1659193	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.635	12.629	1.000	1273501	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	676715	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1659193	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.635	12.628	1.000	1273501	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	676715	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	586218	53.72	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.878	1691779	49.82	ug/L	0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	685428	50.08	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	107%
45) Toluene-d8	50.000	81 - 120	100%
63) Bromofluorobenzene	50.000	70 - 130	100%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.001	0.000	0	N.D.		
3) Chloromethane		0.000	4.282	0.000	0	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether	59	5.822	5.830	0.617	555	N.D.		
9) Acetone	43	6.215	6.197	0.658	3717	N.D.		
10) 1,1-Dichloroethylene		0.000	6.191	0.000	0	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.550	6.550	0.694	840	N.D.		
13) Methyl acetate	43	6.581	6.575	0.697	699	N.D.		
14) Carbon disulfide	76	6.532	6.550	0.692	912	N.D.		
15) Methylene chloride	84	6.758	6.764	0.716	15010	N.D.		
16) tert-Butyl methyl ether	73	7.050	7.050	0.747	5381	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.361	7.367	0.780	905	N.D.		
19) Vinyl acetate	43	7.556	7.538	0.800	145	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.184	8.160	0.867	6736	N.D.		
22) cis-1,2-Dichloroethylene	61	8.203	8.209	0.869	781	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform	83	8.513	8.520	0.902	266	N.D.		
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		0.000	8.873	0.000	0	N.D.		
28) 1,1-Dichloropropene		0.000	8.946	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.111	9.172	0.965	488	N.D.		
32) Benzene	78	9.196	9.184	0.974	1035	N.D.		
33) Cyclohexene		0.000	9.294	0.000	0	N.D.		
34) n-Butyl alcohol	56	9.666	9.568	1.024	166	N.D.		
35) Trichloroethylene	95	9.824	9.830	1.041	148	N.D.		
36) 2-Pentanone		0.000	9.928	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G216.D
Acq On : 01 Nov 2016 16:24
Operator : ACJ
InstName : VOA6
Sample : |409254012|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.7G N/A SOIL
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 02 09:20:02 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.		
46) Toluene	91	11.165	11.172	0.884	4377	N.D.		
47) trans-1,3-Dichloroprop...		0.000	11.342	0.000	0	N.D.		
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.		
49) 2-Hexanone	43	11.763	11.745	0.931	185	N.D.		
50) 1,3-Dichloropropane		0.000	11.751	0.000	0	N.D.		
51) Tetrachloroethylene	164	11.763	11.763	0.931	4864	0.56	ug/L	92
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.		
54) Chlorobenzene	112	12.659	12.665	1.002	950	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.		
56) Ethylbenzene	91	12.738	12.732	1.008	946	N.D.		
57) m,p-Xylenes	106	12.854	12.842	1.017	925	N.D.		
58) o-Xylene	91	13.281	13.275	1.051	802	N.D.		
59) Styrene	104	13.293	13.281	1.052	3255	N.D.		
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene		0.000	13.641	0.000	0	N.D.		
64) 1,1,2,2-Tetrachloroethane	83	13.829	13.927	0.919	168	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene	156	14.043	14.043	0.933	360	N.D.		
67) n-Propylbenzene	91	14.067	14.067	0.934	712	N.D.		
68) 1,3,5-Trimethylbenzene	105	14.232	14.226	0.945	242	N.D.		
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.		
70) 4-Chlorotoluene	91	14.323	14.317	0.951	1298	N.D.		
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	14.634	14.634	0.972	633	N.D.		
73) sec-Butylbenzene		0.000	14.817	0.000	0	N.D.		
74) 4-Isopropyltoluene		0.000	14.592	0.000	0	N.D.		
75) 1,3-Dichlorobenzene	146	15.000	14.994	0.996	965	N.D.		
76) 1,4-Dichlorobenzene	146	15.073	15.085	1.001	2363	N.D.		
77) n-Butylbenzene	91	15.378	15.372	1.021	591	N.D.		
78) 1,2-Dichlorobenzene	146	15.488	15.494	1.029	745	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	17.286	17.280	1.148	1266	N.D.		
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.		
82) Naphthalene	128	17.628	17.628	1.171	2258	N.D.		
83) 1,2,3-Trichlorobenzene	180	17.951	17.945	1.192	669	N.D.		
85) Acrolein		0.000	6.026	0.000	0	N.D.		
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.		
87) Isopropyl Alcohol	45	6.349	6.282	0.673	136	N.D.		
88) Allyl chloride	41	6.550	6.611	0.694	840	N.D.		
89) tert-Butyl Alcohol	59	6.770	6.770	0.717	5497	N.D.		
90) Acrylonitrile		0.000	7.014	0.000	0	N.D.		
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	7.672	0.000	0	N.D.		
93) Ethyl tert-butyl ether	59	7.965	7.965	0.844	733	N.D.		
94) Ethyl acetate	43	8.184	8.178	0.867	6736	N.D.		
95) Propionitrile		0.000	8.245	0.000	0	N.D.		
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.		
97) Tetrahydrofuran	42	8.532	8.526	0.904	2899	N.D.		
98) Isobutyl alcohol		0.000	8.873	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G216.D
Acq On : 01 Nov 2016 16:24
Operator : ACJ
InstName : VOA6
Sample : |409254012|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.7G N/A SOIL
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 02 09:20:02 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

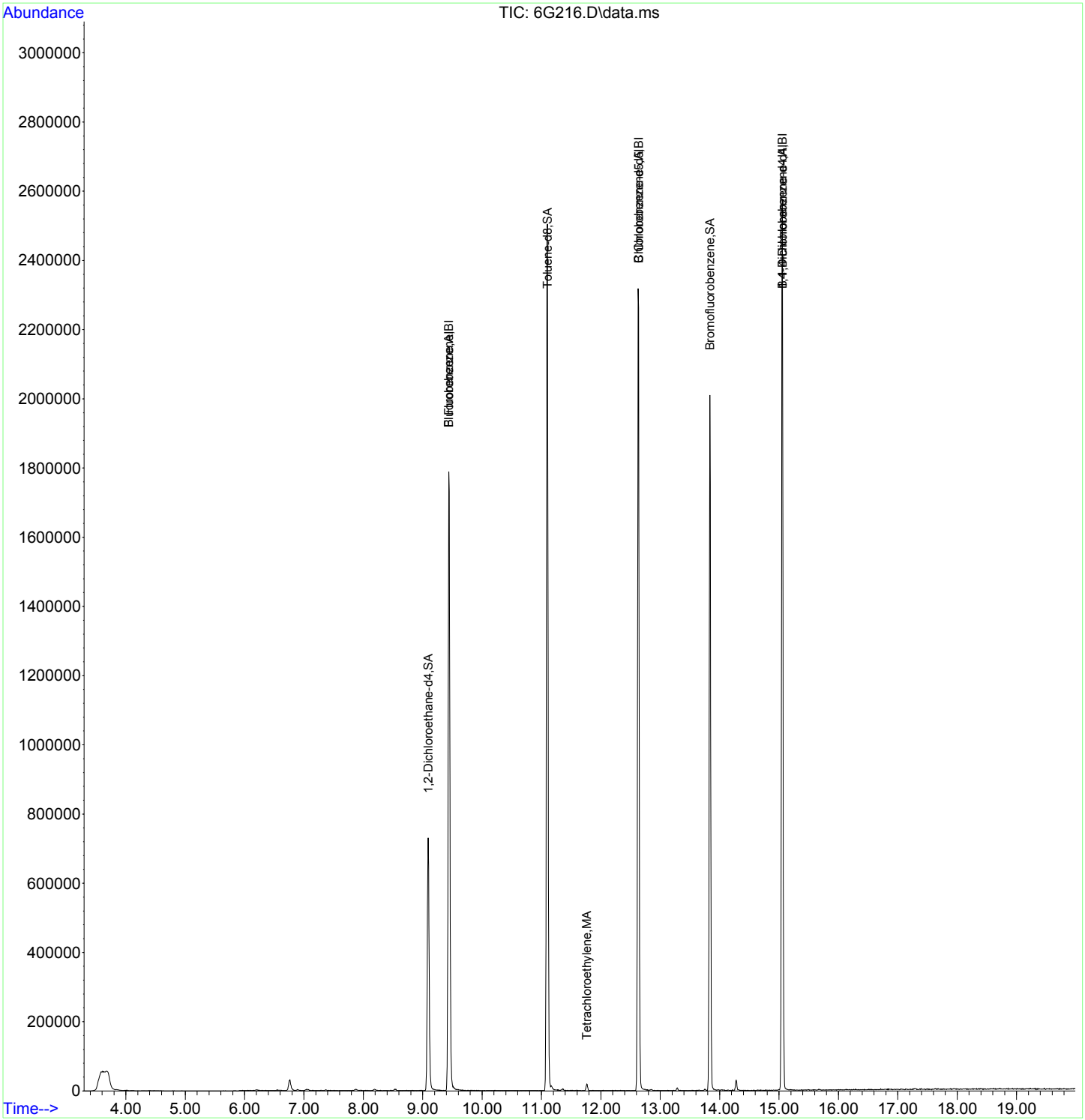
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.		
100)	Methyl methacrylate	69	10.086	10.068	1.068	118	N.D.		
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.		
102)	2-Nitropropane		0.000	10.543	0.000	0	N.D.		
104)	Ethyl methacrylate	69	11.360	11.348	0.899	229	N.D.		
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.		
107)	cis-1,4-Dichloro-2-butene		0.000	13.689	0.000	0	N.D.		
108)	Cyclohexanone		0.000	13.793	0.000	0	N.D.		
109)	trans-1,4-Dichloro-2-b...	53	13.988	13.976	0.929	200	N.D.		
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.		
111)	Benzyl chloride	91	15.213	15.201	1.011	659	Below Cal	#	66
112)	bis(2-Chloroisopropyl)...	45	15.689	15.591	1.042	121	N.D.		

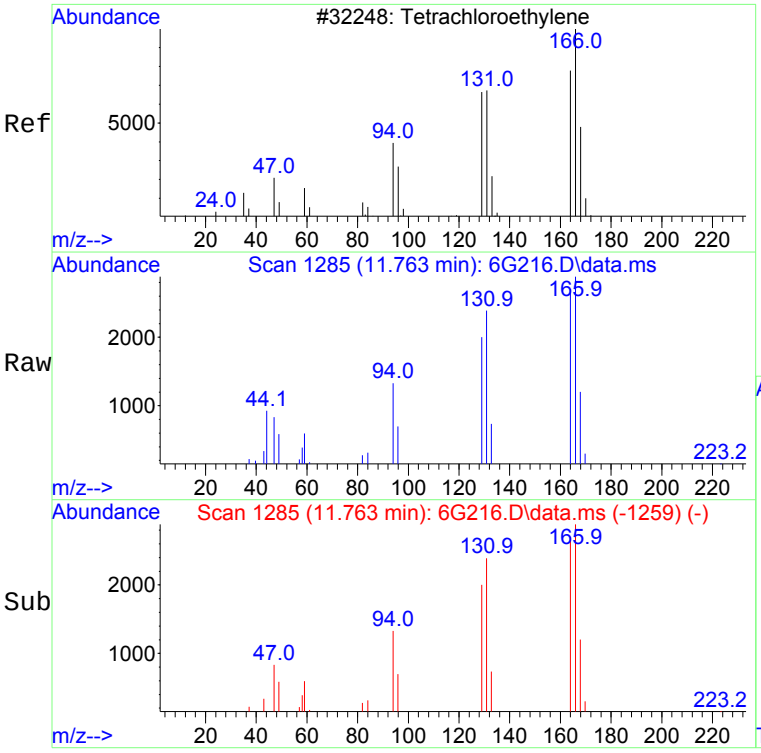
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G216.D
Acq On : 01 Nov 2016 16:24
Operator : ACJ
InstName : VOA6
Sample : |409254012|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.7G N/A SOIL
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 02 09:20:02 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

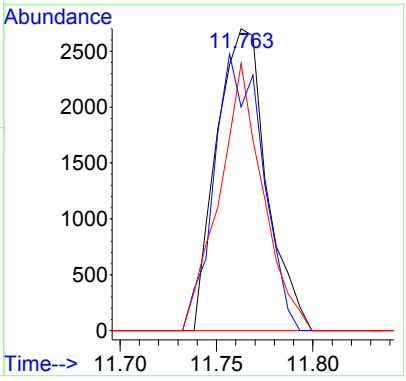




#51
Tetrachloroethylene
Concen: 0.56 ug/L
RT: 11.763 min Scan# 1285
Delta R.T. -0.000 min
Lab File: 6G216.D
Acq: 01 Nov 2016 16:24

Tgt Ion:164 Resp: 4864

Ion	Ratio	Lower	Upper
164	100		
129	88.5	61.6	121.6
131	77.9	59.4	119.4



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254013**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140300**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:52**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 11:43**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G217.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.64	ug/kg	0.547	1.64
79-34-5	1,1,2,2-Tetrachloroethane	U	1.64	ug/kg	0.547	1.64
79-00-5	1,1,2-Trichloroethane	U	1.64	ug/kg	0.547	1.64
75-34-3	1,1-Dichloroethane	U	1.64	ug/kg	0.547	1.64
75-35-4	1,1-Dichloroethylene	U	1.64	ug/kg	0.547	1.64
87-61-6	1,2,3-Trichlorobenzene	U	1.64	ug/kg	0.547	1.64
120-82-1	1,2,4-Trichlorobenzene	U	1.64	ug/kg	0.547	1.64
96-12-8	1,2-Dibromo-3-chloropropane	U	1.64	ug/kg	0.822	1.64
106-93-4	1,2-Dibromoethane	U	1.64	ug/kg	0.547	1.64
95-50-1	1,2-Dichlorobenzene	U	1.64	ug/kg	0.547	1.64
107-06-2	1,2-Dichloroethane	U	1.64	ug/kg	0.547	1.64
78-87-5	1,2-Dichloropropane	U	1.64	ug/kg	0.547	1.64
541-73-1	1,3-Dichlorobenzene	U	1.64	ug/kg	0.547	1.64
106-46-7	1,4-Dichlorobenzene	U	1.64	ug/kg	0.547	1.64
123-91-1	1,4-Dioxane	U	82.2	ug/kg	27.4	82.2
78-93-3	2-Butanone	J	3.16	ug/kg	2.74	8.22
591-78-6	2-Hexanone	U	8.22	ug/kg	2.74	8.22
108-10-1	4-Methyl-2-pentanone	U	8.22	ug/kg	2.74	8.22
67-64-1	Acetone		14.8	ug/kg	2.74	8.22
71-43-2	Benzene	U	1.64	ug/kg	0.547	1.64
74-97-5	Bromochloromethane	U	1.64	ug/kg	0.547	1.64
75-27-4	Bromodichloromethane	U	1.64	ug/kg	0.547	1.64
75-25-2	Bromoform	U	1.64	ug/kg	0.547	1.64
74-83-9	Bromomethane	U	1.64	ug/kg	0.547	1.64
75-15-0	Carbon disulfide	U	8.22	ug/kg	2.74	8.22
56-23-5	Carbon tetrachloride	U	1.64	ug/kg	0.547	1.64
108-90-7	Chlorobenzene	U	1.64	ug/kg	0.547	1.64
75-00-3	Chloroethane	U	1.64	ug/kg	0.547	1.64
67-66-3	Chloroform	U	1.64	ug/kg	0.547	1.64
74-87-3	Chloromethane	U	1.64	ug/kg	0.547	1.64
110-82-7	Cyclohexane	U	1.64	ug/kg	0.547	1.64
124-48-1	Dibromochloromethane	U	1.64	ug/kg	0.547	1.64
75-71-8	Dichlorodifluoromethane	U	1.64	ug/kg	0.547	1.64
100-41-4	Ethylbenzene	U	1.64	ug/kg	0.547	1.64
98-82-8	Isopropylbenzene	U	1.64	ug/kg	0.547	1.64
79-20-9	Methyl acetate		10.7	ug/kg	2.74	8.22
108-87-2	Methylcyclohexane	U	1.64	ug/kg	0.547	1.64
75-09-2	Methylene chloride	U	8.22	ug/kg	2.74	8.22

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254013**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140300**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 16:52**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 11:43**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G217.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.64	ug/kg	0.547	1.64
127-18-4	Tetrachloroethylene	J	0.739	ug/kg	0.547	1.64
108-88-3	Toluene	U	1.64	ug/kg	0.547	1.64
79-01-6	Trichloroethylene	U	1.64	ug/kg	0.547	1.64
75-69-4	Trichlorofluoromethane	U	1.64	ug/kg	0.547	1.64
76-13-1	Trichlorotrifluoroethane	U	8.22	ug/kg	2.74	8.22
75-01-4	Vinyl chloride	U	1.64	ug/kg	0.547	1.64
156-59-2	cis-1,2-Dichloroethylene	U	1.64	ug/kg	0.547	1.64
10061-01-5	cis-1,3-Dichloropropylene	U	1.64	ug/kg	0.547	1.64
179601-23-1	m,p-Xylenes	U	3.29	ug/kg	1.10	3.29
95-47-6	o-Xylene	U	1.64	ug/kg	0.547	1.64
1634-04-4	tert-Butyl methyl ether	U	1.64	ug/kg	0.547	1.64
156-60-5	trans-1,2-Dichloroethylene	U	1.64	ug/kg	0.547	1.64
10061-02-6	trans-1,3-Dichloropropylene	U	1.64	ug/kg	0.547	1.64

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G217.D
Acq On : 01 Nov 2016 16:52
Operator : ACJ
InstName : VOA6
Sample : |409254013|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.8G N/A SOIL
ALS Vial : 17 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 02 09:20:04 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1547967	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.634	12.629	1.000	1118738	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	475055	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1547967	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.634	12.628	1.000	1118738	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	475055	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	506442	49.75	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.878	1563764	52.42	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	543727	56.59	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	100%
45) Toluene-d8	50.000	81 - 120	105%
63) Bromofluorobenzene	50.000	70 - 130	113%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.001	4.001	0.424	400	Below Cal	#	42
3) Chloromethane	50	4.274	4.282	0.453	297	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether	59	5.822	5.830	0.617	1018	N.D.		
9) Acetone	43	6.197	6.197	0.656	38467	8.98	ug/L	100
10) 1,1-Dichloroethylene	61	6.337	6.191	0.671	4088	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.550	6.550	0.694	5090	N.D.		
13) Methyl acetate	43	6.581	6.575	0.697	54925	6.53	ug/L	99
14) Carbon disulfide	76	6.538	6.550	0.693	7644	N.D.		
15) Methylene chloride	84	6.758	6.764	0.716	10996	N.D.		
16) tert-Butyl methyl ether	73	7.056	7.050	0.747	8718	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.355	7.367	0.779	3891	N.D.		
19) Vinyl acetate	43	7.544	7.538	0.799	350	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.178	8.160	0.866	12949	1.92	ug/L	83
22) cis-1,2-Dichloroethylene	61	8.196	8.209	0.868	480	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform	83	8.538	8.520	0.904	235	N.D.		
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane	56	8.867	8.873	0.939	749	N.D.		
28) 1,1-Dichloropropene	75	8.958	8.946	0.949	104	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.105	9.172	0.964	187	N.D.		
32) Benzene	78	9.178	9.184	0.972	1253	N.D.		
33) Cyclohexene	67	9.300	9.294	0.985	214	N.D.		
34) n-Butyl alcohol	56	9.586	9.568	1.015	160	N.D.		
35) Trichloroethylene		0.000	9.830	0.000	0	N.D.		
36) 2-Pentanone	43	9.946	9.928	1.054	454	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G217.D
Acq On : 01 Nov 2016 16:52
Operator : ACJ
InstName : VOA6
Sample : |409254013|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.8G N/A SOIL
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 02 09:20:04 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.		
46) Toluene	91	11.165	11.172	0.884	6775	N.D.		
47) trans-1,3-Dichloroprop...	75	11.275	11.342	0.892	101	N.D.		
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.		
49) 2-Hexanone	43	11.763	11.745	0.931	1129	N.D.		
50) 1,3-Dichloropropane		0.000	11.751	0.000	0	N.D.		
51) Tetrachloroethylene	164	11.763	11.763	0.931	3454	0.45	ug/L	83
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.		
54) Chlorobenzene	112	12.659	12.665	1.002	566	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.		
56) Ethylbenzene	91	12.732	12.732	1.008	1472	N.D.		
57) m,p-Xylenes	106	12.848	12.842	1.017	1234	N.D.		
58) o-Xylene	91	13.275	13.275	1.051	990	N.D.		
59) Styrene	104	13.293	13.281	1.052	3933	N.D.		
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene	105	13.647	13.641	0.906	800	N.D.		
64) 1,1,2,2-Tetrachloroethane	83	13.823	13.927	0.918	247	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene	156	14.037	14.043	0.932	382	N.D.		
67) n-Propylbenzene	91	14.067	14.067	0.934	781	N.D.		
68) 1,3,5-Trimethylbenzene	105	14.238	14.226	0.946	1069	N.D.		
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.		
70) 4-Chlorotoluene	91	14.317	14.317	0.951	1489	N.D.		
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	14.634	14.634	0.972	672	N.D.		
73) sec-Butylbenzene	105	14.823	14.817	0.985	149	N.D.		
74) 4-Isopropyltoluene		0.000	14.592	0.000	0	N.D.		
75) 1,3-Dichlorobenzene	146	14.994	14.994	0.996	850	N.D.		
76) 1,4-Dichlorobenzene	146	15.085	15.085	1.002	2707	N.D.		
77) n-Butylbenzene	91	15.372	15.372	1.021	474	N.D.		
78) 1,2-Dichlorobenzene	146	15.482	15.494	1.028	589	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	17.280	17.280	1.148	1097	N.D.		
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.		
82) Naphthalene	128	17.634	17.628	1.171	2147	N.D.		
83) 1,2,3-Trichlorobenzene	180	17.957	17.945	1.193	816	N.D.		
85) Acrolein		0.000	6.026	0.000	0	N.D.		
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.		
87) Isopropyl Alcohol	45	6.325	6.282	0.670	12385	N.D.		
88) Allyl chloride	41	6.550	6.611	0.694	5090	N.D.		
89) tert-Butyl Alcohol	59	6.776	6.770	0.718	22256	16.83	ug/L	77
90) Acrylonitrile		0.000	7.014	0.000	0	N.D.		
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	7.672	0.000	0	N.D.		
93) Ethyl tert-butyl ether	59	7.959	7.965	0.843	4264	N.D.		
94) Ethyl acetate	43	8.178	8.178	0.866	12949	N.D.		
95) Propionitrile		0.000	8.245	0.000	0	N.D.		
96) Methacrylonitrile	41	8.452	8.416	0.895	783	N.D.		
97) Tetrahydrofuran	42	8.538	8.526	0.904	2373	N.D.		
98) Isobutyl alcohol	41	8.879	8.873	0.941	934	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G217.D
Acq On : 01 Nov 2016 16:52
Operator : ACJ
InstName : VOA6
Sample : |409254013|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.8G N/A SOIL
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 02 09:20:04 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

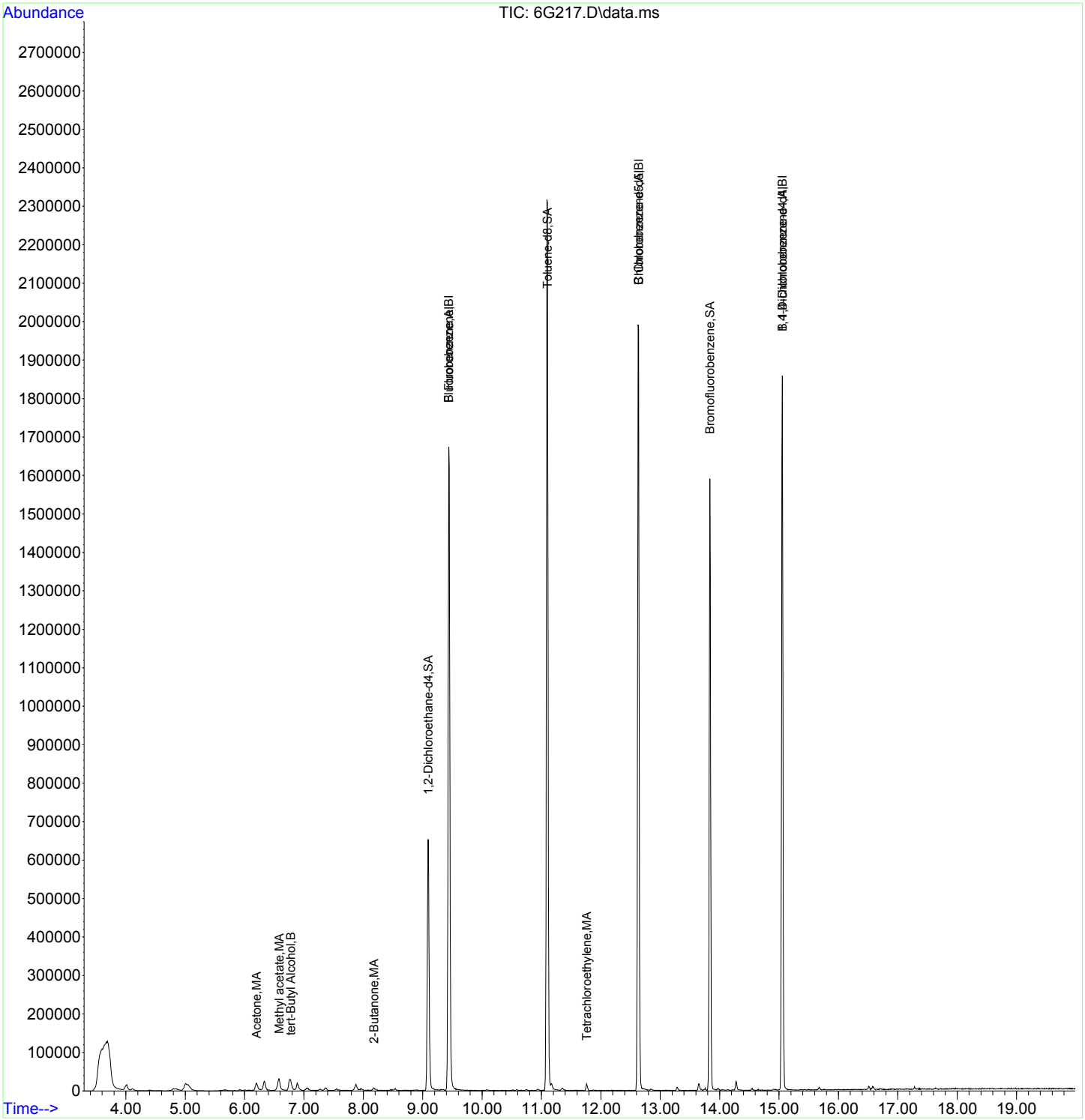
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.	
100)	Methyl methacrylate		0.000	10.068	0.000	0	N.D.	
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.	
102)	2-Nitropropane		0.000	10.543	0.000	0m	N.D. d	
104)	Ethyl methacrylate	69	11.366	11.348	0.900	358	N.D.	
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107)	cis-1,4-Dichloro-2-butene	53	13.659	13.689	0.907	967	N.D.	
108)	Cyclohexanone		0.000	13.793	0.000	0	N.D.	
109)	trans-1,4-Dichloro-2-b...	53	13.976	13.976	0.928	184	N.D.	
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.	
111)	Benzyl chloride	91	15.189	15.201	1.009	1037	Below Cal #	59
112)	bis(2-Chloroisopropyl)...		0.000	15.591	0.000	0	N.D.	

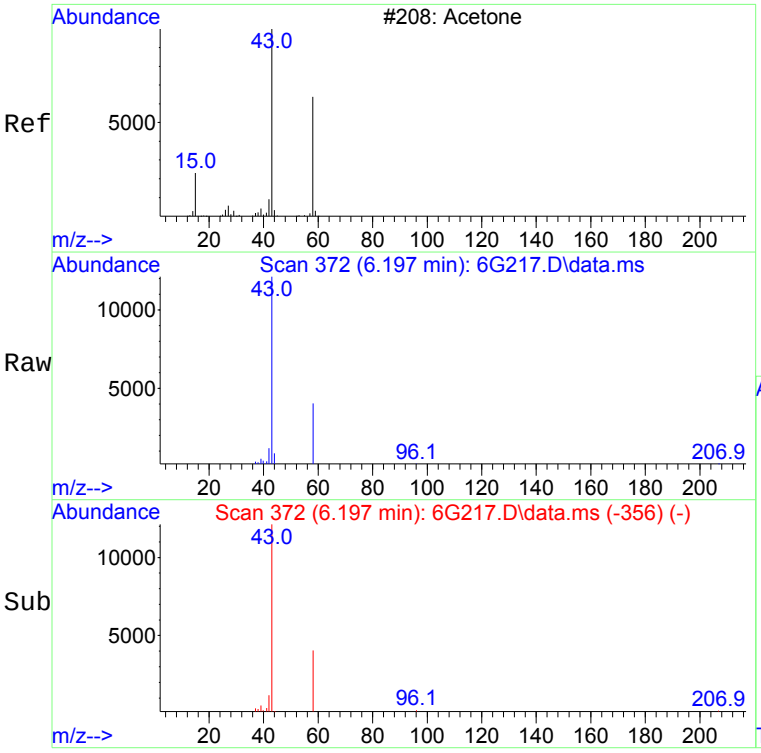
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G217.D
Acq On : 01 Nov 2016 16:52
Operator : ACJ
InstName : VOA6
Sample : |409254013|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.8G N/A SOIL
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 02 09:20:04 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

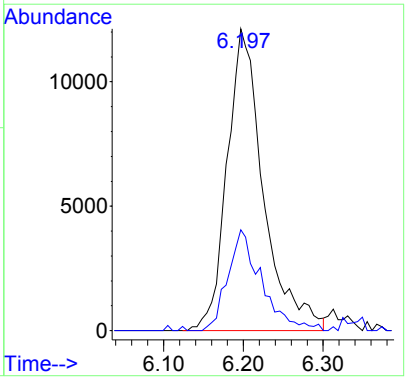


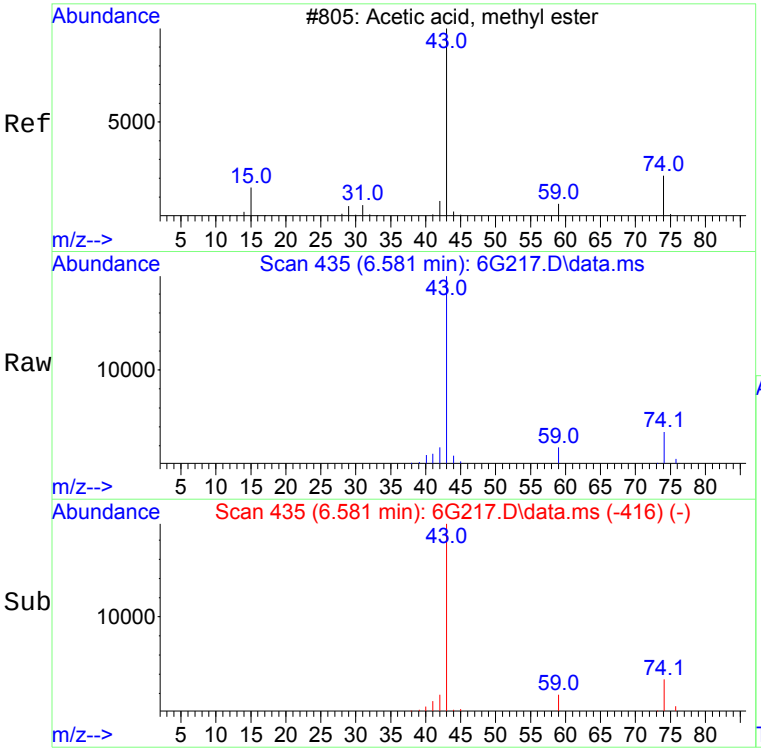


#9
Acetone
Concen: 8.98 ug/L
RT: 6.197 min Scan# 372
Delta R.T. -0.000 min
Lab File: 6G217.D
Acq: 01 Nov 2016 16:52

Tgt Ion: 43 Resp: 38467

Ion	Ratio	Lower	Upper
43	100		
58	31.0	0.8	60.8

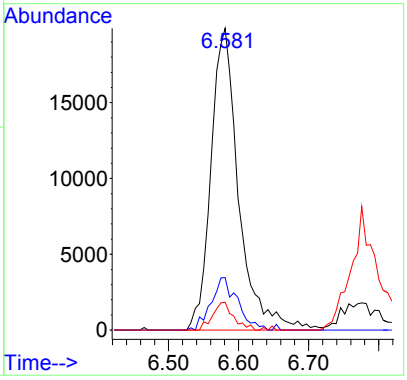


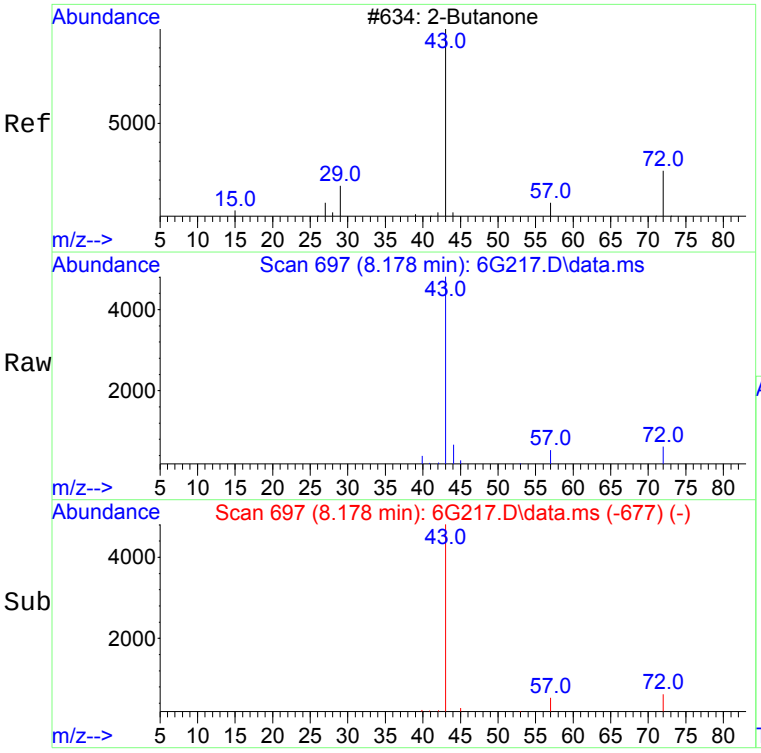


#13
Methyl acetate
Concen: 6.53 ug/L
RT: 6.581 min Scan# 435
Delta R.T. 0.006 min
Lab File: 6G217.D
Acq: 01 Nov 2016 16:52

Tgt Ion: 43 Resp: 54925

Ion	Ratio	Lower	Upper
43	100		
74	16.5	0.0	46.3
59	6.9	0.0	37.6

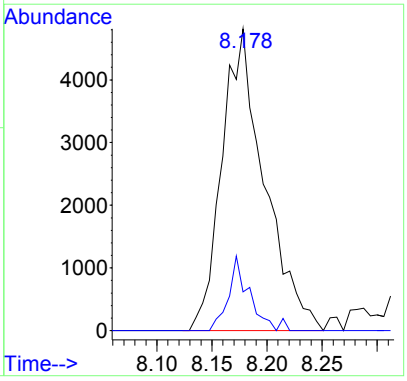


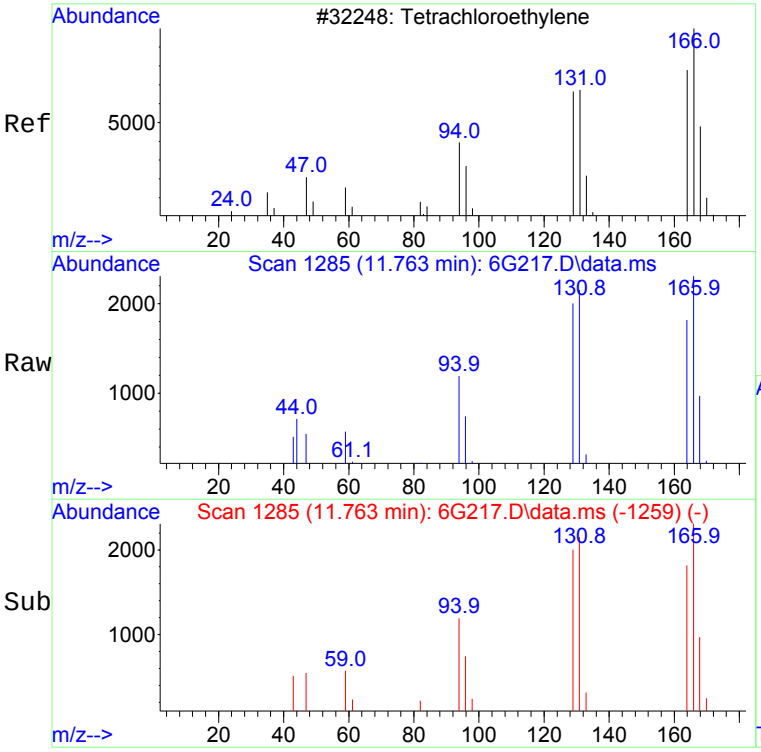


#21
2-Butanone
Concen: 1.92 ug/L
RT: 8.178 min Scan# 697
Delta R.T. 0.018 min
Lab File: 6G217.D
Acq: 01 Nov 2016 16:52

Tgt Ion: 43 Resp: 12949

Ion	Ratio	Lower	Upper
43	100		
72	11.7	0.0	49.3

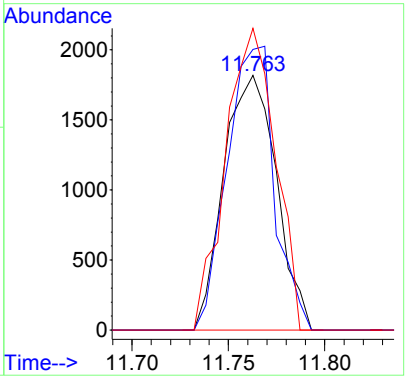


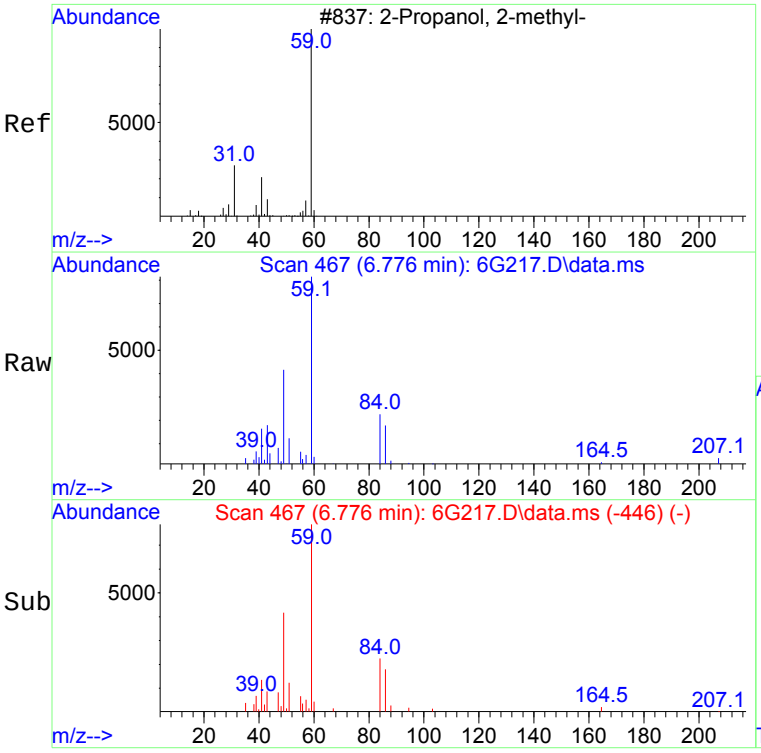


#51
Tetrachloroethylene
Concen: 0.45 ug/L
RT: 11.763 min Scan# 1285
Delta R.T. -0.000 min
Lab File: 6G217.D
Acq: 01 Nov 2016 16:52

Tgt Ion:164 Resp: 3454

Ion	Ratio	Lower	Upper
164	100		
129	100.5	61.6	121.6
131	111.9	59.4	119.4

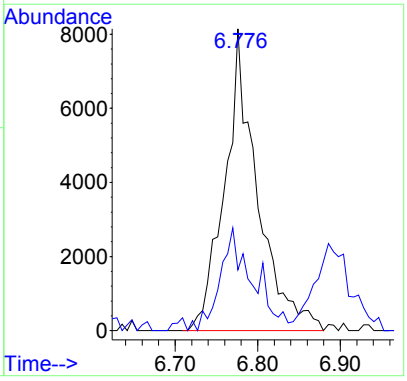


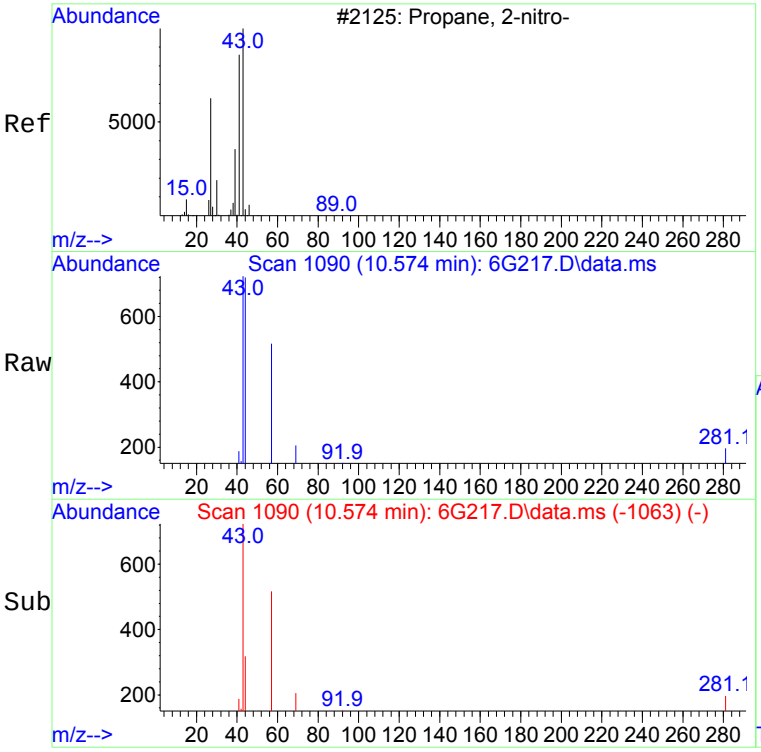


#89
tert-Butyl Alcohol
Concen: 16.83 ug/L
RT: 6.776 min Scan# 467
Delta R.T. 0.006 min
Lab File: 6G217.D
Acq: 01 Nov 2016 16:52

Tgt Ion: 59 Resp: 22256

Ion	Ratio	Lower	Upper
59	100		
41	33.9	0.0	52.9

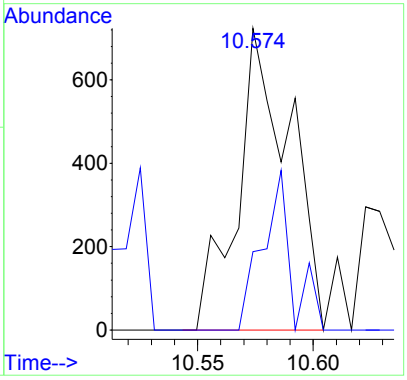




#102 BEFORE analyst DELETION
2-Nitropropane
Concen: 6.54 ug/L
RT: 10.574 min Scan# 1090
Delta R.T. 0.031 min
Lab File: 6G217.D
Acq: 01 Nov 2016 16:52

Tgt Ion: 43 Resp: 1151

Ion	Ratio	Lower	Upper
43	100		
41	29.5	49.3	109.3#



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:58**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254014**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**44.5**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140200**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 17:21**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 11:58**	**Aliquot:**	**4.7 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G218.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.92	ug/kg	0.638	1.92
79-34-5	1,1,2,2-Tetrachloroethane	U	1.92	ug/kg	0.638	1.92
79-00-5	1,1,2-Trichloroethane	U	1.92	ug/kg	0.638	1.92
75-34-3	1,1-Dichloroethane	U	1.92	ug/kg	0.638	1.92
75-35-4	1,1-Dichloroethylene	U	1.92	ug/kg	0.638	1.92
87-61-6	1,2,3-Trichlorobenzene	U	1.92	ug/kg	0.638	1.92
120-82-1	1,2,4-Trichlorobenzene	U	1.92	ug/kg	0.638	1.92
96-12-8	1,2-Dibromo-3-chloropropane	U	1.92	ug/kg	0.958	1.92
106-93-4	1,2-Dibromoethane	U	1.92	ug/kg	0.638	1.92
95-50-1	1,2-Dichlorobenzene	U	1.92	ug/kg	0.638	1.92
107-06-2	1,2-Dichloroethane	U	1.92	ug/kg	0.638	1.92
78-87-5	1,2-Dichloropropane	U	1.92	ug/kg	0.638	1.92
541-73-1	1,3-Dichlorobenzene	U	1.92	ug/kg	0.638	1.92
106-46-7	1,4-Dichlorobenzene	U	1.92	ug/kg	0.638	1.92
123-91-1	1,4-Dioxane	U	95.8	ug/kg	31.9	95.8
78-93-3	2-Butanone	J	6.44	ug/kg	3.19	9.58
591-78-6	2-Hexanone	U	9.58	ug/kg	3.19	9.58
108-10-1	4-Methyl-2-pentanone	U	9.58	ug/kg	3.19	9.58
67-64-1	Acetone		25.5	ug/kg	3.19	9.58
71-43-2	Benzene	U	1.92	ug/kg	0.638	1.92
74-97-5	Bromochloromethane	U	1.92	ug/kg	0.638	1.92
75-27-4	Bromodichloromethane	U	1.92	ug/kg	0.638	1.92
75-25-2	Bromoform	U	1.92	ug/kg	0.638	1.92
74-83-9	Bromomethane	U	1.92	ug/kg	0.638	1.92
75-15-0	Carbon disulfide	U	9.58	ug/kg	3.19	9.58
56-23-5	Carbon tetrachloride	U	1.92	ug/kg	0.638	1.92
108-90-7	Chlorobenzene	U	1.92	ug/kg	0.638	1.92
75-00-3	Chloroethane	U	1.92	ug/kg	0.638	1.92
67-66-3	Chloroform	U	1.92	ug/kg	0.638	1.92
74-87-3	Chloromethane	U	1.92	ug/kg	0.638	1.92
110-82-7	Cyclohexane	U	1.92	ug/kg	0.638	1.92
124-48-1	Dibromochloromethane	U	1.92	ug/kg	0.638	1.92
75-71-8	Dichlorodifluoromethane	U	1.92	ug/kg	0.638	1.92
100-41-4	Ethylbenzene	U	1.92	ug/kg	0.638	1.92
98-82-8	Isopropylbenzene	U	1.92	ug/kg	0.638	1.92
79-20-9	Methyl acetate	U	9.58	ug/kg	3.19	9.58
108-87-2	Methylcyclohexane	U	1.92	ug/kg	0.638	1.92
75-09-2	Methylene chloride	U	9.58	ug/kg	3.19	9.58

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:58**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254014**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**44.5**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140200**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 17:21**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 11:58**	**Aliquot:**	**4.7 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G218.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.92	ug/kg	0.638	1.92
127-18-4	Tetrachloroethylene	U	1.92	ug/kg	0.638	1.92
108-88-3	Toluene	U	1.92	ug/kg	0.638	1.92
79-01-6	Trichloroethylene	U	1.92	ug/kg	0.638	1.92
75-69-4	Trichlorofluoromethane	U	1.92	ug/kg	0.638	1.92
76-13-1	Trichlorotrifluoroethane	U	9.58	ug/kg	3.19	9.58
75-01-4	Vinyl chloride	U	1.92	ug/kg	0.638	1.92
156-59-2	cis-1,2-Dichloroethylene	U	1.92	ug/kg	0.638	1.92
10061-01-5	cis-1,3-Dichloropropylene	U	1.92	ug/kg	0.638	1.92
179601-23-1	m,p-Xylenes	U	3.83	ug/kg	1.28	3.83
95-47-6	o-Xylene	U	1.92	ug/kg	0.638	1.92
1634-04-4	tert-Butyl methyl ether	U	1.92	ug/kg	0.638	1.92
156-60-5	trans-1,2-Dichloroethylene	U	1.92	ug/kg	0.638	1.92
10061-02-6	trans-1,3-Dichloropropylene	U	1.92	ug/kg	0.638	1.92

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G218.D
Acq On : 01 Nov 2016 17:21
Operator : ACJ
InstName : VOA6
Sample : |409254014|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.7G N/A SOIL
ALS Vial : 18 Sample Multiplier: 1

11/09/2016

Quant Time: Nov 02 09:20:06 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1590224	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.634	12.629	1.000	1210418	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	612752	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1590224	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.634	12.628	1.000	1210418	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	612752	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	574176	54.90	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.878	1647652	51.05	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	642637	51.86	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	110%
45) Toluene-d8	50.000	81 - 120	102%
63) Bromofluorobenzene	50.000	70 - 130	104%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.001	0.000	0	N.D.		
3) Chloromethane	50	4.394	4.282	0.465	705	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		0.000	5.830	0.000	0	N.D.		
9) Acetone	43	6.197	6.197	0.656	58537	13.30	ug/L	100
10) 1,1-Dichloroethylene	61	6.331	6.191	0.671	2500	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.581	6.550	0.697	2324	N.D.		
13) Methyl acetate	43	6.581	6.575	0.697	1929	N.D.		
14) Carbon disulfide	76	6.550	6.550	0.694	3955	N.D.		
15) Methylene chloride	84	6.745	6.764	0.715	623	N.D.		
16) tert-Butyl methyl ether	73	7.050	7.050	0.747	3076	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.361	7.367	0.780	1653	N.D.		
19) Vinyl acetate		0.000	7.538	0.000	0	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.172	8.160	0.866	23270	3.36	ug/L	92
22) cis-1,2-Dichloroethylene	61	8.190	8.209	0.868	345	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform		0.000	8.520	0.000	0	N.D.		
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		0.000	8.873	0.000	0	N.D.		
28) 1,1-Dichloropropene		0.000	8.946	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.086	9.172	0.963	189	N.D.		
32) Benzene	78	9.178	9.184	0.972	841	N.D.		
33) Cyclohexene	67	9.306	9.294	0.986	128	N.D.		
34) n-Butyl alcohol	56	9.592	9.568	1.016	113	N.D.		
35) Trichloroethylene		0.000	9.830	0.000	0	N.D.		
36) 2-Pentanone		0.000	9.928	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G218.D
Acq On : 01 Nov 2016 17:21
Operator : ACJ
InstName : VOA6
Sample : |409254014|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.7G N/A SOIL
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 02 09:20:06 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.		
46) Toluene	91	11.171	11.172	0.884	8810	N.D.		
47) trans-1,3-Dichloroprop...		0.000	11.342	0.000	0	N.D.		
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.		
49) 2-Hexanone	43	11.720	11.745	0.928	263	N.D.		
50) 1,3-Dichloropropane		0.000	11.751	0.000	0	N.D.		
51) Tetrachloroethylene	164	11.769	11.763	0.931	2677	0.32	ug/L	85
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.		
54) Chlorobenzene	112	12.653	12.665	1.001	786	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.		
56) Ethylbenzene	91	12.750	12.732	1.009	7158	N.D.		
57) m,p-Xylenes	106	12.842	12.842	1.016	1189	N.D.		
58) o-Xylene	91	13.293	13.275	1.052	379	N.D.		
59) Styrene	104	13.281	13.281	1.051	2407	N.D.		
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene	105	13.646	13.641	0.906	435	N.D.		
64) 1,1,2,2-Tetrachloroethane	83	13.829	13.927	0.919	161	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene	156	14.037	14.043	0.932	299	N.D.		
67) n-Propylbenzene	91	14.061	14.067	0.934	547	N.D.		
68) 1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	374	N.D.		
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.		
70) 4-Chlorotoluene	91	14.311	14.317	0.951	1095	N.D.		
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	14.634	14.634	0.972	657	N.D.		
73) sec-Butylbenzene	105	14.774	14.817	0.981	115	N.D.		
74) 4-Isopropyltoluene		0.000	14.592	0.000	0	N.D.		
75) 1,3-Dichlorobenzene	146	15.000	14.994	0.996	1083	N.D.		
76) 1,4-Dichlorobenzene	146	15.085	15.085	1.002	1883	N.D.		
77) n-Butylbenzene	91	15.378	15.372	1.021	526	N.D.		
78) 1,2-Dichlorobenzene	146	15.488	15.494	1.029	724	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	17.286	17.280	1.148	841	N.D.		
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.		
82) Naphthalene	128	17.627	17.628	1.171	2130	N.D.		
83) 1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	398	N.D.		
85) Acrolein		0.000	6.026	0.000	0	N.D.		
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.		
87) Isopropyl Alcohol	45	6.331	6.282	0.671	8673	N.D.		
88) Allyl chloride	41	6.636	6.611	0.703	126	N.D.		
89) tert-Butyl Alcohol	59	6.770	6.770	0.717	4799	N.D.		
90) Acrylonitrile		0.000	7.014	0.000	0	N.D.		
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	7.672	0.000	0	N.D.		
93) Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.		
94) Ethyl acetate		0.000	8.178	0.000	0m	N.D.	d	
95) Propionitrile		0.000	8.245	0.000	0	N.D.		
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.		
97) Tetrahydrofuran	42	8.538	8.526	0.904	3564	N.D.		
98) Isobutyl alcohol	41	8.861	8.873	0.939	194	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G218.D
Acq On : 01 Nov 2016 17:21
Operator : ACJ
InstName : VOA6
Sample : |409254014|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.7G N/A SOIL
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 02 09:20:06 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

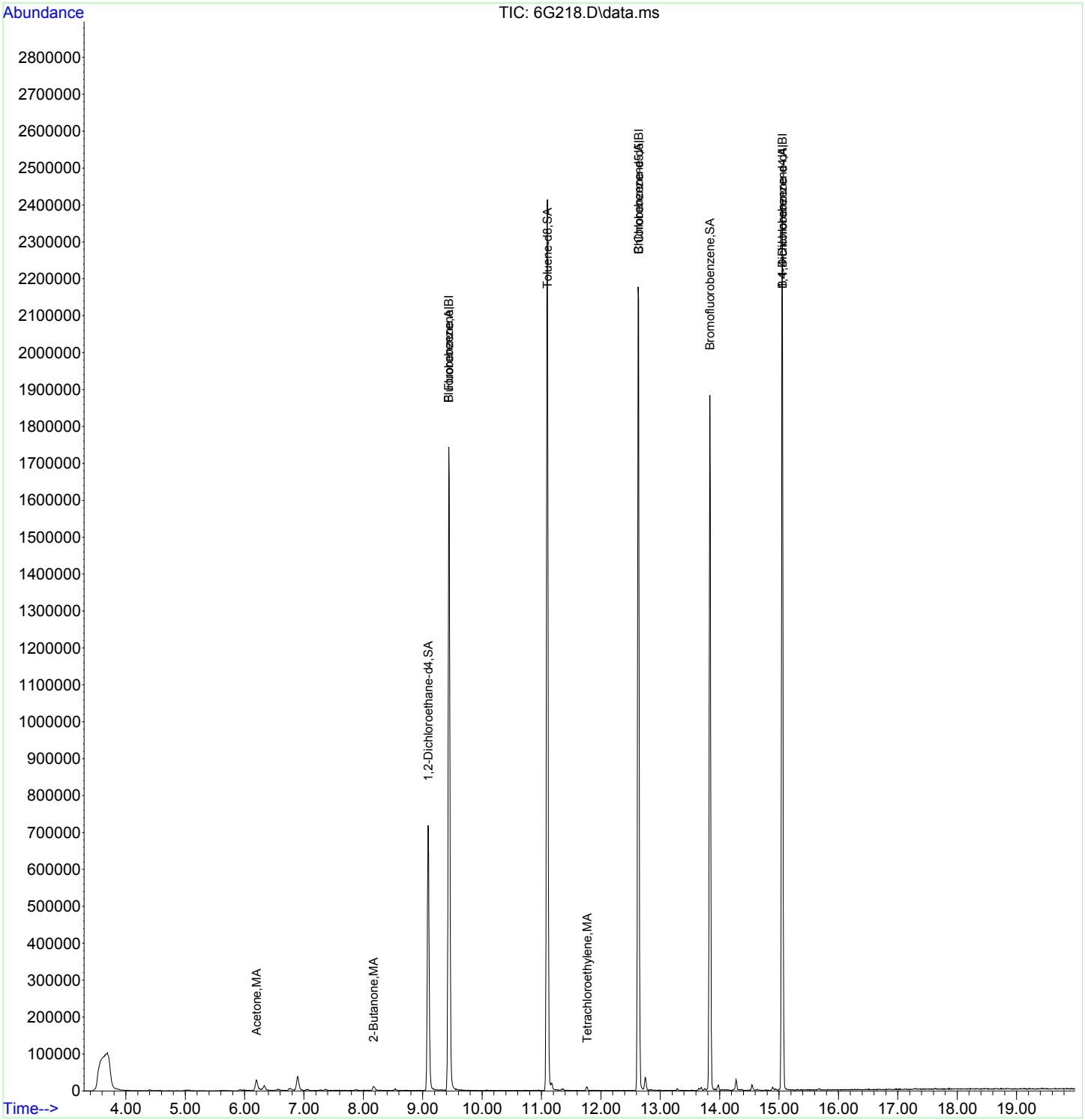
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.	
100)	Methyl methacrylate		0.000	10.068	0.000	0	N.D.	
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.	
102)	2-Nitropropane		0.000	10.543	0.000	0m	N.D.	d
104)	Ethyl methacrylate		0.000	11.348	0.000	0	N.D.	
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107)	cis-1,4-Dichloro-2-butene	53	13.671	13.689	0.908	121	N.D.	
108)	Cyclohexanone		0.000	13.793	0.000	0	N.D.	
109)	trans-1,4-Dichloro-2-b...	53	13.982	13.976	0.929	1100	N.D.	
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.	
111)	Benzyl chloride	91	15.201	15.201	1.010	481	Below Cal	# 59
112)	bis(2-Chloroisopropyl)...		0.000	15.591	0.000	0	N.D.	

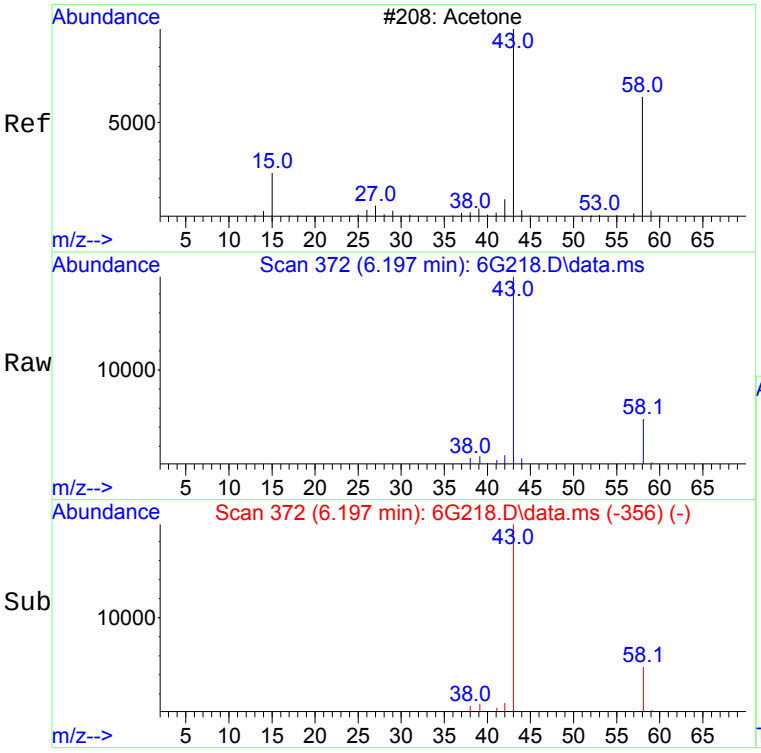
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G218.D
Acq On : 01 Nov 2016 17:21
Operator : ACJ
InstName : VOA6
Sample : |409254014|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.7G N/A SOIL
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 02 09:20:06 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

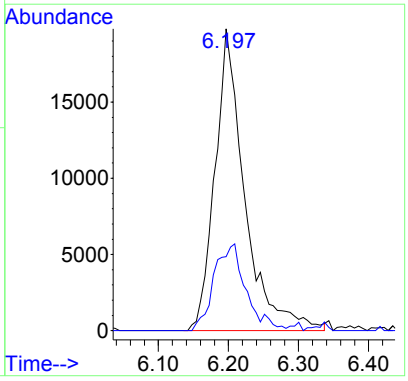


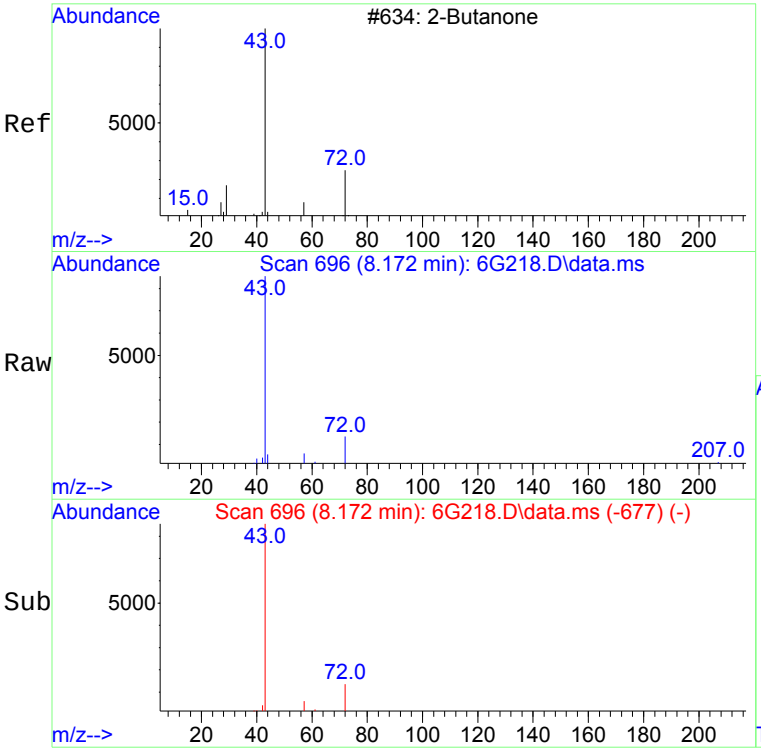


#9
Acetone
Concen: 13.30 ug/L
RT: 6.197 min Scan# 372
Delta R.T. -0.000 min
Lab File: 6G218.D
Acq: 01 Nov 2016 17:21

Tgt Ion: 43 Resp: 58537

Ion	Ratio	Lower	Upper
43	100		
58	30.7	0.8	60.8

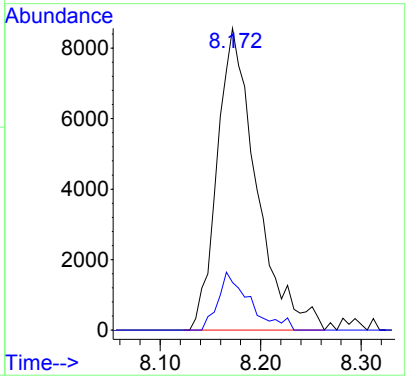


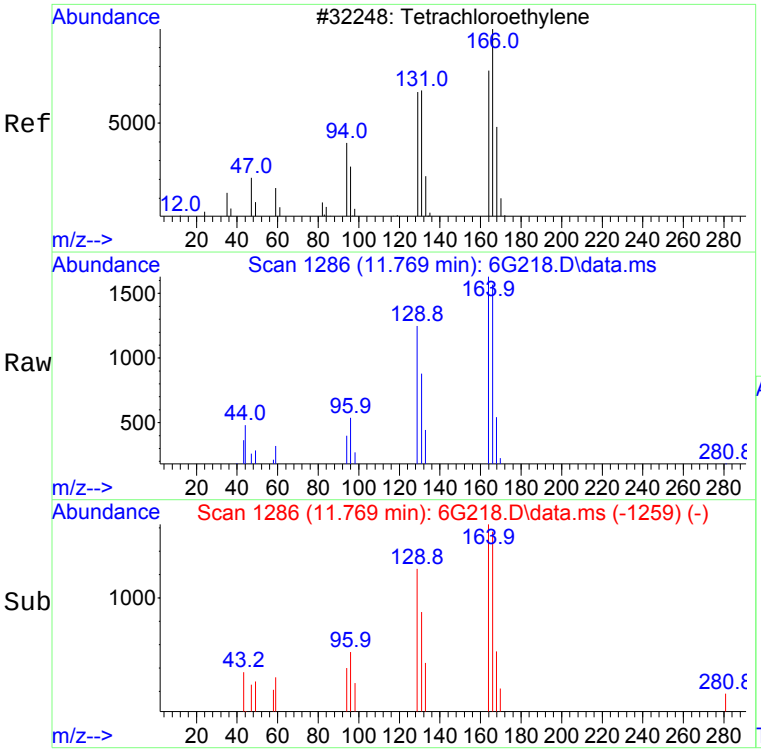


#21
2-Butanone
Concen: 3.36 ug/L
RT: 8.172 min Scan# 696
Delta R.T. 0.012 min
Lab File: 6G218.D
Acq: 01 Nov 2016 17:21

Tgt Ion: 43 Resp: 23270

Ion	Ratio	Lower	Upper
43	100		
72	15.5	0.0	49.3

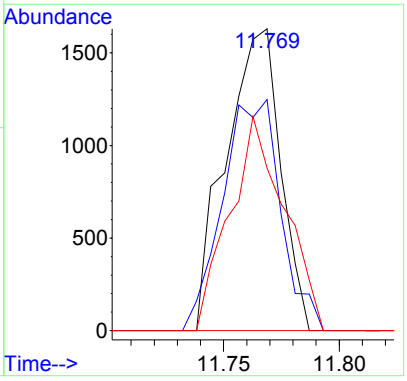


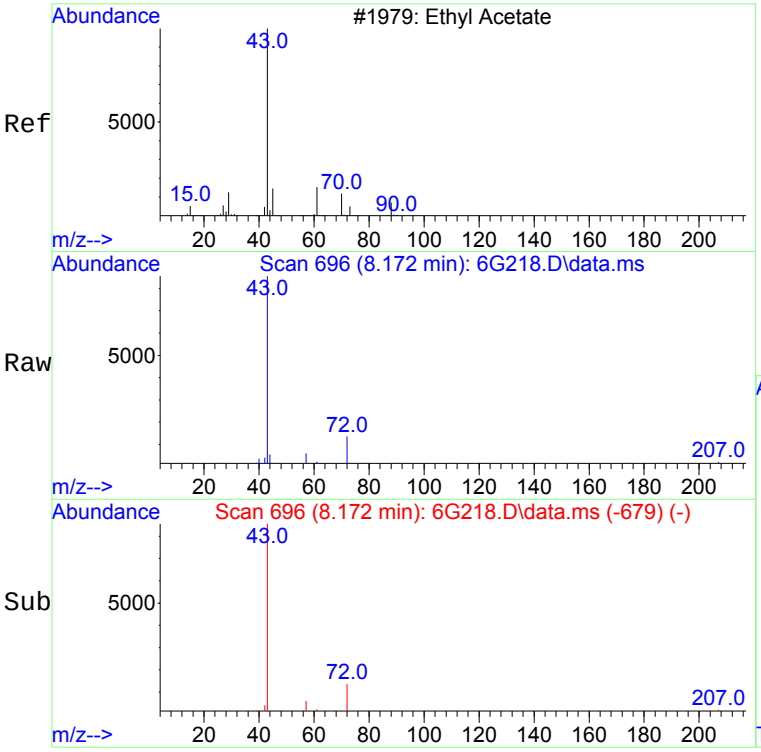


#51
Tetrachloroethylene
Concen: 0.32 ug/L
RT: 11.769 min Scan# 1286
Delta R.T. 0.006 min
Lab File: 6G218.D
Acq: 01 Nov 2016 17:21

Tgt Ion:164 Resp: 2677

Ion	Ratio	Lower	Upper
164	100		
129	81.5	61.6	121.6
131	71.2	59.4	119.4

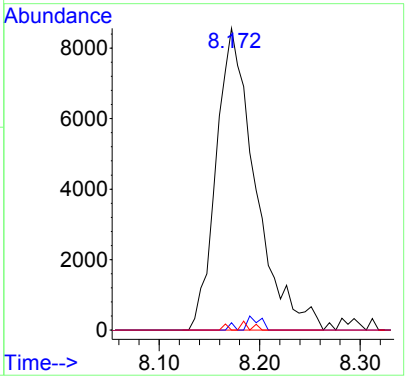


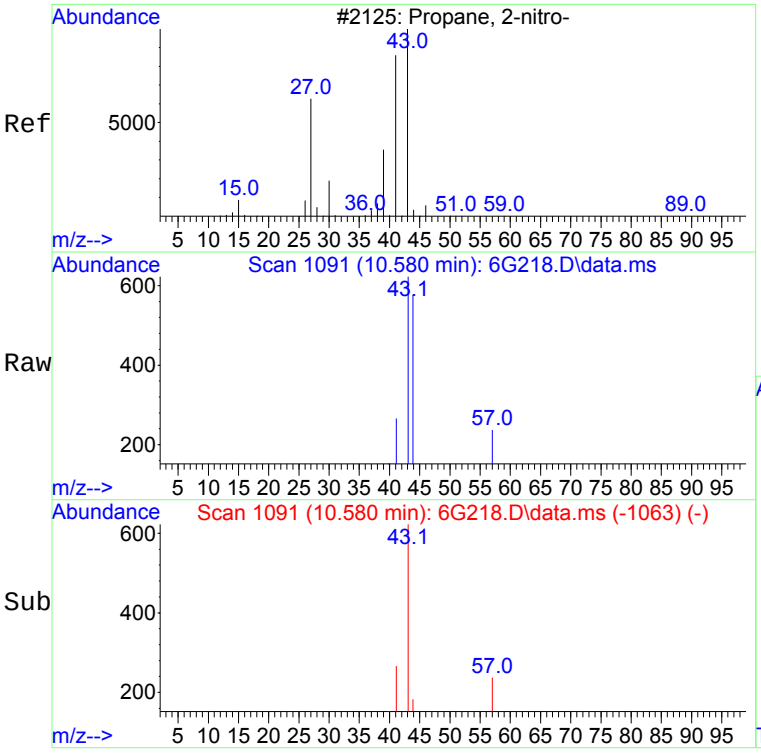


#94 BEFORE analyst DELETION
Ethyl acetate
Concen: 2.08 ug/L
RT: 8.172 min Scan# 696
Delta R.T. -0.006 min
Lab File: 6G218.D
Acq: 01 Nov 2016 17:21

Tgt Ion: 43 Resp: 23270

Ion	Ratio	Lower	Upper
43	100		
61	1.5	0.0	42.7
70	0.7	0.0	38.5

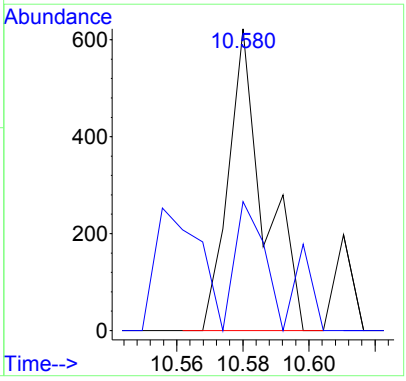




#102 BEFORE analyst DELETION
2-Nitropropane
Concen: 6.37 ug/L
RT: 10.580 min Scan# 1091
Delta R.T. 0.037 min
Lab File: 6G218.D
Acq: 01 Nov 2016 17:21

Tgt Ion: 43 Resp: 470

Ion	Ratio	Lower	Upper
43	100		
41	50.2	49.3	109.3



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254015**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**37.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 17:50**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 12:35**	**Aliquot:**	**5.5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G219.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.46	ug/kg	0.485	1.46
79-34-5	1,1,2,2-Tetrachloroethane	U	1.46	ug/kg	0.485	1.46
79-00-5	1,1,2-Trichloroethane	U	1.46	ug/kg	0.485	1.46
75-34-3	1,1-Dichloroethane	U	1.46	ug/kg	0.485	1.46
75-35-4	1,1-Dichloroethylene	U	1.46	ug/kg	0.485	1.46
87-61-6	1,2,3-Trichlorobenzene	U	1.46	ug/kg	0.485	1.46
120-82-1	1,2,4-Trichlorobenzene	U	1.46	ug/kg	0.485	1.46
96-12-8	1,2-Dibromo-3-chloropropane	U	1.46	ug/kg	0.729	1.46
106-93-4	1,2-Dibromoethane	U	1.46	ug/kg	0.485	1.46
95-50-1	1,2-Dichlorobenzene	U	1.46	ug/kg	0.485	1.46
107-06-2	1,2-Dichloroethane	U	1.46	ug/kg	0.485	1.46
78-87-5	1,2-Dichloropropane	U	1.46	ug/kg	0.485	1.46
541-73-1	1,3-Dichlorobenzene	U	1.46	ug/kg	0.485	1.46
106-46-7	1,4-Dichlorobenzene	U	1.46	ug/kg	0.485	1.46
123-91-1	1,4-Dioxane	U	72.9	ug/kg	24.3	72.9
78-93-3	2-Butanone	J	4.48	ug/kg	2.43	7.29
591-78-6	2-Hexanone	U	7.29	ug/kg	2.43	7.29
108-10-1	4-Methyl-2-pentanone	U	7.29	ug/kg	2.43	7.29
67-64-1	Acetone		15.5	ug/kg	2.43	7.29
71-43-2	Benzene	U	1.46	ug/kg	0.485	1.46
74-97-5	Bromochloromethane	U	1.46	ug/kg	0.485	1.46
75-27-4	Bromodichloromethane	U	1.46	ug/kg	0.485	1.46
75-25-2	Bromoform	U	1.46	ug/kg	0.485	1.46
74-83-9	Bromomethane	U	1.46	ug/kg	0.485	1.46
75-15-0	Carbon disulfide	U	7.29	ug/kg	2.43	7.29
56-23-5	Carbon tetrachloride	U	1.46	ug/kg	0.485	1.46
108-90-7	Chlorobenzene	U	1.46	ug/kg	0.485	1.46
75-00-3	Chloroethane	U	1.46	ug/kg	0.485	1.46
67-66-3	Chloroform	U	1.46	ug/kg	0.485	1.46
74-87-3	Chloromethane	U	1.46	ug/kg	0.485	1.46
110-82-7	Cyclohexane	U	1.46	ug/kg	0.485	1.46
124-48-1	Dibromochloromethane	U	1.46	ug/kg	0.485	1.46
75-71-8	Dichlorodifluoromethane	U	1.46	ug/kg	0.485	1.46
100-41-4	Ethylbenzene	U	1.46	ug/kg	0.485	1.46
98-82-8	Isopropylbenzene	U	1.46	ug/kg	0.485	1.46
79-20-9	Methyl acetate	U	7.29	ug/kg	2.43	7.29
108-87-2	Methylcyclohexane	U	1.46	ug/kg	0.485	1.46
75-09-2	Methylene chloride	U	7.29	ug/kg	2.43	7.29

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254015**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**37.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 17:50**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 12:35**	**Aliquot:**	**5.5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G219.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.46	ug/kg	0.485	1.46
127-18-4	Tetrachloroethylene	J	0.539	ug/kg	0.485	1.46
108-88-3	Toluene	U	1.46	ug/kg	0.485	1.46
79-01-6	Trichloroethylene	U	1.46	ug/kg	0.485	1.46
75-69-4	Trichlorofluoromethane	U	1.46	ug/kg	0.485	1.46
76-13-1	Trichlorotrifluoroethane	U	7.29	ug/kg	2.43	7.29
75-01-4	Vinyl chloride	U	1.46	ug/kg	0.485	1.46
156-59-2	cis-1,2-Dichloroethylene	U	1.46	ug/kg	0.485	1.46
10061-01-5	cis-1,3-Dichloropropylene	U	1.46	ug/kg	0.485	1.46
179601-23-1	m,p-Xylenes	U	2.92	ug/kg	0.972	2.92
95-47-6	o-Xylene	U	1.46	ug/kg	0.485	1.46
1634-04-4	tert-Butyl methyl ether	U	1.46	ug/kg	0.485	1.46
156-60-5	trans-1,2-Dichloroethylene	U	1.46	ug/kg	0.485	1.46
10061-02-6	trans-1,3-Dichloropropylene	U	1.46	ug/kg	0.485	1.46

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G219.D
Acq On : 01 Nov 2016 17:50
Operator : ACJ
InstName : VOA6
Sample : |409254015|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.5G N/A SOIL
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 02 09:20:08 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1457795	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.629	1.000	1035860	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	425135	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1457795	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.628	1.000	1035860	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	425135	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	495887	51.72	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.879	1438225	52.07	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	494737	57.54	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	103%
45) Toluene-d8	50.000	81 - 120	104%
63) Bromofluorobenzene	50.000	70 - 130	115%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.009	4.001	0.425	772	Below Cal	#	42
3) Chloromethane	50	4.209	4.282	0.446	103	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether	59	5.822	5.830	0.617	293	N.D.		
9) Acetone	43	6.197	6.197	0.656	42991	10.65	ug/L	96
10) 1,1-Dichloroethylene	61	6.337	6.191	0.671	3322	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.526	6.550	0.691	148	N.D.		
13) Methyl acetate	43	6.593	6.575	0.698	1333	N.D.		
14) Carbon disulfide	76	6.556	6.550	0.695	2737	N.D.		
15) Methylene chloride	84	6.758	6.764	0.716	6339	N.D.		
16) tert-Butyl methyl ether	73	7.038	7.050	0.746	5305	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.367	7.367	0.780	2845	N.D.		
19) Vinyl acetate		0.000	7.538	0.000	0	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.178	8.160	0.866	19482	3.07	ug/L	91
22) cis-1,2-Dichloroethylene	61	8.190	8.209	0.868	132	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform		0.000	8.520	0.000	0	N.D.		
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane	56	8.879	8.873	0.941	102	N.D.		
28) 1,1-Dichloropropene		0.000	8.946	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.080	9.172	0.962	331	N.D.		
32) Benzene	78	9.184	9.184	0.973	1169	N.D.		
33) Cyclohexene		0.000	9.294	0.000	0	N.D.		
34) n-Butyl alcohol	56	9.605	9.568	1.017	139	N.D.		
35) Trichloroethylene		0.000	9.830	0.000	0	N.D.		
36) 2-Pentanone		0.000	9.928	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G219.D
Acq On : 01 Nov 2016 17:50
Operator : ACJ
InstName : VOA6
Sample : |409254015|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.5G N/A SOIL
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 02 09:20:08 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.		
46) Toluene	91	11.177	11.172	0.885	4726	N.D.		
47) trans-1,3-Dichloroprop...		0.000	11.342	0.000	0	N.D.		
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.		
49) 2-Hexanone	43	11.763	11.745	0.931	384	N.D.		
50) 1,3-Dichloropropane		0.000	11.751	0.000	0	N.D.		
51) Tetrachloroethylene	164	11.769	11.763	0.932	2608	0.37	ug/L	95
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.		
54) Chlorobenzene	112	12.659	12.665	1.002	664	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.		
56) Ethylbenzene	91	12.732	12.732	1.008	1224	N.D.		
57) m,p-Xylenes	106	12.842	12.842	1.017	748	N.D.		
58) o-Xylene	91	13.275	13.275	1.051	568	N.D.		
59) Styrene	104	13.287	13.281	1.052	2091	N.D.		
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene	105	13.653	13.641	0.907	7177	N.D.		
64) 1,1,2,2-Tetrachloroethane		0.000	13.927	0.000	0	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene	156	14.049	14.043	0.933	437	N.D.		
67) n-Propylbenzene	91	14.067	14.067	0.934	694	N.D.		
68) 1,3,5-Trimethylbenzene	105	14.238	14.226	0.946	486	N.D.		
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.		
70) 4-Chlorotoluene	91	14.323	14.317	0.951	1279	N.D.		
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	14.646	14.634	0.973	772	N.D.		
73) sec-Butylbenzene		0.000	14.817	0.000	0	N.D.		
74) 4-Isopropyltoluene		0.000	14.592	0.000	0	N.D.		
75) 1,3-Dichlorobenzene	146	14.994	14.994	0.996	1036	N.D.		
76) 1,4-Dichlorobenzene	146	15.079	15.085	1.002	1715	N.D.		
77) n-Butylbenzene	91	15.378	15.372	1.021	567	N.D.		
78) 1,2-Dichlorobenzene	146	15.494	15.494	1.029	836	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	17.280	17.280	1.148	760	N.D.		
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.		
82) Naphthalene	128	17.627	17.628	1.171	2013	N.D.		
83) 1,2,3-Trichlorobenzene	180	17.951	17.945	1.192	668	N.D.		
85) Acrolein		0.000	6.026	0.000	0	N.D.		
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.		
87) Isopropyl Alcohol	45	6.319	6.282	0.669	9811	N.D.		
88) Allyl chloride	41	6.630	6.611	0.702	221	N.D.		
89) tert-Butyl Alcohol	59	6.782	6.770	0.718	7793	N.D.		
90) Acrylonitrile		0.000	7.014	0.000	0	N.D.		
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	7.672	0.000	0	N.D.		
93) Ethyl tert-butyl ether	59	7.959	7.965	0.843	303	N.D.		
94) Ethyl acetate		0.000	8.178	0.000	0m	N.D.	d	
95) Propionitrile		0.000	8.245	0.000	0	N.D.		
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.		
97) Tetrahydrofuran	42	8.532	8.526	0.904	2814	N.D.		
98) Isobutyl alcohol	41	8.885	8.873	0.941	201	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G219.D
Acq On : 01 Nov 2016 17:50
Operator : ACJ
InstName : VOA6
Sample : |409254015|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.5G N/A SOIL
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 02 09:20:08 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

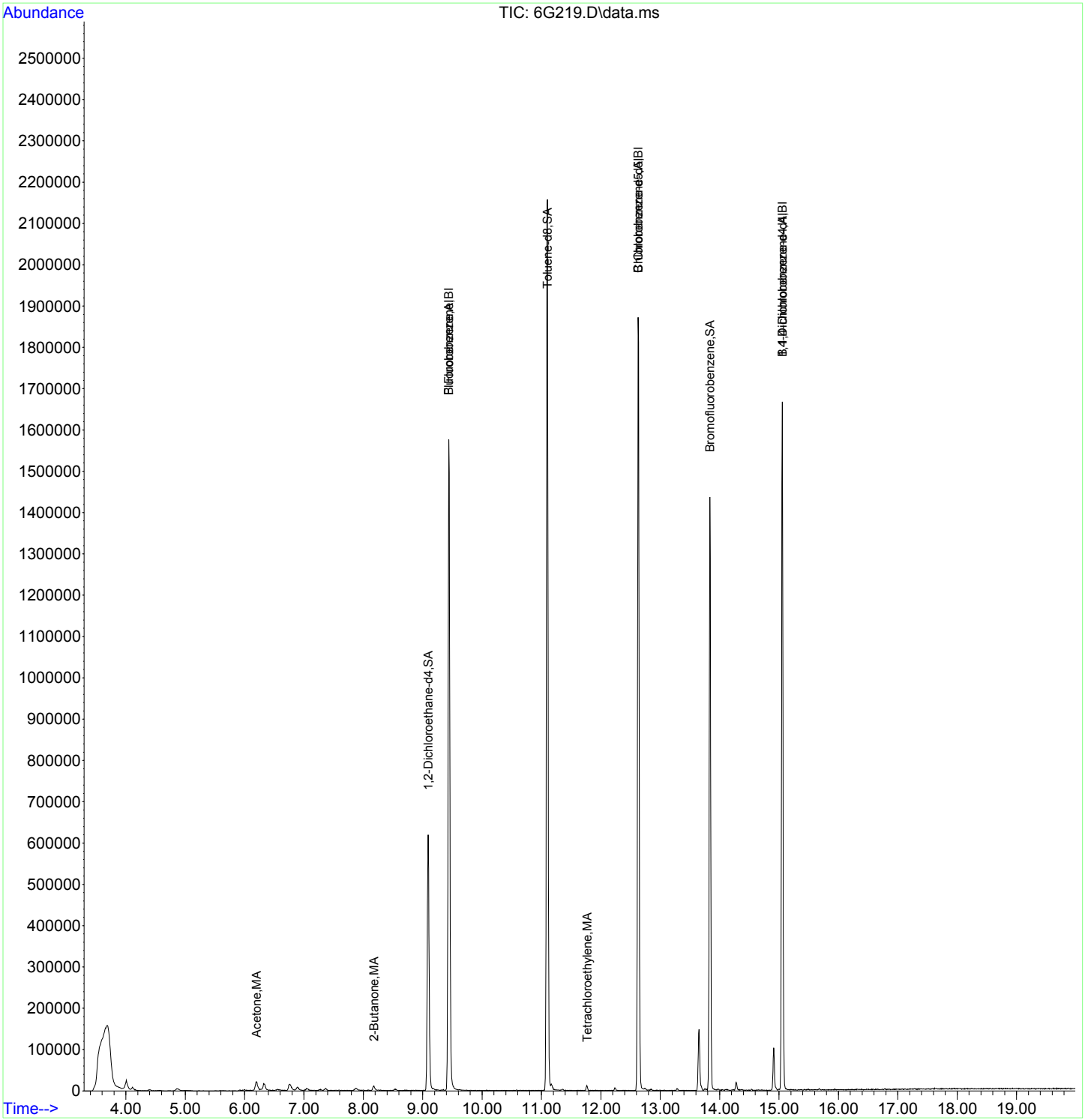
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.	
100)	Methyl methacrylate		0.000	10.068	0.000	0	N.D.	
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.	
102)	2-Nitropropane		0.000	10.543	0.000	0m	N.D.	d
104)	Ethyl methacrylate		0.000	11.348	0.000	0	N.D.	
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107)	cis-1,4-Dichloro-2-butene		0.000	13.689	0.000	0m	N.D.	d
108)	Cyclohexanone		0.000	13.793	0.000	0	N.D.	
109)	trans-1,4-Dichloro-2-b...	53	13.970	13.976	0.928	274	N.D.	
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.	
111)	Benzyl chloride	91	15.207	15.201	1.010	650	Below Cal	# 59
112)	bis(2-Chloroisopropyl)...		0.000	15.591	0.000	0	N.D.	

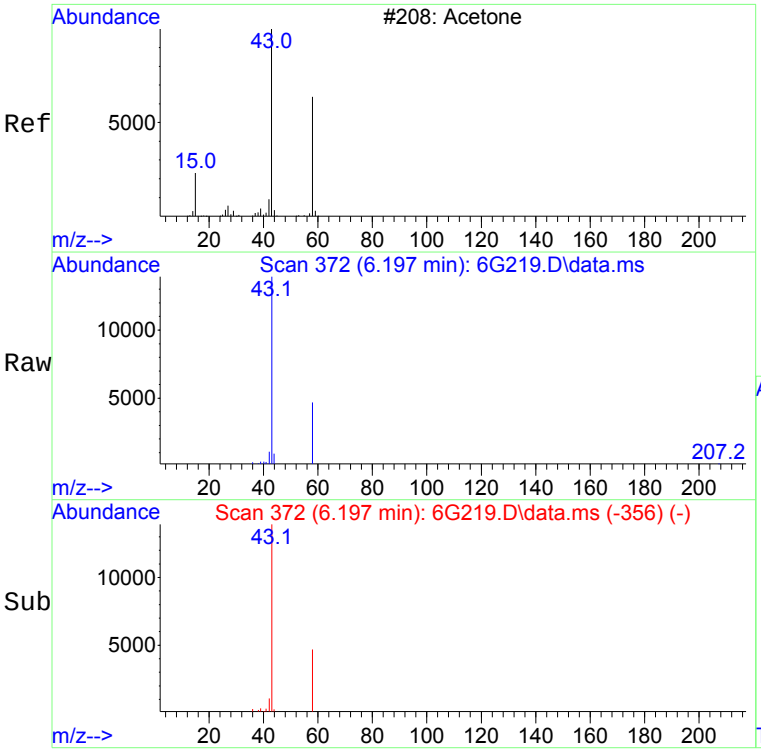
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G219.D
Acq On : 01 Nov 2016 17:50
Operator : ACJ
InstName : VOA6
Sample : |409254015|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.5G N/A SOIL
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Nov 02 09:20:08 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

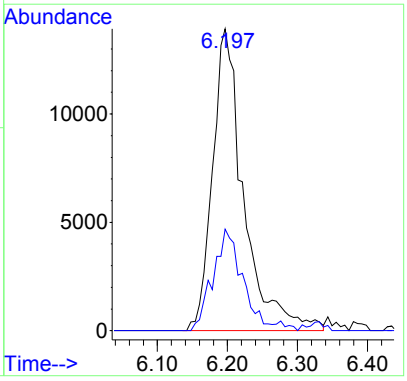


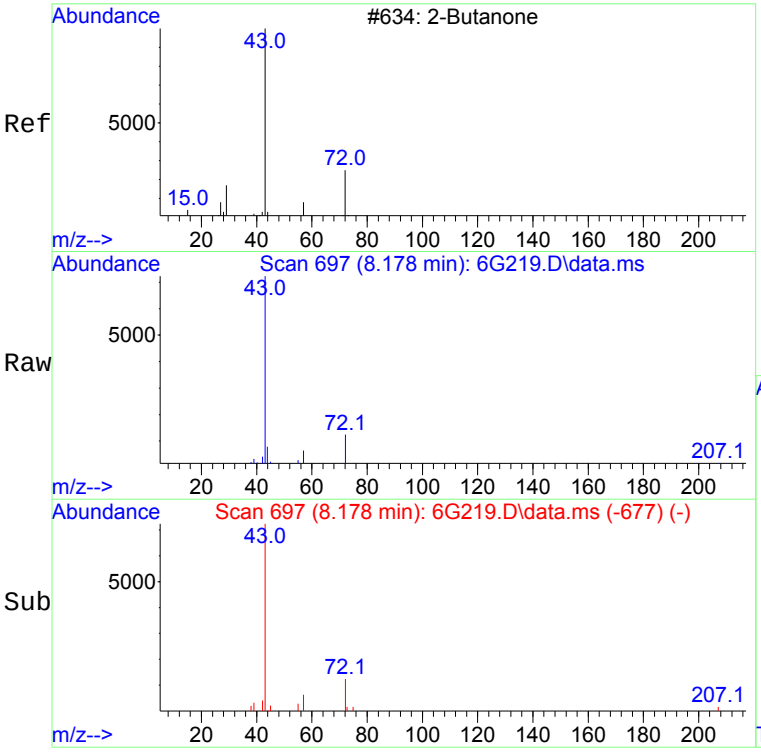


#9
Acetone
Concen: 10.65 ug/L
RT: 6.197 min Scan# 372
Delta R.T. -0.000 min
Lab File: 6G219.D
Acq: 01 Nov 2016 17:50

Tgt Ion: 43 Resp: 42991

Ion	Ratio	Lower	Upper
43	100		
58	32.9	0.8	60.8

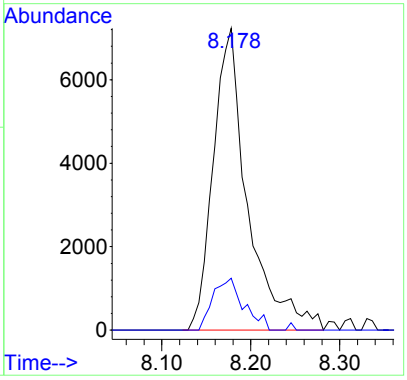


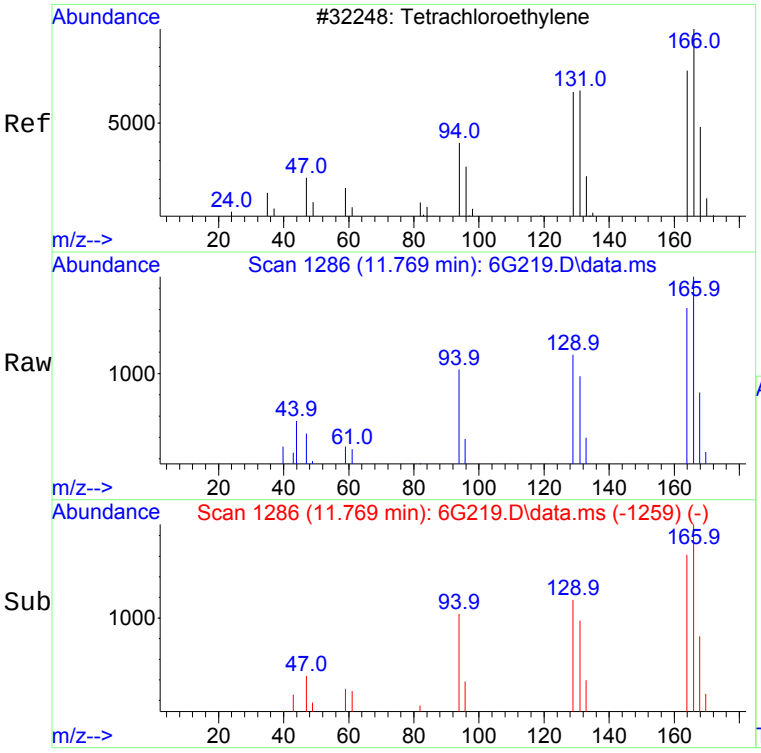


#21
2-Butanone
Concen: 3.07 ug/L
RT: 8.178 min Scan# 697
Delta R.T. 0.018 min
Lab File: 6G219.D
Acq: 01 Nov 2016 17:50

Tgt Ion: 43 Resp: 19482

Ion	Ratio	Lower	Upper
43	100		
72	15.4	0.0	49.3

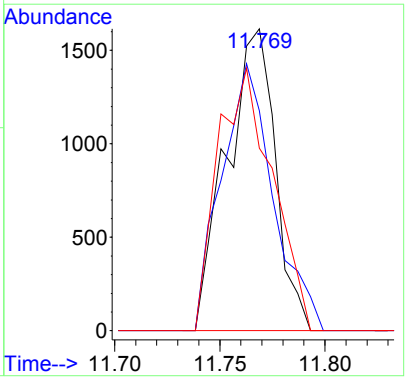


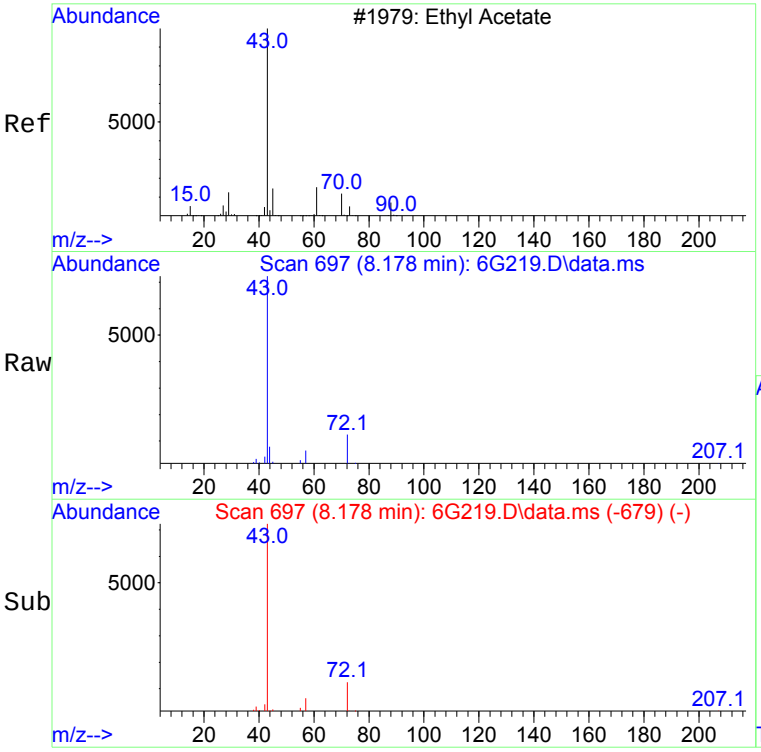


#51
Tetrachloroethylene
Concen: 0.37 ug/L
RT: 11.769 min Scan# 1286
Delta R.T. 0.006 min
Lab File: 6G219.D
Acq: 01 Nov 2016 17:50

Tgt Ion:164 Resp: 2608

Ion	Ratio	Lower	Upper
164	100		
129	93.6	61.6	121.6
131	97.2	59.4	119.4

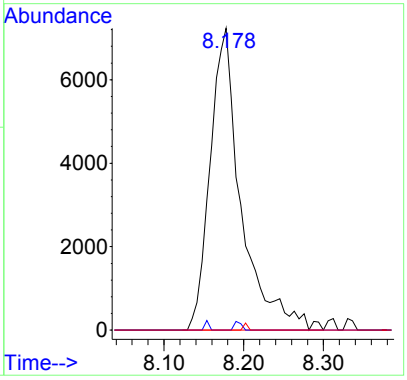


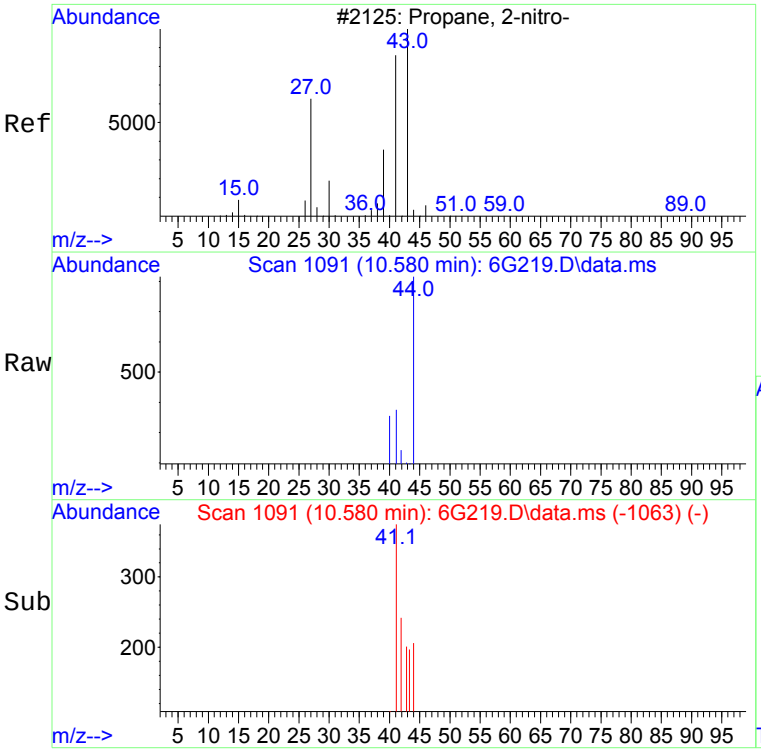


#94 BEFORE analyst DELETION
Ethyl acetate
Concen: 1.91 ug/L
RT: 8.178 min Scan# 697
Delta R.T. 0.000 min
Lab File: 6G219.D
Acq: 01 Nov 2016 17:50

Tgt Ion: 43 Resp: 19628

Ion	Ratio	Lower	Upper
43	100		
61	0.7	0.0	42.7
70	0.0	0.0	38.5

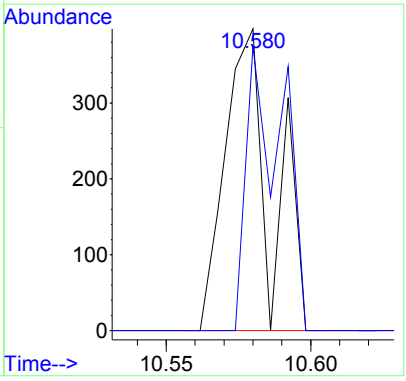


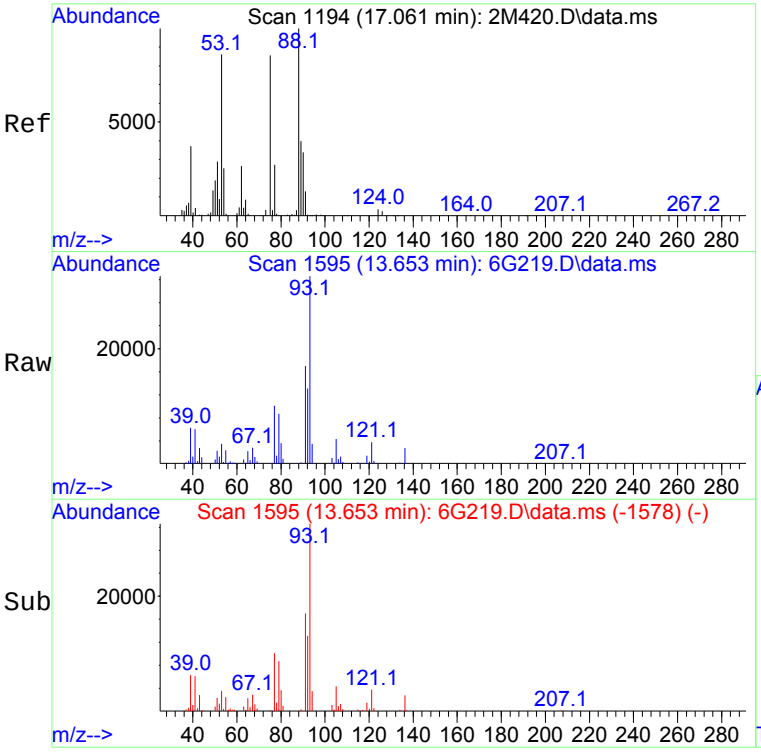


#102 BEFORE analyst DELETION
2-Nitropropane
Concen: 6.37 ug/L
RT: 10.580 min Scan# 1091
Delta R.T. 0.037 min
Lab File: 6G219.D
Acq: 01 Nov 2016 17:50

Tgt Ion: 43 Resp: 441

Ion	Ratio	Lower	Upper
43	100		
41	74.6	49.3	109.3

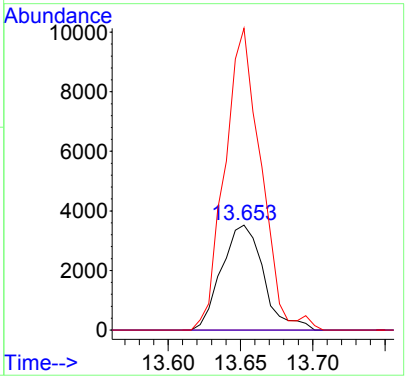




#107 BEFORE analyst DELETION
cis-1,4-Dichloro-2-butene
Concen: 2.22 ug/L
RT: 13.653 min Scan# 1595
Delta R.T. -0.036 min
Lab File: 6G219.D
Acq: 01 Nov 2016 17:50

Tgt Ion: 53 Resp: 7114

Ion	Ratio	Lower	Upper
53	100		
88	0.0	64.7	124.7#
77	248.7	0.0	55.3#



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254016**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100DUP**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 18:19**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 12:35**	**Aliquot:**	**4.6 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G220.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.72	ug/kg	0.571	1.72
79-34-5	1,1,2,2-Tetrachloroethane	U	1.72	ug/kg	0.571	1.72
79-00-5	1,1,2-Trichloroethane	U	1.72	ug/kg	0.571	1.72
75-34-3	1,1-Dichloroethane	U	1.72	ug/kg	0.571	1.72
75-35-4	1,1-Dichloroethylene	U	1.72	ug/kg	0.571	1.72
87-61-6	1,2,3-Trichlorobenzene	U	1.72	ug/kg	0.571	1.72
120-82-1	1,2,4-Trichlorobenzene	U	1.72	ug/kg	0.571	1.72
96-12-8	1,2-Dibromo-3-chloropropane	U	1.72	ug/kg	0.858	1.72
106-93-4	1,2-Dibromoethane	U	1.72	ug/kg	0.571	1.72
95-50-1	1,2-Dichlorobenzene	U	1.72	ug/kg	0.571	1.72
107-06-2	1,2-Dichloroethane	U	1.72	ug/kg	0.571	1.72
78-87-5	1,2-Dichloropropane	U	1.72	ug/kg	0.571	1.72
541-73-1	1,3-Dichlorobenzene	U	1.72	ug/kg	0.571	1.72
106-46-7	1,4-Dichlorobenzene	U	1.72	ug/kg	0.571	1.72
123-91-1	1,4-Dioxane	U	85.8	ug/kg	28.6	85.8
78-93-3	2-Butanone	U	8.58	ug/kg	2.86	8.58
591-78-6	2-Hexanone	U	8.58	ug/kg	2.86	8.58
108-10-1	4-Methyl-2-pentanone	U	8.58	ug/kg	2.86	8.58
67-64-1	Acetone	J	7.28	ug/kg	2.86	8.58
71-43-2	Benzene	U	1.72	ug/kg	0.571	1.72
74-97-5	Bromochloromethane	U	1.72	ug/kg	0.571	1.72
75-27-4	Bromodichloromethane	U	1.72	ug/kg	0.571	1.72
75-25-2	Bromoform	U	1.72	ug/kg	0.571	1.72
74-83-9	Bromomethane	U	1.72	ug/kg	0.571	1.72
75-15-0	Carbon disulfide	U	8.58	ug/kg	2.86	8.58
56-23-5	Carbon tetrachloride	U	1.72	ug/kg	0.571	1.72
108-90-7	Chlorobenzene	U	1.72	ug/kg	0.571	1.72
75-00-3	Chloroethane	U	1.72	ug/kg	0.571	1.72
67-66-3	Chloroform	U	1.72	ug/kg	0.571	1.72
74-87-3	Chloromethane	U	1.72	ug/kg	0.571	1.72
110-82-7	Cyclohexane	U	1.72	ug/kg	0.571	1.72
124-48-1	Dibromochloromethane	U	1.72	ug/kg	0.571	1.72
75-71-8	Dichlorodifluoromethane	U	1.72	ug/kg	0.571	1.72
100-41-4	Ethylbenzene	U	1.72	ug/kg	0.571	1.72
98-82-8	Isopropylbenzene	U	1.72	ug/kg	0.571	1.72
79-20-9	Methyl acetate	U	8.58	ug/kg	2.86	8.58
108-87-2	Methylcyclohexane	U	1.72	ug/kg	0.571	1.72
75-09-2	Methylene chloride	U	8.58	ug/kg	2.86	8.58

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254016**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100DUP**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 18:19**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/24/2016 12:35**	**Aliquot:**	**4.6 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G220.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.72	ug/kg	0.571	1.72
127-18-4	Tetrachloroethylene	U	1.72	ug/kg	0.571	1.72
108-88-3	Toluene	U	1.72	ug/kg	0.571	1.72
79-01-6	Trichloroethylene	U	1.72	ug/kg	0.571	1.72
75-69-4	Trichlorofluoromethane	U	1.72	ug/kg	0.571	1.72
76-13-1	Trichlorotrifluoroethane	U	8.58	ug/kg	2.86	8.58
75-01-4	Vinyl chloride	U	1.72	ug/kg	0.571	1.72
156-59-2	cis-1,2-Dichloroethylene	U	1.72	ug/kg	0.571	1.72
10061-01-5	cis-1,3-Dichloropropylene	U	1.72	ug/kg	0.571	1.72
179601-23-1	m,p-Xylenes	U	3.43	ug/kg	1.14	3.43
95-47-6	o-Xylene	U	1.72	ug/kg	0.571	1.72
1634-04-4	tert-Butyl methyl ether	U	1.72	ug/kg	0.571	1.72
156-60-5	trans-1,2-Dichloroethylene	U	1.72	ug/kg	0.571	1.72
10061-02-6	trans-1,3-Dichloropropylene	U	1.72	ug/kg	0.571	1.72

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G220.D
Acq On : 01 Nov 2016 18:19
Operator : ACJ
InstName : VOA6
Sample : |409254016|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.6G N/A SOIL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 02 09:20:10 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1402220	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.635	12.629	1.000	1005733	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	443926	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1402220	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.635	12.628	1.000	1005733	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	443926	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	481662	52.23	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.878	1430453	53.34	ug/L	0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	502817	56.00	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	104%
45) Toluene-d8	50.000	81 - 120	107%
63) Bromofluorobenzene	50.000	70 - 130	112%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.001	0.000	0	N.D.		
3) Chloromethane	50	4.410	4.282	0.467	165	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		0.000	5.830	0.000	0	N.D.		
9) Acetone	43	6.203	6.197	0.657	16451	4.24	ug/L	91
10) 1,1-Dichloroethylene	61	6.325	6.191	0.670	2968	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.550	6.550	0.694	581	N.D.		
13) Methyl acetate	43	6.587	6.575	0.698	570	N.D.		
14) Carbon disulfide	76	6.550	6.550	0.694	2456	N.D.		
15) Methylene chloride	84	6.752	6.764	0.715	1730	N.D.		
16) tert-Butyl methyl ether	73	7.044	7.050	0.746	1048	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.367	7.367	0.780	2350	N.D.		
19) Vinyl acetate		0.000	7.538	0.000	0	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.172	8.160	0.866	7366	N.D.		
22) cis-1,2-Dichloroethylene	61	8.215	8.209	0.870	161	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform	83	8.507	8.520	0.901	179	N.D.		
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		0.000	8.873	0.000	0	N.D.		
28) 1,1-Dichloropropene		0.000	8.946	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.117	9.172	0.966	205	N.D.		
32) Benzene	78	9.178	9.184	0.972	851	N.D.		
33) Cyclohexene	67	9.282	9.294	0.983	131	N.D.		
34) n-Butyl alcohol	56	9.507	9.568	1.007	125	N.D.		
35) Trichloroethylene		0.000	9.830	0.000	0	N.D.		
36) 2-Pentanone	43	9.940	9.928	1.053	199	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G220.D
Acq On : 01 Nov 2016 18:19
Operator : ACJ
InstName : VOA6
Sample : |409254016|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.6G N/A SOIL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 02 09:20:10 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
39) Dibromomethane		0.000	10.214	0.000	0	N.D.	
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.	
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.	
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.	
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.	
46) Toluene	91	11.171	11.172	0.884	4604	N.D.	
47) trans-1,3-Dichloroprop...		0.000	11.342	0.000	0	N.D.	
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.	
49) 2-Hexanone	43	11.781	11.745	0.932	355	N.D.	
50) 1,3-Dichloropropane		0.000	11.751	0.000	0	N.D.	
51) Tetrachloroethylene	164	11.763	11.763	0.931	1916	N.D.	
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.	
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.	
54) Chlorobenzene	112	12.659	12.665	1.002	643	N.D.	
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.	
56) Ethylbenzene	91	12.726	12.732	1.007	1062	N.D.	
57) m,p-Xylenes	106	12.842	12.842	1.016	947	N.D.	
58) o-Xylene	91	13.275	13.275	1.051	636	N.D.	
59) Styrene	104	13.287	13.281	1.052	2325	N.D.	
61) Bromoform		0.000	13.537	0.000	0	N.D.	
62) Isopropylbenzene		0.000	13.641	0.000	0	N.D.	
64) 1,1,2,2-Tetrachloroethane	83	13.836	13.927	0.919	204	N.D.	
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.	
66) Bromobenzene		0.000	14.043	0.000	0	N.D.	
67) n-Propylbenzene	91	14.073	14.067	0.935	310	N.D.	
68) 1,3,5-Trimethylbenzene	105	14.238	14.226	0.946	374	N.D.	
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.	
70) 4-Chlorotoluene	91	14.317	14.317	0.951	600	N.D.	
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.	
72) 1,2,4-Trimethylbenzene	105	14.634	14.634	0.972	839	N.D.	
73) sec-Butylbenzene		0.000	14.817	0.000	0	N.D.	
74) 4-Isopropyltoluene		0.000	14.592	0.000	0	N.D.	
75) 1,3-Dichlorobenzene	146	14.994	14.994	0.996	879	N.D.	
76) 1,4-Dichlorobenzene	146	15.091	15.085	1.002	1815	N.D.	
77) n-Butylbenzene	91	15.384	15.372	1.022	319	N.D.	
78) 1,2-Dichlorobenzene	146	15.488	15.494	1.029	569	N.D.	
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.	
80) 1,2,4-Trichlorobenzene	180	17.286	17.280	1.148	617	N.D.	
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.	
82) Naphthalene	128	17.627	17.628	1.171	1969	N.D.	
83) 1,2,3-Trichlorobenzene	180	17.951	17.945	1.192	476	N.D.	
85) Acrolein		0.000	6.026	0.000	0	N.D.	
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.	
87) Isopropyl Alcohol	45	6.325	6.282	0.670	6472	N.D.	
88) Allyl chloride	41	6.550	6.611	0.694	581	N.D.	
89) tert-Butyl Alcohol	59	6.776	6.770	0.718	3482	N.D.	
90) Acrylonitrile		0.000	7.014	0.000	0	N.D.	
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.	
92) 2-Chloro-1,3-butadiene		0.000	7.672	0.000	0	N.D.	
93) Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.	
94) Ethyl acetate	43	8.172	8.178	0.866	7366	N.D.	
95) Propionitrile		0.000	8.245	0.000	0	N.D.	
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.	
97) Tetrahydrofuran	42	8.532	8.526	0.904	2575	N.D.	
98) Isobutyl alcohol		0.000	8.873	0.000	0	N.D.	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G220.D
Acq On : 01 Nov 2016 18:19
Operator : ACJ
InstName : VOA6
Sample : |409254016|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.6G N/A SOIL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 02 09:20:10 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

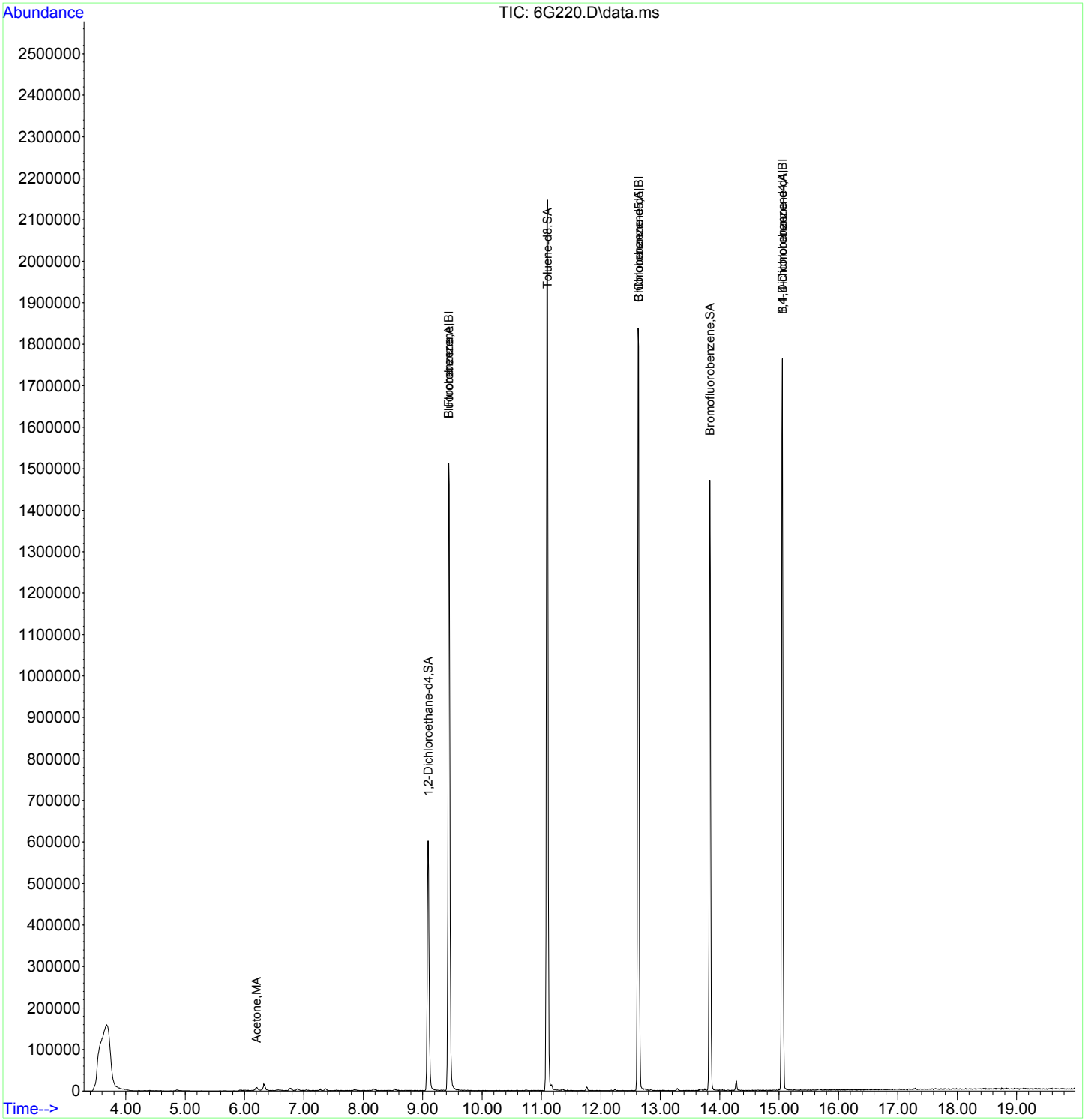
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.	
100)	Methyl methacrylate		0.000	10.068	0.000	0	N.D.	
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.	
102)	2-Nitropropane		0.000	10.543	0.000	0m	N.D. d	
104)	Ethyl methacrylate		0.000	11.348	0.000	0	N.D.	
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107)	cis-1,4-Dichloro-2-butene	53	13.683	13.689	0.909	192	N.D.	
108)	Cyclohexanone		0.000	13.793	0.000	0	N.D.	
109)	trans-1,4-Dichloro-2-b...	53	13.994	13.976	0.930	171	N.D.	
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.	
111)	Benzyl chloride	91	15.207	15.201	1.010	284	Below Cal #	59
112)	bis(2-Chloroisopropyl)...		0.000	15.591	0.000	0	N.D.	

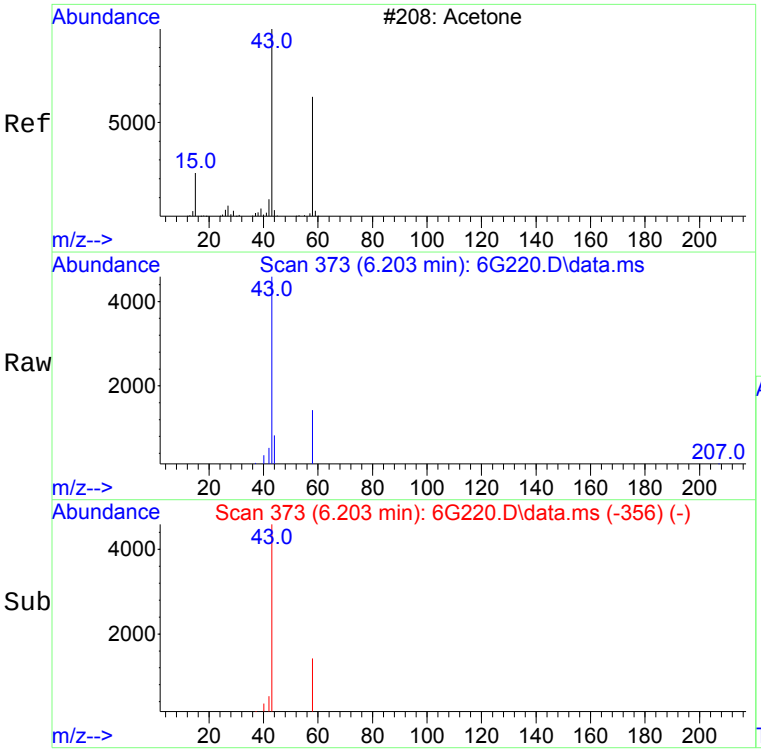
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G220.D
Acq On : 01 Nov 2016 18:19
Operator : ACJ
InstName : VOA6
Sample : |409254016|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.6G N/A SOIL
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 02 09:20:10 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

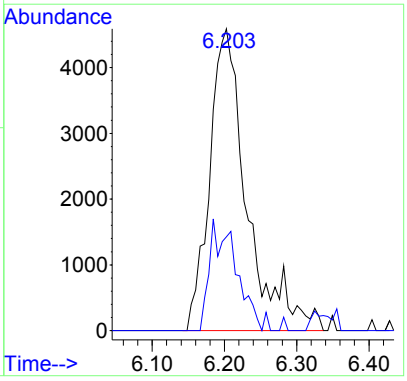


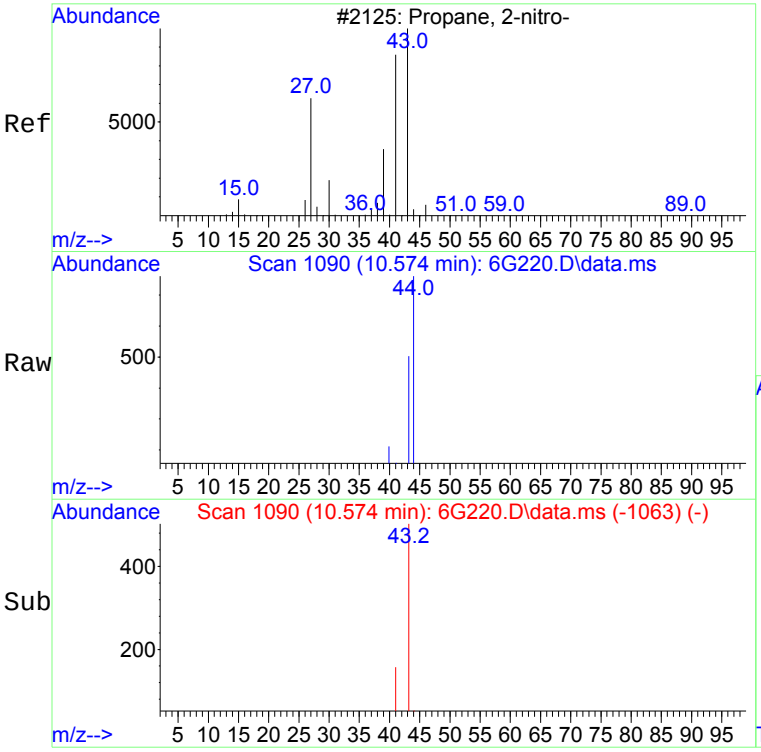


#9
Acetone
Concen: 4.24 ug/L
RT: 6.203 min Scan# 373
Delta R.T. 0.006 min
Lab File: 6G220.D
Acq: 01 Nov 2016 18:19

Tgt Ion: 43 Resp: 16451

Ion	Ratio	Lower	Upper
43	100		
58	26.1	0.8	60.8

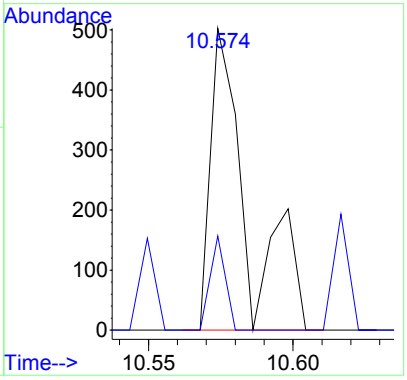




#102 BEFORE analyst DELETION
2-Nitropropane
Concen: 6.37 ug/L
RT: 10.574 min Scan# 1090
Delta R.T. 0.031 min
Lab File: 6G220.D
Acq: 01 Nov 2016 18:19

Tgt Ion: 43 Resp: 446

Ion	Ratio	Lower	Upper
43	100		
41	0.0	49.3	109.3#



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 15:48**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/25/2016 13:25**	**Aliquot:**	**6.6 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H313.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.03	ug/kg	0.341	1.03
79-34-5	1,1,2,2-Tetrachloroethane	U	1.03	ug/kg	0.341	1.03
79-00-5	1,1,2-Trichloroethane	U	1.03	ug/kg	0.341	1.03
75-34-3	1,1-Dichloroethane	U	1.03	ug/kg	0.341	1.03
75-35-4	1,1-Dichloroethylene	U	1.03	ug/kg	0.341	1.03
87-61-6	1,2,3-Trichlorobenzene	U	1.03	ug/kg	0.341	1.03
120-82-1	1,2,4-Trichlorobenzene	U	1.03	ug/kg	0.341	1.03
96-12-8	1,2-Dibromo-3-chloropropane	U	1.03	ug/kg	0.513	1.03
106-93-4	1,2-Dibromoethane	U	1.03	ug/kg	0.341	1.03
95-50-1	1,2-Dichlorobenzene	U	1.03	ug/kg	0.341	1.03
107-06-2	1,2-Dichloroethane	U	1.03	ug/kg	0.341	1.03
78-87-5	1,2-Dichloropropane	U	1.03	ug/kg	0.341	1.03
541-73-1	1,3-Dichlorobenzene	U	1.03	ug/kg	0.341	1.03
106-46-7	1,4-Dichlorobenzene	U	1.03	ug/kg	0.341	1.03
123-91-1	1,4-Dioxane	U	51.3	ug/kg	17.1	51.3
78-93-3	2-Butanone	U	5.13	ug/kg	1.71	5.13
591-78-6	2-Hexanone	U	5.13	ug/kg	1.71	5.13
108-10-1	4-Methyl-2-pentanone	U	5.13	ug/kg	1.71	5.13
67-64-1	Acetone	J	2.45	ug/kg	1.71	5.13
71-43-2	Benzene	U	1.03	ug/kg	0.341	1.03
74-97-5	Bromochloromethane	U	1.03	ug/kg	0.341	1.03
75-27-4	Bromodichloromethane	U	1.03	ug/kg	0.341	1.03
75-25-2	Bromoform	U	1.03	ug/kg	0.341	1.03
74-83-9	Bromomethane	U	1.03	ug/kg	0.341	1.03
75-15-0	Carbon disulfide	U	5.13	ug/kg	1.71	5.13
56-23-5	Carbon tetrachloride	U	1.03	ug/kg	0.341	1.03
108-90-7	Chlorobenzene	U	1.03	ug/kg	0.341	1.03
75-00-3	Chloroethane	U	1.03	ug/kg	0.341	1.03
67-66-3	Chloroform	U	1.03	ug/kg	0.341	1.03
74-87-3	Chloromethane	U	1.03	ug/kg	0.341	1.03
110-82-7	Cyclohexane	U	1.03	ug/kg	0.341	1.03
124-48-1	Dibromochloromethane	U	1.03	ug/kg	0.341	1.03
75-71-8	Dichlorodifluoromethane	U	1.03	ug/kg	0.341	1.03
100-41-4	Ethylbenzene	U	1.03	ug/kg	0.341	1.03
98-82-8	Isopropylbenzene	U	1.03	ug/kg	0.341	1.03
79-20-9	Methyl acetate	U	5.13	ug/kg	1.71	5.13
108-87-2	Methylcyclohexane	U	1.03	ug/kg	0.341	1.03
75-09-2	Methylene chloride	U	5.13	ug/kg	1.71	5.13

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 15:48**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/25/2016 13:25**	**Aliquot:**	**6.6 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H313.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.03	ug/kg	0.341	1.03
127-18-4	Tetrachloroethylene	J	0.472	ug/kg	0.341	1.03
108-88-3	Toluene	U	1.03	ug/kg	0.341	1.03
79-01-6	Trichloroethylene	U	1.03	ug/kg	0.341	1.03
75-69-4	Trichlorofluoromethane	U	1.03	ug/kg	0.341	1.03
76-13-1	Trichlorotrifluoroethane	U	5.13	ug/kg	1.71	5.13
75-01-4	Vinyl chloride	U	1.03	ug/kg	0.341	1.03
156-59-2	cis-1,2-Dichloroethylene	U	1.03	ug/kg	0.341	1.03
10061-01-5	cis-1,3-Dichloropropylene	U	1.03	ug/kg	0.341	1.03
179601-23-1	m,p-Xylenes	U	2.05	ug/kg	0.684	2.05
95-47-6	o-Xylene	U	1.03	ug/kg	0.341	1.03
1634-04-4	tert-Butyl methyl ether	U	1.03	ug/kg	0.341	1.03
156-60-5	trans-1,2-Dichloroethylene	U	1.03	ug/kg	0.341	1.03
10061-02-6	trans-1,3-Dichloropropylene	U	1.03	ug/kg	0.341	1.03

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H313.D
Acq On : 02 Nov 2016 15:48
Operator : ACJ
InstName : VOA4
Sample : |409254029|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.6G N/A SOIL
ALS Vial : 13 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 02 16:20:39 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1092772	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	773910	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.905	1.000	392295	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1092772	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	773910	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	392295	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	308826	52.00	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1077945	48.84	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	416925	48.98	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	104%
45) Toluene-d8	50.000	81 - 120	98%
63) Bromofluorobenzene	50.000	70 - 130	98%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		0.000	5.094	0.000	0	N.D.		
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.370	0.000	0	N.D.		
8) Ethyl ether		0.000	6.706	0.000	0	N.D.		
9) Acetone	43	7.072	7.059	0.685	8332	2.39	ug/L	86
10) 1,1-Dichloroethylene		0.000	7.090	0.000	0	N.D.		
11) Iodomethane		0.000	7.327	0.000	0	N.D.		
12) Acetonitrile	41	7.639	7.407	0.740	1013	N.D.		
13) Methyl acetate	43	7.468	7.456	0.723	1058	N.D.		
14) Carbon disulfide	76	7.474	7.468	0.724	3653	N.D.		
15) Methylene chloride	84	7.645	7.645	0.740	8328	N.D.		
16) tert-Butyl methyl ether		0.000	7.955	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane	57	8.285	8.285	0.802	397	N.D.		
19) Vinyl acetate	43	8.431	8.413	0.816	1209	N.D.		
20) 1,1-Dichloroethane		0.000	8.461	0.000	0	N.D.		
21) 2-Butanone	43	9.059	9.028	0.877	5862	N.D.		
22) cis-1,2-Dichloroethylene		0.000	9.095	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform	83	9.400	9.400	0.910	157	N.D.		
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		0.000	9.790	0.000	0	N.D.		
28) 1,1-Dichloropropene		0.000	9.839	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		0.000	10.046	0.000	0	N.D.		
32) Benzene	78	10.089	10.077	0.977	1051	N.D.		
33) Cyclohexene	67	10.315	10.199	0.999	114	N.D.		
34) n-Butyl alcohol	56	10.412	10.400	1.008	349	N.D.		
35) Trichloroethylene		0.000	10.717	0.000	0	N.D.		
36) 2-Pentanone		0.000	10.778	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.973	0.000	0	N.D.		

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H313.D
Acq On : 02 Nov 2016 15:48
Operator : ACJ
InstName : VOA4
Sample : |409254029|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.6G N/A SOIL
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 02 16:20:39 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.193	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	11.412	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	11.644	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.		
46) Toluene	91	12.046	12.040	0.893	2407	N.D.		
47) trans-1,3-Dichloroprop...	75	12.193	12.180	0.904	184	N.D.		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.		
49) 2-Hexanone	43	12.595	12.583	0.934	1247	N.D.		
50) 1,3-Dichloropropane		0.000	12.595	0.000	0	N.D.		
51) Tetrachloroethylene	164	12.638	12.637	0.937	2480	0.46	ug/L	96
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	13.034	0.000	0	N.D.		
54) Chlorobenzene	112	13.528	13.521	1.003	731	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	13.576	0.000	0	N.D.		
56) Ethylbenzene	91	13.589	13.588	1.007	1064	N.D.		
57) m,p-Xylenes	106	13.698	13.698	1.015	675	N.D.		
58) o-Xylene	91	14.131	14.131	1.047	855	N.D.		
59) Styrene	104	14.131	14.131	1.047	3075	N.D.		
61) Bromoform		0.000	14.381	0.000	0	N.D.		
62) Isopropylbenzene	105	14.497	14.491	0.911	400	N.D.		
64) 1,1,2,2-Tetrachloroethane		0.000	14.747	0.000	0	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.		
66) Bromobenzene	156	14.887	14.893	0.936	273	N.D.		
67) n-Propylbenzene	91	14.918	14.917	0.938	976	N.D.		
68) 1,3,5-Trimethylbenzene	105	15.064	15.070	0.947	692	N.D.		
69) 2-Chlorotoluene		0.000	15.064	0.000	0	N.D.		
70) 4-Chlorotoluene	91	15.161	15.161	0.953	2224	N.D.		
71) tert-Butylbenzene		0.000	15.442	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	15.485	15.478	0.974	919	N.D.		
73) sec-Butylbenzene	105	15.655	15.661	0.984	553	N.D.		
74) 4-Isopropyltoluene	119	15.795	15.783	0.993	536	N.D.		
75) 1,3-Dichlorobenzene	146	15.850	15.844	0.997	1238	N.D.		
76) 1,4-Dichlorobenzene	146	15.924	15.929	1.001	2104	N.D.		
77) n-Butylbenzene	91	16.234	16.228	1.021	980	N.D.		
78) 1,2-Dichlorobenzene	146	16.362	16.356	1.029	1028	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	18.307	18.301	1.151	842	N.D.		
81) Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.		
82) Naphthalene	128	18.691	18.685	1.175	3576	N.D.		
83) 1,2,3-Trichlorobenzene	180	19.039	19.033	1.197	369	N.D.		
85) Acrolein		0.000	6.895	0.000	0	N.D.		
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol	45	7.169	7.139	0.694	176	Below Cal	#	58
88) Allyl chloride	41	7.565	7.511	0.733	309	N.D.		
89) tert-Butyl Alcohol	59	7.626	7.639	0.738	369	Below Cal	#	100
90) Acrylonitrile		0.000	7.882	0.000	0	N.D.		
91) Isopropyl ether		0.000	8.455	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	8.577	0.000	0	N.D.		
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate	43	9.059	9.047	0.877	5862	Below Cal	#	72
95) Propionitrile		0.000	9.096	0.000	0	N.D.		
96) Methacrylonitrile	41	9.291	9.278	0.900	314	Below Cal	#	25
97) Tetrahydrofuran	42	9.419	9.419	0.912	970	Below Cal	#	40
98) Isobutyl alcohol	41	9.711	9.717	0.940	167	Below Cal	#	1

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H313.D
Acq On : 02 Nov 2016 15:48
Operator : ACJ
InstName : VOA4
Sample : |409254029|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.6G N/A SOIL
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 02 16:20:39 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

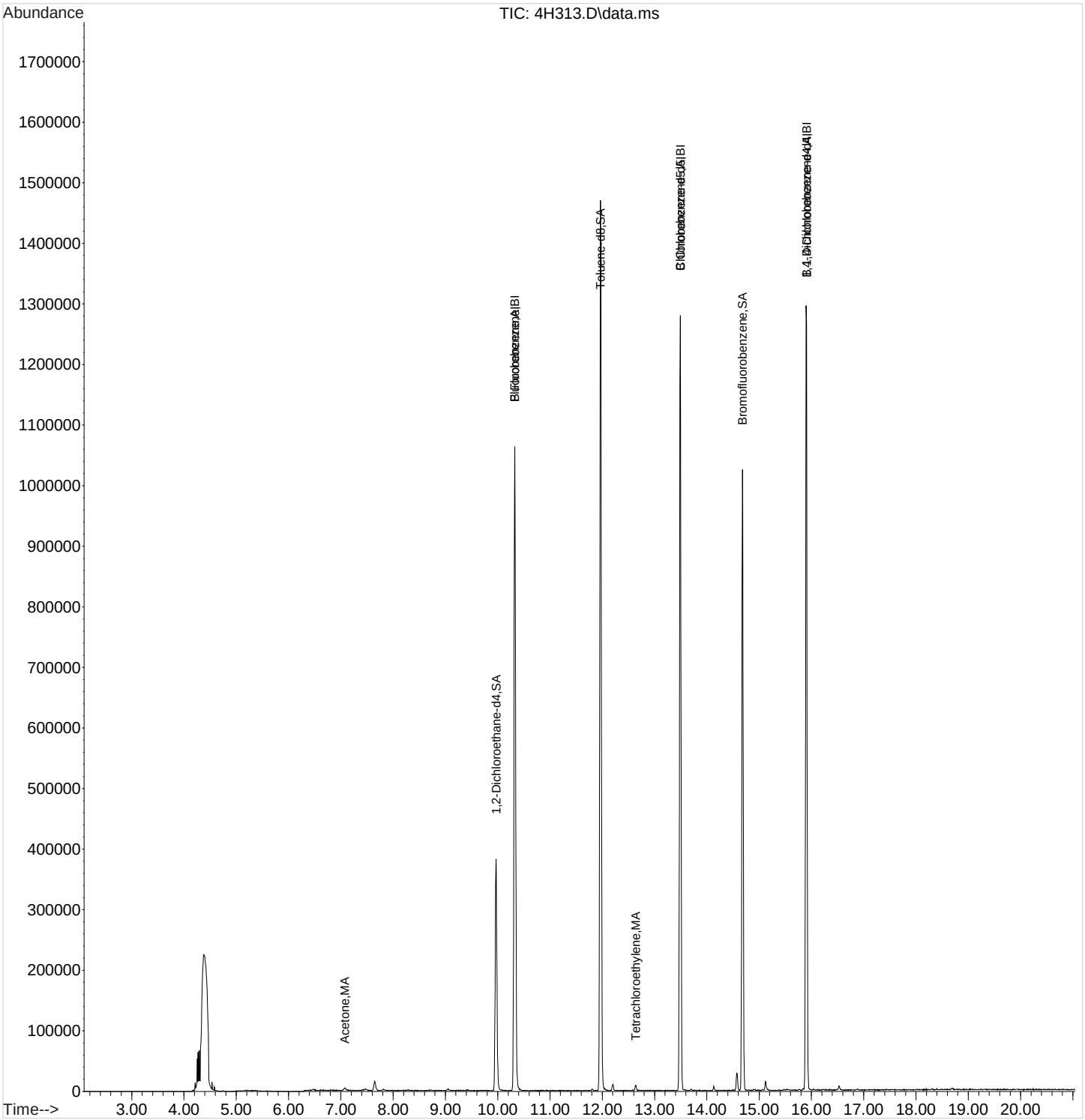
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
99) Methyl tert-amyl ether		0.000	10.101	0.000	0	N.D.		
100) Methyl methacrylate		0.000	10.925	0.000	0	N.D.		
101) 1,4-Dioxane		0.000	11.034	0.000	0	N.D.		
102) 2-Nitropropane	43	11.339	11.388	1.098	159	Below Cal	#	53
104) Ethyl methacrylate	69	12.199	12.186	0.904	278	Below Cal	#	18
106) 1-Chlorohexane	55	13.363	13.387	0.840	159	Below Cal	#	1
107) cis-1,4-Dichloro-2-butene		0.000	14.509	0.000	0	N.D.		
108) Cyclohexanone		0.000	14.631	0.000	0	N.D.		
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.930	275	Below Cal	#	51
110) Pentachloroethane		0.000	15.503	0.000	0	N.D.		
111) Benzyl chloride	91	16.039	16.039	1.008	1822	Below Cal		80
112) bis(2-Chloroisopropyl)...	45	16.527	16.442	1.039	336	Below Cal	#	56

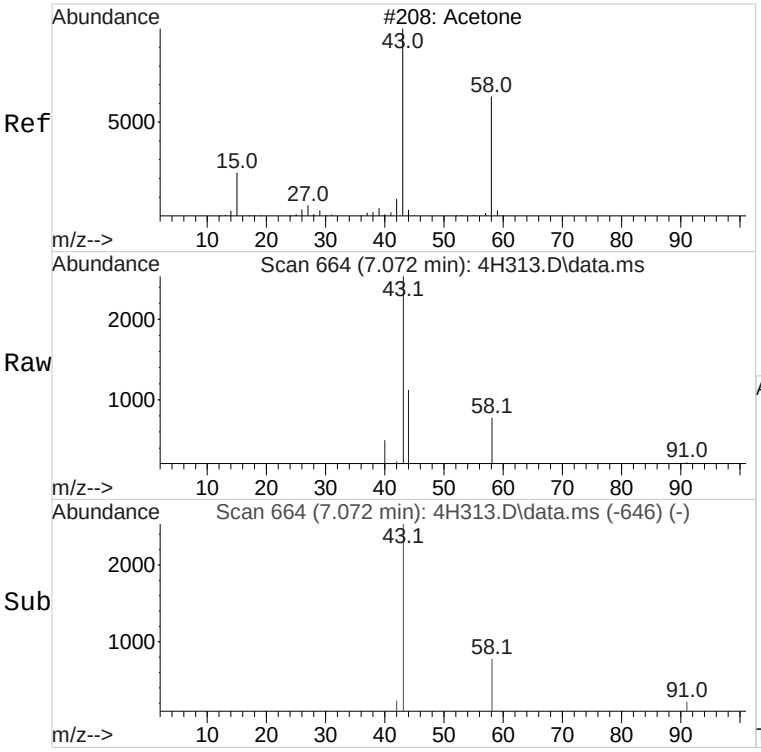
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H313.D
Acq On : 02 Nov 2016 15:48
Operator : ACJ
InstName : VOA4
Sample : |409254029|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.6G N/A SOIL
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 02 16:20:39 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

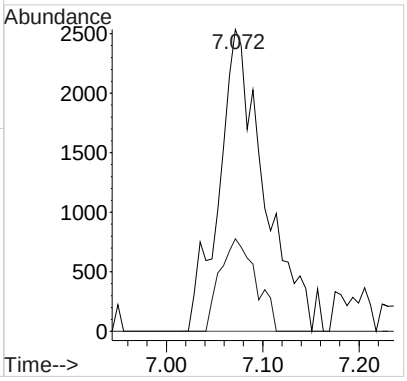


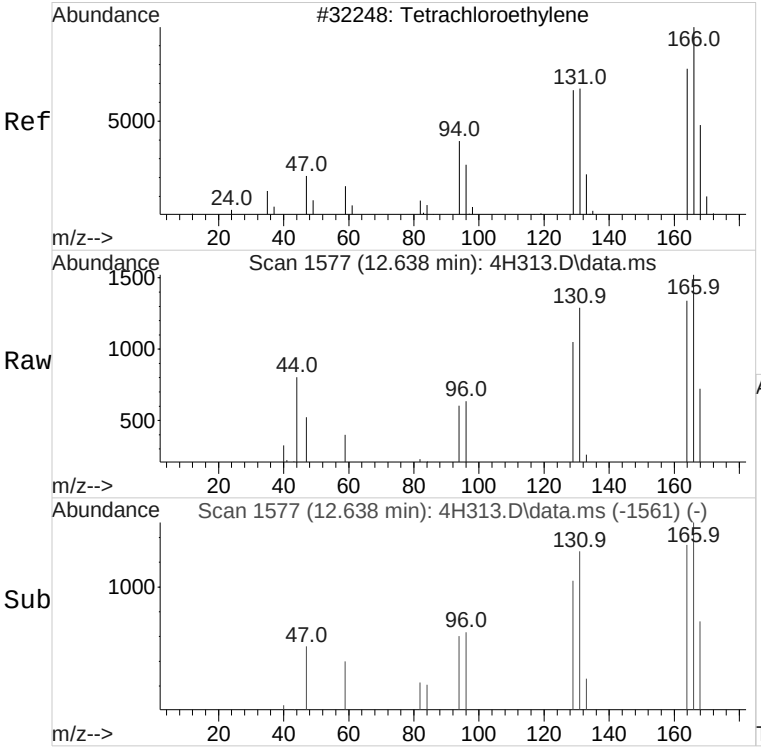


#9
Acetone
Concen: 2.39 ug/L
RT: 7.072 min Scan# 664
Delta R.T. 0.013 min
Lab File: 4H313.D
Acq: 02 Nov 2016 15:48

Tgt Ion: 43 Resp: 8332

Ion	Ratio	Lower	Upper
43	100		
58	24.4	2.3	62.3

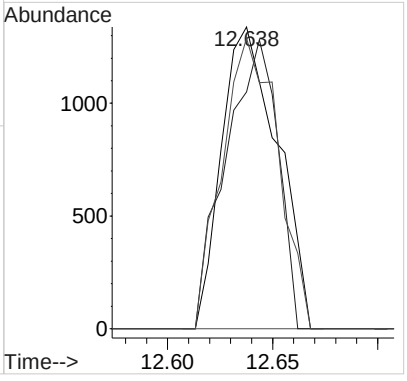




#51
Tetrachloroethylene
Concen: 0.46 ug/L
RT: 12.638 min Scan# 1577
Delta R.T. 0.001 min
Lab File: 4H313.D
Acq: 02 Nov 2016 15:48

Tgt Ion:164 Resp: 2480

Ion	Ratio	Lower	Upper
164	100		
129	88.8	66.1	126.1
131	96.3	65.3	125.3



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/25/2016 14:00**	**Aliquot:**	**7.1 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G222.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.855	ug/kg	0.285	0.855
79-34-5	1,1,2,2-Tetrachloroethane	U	0.855	ug/kg	0.285	0.855
79-00-5	1,1,2-Trichloroethane	U	0.855	ug/kg	0.285	0.855
75-34-3	1,1-Dichloroethane	U	0.855	ug/kg	0.285	0.855
75-35-4	1,1-Dichloroethylene	U	0.855	ug/kg	0.285	0.855
87-61-6	1,2,3-Trichlorobenzene	U	0.855	ug/kg	0.285	0.855
120-82-1	1,2,4-Trichlorobenzene	U	0.855	ug/kg	0.285	0.855
96-12-8	1,2-Dibromo-3-chloropropane	U	0.855	ug/kg	0.428	0.855
106-93-4	1,2-Dibromoethane	U	0.855	ug/kg	0.285	0.855
95-50-1	1,2-Dichlorobenzene	U	0.855	ug/kg	0.285	0.855
107-06-2	1,2-Dichloroethane	U	0.855	ug/kg	0.285	0.855
78-87-5	1,2-Dichloropropane	U	0.855	ug/kg	0.285	0.855
541-73-1	1,3-Dichlorobenzene	U	0.855	ug/kg	0.285	0.855
106-46-7	1,4-Dichlorobenzene	U	0.855	ug/kg	0.285	0.855
123-91-1	1,4-Dioxane	U	42.8	ug/kg	14.3	42.8
78-93-3	2-Butanone	J	4.16	ug/kg	1.43	4.28
591-78-6	2-Hexanone	U	4.28	ug/kg	1.43	4.28
108-10-1	4-Methyl-2-pentanone	U	4.28	ug/kg	1.43	4.28
67-64-1	Acetone		29.8	ug/kg	1.43	4.28
71-43-2	Benzene	U	0.855	ug/kg	0.285	0.855
74-97-5	Bromochloromethane	U	0.855	ug/kg	0.285	0.855
75-27-4	Bromodichloromethane	U	0.855	ug/kg	0.285	0.855
75-25-2	Bromoform	U	0.855	ug/kg	0.285	0.855
74-83-9	Bromomethane	U	0.855	ug/kg	0.285	0.855
75-15-0	Carbon disulfide	U	4.28	ug/kg	1.43	4.28
56-23-5	Carbon tetrachloride	U	0.855	ug/kg	0.285	0.855
108-90-7	Chlorobenzene	U	0.855	ug/kg	0.285	0.855
75-00-3	Chloroethane	U	0.855	ug/kg	0.285	0.855
67-66-3	Chloroform	U	0.855	ug/kg	0.285	0.855
74-87-3	Chloromethane	U	0.855	ug/kg	0.285	0.855
110-82-7	Cyclohexane	U	0.855	ug/kg	0.285	0.855
124-48-1	Dibromochloromethane	U	0.855	ug/kg	0.285	0.855
75-71-8	Dichlorodifluoromethane	U	0.855	ug/kg	0.285	0.855
100-41-4	Ethylbenzene	U	0.855	ug/kg	0.285	0.855
98-82-8	Isopropylbenzene	U	0.855	ug/kg	0.285	0.855
79-20-9	Methyl acetate	U	4.28	ug/kg	1.43	4.28
108-87-2	Methylcyclohexane	U	0.855	ug/kg	0.285	0.855
75-09-2	Methylene chloride	U	4.28	ug/kg	1.43	4.28

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/25/2016 14:00**	**Aliquot:**	**7.1 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G222.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.855	ug/kg	0.285	0.855
127-18-4	Tetrachloroethylene	U	0.855	ug/kg	0.285	0.855
108-88-3	Toluene	U	0.855	ug/kg	0.285	0.855
79-01-6	Trichloroethylene	U	0.855	ug/kg	0.285	0.855
75-69-4	Trichlorofluoromethane	U	0.855	ug/kg	0.285	0.855
76-13-1	Trichlorotrifluoroethane	U	4.28	ug/kg	1.43	4.28
75-01-4	Vinyl chloride	U	0.855	ug/kg	0.285	0.855
156-59-2	cis-1,2-Dichloroethylene	U	0.855	ug/kg	0.285	0.855
10061-01-5	cis-1,3-Dichloropropylene	U	0.855	ug/kg	0.285	0.855
179601-23-1	m,p-Xylenes	U	1.71	ug/kg	0.570	1.71
95-47-6	o-Xylene	U	0.855	ug/kg	0.285	0.855
1634-04-4	tert-Butyl methyl ether	U	0.855	ug/kg	0.285	0.855
156-60-5	trans-1,2-Dichloroethylene	U	0.855	ug/kg	0.285	0.855
10061-02-6	trans-1,3-Dichloropropylene	U	0.855	ug/kg	0.285	0.855

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G222.D
Acq On : 01 Nov 2016 19:17
Operator : ACJ
InstName : VOA6
Sample : |409254032|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 7.1G N/A SOIL
ALS Vial : 22 Sample Multiplier: 1

11/09/2016

Quant Time: Nov 02 09:20:14 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1511601	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.629	1.000	1163989	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	597925	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1511601	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.628	1.000	1163989	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	597925	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	563940	56.73	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.879	1569383	50.56	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	622906	51.51	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	113%
45) Toluene-d8	50.000	81 - 120	101%
63) Bromofluorobenzene	50.000	70 - 130	103%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.001	0.000	0	N.D.		
3) Chloromethane	50	4.418	4.282	0.468	837	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether	59	5.846	5.830	0.619	333	N.D.		
9) Acetone	43	6.191	6.197	0.656	145805	34.85	ug/L	100
10) 1,1-Dichloroethylene	61	6.337	6.191	0.671	1027	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.556	6.550	0.695	543	N.D.		
13) Methyl acetate	43	6.556	6.575	0.695	746	N.D.		
14) Carbon disulfide	76	6.550	6.550	0.694	32655	N.D.		
15) Methylene chloride	84	6.758	6.764	0.716	15604	N.D.		
16) tert-Butyl methyl ether	73	7.062	7.050	0.748	5877	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.367	7.367	0.780	1182	N.D.		
19) Vinyl acetate		0.000	7.538	0.000	0	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.172	8.160	0.866	31995	4.86	ug/L	94
22) cis-1,2-Dichloroethylene	61	8.190	8.209	0.868	263	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform		0.000	8.520	0.000	0	N.D.		
26) 1,1,1-Trichloroethane	97	8.794	8.788	0.932	174	N.D.		
27) Cyclohexane	56	8.873	8.873	0.940	142	N.D.		
28) 1,1-Dichloropropene		0.000	8.946	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.086	9.172	0.963	105	N.D.		
32) Benzene	78	9.184	9.184	0.973	900	N.D.		
33) Cyclohexene		0.000	9.294	0.000	0	N.D.		
34) n-Butyl alcohol		0.000	9.568	0.000	0	N.D.		
35) Trichloroethylene	95	9.818	9.830	1.040	281	N.D.		
36) 2-Pentanone	43	9.934	9.928	1.052	795	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G222.D
Acq On : 01 Nov 2016 19:17
Operator : ACJ
InstName : VOA6
Sample : |409254032|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 7.1G N/A SOIL
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Nov 02 09:20:14 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
39) Dibromomethane		0.000	10.214	0.000	0	N.D.	
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.	
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.	
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.	
44) 4-Methyl-2-pentanone	58	10.885	10.891	0.862	128	N.D.	
46) Toluene	91	11.177	11.172	0.885	4213	N.D.	
47) trans-1,3-Dichloroprop...		0.000	11.342	0.000	0	N.D.	
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.	
49) 2-Hexanone	43	11.769	11.745	0.932	476	N.D.	
50) 1,3-Dichloropropane		0.000	11.751	0.000	0	N.D.	
51) Tetrachloroethylene	164	11.763	11.763	0.931	2122	N.D.	
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.	
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.	
54) Chlorobenzene	112	12.665	12.665	1.003	708	N.D.	
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.	
56) Ethylbenzene	91	12.726	12.732	1.008	788	N.D.	
57) m,p-Xylenes	106	12.842	12.842	1.017	629	N.D.	
58) o-Xylene	91	13.281	13.275	1.052	404	N.D.	
59) Styrene	104	13.287	13.281	1.052	1926	N.D.	
61) Bromoform		0.000	13.537	0.000	0	N.D.	
62) Isopropylbenzene		0.000	13.641	0.000	0	N.D.	
64) 1,1,2,2-Tetrachloroethane	83	13.842	13.927	0.919	313	N.D.	
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.	
66) Bromobenzene	156	14.043	14.043	0.933	146	N.D.	
67) n-Propylbenzene	91	14.067	14.067	0.934	563	N.D.	
68) 1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	159	N.D.	
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.	
70) 4-Chlorotoluene	91	14.317	14.317	0.951	1173	N.D.	
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.	
72) 1,2,4-Trimethylbenzene	105	14.640	14.634	0.972	539	N.D.	
73) sec-Butylbenzene	105	14.823	14.817	0.985	137	N.D.	
74) 4-Isopropyltoluene		0.000	14.592	0.000	0	N.D.	
75) 1,3-Dichlorobenzene	146	15.000	14.994	0.996	743	N.D.	
76) 1,4-Dichlorobenzene	146	15.079	15.085	1.002	1484	N.D.	
77) n-Butylbenzene	91	15.390	15.372	1.022	247	N.D.	
78) 1,2-Dichlorobenzene	146	15.500	15.494	1.030	444	N.D.	
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.	
80) 1,2,4-Trichlorobenzene	180	17.280	17.280	1.148	465	N.D.	
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.	
82) Naphthalene	128	17.633	17.628	1.171	1631	N.D.	
83) 1,2,3-Trichlorobenzene	180	17.938	17.945	1.192	239	N.D.	
85) Acrolein	56	6.050	6.026	0.641	701	N.D.	
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.	
87) Isopropyl Alcohol	45	6.282	6.282	0.665	322	N.D.	
88) Allyl chloride	41	6.556	6.611	0.695	543	N.D.	
89) tert-Butyl Alcohol	59	6.794	6.770	0.720	7665	N.D.	
90) Acrylonitrile		0.000	7.014	0.000	0	N.D.	
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.	
92) 2-Chloro-1,3-butadiene		0.000	7.672	0.000	0	N.D.	
93) Ethyl tert-butyl ether	59	7.971	7.965	0.844	1916	N.D.	
94) Ethyl acetate		0.000	8.178	0.000	0m	N.D.	d
95) Propionitrile		0.000	8.245	0.000	0	N.D.	
96) Methacrylonitrile	41	8.428	8.416	0.893	144	N.D.	
97) Tetrahydrofuran	42	8.525	8.526	0.903	2637	N.D.	
98) Isobutyl alcohol	41	8.934	8.873	0.946	150	N.D.	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G222.D
Acq On : 01 Nov 2016 19:17
Operator : ACJ
InstName : VOA6
Sample : |409254032|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 7.1G N/A SOIL
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Nov 02 09:20:14 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

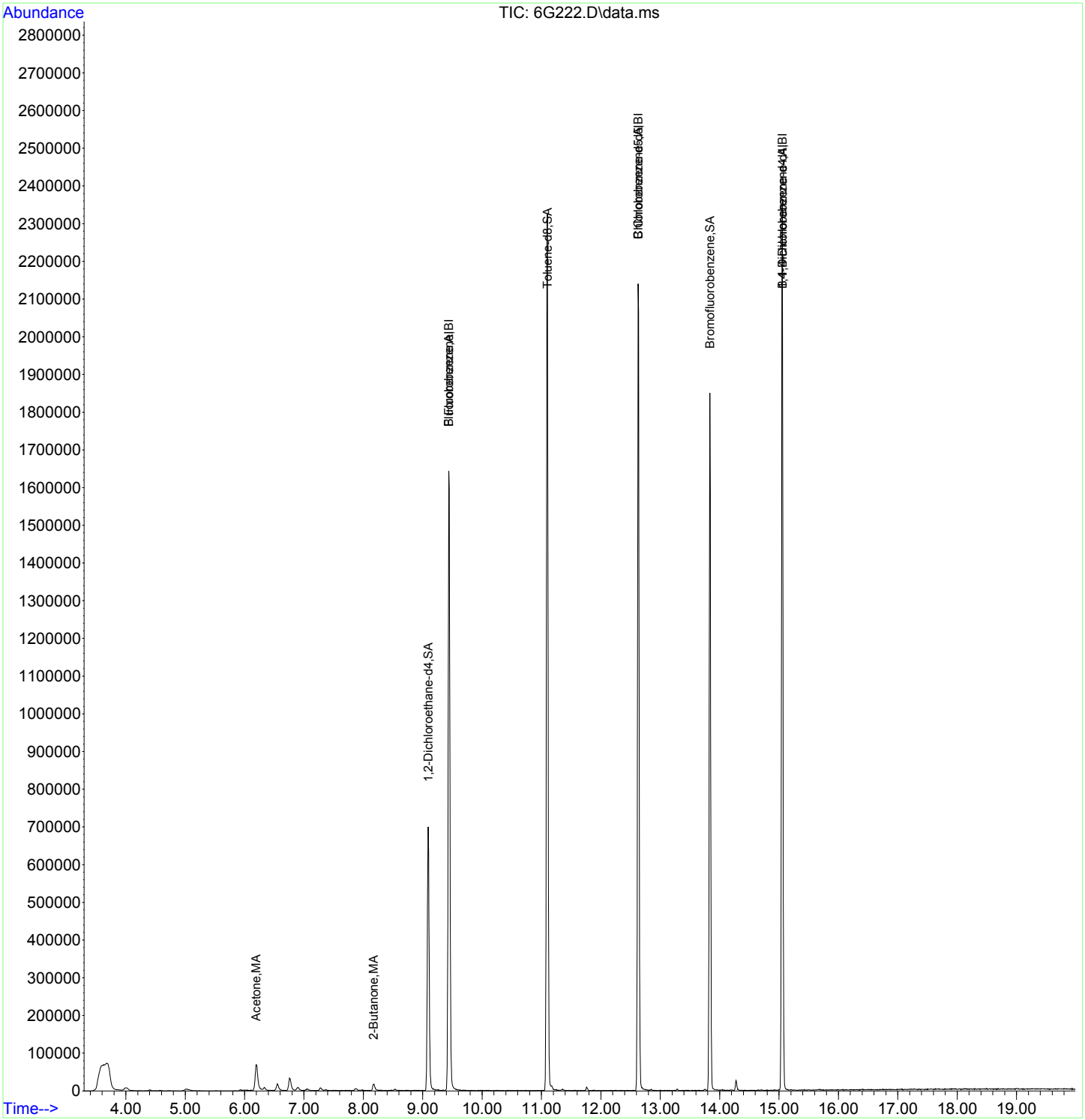
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.	
100)	Methyl methacrylate		0.000	10.068	0.000	0	N.D.	
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.	
102)	2-Nitropropane		0.000	10.543	0.000	0m	N.D. d	
104)	Ethyl methacrylate		0.000	11.348	0.000	0	N.D.	
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107)	cis-1,4-Dichloro-2-butene		0.000	13.689	0.000	0	N.D.	
108)	Cyclohexanone		0.000	13.793	0.000	0	N.D.	
109)	trans-1,4-Dichloro-2-b...		0.000	13.976	0.000	0	N.D.	
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.	
111)	Benzyl chloride	91	15.195	15.201	1.009	184	Below Cal #	59
112)	bis(2-Chloroisopropyl)...		0.000	15.591	0.000	0	N.D.	

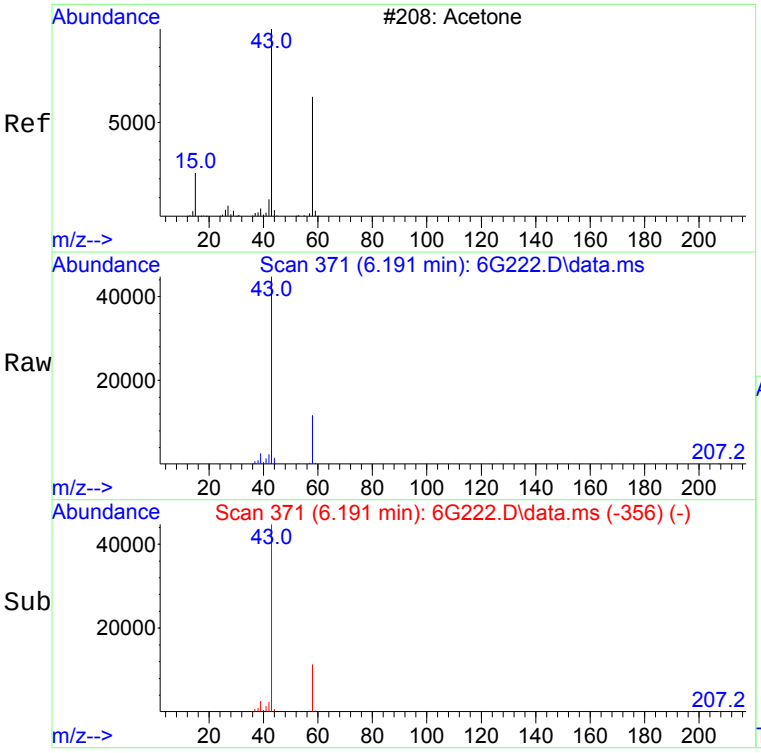
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G222.D
Acq On : 01 Nov 2016 19:17
Operator : ACJ
InstName : VOA6
Sample : |409254032|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 7.1G N/A SOIL
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Nov 02 09:20:14 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

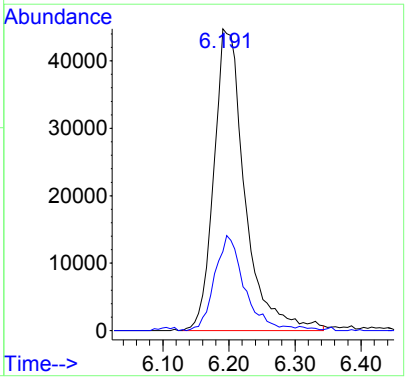


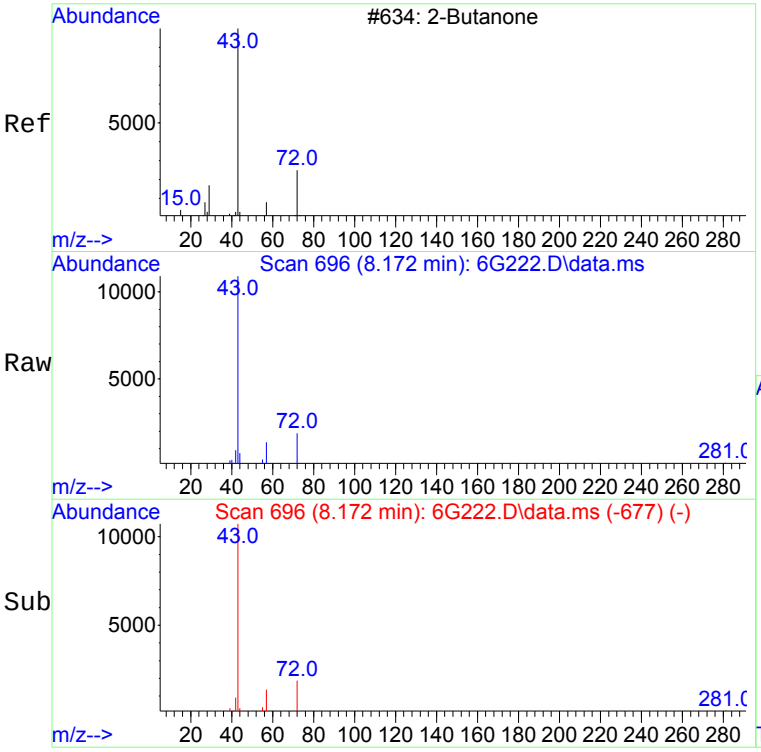


#9
Acetone
Concen: 34.85 ug/L
RT: 6.191 min Scan# 371
Delta R.T. -0.006 min
Lab File: 6G222.D
Acq: 01 Nov 2016 19:17

Tgt Ion: 43 Resp: 145805

Ion	Ratio	Lower	Upper
43	100		
58	30.9	0.8	60.8

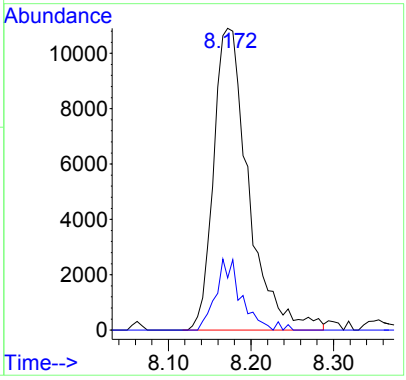


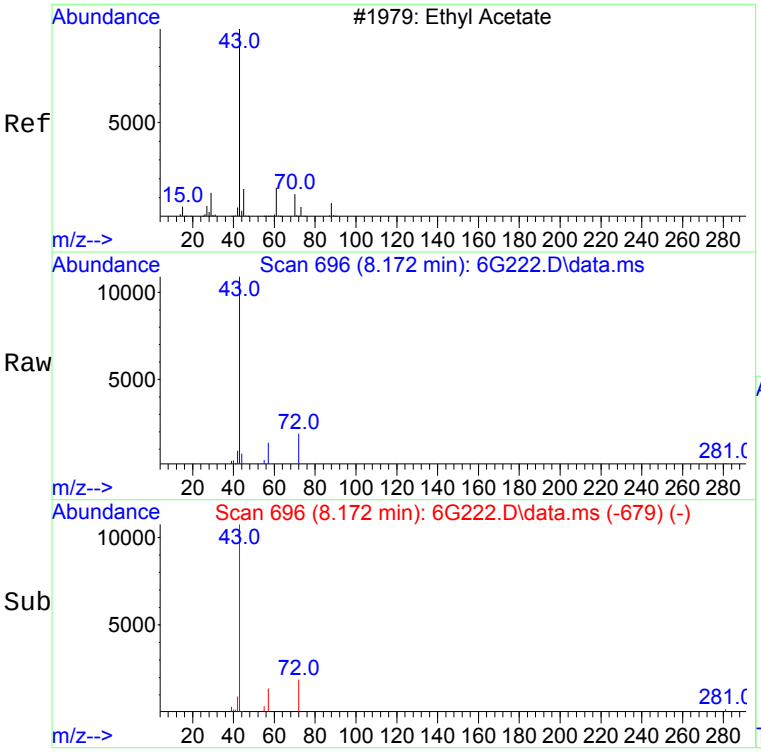


#21
2-Butanone
Concen: 4.86 ug/L
RT: 8.172 min Scan# 696
Delta R.T. 0.012 min
Lab File: 6G222.D
Acq: 01 Nov 2016 19:17

Tgt Ion: 43 Resp: 31995

Ion	Ratio	Lower	Upper
43	100		
72	16.8	0.0	49.3

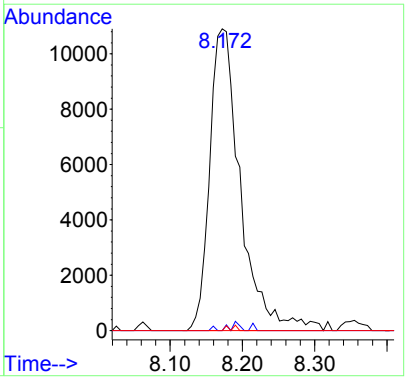


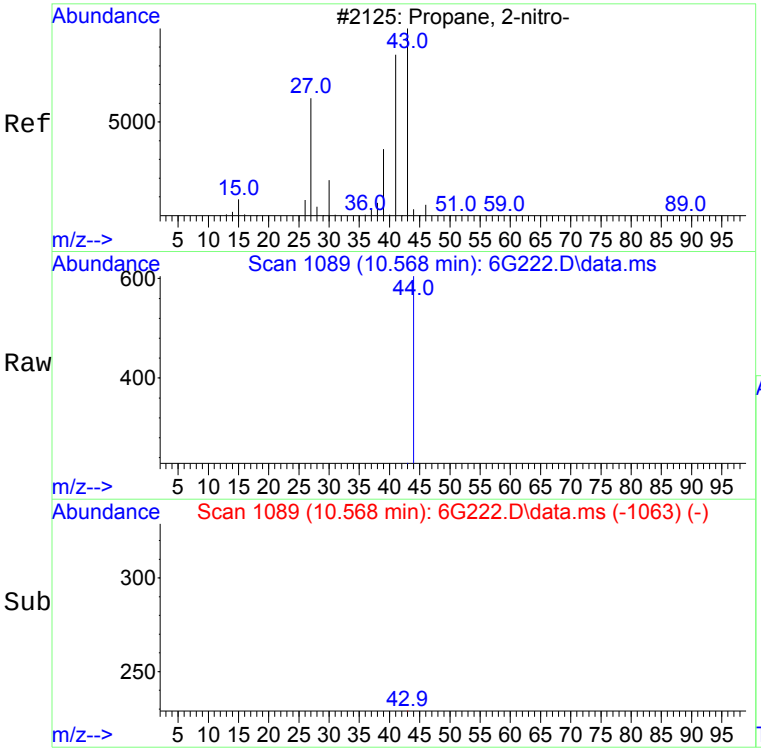


#94 BEFORE analyst DELETION
Ethyl acetate
Concen: 3.03 ug/L
RT: 8.172 min Scan# 696
Delta R.T. -0.006 min
Lab File: 6G222.D
Acq: 01 Nov 2016 19:17

Tgt Ion: 43 Resp: 32323

Ion	Ratio	Lower	Upper
43	100		
61	0.8	0.0	42.7
70	0.4	0.0	38.5

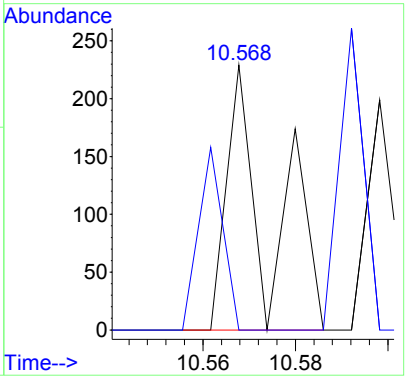




#102 BEFORE analyst DELETION
2-Nitropropane
Concen: 6.29 ug/L
RT: 10.568 min Scan# 1089
Delta R.T. 0.025 min
Lab File: 6G222.D
Acq: 01 Nov 2016 19:17

Tgt Ion: 43 Resp: 147

Ion	Ratio	Lower	Upper
43	100		
41	0.0	49.3	109.3#



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 19:46**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 09:46**	**Aliquot:**	**6.4 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G223.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.978	ug/kg	0.326	0.978
79-34-5	1,1,2,2-Tetrachloroethane	U	0.978	ug/kg	0.326	0.978
79-00-5	1,1,2-Trichloroethane	U	0.978	ug/kg	0.326	0.978
75-34-3	1,1-Dichloroethane	U	0.978	ug/kg	0.326	0.978
75-35-4	1,1-Dichloroethylene	U	0.978	ug/kg	0.326	0.978
87-61-6	1,2,3-Trichlorobenzene	U	0.978	ug/kg	0.326	0.978
120-82-1	1,2,4-Trichlorobenzene	U	0.978	ug/kg	0.326	0.978
96-12-8	1,2-Dibromo-3-chloropropane	U	0.978	ug/kg	0.489	0.978
106-93-4	1,2-Dibromoethane	U	0.978	ug/kg	0.326	0.978
95-50-1	1,2-Dichlorobenzene	U	0.978	ug/kg	0.326	0.978
107-06-2	1,2-Dichloroethane	U	0.978	ug/kg	0.326	0.978
78-87-5	1,2-Dichloropropane	U	0.978	ug/kg	0.326	0.978
541-73-1	1,3-Dichlorobenzene	U	0.978	ug/kg	0.326	0.978
106-46-7	1,4-Dichlorobenzene	U	0.978	ug/kg	0.326	0.978
123-91-1	1,4-Dioxane	U	48.9	ug/kg	16.3	48.9
78-93-3	2-Butanone		7.63	ug/kg	1.63	4.89
591-78-6	2-Hexanone	U	4.89	ug/kg	1.63	4.89
108-10-1	4-Methyl-2-pentanone	U	4.89	ug/kg	1.63	4.89
67-64-1	Acetone		41.2	ug/kg	1.63	4.89
71-43-2	Benzene	U	0.978	ug/kg	0.326	0.978
74-97-5	Bromochloromethane	U	0.978	ug/kg	0.326	0.978
75-27-4	Bromodichloromethane	U	0.978	ug/kg	0.326	0.978
75-25-2	Bromoform	U	0.978	ug/kg	0.326	0.978
74-83-9	Bromomethane	U	0.978	ug/kg	0.326	0.978
75-15-0	Carbon disulfide	U	4.89	ug/kg	1.63	4.89
56-23-5	Carbon tetrachloride	U	0.978	ug/kg	0.326	0.978
108-90-7	Chlorobenzene	U	0.978	ug/kg	0.326	0.978
75-00-3	Chloroethane	U	0.978	ug/kg	0.326	0.978
67-66-3	Chloroform	U	0.978	ug/kg	0.326	0.978
74-87-3	Chloromethane	U	0.978	ug/kg	0.326	0.978
110-82-7	Cyclohexane	U	0.978	ug/kg	0.326	0.978
124-48-1	Dibromochloromethane	U	0.978	ug/kg	0.326	0.978
75-71-8	Dichlorodifluoromethane	U	0.978	ug/kg	0.326	0.978
100-41-4	Ethylbenzene	U	0.978	ug/kg	0.326	0.978
98-82-8	Isopropylbenzene	U	0.978	ug/kg	0.326	0.978
79-20-9	Methyl acetate	U	4.89	ug/kg	1.63	4.89
108-87-2	Methylcyclohexane	U	0.978	ug/kg	0.326	0.978
75-09-2	Methylene chloride	U	4.89	ug/kg	1.63	4.89

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 19:46**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 09:46**	**Aliquot:**	**6.4 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G223.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.978	ug/kg	0.326	0.978
127-18-4	Tetrachloroethylene	U	0.978	ug/kg	0.326	0.978
108-88-3	Toluene	U	0.978	ug/kg	0.326	0.978
79-01-6	Trichloroethylene	U	0.978	ug/kg	0.326	0.978
75-69-4	Trichlorofluoromethane	U	0.978	ug/kg	0.326	0.978
76-13-1	Trichlorotrifluoroethane	U	4.89	ug/kg	1.63	4.89
75-01-4	Vinyl chloride	U	0.978	ug/kg	0.326	0.978
156-59-2	cis-1,2-Dichloroethylene	U	0.978	ug/kg	0.326	0.978
10061-01-5	cis-1,3-Dichloropropylene	U	0.978	ug/kg	0.326	0.978
179601-23-1	m,p-Xylenes	U	1.96	ug/kg	0.652	1.96
95-47-6	o-Xylene	U	0.978	ug/kg	0.326	0.978
1634-04-4	tert-Butyl methyl ether	U	0.978	ug/kg	0.326	0.978
156-60-5	trans-1,2-Dichloroethylene	U	0.978	ug/kg	0.326	0.978
10061-02-6	trans-1,3-Dichloropropylene	U	0.978	ug/kg	0.326	0.978

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G223.D
Acq On : 01 Nov 2016 19:46
Operator : ACJ
InstName : VOA6
Sample : |409254034|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.4G N/A SOIL
ALS Vial : 23 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 02 09:20:16 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1303748	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.629	1.000	1013750	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	537243	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1303748	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.628	1.000	1013750	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	537243	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	486800	56.77	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.879	1349413	49.92	ug/L	0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	543557	50.03	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	114%
45) Toluene-d8	50.000	81 - 120	100%
63) Bromofluorobenzene	50.000	70 - 130	100%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.001	0.000	0	N.D.		
3) Chloromethane	50	4.386	4.282	0.465	365	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether	59	5.822	5.830	0.617	418	N.D.		
9) Acetone	43	6.191	6.197	0.656	152115	42.15	ug/L	98
10) 1,1-Dichloroethylene		0.000	6.191	0.000	0	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.550	6.550	0.694	411	N.D.		
13) Methyl acetate	43	6.593	6.575	0.698	3571	N.D.		
14) Carbon disulfide	76	6.550	6.550	0.694	12568	N.D.		
15) Methylene chloride	84	6.758	6.764	0.716	17895	N.D.		
16) tert-Butyl methyl ether	73	7.062	7.050	0.748	6716	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.367	7.367	0.780	929	N.D.		
19) Vinyl acetate		0.000	7.538	0.000	0	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.172	8.160	0.866	44298	7.80	ug/L	96
22) cis-1,2-Dichloroethylene	61	8.203	8.209	0.869	265	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform	83	8.526	8.520	0.903	210	N.D.		
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		0.000	8.873	0.000	0	N.D.		
28) 1,1-Dichloropropene		0.000	8.946	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.178	9.172	0.972	124	N.D.		
32) Benzene	78	9.184	9.184	0.973	777	N.D.		
33) Cyclohexene		0.000	9.294	0.000	0	N.D.		
34) n-Butyl alcohol	56	9.574	9.568	1.014	355	N.D.		
35) Trichloroethylene		0.000	9.830	0.000	0	N.D.		
36) 2-Pentanone	43	9.940	9.928	1.053	503	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G223.D
Acq On : 01 Nov 2016 19:46
Operator : ACJ
InstName : VOA6
Sample : |409254034|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.4G N/A SOIL
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Nov 02 09:20:16 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.		
46) Toluene	91	11.165	11.172	0.884	3526	N.D.		
47) trans-1,3-Dichloroprop...		0.000	11.342	0.000	0	N.D.		
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.		
49) 2-Hexanone	43	11.763	11.745	0.931	630	N.D.		
50) 1,3-Dichloropropane		0.000	11.751	0.000	0	N.D.		
51) Tetrachloroethylene	164	11.769	11.763	0.932	1530	N.D.		
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.		
54) Chlorobenzene	112	12.671	12.665	1.003	577	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.		
56) Ethylbenzene	91	12.726	12.732	1.008	586	N.D.		
57) m,p-Xylenes	106	12.842	12.842	1.017	570	N.D.		
58) o-Xylene		0.000	13.275	0.000	0	N.D.		
59) Styrene	104	13.287	13.281	1.052	1365	N.D.		
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene		0.000	13.641	0.000	0	N.D.		
64) 1,1,2,2-Tetrachloroethane		0.000	13.927	0.000	0	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene	156	14.025	14.043	0.932	289	N.D.		
67) n-Propylbenzene	91	14.073	14.067	0.935	526	N.D.		
68) 1,3,5-Trimethylbenzene		0.000	14.226	0.000	0	N.D.		
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.		
70) 4-Chlorotoluene	91	14.323	14.317	0.951	912	N.D.		
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	14.646	14.634	0.973	427	N.D.		
73) sec-Butylbenzene	105	14.817	14.817	0.984	170	N.D.		
74) 4-Isopropyltoluene		0.000	14.592	0.000	0	N.D.		
75) 1,3-Dichlorobenzene	146	15.000	14.994	0.996	649	N.D.		
76) 1,4-Dichlorobenzene	146	15.085	15.085	1.002	1687	N.D.		
77) n-Butylbenzene	91	15.384	15.372	1.022	262	N.D.		
78) 1,2-Dichlorobenzene	146	15.494	15.494	1.029	698	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	17.286	17.280	1.148	895	N.D.		
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.		
82) Naphthalene	128	17.634	17.628	1.171	1584	N.D.		
83) 1,2,3-Trichlorobenzene	180	17.945	17.945	1.192	316	N.D.		
85) Acrolein	56	6.038	6.026	0.640	233	N.D.		
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.		
87) Isopropyl Alcohol	45	6.276	6.282	0.665	3582	N.D.		
88) Allyl chloride	41	6.550	6.611	0.694	411	N.D.		
89) tert-Butyl Alcohol	59	6.776	6.770	0.718	20408	18.33	ug/L	78
90) Acrylonitrile		0.000	7.014	0.000	0	N.D.		
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	7.672	0.000	0	N.D.		
93) Ethyl tert-butyl ether	59	7.959	7.965	0.843	3800	N.D.		
94) Ethyl acetate		0.000	8.178	0.000	0m	N.D.	d	
95) Propionitrile		0.000	8.245	0.000	0	N.D.		
96) Methacrylonitrile	41	8.434	8.416	0.893	137	N.D.		
97) Tetrahydrofuran	42	8.532	8.526	0.904	2489	N.D.		
98) Isobutyl alcohol	41	8.879	8.873	0.941	150	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G223.D
Acq On : 01 Nov 2016 19:46
Operator : ACJ
InstName : VOA6
Sample : |409254034|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.4G N/A SOIL
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Nov 02 09:20:16 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

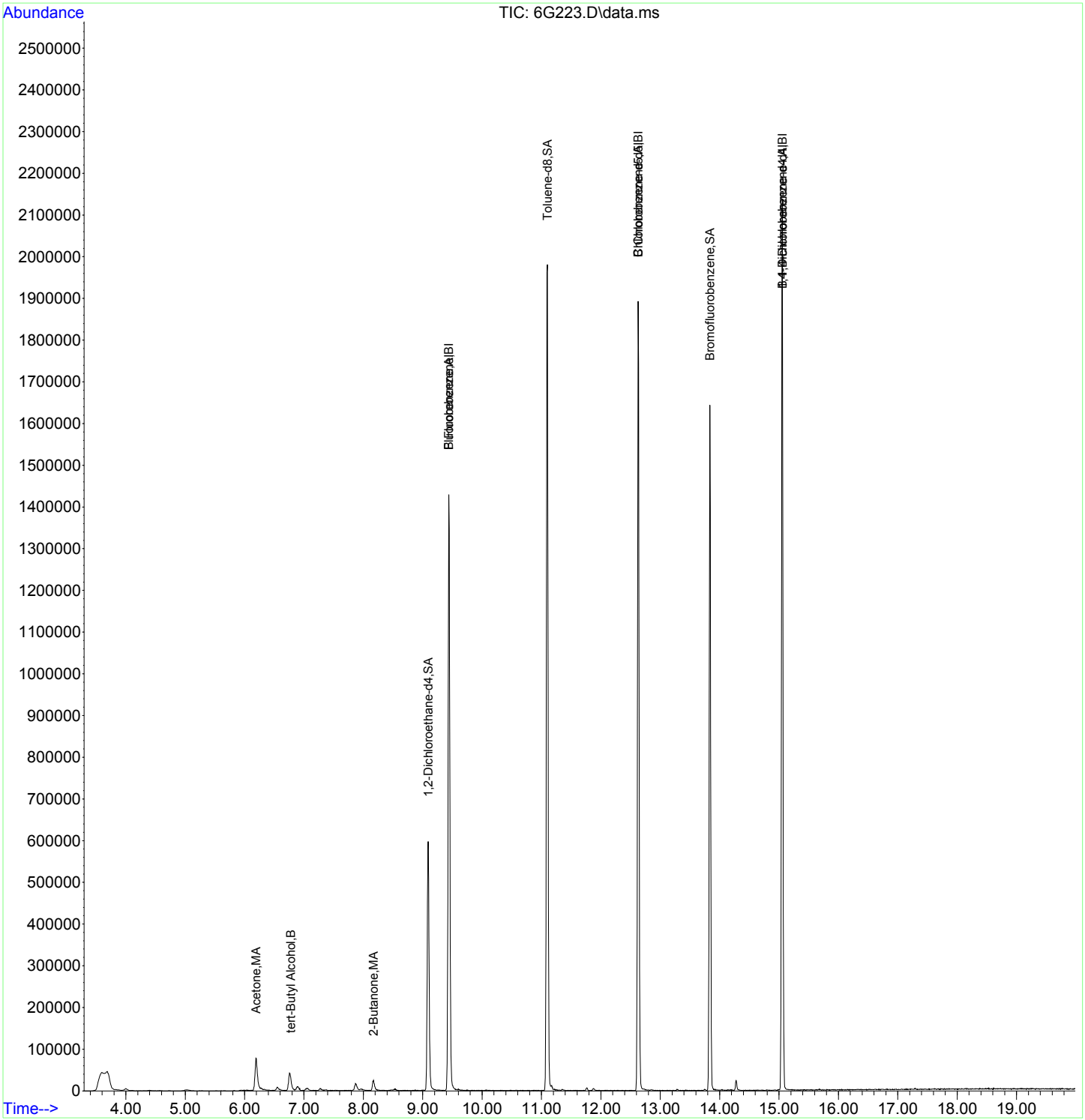
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.	
100)	Methyl methacrylate		0.000	10.068	0.000	0	N.D.	
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.	
102)	2-Nitropropane		0.000	10.543	0.000	0m	N.D. d	
104)	Ethyl methacrylate		0.000	11.348	0.000	0	N.D.	
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107)	cis-1,4-Dichloro-2-butene		0.000	13.689	0.000	0	N.D.	
108)	Cyclohexanone		0.000	13.793	0.000	0	N.D.	
109)	trans-1,4-Dichloro-2-b...		0.000	13.976	0.000	0	N.D.	
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.	
111)	Benzyl chloride	91	15.201	15.201	1.010	481	Below Cal #	59
112)	bis(2-Chloroisopropyl)...		0.000	15.591	0.000	0	N.D.	

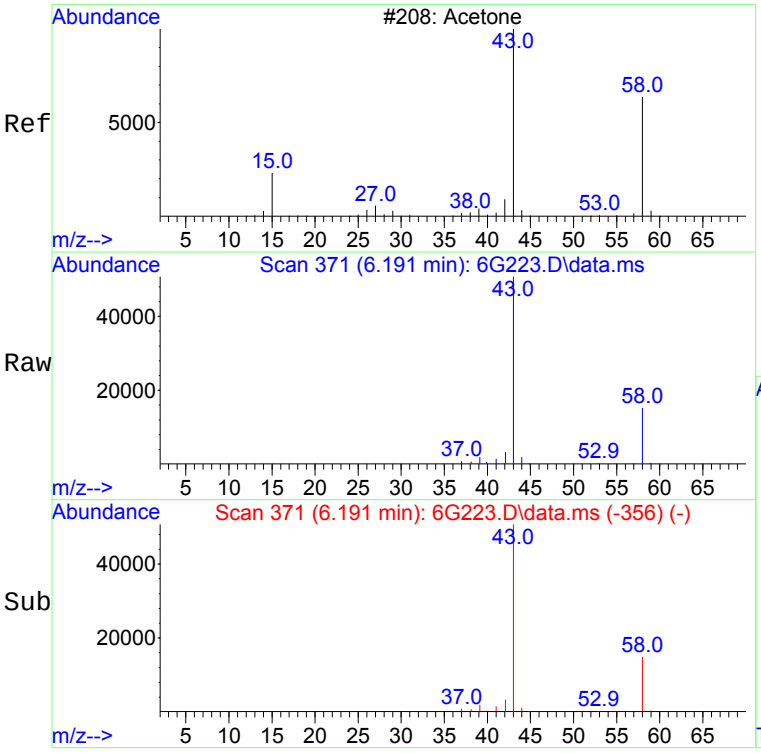
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G223.D
Acq On : 01 Nov 2016 19:46
Operator : ACJ
InstName : VOA6
Sample : |409254034|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 6.4G N/A SOIL
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Nov 02 09:20:16 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

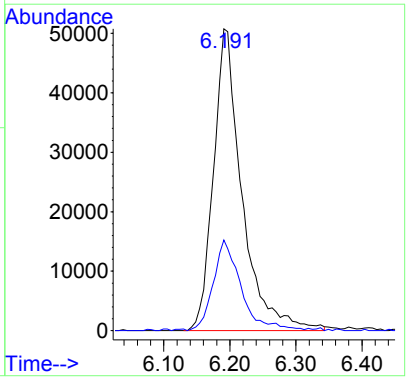


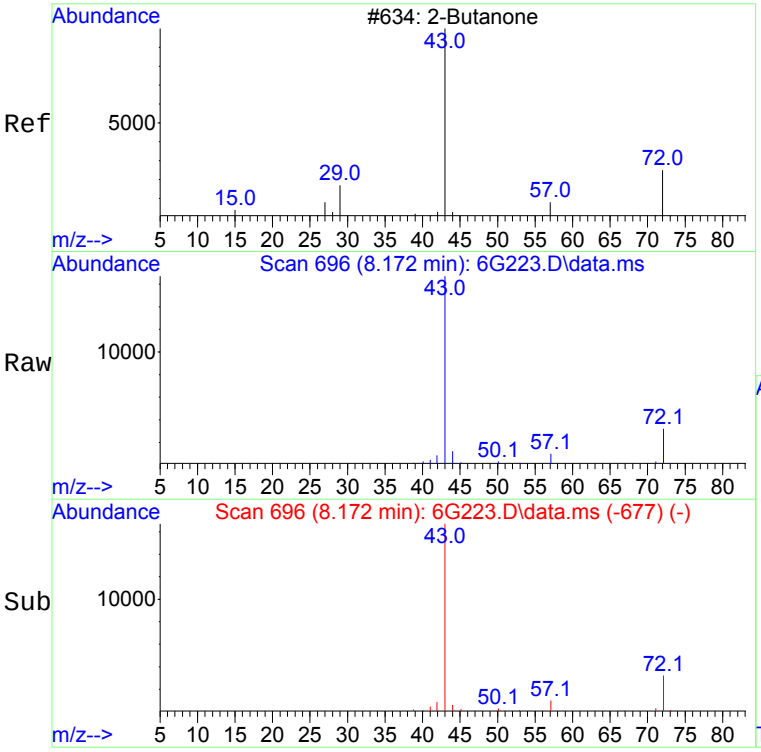


#9
Acetone
Concen: 42.15 ug/L
RT: 6.191 min Scan# 371
Delta R.T. -0.006 min
Lab File: 6G223.D
Acq: 01 Nov 2016 19:46

Tgt Ion: 43 Resp: 152115

Ion	Ratio	Lower	Upper
43	100		
58	29.6	0.8	60.8

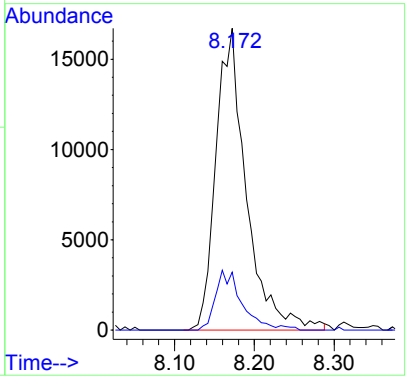


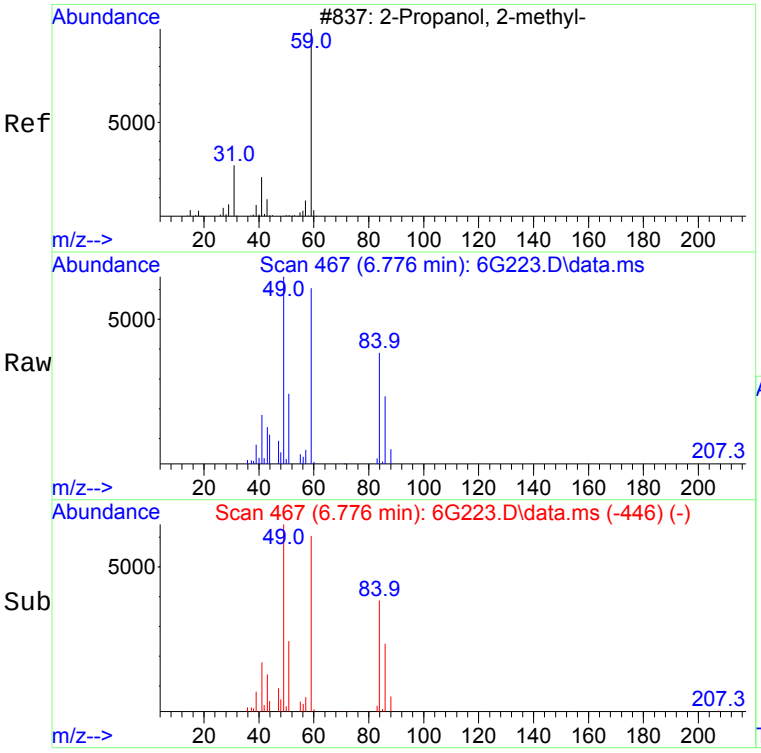


#21
2-Butanone
Concen: 7.80 ug/L
RT: 8.172 min Scan# 696
Delta R.T. 0.012 min
Lab File: 6G223.D
Acq: 01 Nov 2016 19:46

Tgt Ion: 43 Resp: 44298

Ion	Ratio	Lower	Upper
43	100		
72	17.5	0.0	49.3

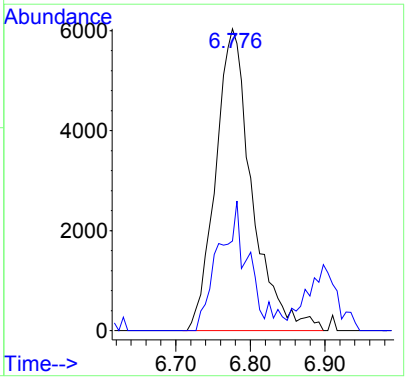


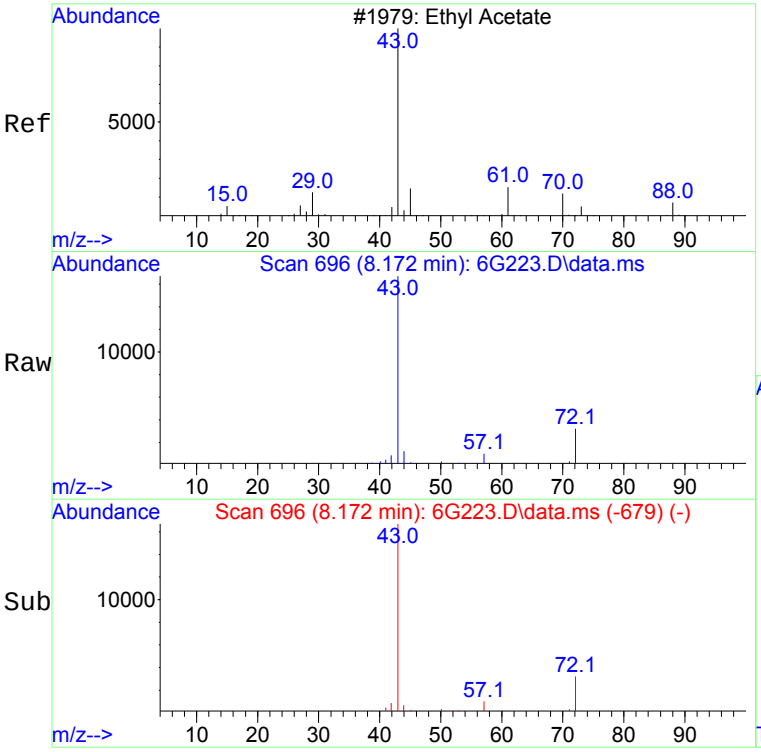


#89
tert-Butyl Alcohol
Concen: 18.33 ug/L
RT: 6.776 min Scan# 467
Delta R.T. 0.006 min
Lab File: 6G223.D
Acq: 01 Nov 2016 19:46

Tgt Ion: 59 Resp: 20408

Ion	Ratio	Lower	Upper
59	100		
41	33.7	0.0	52.9

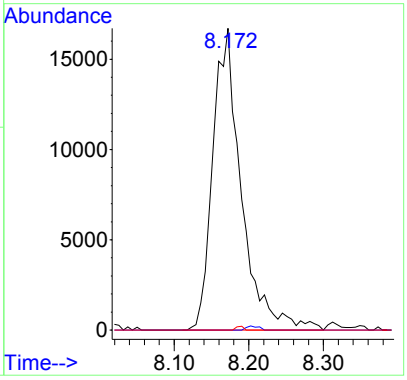


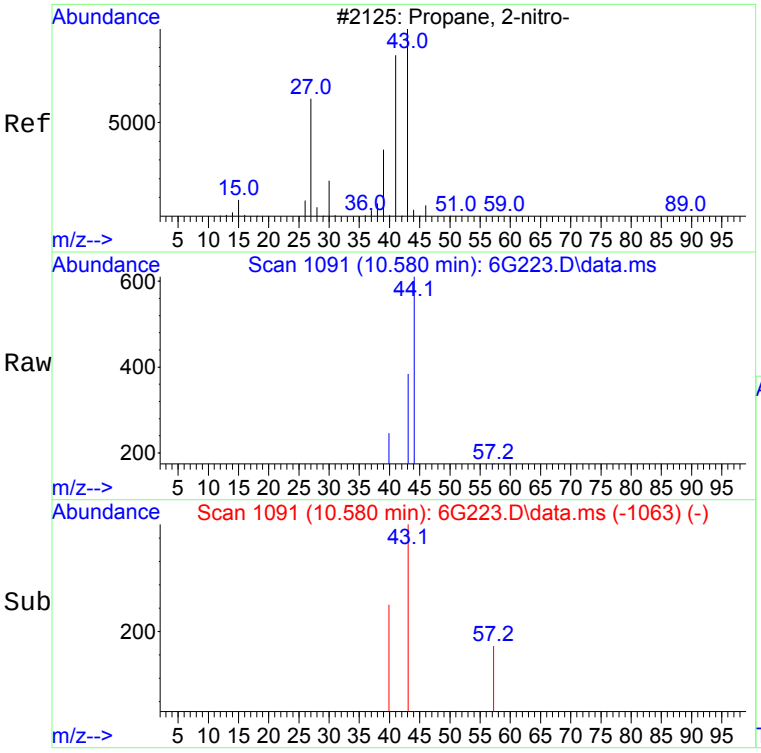


#94 BEFORE analyst DELETION
Ethyl acetate
Concen: 4.83 ug/L
RT: 8.172 min Scan# 696
Delta R.T. -0.006 min
Lab File: 6G223.D
Acq: 01 Nov 2016 19:46

Tgt Ion: 43 Resp: 44385

Ion	Ratio	Lower	Upper
43	100		
61	0.6	0.0	42.7
70	0.3	0.0	38.5

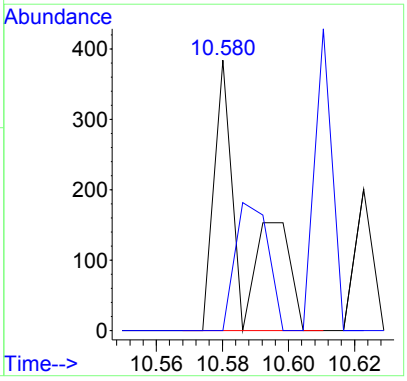




#102 BEFORE analyst DELETION
2-Nitropropane
Concen: 6.33 ug/L
RT: 10.580 min Scan# 1091
Delta R.T. 0.037 min
Lab File: 6G223.D
Acq: 01 Nov 2016 19:46

Tgt Ion: 43 Resp: 252

Ion	Ratio	Lower	Upper
43	100		
41	50.4	49.3	109.3



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/03/2016 17:06**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 09:53**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**110316V4\4H415.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.17	ug/kg	0.389	1.17
79-34-5	1,1,2,2-Tetrachloroethane	U	1.17	ug/kg	0.389	1.17
79-00-5	1,1,2-Trichloroethane	U	1.17	ug/kg	0.389	1.17
75-34-3	1,1-Dichloroethane	U	1.17	ug/kg	0.389	1.17
75-35-4	1,1-Dichloroethylene	U	1.17	ug/kg	0.389	1.17
87-61-6	1,2,3-Trichlorobenzene	U	1.17	ug/kg	0.389	1.17
120-82-1	1,2,4-Trichlorobenzene	U	1.17	ug/kg	0.389	1.17
96-12-8	1,2-Dibromo-3-chloropropane	U	1.17	ug/kg	0.584	1.17
106-93-4	1,2-Dibromoethane	U	1.17	ug/kg	0.389	1.17
95-50-1	1,2-Dichlorobenzene	U	1.17	ug/kg	0.389	1.17
107-06-2	1,2-Dichloroethane	U	1.17	ug/kg	0.389	1.17
78-87-5	1,2-Dichloropropane	U	1.17	ug/kg	0.389	1.17
541-73-1	1,3-Dichlorobenzene	U	1.17	ug/kg	0.389	1.17
106-46-7	1,4-Dichlorobenzene	U	1.17	ug/kg	0.389	1.17
123-91-1	1,4-Dioxane	U	58.4	ug/kg	19.5	58.4
78-93-3	2-Butanone	U	5.84	ug/kg	1.95	5.84
591-78-6	2-Hexanone	U	5.84	ug/kg	1.95	5.84
108-10-1	4-Methyl-2-pentanone	U	5.84	ug/kg	1.95	5.84
67-64-1	Acetone	U	5.84	ug/kg	1.95	5.84
71-43-2	Benzene	U	1.17	ug/kg	0.389	1.17
74-97-5	Bromochloromethane	U	1.17	ug/kg	0.389	1.17
75-27-4	Bromodichloromethane	U	1.17	ug/kg	0.389	1.17
75-25-2	Bromoform	U	1.17	ug/kg	0.389	1.17
74-83-9	Bromomethane	U	1.17	ug/kg	0.389	1.17
75-15-0	Carbon disulfide	U	5.84	ug/kg	1.95	5.84
56-23-5	Carbon tetrachloride	U	1.17	ug/kg	0.389	1.17
108-90-7	Chlorobenzene	U	1.17	ug/kg	0.389	1.17
75-00-3	Chloroethane	U	1.17	ug/kg	0.389	1.17
67-66-3	Chloroform	U	1.17	ug/kg	0.389	1.17
74-87-3	Chloromethane	U	1.17	ug/kg	0.389	1.17
110-82-7	Cyclohexane	U	1.17	ug/kg	0.389	1.17
124-48-1	Dibromochloromethane	U	1.17	ug/kg	0.389	1.17
75-71-8	Dichlorodifluoromethane	U	1.17	ug/kg	0.389	1.17
100-41-4	Ethylbenzene	U	1.17	ug/kg	0.389	1.17
98-82-8	Isopropylbenzene	U	1.17	ug/kg	0.389	1.17
79-20-9	Methyl acetate	U	5.84	ug/kg	1.95	5.84
108-87-2	Methylcyclohexane	U	1.17	ug/kg	0.389	1.17
75-09-2	Methylene chloride	U	5.84	ug/kg	1.95	5.84

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/03/2016 17:06**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 09:53**	**Aliquot:**	**4.8 g**	**Final Volume:**	**5 mL**
Data File:	**110316V4\4H415.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.17	ug/kg	0.389	1.17
127-18-4	Tetrachloroethylene	U	1.17	ug/kg	0.389	1.17
108-88-3	Toluene	U	1.17	ug/kg	0.389	1.17
79-01-6	Trichloroethylene	U	1.17	ug/kg	0.389	1.17
75-69-4	Trichlorofluoromethane	U	1.17	ug/kg	0.389	1.17
76-13-1	Trichlorotrifluoroethane	U	5.84	ug/kg	1.95	5.84
75-01-4	Vinyl chloride	U	1.17	ug/kg	0.389	1.17
156-59-2	cis-1,2-Dichloroethylene	U	1.17	ug/kg	0.389	1.17
10061-01-5	cis-1,3-Dichloropropylene	U	1.17	ug/kg	0.389	1.17
179601-23-1	m,p-Xylenes	U	2.34	ug/kg	0.779	2.34
95-47-6	o-Xylene	U	1.17	ug/kg	0.389	1.17
1634-04-4	tert-Butyl methyl ether	U	1.17	ug/kg	0.389	1.17
156-60-5	trans-1,2-Dichloroethylene	U	1.17	ug/kg	0.389	1.17
10061-02-6	trans-1,3-Dichloropropylene	U	1.17	ug/kg	0.389	1.17

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H415.D
Acq On : 03 Nov 2016 17:06
Operator : ACJ
InstName : VOA4
Sample : |409254036|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.8G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 04 10:30:37 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1063915	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	745451	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.905	1.000	360676	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1063915	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	745451	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	360676	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	312009	53.96	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1112464	52.33	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	424167	54.20	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	108%
45) Toluene-d8	50.000	81 - 120	105%
63) Bromofluorobenzene	50.000	70 - 130	108%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		0.000	5.094	0.000	0	N.D.		
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.370	0.000	0	N.D.		
8) Ethyl ether		0.000	6.706	0.000	0	N.D.		
9) Acetone	43	7.084	7.059	0.686	3374	N.D.		
10) 1,1-Dichloroethylene		0.000	7.090	0.000	0	N.D.		
11) Iodomethane		0.000	7.327	0.000	0	N.D.		
12) Acetonitrile	41	7.425	7.407	0.719	1633	N.D.		
13) Methyl acetate	43	7.462	7.456	0.723	1367	N.D.		
14) Carbon disulfide	76	7.468	7.468	0.723	1353	N.D.		
15) Methylene chloride	84	7.644	7.645	0.740	5980	N.D.		
16) tert-Butyl methyl ether	73	7.968	7.955	0.772	2836	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane	57	8.291	8.285	0.803	706	N.D.		
19) Vinyl acetate	43	8.419	8.413	0.815	538	N.D.		
20) 1,1-Dichloroethane		0.000	8.461	0.000	0	N.D.		
21) 2-Butanone	43	9.059	9.028	0.877	4341	N.D.		
22) cis-1,2-Dichloroethylene		0.000	9.095	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform	83	9.400	9.400	0.910	390	N.D.		
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane	56	9.729	9.790	0.942	104	N.D.		
28) 1,1-Dichloropropene		0.000	9.839	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		0.000	10.046	0.000	0	N.D.		
32) Benzene	78	10.083	10.077	0.976	984	N.D.		
33) Cyclohexene		0.000	10.199	0.000	0	N.D.		
34) n-Butyl alcohol	56	10.412	10.400	1.008	401	N.D.		
35) Trichloroethylene		0.000	10.717	0.000	0	N.D.		
36) 2-Pentanone		0.000	10.778	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane	83	10.979	10.973	1.063	148	N.D.		

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H415.D
Acq On : 03 Nov 2016 17:06
Operator : ACJ
InstName : VOA4
Sample : |409254036|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.8G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 04 10:30:37 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.193	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	11.412	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	11.644	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.		
46) Toluene	91	12.040	12.040	0.892	2632	N.D.		
47) trans-1,3-Dichloroprop...		0.000	12.180	0.000	0	N.D.		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.		
49) 2-Hexanone	43	12.595	12.583	0.934	732	N.D.		
50) 1,3-Dichloropropane		0.000	12.595	0.000	0	N.D.		
51) Tetrachloroethylene	164	12.643	12.637	0.937	1601	0.31	ug/L	95
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	13.034	0.000	0	N.D.		
54) Chlorobenzene	112	13.527	13.521	1.003	543	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	13.576	0.000	0	N.D.		
56) Ethylbenzene	91	13.582	13.588	1.007	1071	N.D.		
57) m,p-Xylenes	106	13.698	13.698	1.015	760	N.D.		
58) o-Xylene	91	14.131	14.131	1.047	569	N.D.		
59) Styrene	104	14.125	14.131	1.047	1730	N.D.		
61) Bromoform		0.000	14.381	0.000	0	N.D.		
62) Isopropylbenzene		0.000	14.491	0.000	0	N.D.		
64) 1,1,2,2-Tetrachloroethane	83	14.771	14.747	0.929	106	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.		
66) Bromobenzene	156	14.905	14.893	0.937	246	N.D.		
67) n-Propylbenzene	91	14.917	14.917	0.938	735	N.D.		
68) 1,3,5-Trimethylbenzene	105	15.076	15.070	0.948	304	N.D.		
69) 2-Chlorotoluene	126	15.064	15.064	0.947	104	N.D.		
70) 4-Chlorotoluene	91	15.161	15.161	0.953	1440	N.D.		
71) tert-Butylbenzene		0.000	15.442	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	15.484	15.478	0.974	814	N.D.		
73) sec-Butylbenzene	105	15.667	15.661	0.985	201	N.D.		
74) 4-Isopropyltoluene	119	15.777	15.783	0.992	396	N.D.		
75) 1,3-Dichlorobenzene	146	15.838	15.844	0.996	892	N.D.		
76) 1,4-Dichlorobenzene	146	15.923	15.929	1.001	1626	N.D.		
77) n-Butylbenzene	91	16.228	16.228	1.020	661	N.D.		
78) 1,2-Dichlorobenzene	146	16.362	16.356	1.029	652	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	18.307	18.301	1.151	596	N.D.		
81) Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.		
82) Naphthalene	128	18.691	18.685	1.175	2202	N.D.		
83) 1,2,3-Trichlorobenzene	180	19.045	19.033	1.197	196	N.D.		
85) Acrolein		0.000	6.895	0.000	0	N.D.		
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol	45	7.151	7.139	0.692	113	Below Cal	#	58
88) Allyl chloride	41	7.523	7.511	0.728	333	N.D.		
89) tert-Butyl Alcohol	59	7.651	7.639	0.741	1216	Below Cal	#	100
90) Acrylonitrile		0.000	7.882	0.000	0	N.D.		
91) Isopropyl ether		0.000	8.455	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	8.577	0.000	0	N.D.		
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate	43	9.059	9.047	0.877	4341	Below Cal		84
95) Propionitrile		0.000	9.096	0.000	0	N.D.		
96) Methacrylonitrile	41	9.278	9.278	0.898	185	Below Cal	#	25
97) Tetrahydrofuran	42	9.412	9.419	0.911	1477	Below Cal	#	49
98) Isobutyl alcohol	41	9.796	9.717	0.949	143	Below Cal		90

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H415.D
Acq On : 03 Nov 2016 17:06
Operator : ACJ
InstName : VOA4
Sample : |409254036|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.8G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 04 10:30:37 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

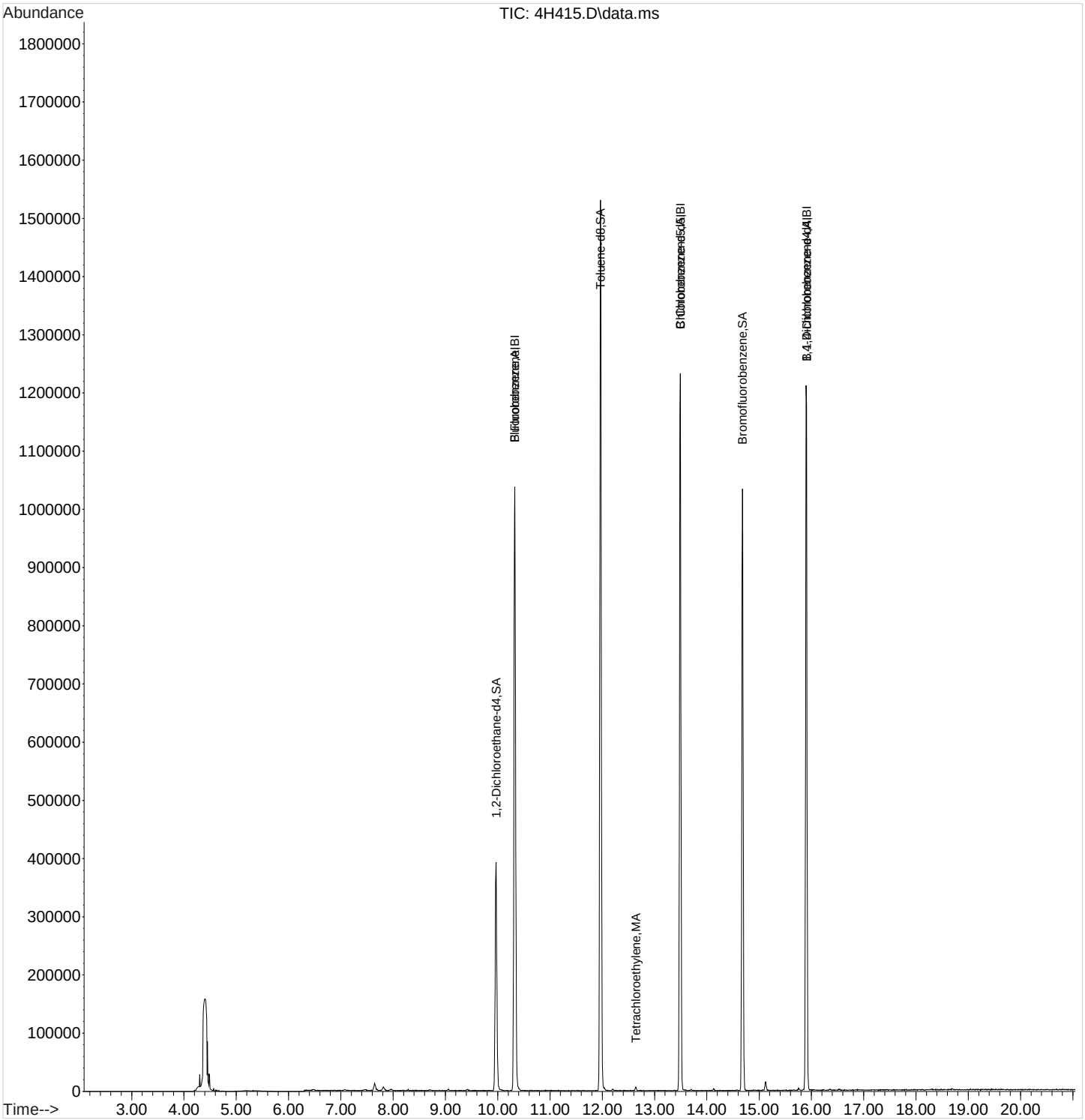
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99) Methyl tert-amyl ether		0.000	10.101	0.000	0	N.D.	
100) Methyl methacrylate		0.000	10.925	0.000	0	N.D.	
101) 1,4-Dioxane		0.000	11.034	0.000	0	N.D.	
102) 2-Nitropropane		0.000	11.388	0.000	0	N.D.	
104) Ethyl methacrylate		0.000	12.186	0.000	0	N.D.	
106) 1-Chlorohexane		0.000	13.387	0.000	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		0.000	14.509	0.000	0	N.D.	
108) Cyclohexanone		0.000	14.631	0.000	0	N.D.	
109) trans-1,4-Dichloro-2-b...		0.000	14.796	0.000	0	N.D.	
110) Pentachloroethane		0.000	15.503	0.000	0	N.D.	
111) Benzyl chloride	91	16.045	16.039	1.009	1029	Below Cal #	60
112) bis(2-Chloroisopropyl)...		0.000	16.442	0.000	0	N.D.	

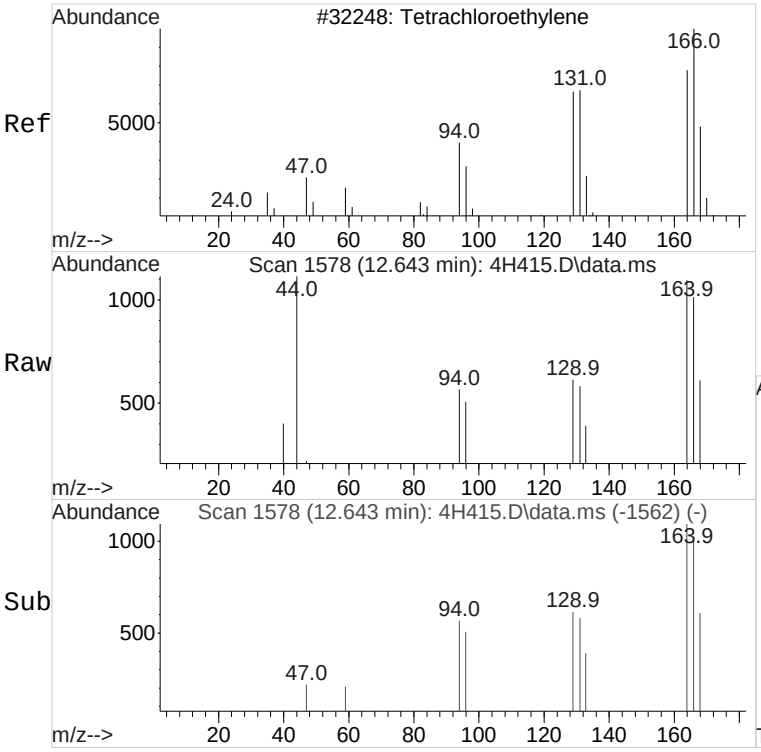
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H415.D
Acq On : 03 Nov 2016 17:06
Operator : ACJ
InstName : VOA4
Sample : |409254036|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 4.8G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 04 10:30:37 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

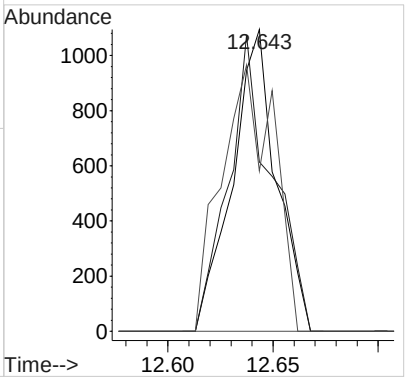


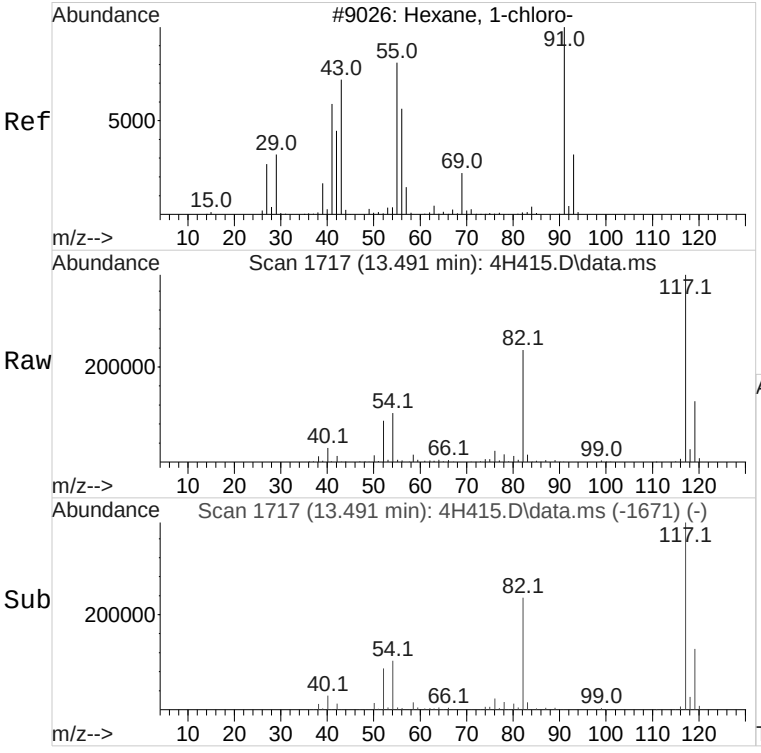


#51
Tetrachloroethylene
Concen: 0.31 ug/L
RT: 12.643 min Scan# 1578
Delta R.T. 0.006 min
Lab File: 4H415.D
Acq: 03 Nov 2016 17:06

Tgt Ion:164 Resp: 1601

Ion	Ratio	Lower	Upper
164	100		
129	96.6	66.1	126.1
131	105.0	65.3	125.3

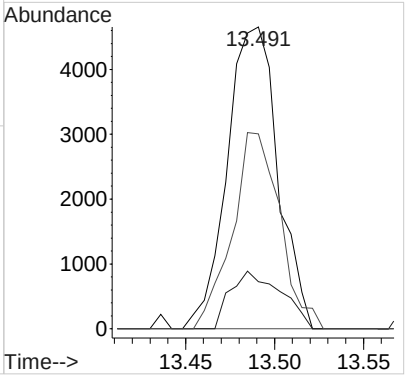




#106 BEFORE analyst DELETION
1-Chlorohexane
Concen: 0.68 ug/L
RT: 13.491 min Scan# 1717
Delta R.T. 0.104 min
Lab File: 4H415.D
Acq: 03 Nov 2016 17:06

Tgt Ion: 55 Resp: 9223

Ion	Ratio	Lower	Upper
55	100		
91	19.1	94.9	154.9#
56	61.1	28.8	88.8



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 16:46**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 10:54**	**Aliquot:**	**5.3 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H315.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.963	ug/kg	0.321	0.963
79-34-5	1,1,2,2-Tetrachloroethane	U	0.963	ug/kg	0.321	0.963
79-00-5	1,1,2-Trichloroethane	U	0.963	ug/kg	0.321	0.963
75-34-3	1,1-Dichloroethane	U	0.963	ug/kg	0.321	0.963
75-35-4	1,1-Dichloroethylene	U	0.963	ug/kg	0.321	0.963
87-61-6	1,2,3-Trichlorobenzene	U	0.963	ug/kg	0.321	0.963
120-82-1	1,2,4-Trichlorobenzene	U	0.963	ug/kg	0.321	0.963
96-12-8	1,2-Dibromo-3-chloropropane	U	0.963	ug/kg	0.481	0.963
106-93-4	1,2-Dibromoethane	U	0.963	ug/kg	0.321	0.963
95-50-1	1,2-Dichlorobenzene	U	0.963	ug/kg	0.321	0.963
107-06-2	1,2-Dichloroethane	U	0.963	ug/kg	0.321	0.963
78-87-5	1,2-Dichloropropane	U	0.963	ug/kg	0.321	0.963
541-73-1	1,3-Dichlorobenzene	U	0.963	ug/kg	0.321	0.963
106-46-7	1,4-Dichlorobenzene	U	0.963	ug/kg	0.321	0.963
123-91-1	1,4-Dioxane	U	48.1	ug/kg	16.0	48.1
78-93-3	2-Butanone	U	4.81	ug/kg	1.60	4.81
591-78-6	2-Hexanone	U	4.81	ug/kg	1.60	4.81
108-10-1	4-Methyl-2-pentanone	U	4.81	ug/kg	1.60	4.81
67-64-1	Acetone	U	4.81	ug/kg	1.60	4.81
71-43-2	Benzene	U	0.963	ug/kg	0.321	0.963
74-97-5	Bromochloromethane	U	0.963	ug/kg	0.321	0.963
75-27-4	Bromodichloromethane	U	0.963	ug/kg	0.321	0.963
75-25-2	Bromoform	U	0.963	ug/kg	0.321	0.963
74-83-9	Bromomethane	U	0.963	ug/kg	0.321	0.963
75-15-0	Carbon disulfide	U	4.81	ug/kg	1.60	4.81
56-23-5	Carbon tetrachloride	U	0.963	ug/kg	0.321	0.963
108-90-7	Chlorobenzene	U	0.963	ug/kg	0.321	0.963
75-00-3	Chloroethane	U	0.963	ug/kg	0.321	0.963
67-66-3	Chloroform	U	0.963	ug/kg	0.321	0.963
74-87-3	Chloromethane	U	0.963	ug/kg	0.321	0.963
110-82-7	Cyclohexane	U	0.963	ug/kg	0.321	0.963
124-48-1	Dibromochloromethane	U	0.963	ug/kg	0.321	0.963
75-71-8	Dichlorodifluoromethane	U	0.963	ug/kg	0.321	0.963
100-41-4	Ethylbenzene	U	0.963	ug/kg	0.321	0.963
98-82-8	Isopropylbenzene	U	0.963	ug/kg	0.321	0.963
79-20-9	Methyl acetate	U	4.81	ug/kg	1.60	4.81
108-87-2	Methylcyclohexane	U	0.963	ug/kg	0.321	0.963
75-09-2	Methylene chloride	U	4.81	ug/kg	1.60	4.81

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 16:46**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 10:54**	**Aliquot:**	**5.3 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H315.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	0.963	ug/kg	0.321	0.963
127-18-4	Tetrachloroethylene	J	0.433	ug/kg	0.321	0.963
108-88-3	Toluene	U	0.963	ug/kg	0.321	0.963
79-01-6	Trichloroethylene	U	0.963	ug/kg	0.321	0.963
75-69-4	Trichlorofluoromethane	U	0.963	ug/kg	0.321	0.963
76-13-1	Trichlorotrifluoroethane	U	4.81	ug/kg	1.60	4.81
75-01-4	Vinyl chloride	U	0.963	ug/kg	0.321	0.963
156-59-2	cis-1,2-Dichloroethylene	U	0.963	ug/kg	0.321	0.963
10061-01-5	cis-1,3-Dichloropropylene	U	0.963	ug/kg	0.321	0.963
179601-23-1	m,p-Xylenes	U	1.93	ug/kg	0.642	1.93
95-47-6	o-Xylene	U	0.963	ug/kg	0.321	0.963
1634-04-4	tert-Butyl methyl ether	U	0.963	ug/kg	0.321	0.963
156-60-5	trans-1,2-Dichloroethylene	U	0.963	ug/kg	0.321	0.963
10061-02-6	trans-1,3-Dichloropropylene	U	0.963	ug/kg	0.321	0.963

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H315.D
Acq On : 02 Nov 2016 16:46
Operator : ACJ
InstName : VOA4
Sample : |409254038|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.3G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 03 09:19:19 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1131661	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	799908	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.905	1.000	411993	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1131661	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	799908	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	411993	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	304701	49.54	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1132240	49.63	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	439287	49.14	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	99%
45) Toluene-d8	50.000	81 - 120	99%
63) Bromofluorobenzene	50.000	70 - 130	98%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		0.000	5.094	0.000	0	N.D.		
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.370	0.000	0	N.D.		
8) Ethyl ether		0.000	6.706	0.000	0	N.D.		
9) Acetone	43	7.084	7.059	0.686	4169	N.D.		
10) 1,1-Dichloroethylene		0.000	7.090	0.000	0	N.D.		
11) Iodomethane		0.000	7.327	0.000	0	N.D.		
12) Acetonitrile	41	7.395	7.407	0.716	755	N.D.		
13) Methyl acetate	43	7.425	7.456	0.719	171	N.D.		
14) Carbon disulfide	76	7.468	7.468	0.723	1693	N.D.		
15) Methylene chloride	84	7.651	7.645	0.741	7501	N.D.		
16) tert-Butyl methyl ether	73	7.955	7.955	0.770	273	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane	57	8.291	8.285	0.803	1001	N.D.		
19) Vinyl acetate	43	8.388	8.413	0.812	306	N.D.		
20) 1,1-Dichloroethane		0.000	8.461	0.000	0	N.D.		
21) 2-Butanone	43	9.053	9.028	0.877	4812	N.D.		
22) cis-1,2-Dichloroethylene		0.000	9.095	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform	83	9.412	9.400	0.911	533	N.D.		
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane	56	9.778	9.790	0.947	204	N.D.		
28) 1,1-Dichloropropene		0.000	9.839	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		0.000	10.046	0.000	0	N.D.		
32) Benzene	78	10.071	10.077	0.975	1058	N.D.		
33) Cyclohexene	67	10.327	10.199	1.000	235	N.D.		
34) n-Butyl alcohol	56	10.412	10.400	1.008	632	N.D.		
35) Trichloroethylene		0.000	10.717	0.000	0	N.D.		
36) 2-Pentanone	43	10.802	10.778	1.046	442	N.D.		
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.973	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H315.D
Acq On : 02 Nov 2016 16:46
Operator : ACJ
InstName : VOA4
Sample : |409254038|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.3G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 03 09:19:19 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.193	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	11.412	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	11.644	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.		
46) Toluene	91	12.046	12.040	0.893	3036	N.D.		
47) trans-1,3-Dichloroprop...		0.000	12.180	0.000	0	N.D.		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.		
49) 2-Hexanone	43	12.601	12.583	0.934	914	N.D.		
50) 1,3-Dichloropropane		0.000	12.595	0.000	0	N.D.		
51) Tetrachloroethylene	164	12.637	12.637	0.937	2512	0.45	ug/L	91
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	13.034	0.000	0	N.D.		
54) Chlorobenzene	112	13.527	13.521	1.003	616	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	13.576	0.000	0	N.D.		
56) Ethylbenzene	91	13.588	13.588	1.007	1014	N.D.		
57) m,p-Xylenes	106	13.704	13.698	1.016	550	N.D.		
58) o-Xylene	91	14.131	14.131	1.047	630	N.D.		
59) Styrene	104	14.125	14.131	1.047	2822	N.D.		
61) Bromoform		0.000	14.381	0.000	0	N.D.		
62) Isopropylbenzene	105	14.491	14.491	0.911	285	N.D.		
64) 1,1,2,2-Tetrachloroethane		0.000	14.747	0.000	0	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.		
66) Bromobenzene		0.000	14.893	0.000	0	N.D.		
67) n-Propylbenzene	91	14.917	14.917	0.938	922	N.D.		
68) 1,3,5-Trimethylbenzene	105	15.082	15.070	0.949	470	N.D.		
69) 2-Chlorotoluene		0.000	15.064	0.000	0	N.D.		
70) 4-Chlorotoluene	91	15.161	15.161	0.954	1932	N.D.		
71) tert-Butylbenzene		0.000	15.442	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	15.491	15.478	0.974	834	N.D.		
73) sec-Butylbenzene	105	15.661	15.661	0.985	220	N.D.		
74) 4-Isopropyltoluene	119	15.789	15.783	0.993	354	N.D.		
75) 1,3-Dichlorobenzene	146	15.844	15.844	0.997	1120	N.D.		
76) 1,4-Dichlorobenzene	146	15.923	15.929	1.002	1723	N.D.		
77) n-Butylbenzene	91	16.228	16.228	1.021	1038	N.D.		
78) 1,2-Dichlorobenzene	146	16.368	16.356	1.030	804	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	18.295	18.301	1.151	825	N.D.		
81) Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.		
82) Naphthalene	128	18.691	18.685	1.176	2477	N.D.		
83) 1,2,3-Trichlorobenzene	180	19.039	19.033	1.197	191	N.D.		
85) Acrolein		0.000	6.895	0.000	0	N.D.		
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol	45	7.138	7.139	0.691	101	Below Cal	#	58
88) Allyl chloride	41	7.535	7.511	0.730	198	N.D.		
89) tert-Butyl Alcohol	59	7.626	7.639	0.738	440	Below Cal	#	100
90) Acrylonitrile	53	7.821	7.882	0.757	1352	Below Cal	#	24
91) Isopropyl ether		0.000	8.455	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	8.577	0.000	0	N.D.		
93) Ethyl tert-butyl ether	59	8.852	8.858	0.857	100	N.D.		
94) Ethyl acetate	43	9.053	9.047	0.877	4812	Below Cal	#	73
95) Propionitrile		0.000	9.096	0.000	0	N.D.		
96) Methacrylonitrile	41	9.260	9.278	0.897	107	Below Cal	#	25
97) Tetrahydrofuran	42	9.418	9.419	0.912	682	Below Cal	#	67
98) Isobutyl alcohol	41	9.693	9.717	0.939	251	Below Cal	#	34

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H315.D
Acq On : 02 Nov 2016 16:46
Operator : ACJ
InstName : VOA4
Sample : |409254038|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.3G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 03 09:19:19 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

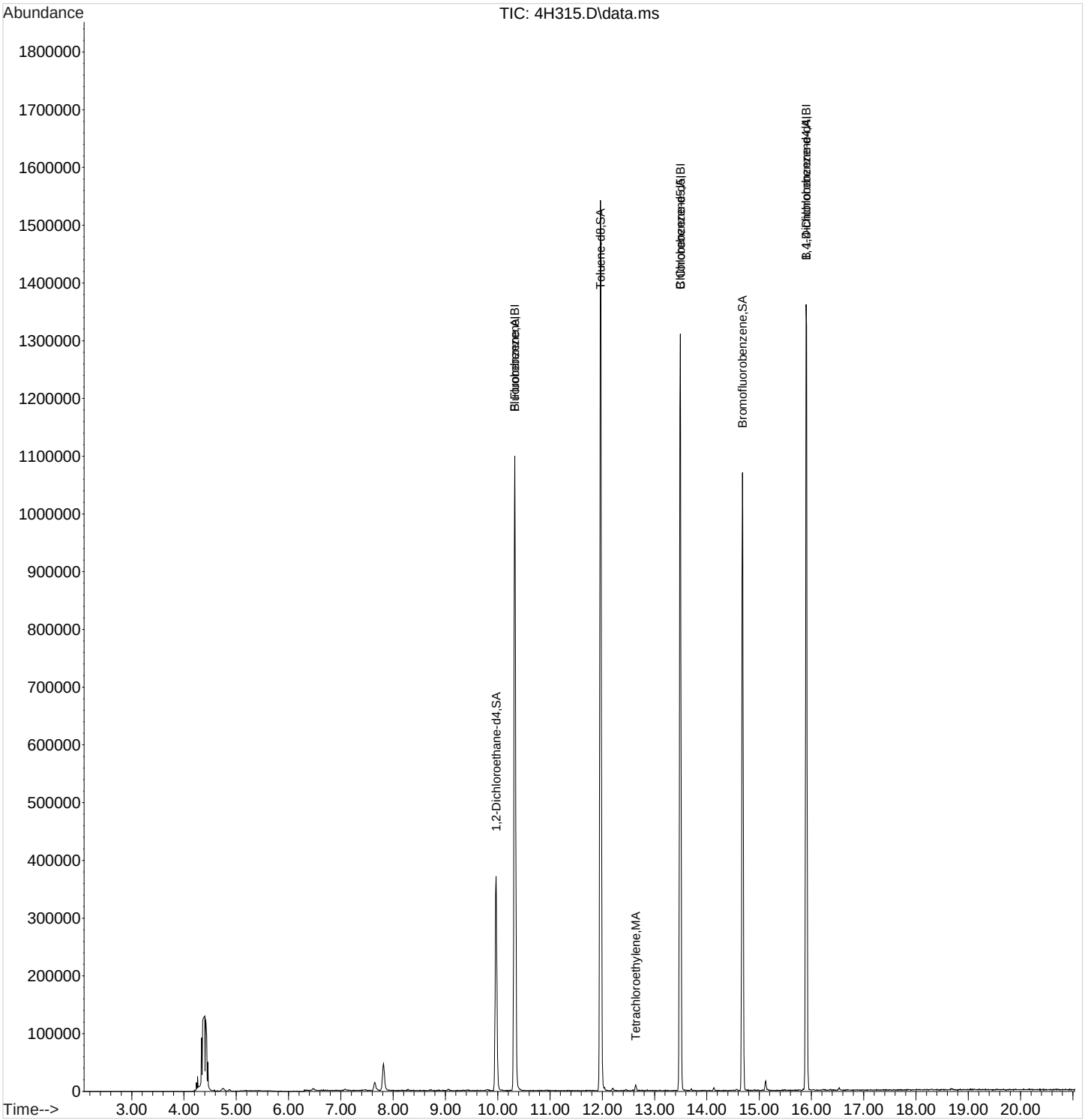
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
99)	Methyl tert-amyl ether		0.000	10.101	0.000	0	N.D.		
100)	Methyl methacrylate	69	10.930	10.925	1.058	186	Below Cal	#	1
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.		
102)	2-Nitropropane	43	11.369	11.388	1.101	104	Below Cal	#	1
104)	Ethyl methacrylate	69	12.205	12.186	0.905	396	Below Cal	#	78
106)	1-Chlorohexane		0.000	13.387	0.000	0m	N.D. d		
107)	cis-1,4-Dichloro-2-butene		0.000	14.509	0.000	0	N.D.		
108)	Cyclohexanone		0.000	14.631	0.000	0	N.D.		
109)	trans-1,4-Dichloro-2-b...		0.000	14.796	0.000	0	N.D.		
110)	Pentachloroethane		0.000	15.503	0.000	0	N.D.		
111)	Benzyl chloride	91	16.045	16.039	1.009	1384	Below Cal	#	60
112)	bis(2-Chloroisopropyl)...		0.000	16.442	0.000	0	N.D.		

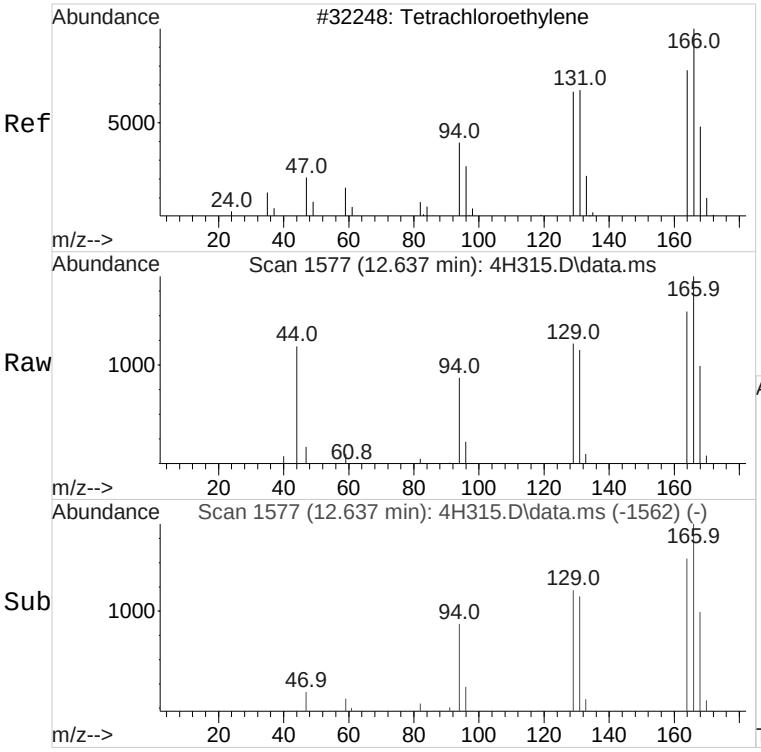
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H315.D
Acq On : 02 Nov 2016 16:46
Operator : ACJ
InstName : VOA4
Sample : |409254038|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.3G N/A SOIL
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 03 09:19:19 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

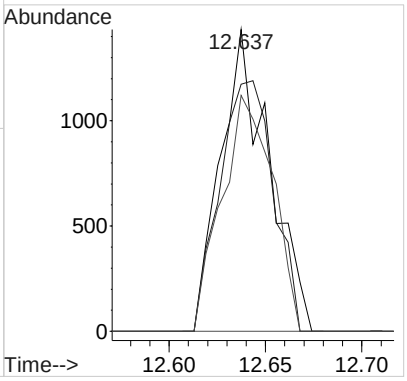


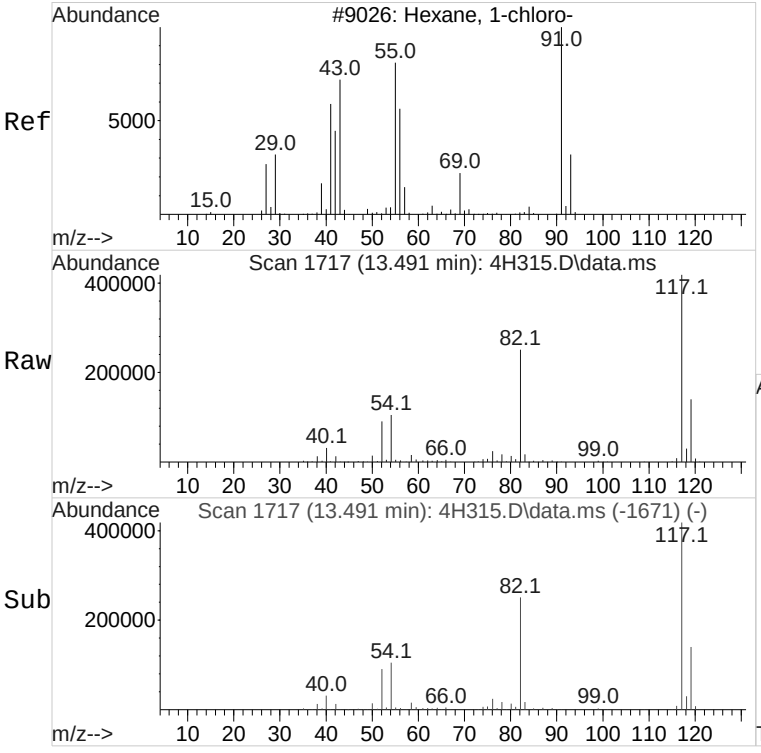


#51
Tetrachloroethylene
Concen: 0.45 ug/L
RT: 12.637 min Scan# 1577
Delta R.T. 0.000 min
Lab File: 4H315.D
Acq: 02 Nov 2016 16:46

Tgt Ion:164 Resp: 2512

Ion	Ratio	Lower	Upper
164	100		
129	91.6	66.1	126.1
131	82.2	65.3	125.3

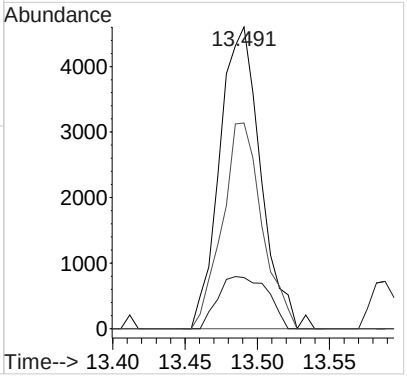




#106 BEFORE analyst DELETION
1-Chlorohexane
Concen: 0.47 ug/L
RT: 13.491 min Scan# 1717
Delta R.T. 0.104 min
Lab File: 4H315.D
Acq: 02 Nov 2016 16:46

Tgt Ion: 55 Resp: 9094

Ion	Ratio	Lower	Upper
55	100		
91	20.9	94.9	154.9#
56	65.9	28.8	88.8



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:40**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254044**	**Date Received:**	**10/27/2016 09:00**		
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**TB102616**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 17:15**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 12:40**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone	U	5.00	ug/kg	1.67	5.00
591-78-6	2-Hexanone	U	5.00	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/kg	1.67	5.00
67-64-1	Acetone	U	5.00	ug/kg	1.67	5.00
71-43-2	Benzene	U	1.00	ug/kg	0.333	1.00
74-97-5	Bromochloromethane	U	1.00	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/kg	0.333	1.00
75-25-2	Bromoform	U	1.00	ug/kg	0.333	1.00
74-83-9	Bromomethane	U	1.00	ug/kg	0.333	1.00
75-15-0	Carbon disulfide	U	5.00	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/kg	0.333	1.00
108-90-7	Chlorobenzene	U	1.00	ug/kg	0.333	1.00
75-00-3	Chloroethane	U	1.00	ug/kg	0.333	1.00
67-66-3	Chloroform	U	1.00	ug/kg	0.333	1.00
74-87-3	Chloromethane	U	1.00	ug/kg	0.333	1.00
110-82-7	Cyclohexane	U	1.00	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/kg	0.333	1.00
100-41-4	Ethylbenzene	U	1.00	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/kg	0.333	1.00
79-20-9	Methyl acetate	U	5.00	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane	U	1.00	ug/kg	0.333	1.00
75-09-2	Methylene chloride	J	2.79	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:40**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254044**	**Date Received:**	**10/27/2016 09:00**		
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**TB102616**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 17:15**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**10/26/2016 12:40**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.00	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene	J	0.400	ug/kg	0.333	1.00
108-88-3	Toluene	U	1.00	ug/kg	0.333	1.00
79-01-6	Trichloroethylene	U	1.00	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride	U	1.00	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/kg	0.667	2.00
95-47-6	o-Xylene	U	1.00	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H316.D
Acq On : 02 Nov 2016 17:15
Operator : ACJ
InstName : VOA4
Sample : |409254044|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.0G N/A SOIL TB NO SOIL ADDED
ALS Vial : 16 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 03 09:19:23 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1140923	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	819972	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.905	1.000	423435	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1140923	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	819972	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	423435	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	290296	46.82	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1110136	47.47	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	437382	47.61	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	94%
45) Toluene-d8	50.000	81 - 120	95%
63) Bromofluorobenzene	50.000	70 - 130	95%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane	50	5.188	5.094	0.502	119	N.D.		
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.370	0.000	0	N.D.		
8) Ethyl ether		0.000	6.706	0.000	0	N.D.		
9) Acetone	43	7.078	7.059	0.685	4516	N.D.		
10) 1,1-Dichloroethylene		0.000	7.090	0.000	0	N.D.		
11) Iodomethane		0.000	7.327	0.000	0	N.D.		
12) Acetonitrile	41	7.364	7.407	0.713	357	N.D.		
13) Methyl acetate	43	7.388	7.456	0.715	185	N.D.		
14) Carbon disulfide	76	7.480	7.468	0.724	2109	N.D.		
15) Methylene chloride	84	7.645	7.645	0.740	22130	2.79	ug/L	97
16) tert-Butyl methyl ether	73	7.968	7.955	0.772	2648	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane	57	8.279	8.285	0.802	2554	N.D.		
19) Vinyl acetate	43	8.425	8.413	0.816	502	N.D.		
20) 1,1-Dichloroethane		0.000	8.461	0.000	0	N.D.		
21) 2-Butanone	43	9.047	9.028	0.876	3505	N.D.		
22) cis-1,2-Dichloroethylene		0.000	9.095	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		0.000	9.400	0.000	0	N.D.		
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		0.000	9.790	0.000	0	N.D.		
28) 1,1-Dichloropropene		0.000	9.839	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		0.000	10.046	0.000	0	N.D.		
32) Benzene	78	10.083	10.077	0.976	614	N.D.		
33) Cyclohexene	67	10.333	10.199	1.001	240	N.D.		
34) n-Butyl alcohol	56	10.431	10.400	1.010	263	N.D.		
35) Trichloroethylene		0.000	10.717	0.000	0	N.D.		
36) 2-Pentanone	43	10.766	10.778	1.043	165	N.D.		
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.973	0.000	0	N.D.		

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H316.D
Acq On : 02 Nov 2016 17:15
Operator : ACJ
InstName : VOA4
Sample : |409254044|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.0G N/A SOIL TB NO SOIL ADDED
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 03 09:19:23 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.193	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	11.412	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	11.644	0.000	0	N.D.		
44) 4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.		
46) Toluene	91	12.046	12.040	0.893	2500	N.D.		
47) trans-1,3-Dichloroprop...		0.000	12.180	0.000	0	N.D.		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.		
49) 2-Hexanone	43	12.589	12.583	0.933	749	N.D.		
50) 1,3-Dichloropropane		0.000	12.595	0.000	0	N.D.		
51) Tetrachloroethylene	164	12.644	12.637	0.937	2279	0.40	ug/L	88
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.		
53) 1,2-Dibromoethane		0.000	13.034	0.000	0	N.D.		
54) Chlorobenzene	112	13.528	13.521	1.003	706	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	13.576	0.000	0	N.D.		
56) Ethylbenzene	91	13.588	13.588	1.007	983	N.D.		
57) m,p-Xylenes	106	13.698	13.698	1.015	557	N.D.		
58) o-Xylene	91	14.131	14.131	1.047	320	N.D.		
59) Styrene	104	14.131	14.131	1.047	2268	N.D.		
61) Bromoform		0.000	14.381	0.000	0	N.D.		
62) Isopropylbenzene		0.000	14.491	0.000	0	N.D.		
64) 1,1,2,2-Tetrachloroethane		0.000	14.747	0.000	0	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.		
66) Bromobenzene	156	14.893	14.893	0.936	114	N.D.		
67) n-Propylbenzene	91	14.911	14.917	0.938	796	N.D.		
68) 1,3,5-Trimethylbenzene		0.000	15.070	0.000	0	N.D.		
69) 2-Chlorotoluene		0.000	15.064	0.000	0	N.D.		
70) 4-Chlorotoluene	91	15.167	15.161	0.954	1571	N.D.		
71) tert-Butylbenzene		0.000	15.442	0.000	0	N.D.		
72) 1,2,4-Trimethylbenzene	105	15.472	15.478	0.973	666	N.D.		
73) sec-Butylbenzene	105	15.655	15.661	0.984	176	N.D.		
74) 4-Isopropyltoluene	119	15.783	15.783	0.992	491	N.D.		
75) 1,3-Dichlorobenzene	146	15.838	15.844	0.996	888	N.D.		
76) 1,4-Dichlorobenzene	146	15.929	15.929	1.002	1672	N.D.		
77) n-Butylbenzene	91	16.234	16.228	1.021	931	N.D.		
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.028	678	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	770	N.D.		
81) Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.		
82) Naphthalene	128	18.697	18.685	1.176	2771	N.D.		
83) 1,2,3-Trichlorobenzene	180	19.039	19.033	1.197	349	N.D.		
85) Acrolein	56	6.761	6.895	0.655	164	N.D.		
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol		0.000	7.139	0.000	0	N.D.		
88) Allyl chloride	41	7.480	7.511	0.724	225	N.D.		
89) tert-Butyl Alcohol	59	7.645	7.639	0.740	2394	Below Cal	#	100
90) Acrylonitrile		0.000	7.882	0.000	0	N.D.		
91) Isopropyl ether		0.000	8.455	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene		0.000	8.577	0.000	0	N.D.		
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate	43	9.047	9.047	0.876	3505	Below Cal	#	69
95) Propionitrile		0.000	9.096	0.000	0	N.D.		
96) Methacrylonitrile	41	9.230	9.278	0.894	263	Below Cal	#	34
97) Tetrahydrofuran	42	9.431	9.419	0.913	1370	Below Cal		68
98) Isobutyl alcohol	41	9.778	9.717	0.947	152	Below Cal	#	71

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H316.D
Acq On : 02 Nov 2016 17:15
Operator : ACJ
InstName : VOA4
Sample : |409254044|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.0G N/A SOIL TB NO SOIL ADDED
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 03 09:19:23 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

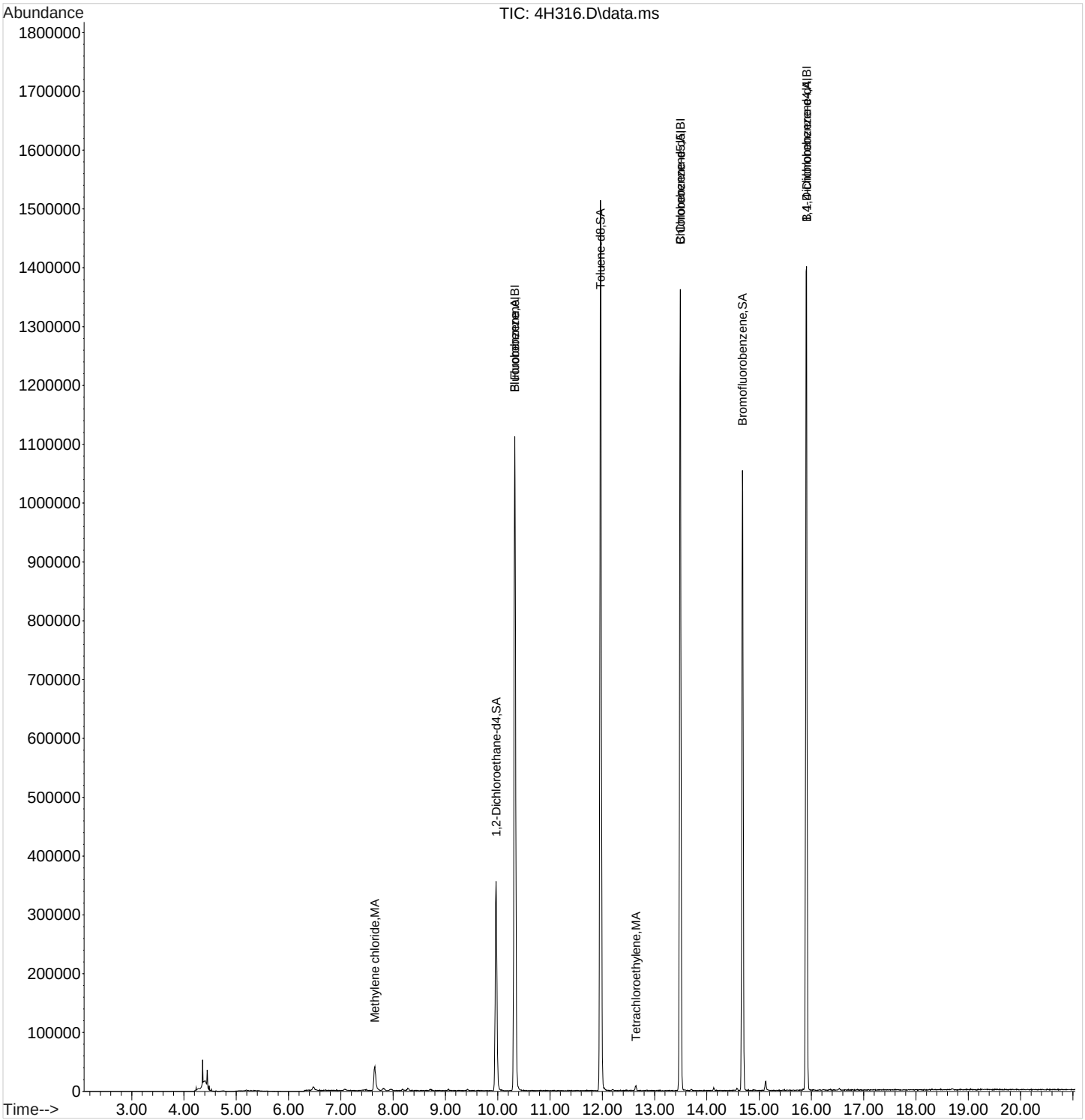
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
99)	Methyl tert-amyl ether		0.000	10.101	0.000	0	N.D.			
100)	Methyl methacrylate		0.000	10.925	0.000	0	N.D.			
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.			
102)	2-Nitropropane	43	11.363	11.388	1.100	100	Below Cal			79
104)	Ethyl methacrylate		0.000	12.186	0.000	0	N.D.			
106)	1-Chlorohexane		0.000	13.387	0.000	0m	N.D.	d		
107)	cis-1,4-Dichloro-2-butene		0.000	14.509	0.000	0	N.D.			
108)	Cyclohexanone		0.000	14.631	0.000	0	N.D.			
109)	trans-1,4-Dichloro-2-b...		0.000	14.796	0.000	0	N.D.			
110)	Pentachloroethane		0.000	15.503	0.000	0	N.D.			
111)	Benzyl chloride	91	16.039	16.039	1.008	1378	Below Cal	#		60
112)	bis(2-Chloroisopropyl)...	45	16.435	16.442	1.033	156	Below Cal	#		56

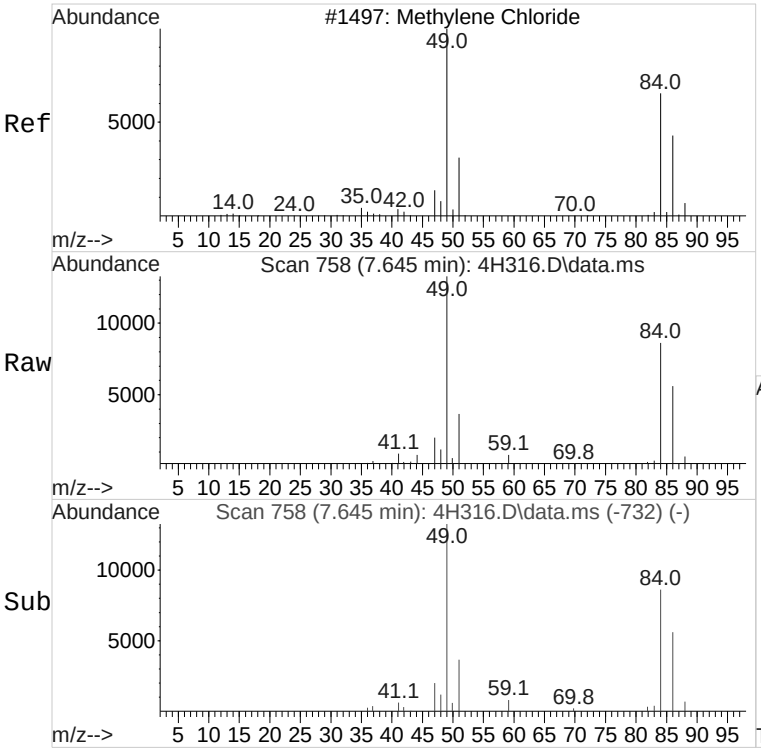
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H316.D
Acq On : 02 Nov 2016 17:15
Operator : ACJ
InstName : VOA4
Sample : |409254044|1612391|1|VOAF|1|VOA8260BS|
Misc : HAAL 5.0G N/A SOIL TB NO SOIL ADDED
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 03 09:19:23 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

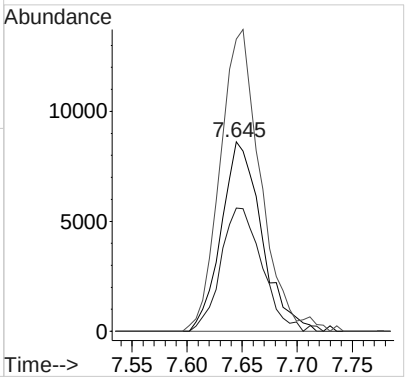


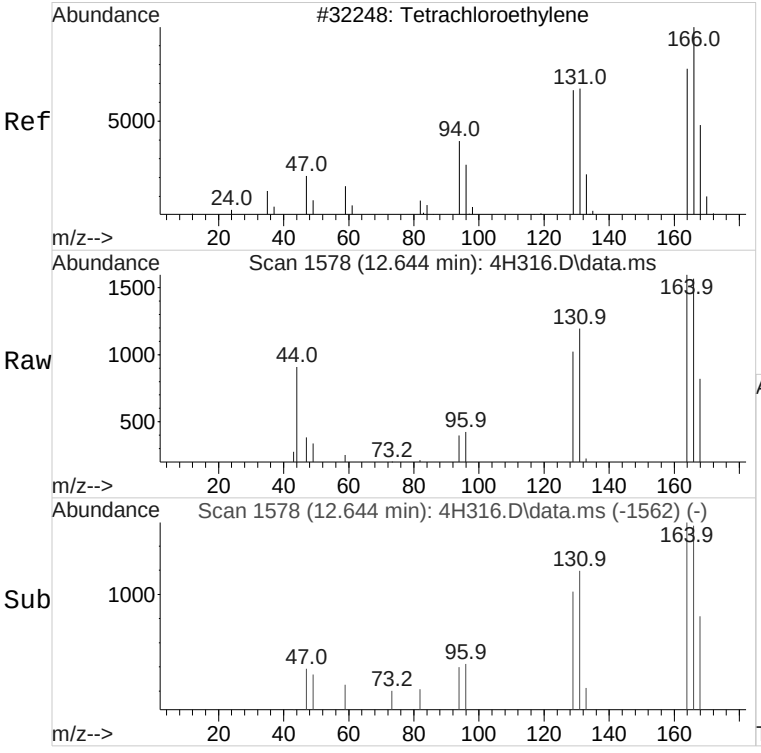


#15
Methylene chloride
Concen: 2.79 ug/L
RT: 7.645 min Scan# 758
Delta R.T. -0.000 min
Lab File: 4H316.D
Acq: 02 Nov 2016 17:15

Tgt Ion: 84 Resp: 22130

Ion	Ratio	Lower	Upper
84	100		
86	65.8	34.9	94.9
49	159.4	124.4	184.4

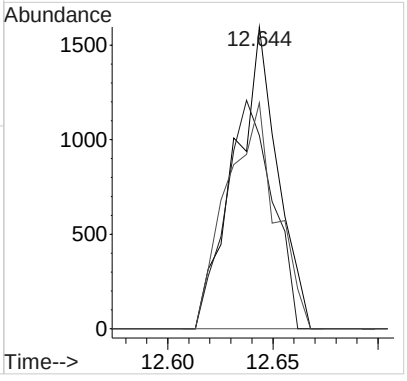


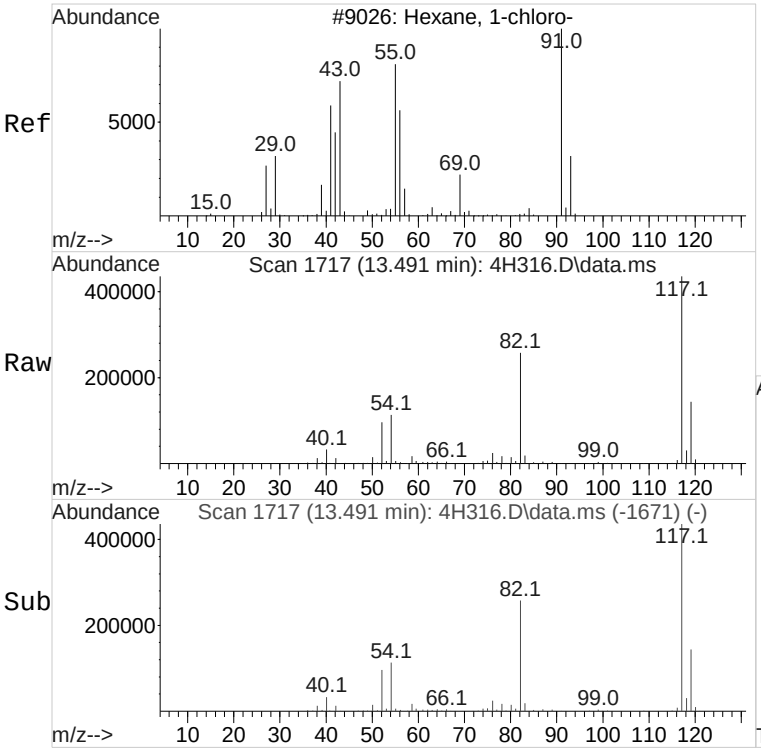


#51
Tetrachloroethylene
Concen: 0.40 ug/L
RT: 12.644 min Scan# 1578
Delta R.T. 0.007 min
Lab File: 4H316.D
Acq: 02 Nov 2016 17:15

Tgt Ion:164 Resp: 2279

Ion	Ratio	Lower	Upper
164	100		
129	82.3	66.1	126.1
131	85.3	65.3	125.3

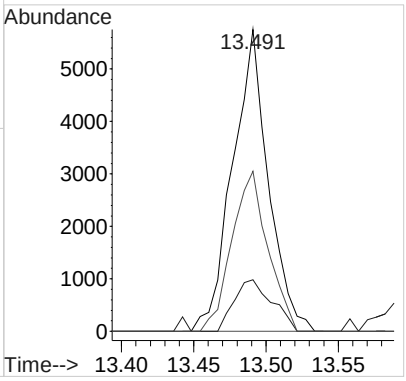




#106 BEFORE analyst DELETION
1-Chlorohexane
Concen: 0.55 ug/L
RT: 13.491 min Scan# 1717
Delta R.T. 0.104 min
Lab File: 4H316.D
Acq: 02 Nov 2016 17:15

Tgt Ion: 55 Resp: 9879

Ion	Ratio	Lower	Upper
55	100		
91	18.2	94.9	154.9#
56	53.4	28.8	88.8



Standards

Low level SW846 8260B and Regular level 8260B and EPA 624

Calibration Standard Concentration Levels

	Level 1	Level 1a	Level 2	Level 3	Level 4	Level 5	Level 6 #	Level 7 !	Level 7a
Fluorobenzene (IS)	20	20/50	20/50	20/50	20/50	20/50	20/50	20/50	20/50
1,2-Dichloroethane-d4(surr)		20/50	20/50	20/50	20/50	20/50	20/50	20/50	20/50
Dichlorodifluoromethane		0.5	1	2	5	10	20	50	100
Chloromethane		0.5	1	2	5	10	20	50	100
Vinyl chloride		0.5	1	2	5	10	20	50	100
Bromomethane		0.5	1	2	5	10	20	50	100
Chloroethane		0.5	1	2	5	10	20	50	100
Trichlorofluoromethane		0.5	1	2	5	10	20	50	100
1,1-Dichloroethene		0.5	1	2	5	10	20	50	100
Acetone	1	2.5	5	10	25	50	100	250	500
Iodomethane	1	2.5	5	10	25	50	100	250	500
Carbon disulfide	1	2.5	5	10	25	50	100	250	500
Methylene chloride		0.5	1	2	5	10	20	50	100
trans-1,2-Dichloroethene		0.5	1	2	5	10	20	50	100
1,1-Dichloroethane		0.5	1	2	5	10	20	50	100
Ethyl ether		0.5	1	2	5	10	20	50	100
Vinyl acetate	1	2.5	5	10	25	50	100	250	500
cis-1,2-Dichloroethene		0.5	1	2	5	10	20	50	100
1,2-Dichloroethene (total)		1	2	4	10	20	40	100	200
Cyclohexene		0.5	1	2	5	10	20	50	100
2-Chloroethylvinyl ether			5	10	25	50	100	250	500
2,2-Dichloropropane		0.5	1	2	5	10	20	50	100
2-Butanone	1	2.5	5	10	25	50	100	250	500
Bromochloromethane		0.5	1	2	5	10	20	50	100
Chloroform		0.5	1	2	5	10	20	50	100
1,1,1-Trichloroethane		0.5	1	2	5	10	20	50	100
1,1-Dichloropropene		0.5	1	2	5	10	20	50	100
Carbon tetrachloride		0.5	1	2	5	10	20	50	100
Benzene		0.5	1	2	5	10	20	50	100
1,2-Dichloroethane		0.5	1	2	5	10	20	50	100
Trichloroethene		0.5	1	2	5	10	20	50	100
1,2-Dichloropropane		0.5	1	2	5	10	20	50	100
Dibromomethane		0.5	1	2	5	10	20	50	100
Bromodichloromethane		0.5	1	2	5	10	20	50	100
cis-1,3-Dichloropropene		0.5	1	2	5	10	20	50	100
tert-Butylmethylether		0.5	1	2	5	10	20	50	100
Ethyl Ether			1	2	5	10	20	50	100
Acetonitrile			25	50	125	250	500	1250	2500
Methyl acetate			5	10	25	50	100	250	500
Cyclohexane			1	2	5	10	20	50	100
Methylcyclohexane			1	2	5	10	20	50	100
n-Butyl alcohol		50	100	200	500	1000	2000	5000	10000
2-Nitropropane			5	10	25	50	100	250	500
Ethyl acetate			5	10	25	50	100	250	500
Acrolein			5	10	25	50	100	250	500
Trichlorotrifluoroethane		2	5	10	25	50	100	250	500
Allyl chloride			5	10	25	50	100	250	500
Acrylonitrile			5	10	25	50	100	250	500
1,4-Dioxane			50	100	250	500	1000	2500	5000
Isobutyl alcohol			50	100	250	500	1000	2500	5000
Methacrylonitrile			5	10	25	50	100	250	500
Propionitrile			5	10	25	50	100	250	500
Methyl methacrylate			5	10	25	50	100	250	500
Chlorotrifluoroethylene			5	10	25	50	100	150	200
2-Chloro-1,1,1-trifluoroethane			5	10	25	50	100	150	200
Tetrahydrofuran			5	10	25	50	100	250	500
tert-Butyl alcohol			50	100	250	500	1000	2500	5000
Isopropyl ether			1	2	5	10	20	50	100
Ethyl tert-butyl ether			1	2	5	10	20	50	100
Isopropyl alcohol			50	100	250	500	1000	2500	5000
Methyl tert-amyl ether			1	2	5	10	20	50	100
1-Chlorohexane			1	2	5	10	20	50	100
2-Chloro-1,3-butadiene(chloroprene)			1	2	5	10	20	50	100
Chlorobenzene-d5 (IS)	20	20	20/50	20/50	20/50	20/50	20/50	20/50	20/50
Toluene-d8 (surr)		20	20/50	20/50	20/50	20/50	20/50	20/50	20/50
4-Methyl-2-pentanone	1	2.5	5	10	25	50	100	250	500
Toluene		0.5	1	2	5	10	20	50	100
trans-1,3-Dichloropropene		0.5	1	2	5	10	20	50	100
1,1,2-Trichloroethane		0.5	1	2	5	10	20	50	100
Tetrachloroethene		0.5	1	2	5	10	20	50	100
1,3-Dichloropropane		0.5	1	2	5	10	20	50	100
2-Hexanone	1	2.5	5	10	25	50	20	250	500
Dibromochloromethane		0.5	1	2	5	10	20	50	100
1,2-Dibromoethane		0.5	1	2	5	10	20	50	100
Chlorobenzene		0.5	1	2	5	10	20	50	100
1,1,1,2-Tetrachloroethane		0.5	1	2	5	10	20	50	100
Ethylbenzene		0.5	1	2	5	10	20	50	100
m,p-Xylene		1	2	4	10	20	20	100	200
o-Xylene		0.5	1	2	5	10	20	50	100
Xylenes (total)		1.5	3	6	15	30	60	150	300
Stryene		0.5	1	2	5	10	20	50	100
Ethyl methacrylate			5	10	25	50	100	250	500
1,4-Dichlorobenzene-d4 (IS)	20	20	20/50	20/50	20/50	20/50	20/50	20/50	20/50
Bromofluorobenzene (surr)		20	20/50	20/50	20/50	20/50	20/50	20/50	20/50
Bromoform		0.5	1	2	5	10	20	50	100
Isopropylbenzene		0.5	1	2	5	10	20	50	100
1,1,2,2-Tetrachloroethane		0.5	1	2	5	10	20	50	100
Bromobenzene		0.5	1	2	5	10	20	50	100
1,2,3-Trichloropropane		0.5	1	2	5	10	20	50	100
n-Propylbenzene		0.5	1	2	5	10	20	50	100
2-Chlorotoluene		0.5	1	2	5	10	20	50	100
1,3,5-Trimethylbenzene		0.5	1	2	5	10	20	50	100
4-Chlorotoluene		0.5	1	2	5	10	20	50	100
1,2,4-Trimethylbenzene		0.5	1	2	5	10	20	50	100
sec-Butylbenzene		0.5	1	2	5	10	20	50	100
1,3-Dichlorobenzene		0.5	1	2	5	10	20	50	100
tert-Butylbenzene		0.5	1	2	5	10	20	50	100
Isopropyltoluene		0.5	1	2	5	10	20	50	100
1,4-Dichlorobenzene		0.5	1	2	5	10	20	50	100
n-Butylbenzene		0.5	1	2	5	10	20	50	100
1,2-Dichlorobenzene		0.5	1	2	5	10	20	50	100
1,2-Dibromo-3-chloropropa		0.5	1	2	5	10	20	50	100
1,2,4-Trichlorobenzene		0.5	1	2	5	10	20	50	100
Hexachlorobutadiene		0.5	1	2	5	10	20	50	100
Naphthalene		0.5	1	2	5	10	20	50	100
1,2,3-Trichlorobenzene		0.5	1	2	5	10	20	50	100
cis-1,4-Dichloro-2-butene			5	10	25	50	100	250	500
trans-1,4-Dichloro-2-butene			5	10	25	50	100	250	500
Pentachloroethane			5	10	25	50	100	250	500
Benzyl chloride			5	10	25	50	100	250	500
Cyclohexanone			25	50	125	250	500	1250	2500
bis(2-Chloro-isopropyl)ether			5	10	25	50	100	250	500

Method	PQL	Concentration range		
SW 846 8260B low level	Level 1 &1a	Levels 1-> 7a	IS/SS @ 20 ppb	
EPA 524.2	Level 1a	Levels 1a-> 7a	IS/SS @ 20 ppb	
SW846 8260B/624	Level 2	Levels 1a-> 7a	IS/SS @ 50 ppb	n-butyl alchol only in 1a

#: Indicates calibration verification concentration level used for low level analysis

!: Indicates calibration verification concentration level used for regular level analysis

Calibration History Report VOA4
GEL Laboratories, LLC
Method File : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Last Update : Tue Nov 01 08:22:19 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

Cal Lvl:8 Amt:0.00 Last Updated with: C:\msdchem\1\data\103116V4\4H102.D

Injection Date	Mix	Calibration File
31 Oct 2016 16:55	A	C:\msdchem\1\data\103116V4\4H102.D

Cal Lvl:1 Amt:1.00 Last Updated with: C:\msdchem\1\data\103116V4\4H113.D

Injection Date	Mix	Calibration File
31 Oct 2016 17:24	A	C:\msdchem\1\data\103116V4\4H103.D
31 Oct 2016 22:15	B	C:\msdchem\1\data\103116V4\4H113.D

Cal Lvl:2 Amt:2.00 Last Updated with: C:\msdchem\1\data\103116V4\4H114.D

Injection Date	Mix	Calibration File
31 Oct 2016 17:53	A	C:\msdchem\1\data\103116V4\4H104.D
31 Oct 2016 22:45	B	C:\msdchem\1\data\103116V4\4H114.D

Cal Lvl:3 Amt:5.00 Last Updated with: C:\msdchem\1\data\103116V4\4H105.D

Injection Date	Mix	Calibration File
31 Oct 2016 18:22	A	C:\msdchem\1\data\103116V4\4H105.D

Cal Lvl:4 Amt:10.00 Last Updated with: C:\msdchem\1\data\103116V4\4H115.D

Injection Date	Mix	Calibration File
31 Oct 2016 18:52	A	C:\msdchem\1\data\103116V4\4H106.D
31 Oct 2016 23:14	B	C:\msdchem\1\data\103116V4\4H115.D

Cal Lvl:5 Amt:20.00 Last Updated with: C:\msdchem\1\data\103116V4\4H116.D

Injection Date	Mix	Calibration File
31 Oct 2016 19:21	A	C:\msdchem\1\data\103116V4\4H107.D
31 Oct 2016 23:43	B	C:\msdchem\1\data\103116V4\4H116.D

Cal Lvl:6 Amt:50.00 Last Updated with: C:\msdchem\1\data\103116V4\4H117.D

Injection Date	Mix	Calibration File
31 Oct 2016 19:49	A	C:\msdchem\1\data\103116V4\4H108.D
01 Nov 2016 00:12	B	C:\msdchem\1\data\103116V4\4H117.D

Cal Lvl:7 Amt:100.00 Last Updated with: C:\msdchem\1\data\103116V4\4H118.D

Injection Date	Mix	Calibration File
31 Oct 2016 20:48	A	C:\msdchem\1\data\103116V4\4H110.D
01 Nov 2016 00:41	B	C:\msdchem\1\data\103116V4\4H118.D

Cal Lvl:9 Amt:80.00 Last Updated with: C:\msdchem\1\data\103116V4\4H109.D

Injection Date	Mix	Calibration File
31 Oct 2016 20:19	A	C:\msdchem\1\data\103116V4\4H109.D

Calibration History Report VOA4
GEL Laboratories, LLC
Method File : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Last Update : Tue Nov 01 08:22:19 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

VOA4-8260-103116.M Thu Nov 10 10:56:43 2016

Response Factor Report VOA4
GEL Laboratories, LLC

Method File : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Last Update : Tue Nov 01 08:22:19 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
2)MA Dichlorodifluoromethane		0.2753219	0.3180561	0.3562092	0.3118962	0.3160879				
	0.3236568	0.2525073	0.2555751				0.3012	AVRG		12.0852
3)MPA Chloromethane		0.3645142	0.3746197	0.3725923	0.3442270	0.3325362				
	0.3194000	0.2713619	0.2817624				0.3326	AVRG		11.9326
4)MCA Vinyl chloride		0.2447916	0.2874132	0.2904501	0.2732788	0.2760217				
	0.2801957	0.2459574	0.2509243				0.2686	AVRG		6.9426
5)MA Bromomethane		0.2693257	0.2801778	0.2996767	0.2787858	0.2776348				
	0.2797639	0.2597082	0.2610746				0.2758	AVRG		4.6174
6)MA Chloroethane		0.2598819	0.2803809	0.2897995	0.2721166	0.2706396				
	0.2706749	0.2488736	0.2529413				0.2682	AVRG		5.1166
7)MA Trichlorofluoromethane		0.4008407	0.4683000	0.4845139	0.4646495	0.4517698				
	0.4644164	0.4239949	0.4341047				0.4491	AVRG		6.1218
8)MA Ethyl ether		0.2473400	0.2580905	0.2568066	0.2528202	0.2611890				
	0.2600112	0.2470833	0.2431252				0.2533	AVRG		2.6710
9)MA Acetone		0.1787344	0.1893866	0.1624648	0.1677363	0.1567541				
	0.1486690	0.1348732	0.1391228				0.1597	AVRG		11.7990
10)MCA 1,1-Dichloroethylene		0.4887338	0.5351456	0.5205035	0.5339255	0.5071008				
	0.4991349	0.4785801	0.4862701				0.5062	AVRG		4.3070
11)MA Iodomethane		0.4823479	0.5383851	0.5258206	0.5259833	0.5059812				
	0.4770931	0.4335327	0.4476491				0.4921	AVRG		7.8126
12)MA Acetonitrile		0.0367082	0.0371431	0.0365881	0.0374381	0.0357483				
	0.0355262	0.0327745	0.0345313				0.0358	AVRG		4.3231
13)MA Methyl acetate		0.2028088	0.2121288	0.1976855	0.2188741	0.2026164				
	0.1978002	0.1740142	0.1810099				0.1984	AVRG		7.4841
14)MA Carbon disulfide		1.0193105	1.1576957	1.1135698	1.0958830	1.0236091				
	0.9362052	0.7779454	0.8429167				0.9959	AVRG		13.4615
15)MA Methylene chloride			0.4484977	0.3699012	0.3469437	0.3360129				
	0.3128837	0.3087692	0.3070001				0.3471	AVRG		14.4857
16)MA tert-Butyl methyl ether		0.7690524	0.8327900	0.8227234	0.8117207	0.8202718				
	0.8068619	0.7806100	0.7763150				0.8025	AVRG		2.9897

Response Factor Report VOA4
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Compound	8	1	2	3	4	5	Avg	Curve	Exp	%RSD/r2
b m1 m2	6	7	9							
17)MA trans-1,2-Dichloroethyle		0.4373171	0.5294842	0.4901031	0.5035072	0.4879959				
	0.4735236	0.4491991	0.4524017				0.4779	AVRG		6.4768
18)MA Hexane				0.5664590	0.5575568	0.5371763				
	0.5306288	0.4958174	0.5143590				0.5337	AVRG		4.9385
19)MA Vinyl acetate		0.5789554	0.5868906	0.5839087	0.5597106	0.5884034				
	0.5395050	0.4752383	0.4982736				0.5514	AVRG		7.8993
20)MPA 1,1-Dichloroethane		0.5538417	0.6369500	0.6060071	0.5865726	0.5870785				
	0.5647357	0.5423702	0.5472473				0.5781	AVRG		5.6205
21)MA 2-Butanone		0.2028987	0.2276457	0.2084656	0.2109731	0.2022088				
	0.1935484	0.1749047	0.1814929				0.2003	AVRG		8.4043
22)MA cis-1,2-Dichloroethylene		0.3142467	0.3489782	0.3487471	0.3474733	0.3440075				
	0.3319556	0.3175144	0.3207497				0.3342	AVRG		4.4738
23)MA 2,2-Dichloropropane		0.4848363	0.5269454	0.5179307	0.5082246	0.4951532				
	0.4929339	0.4675159	0.4806073				0.4968	AVRG		4.0017
24)MA Bromochloromethane		0.1354624	0.1433893	0.1386945	0.1402584	0.1442805				
	0.1393317	0.1372083	0.1363933				0.1394	AVRG		2.2740
25)MCA Chloroform		0.5069720	0.5732270	0.5402973	0.5418255	0.5343624				
	0.5205255	0.5017610	0.5039453				0.5279	AVRG		4.6367
26)MA 1,1,1-Trichloroethane		0.4949797	0.5294334	0.5289612	0.5174389	0.5075060				
	0.5047404	0.4834164	0.4876208				0.5068	AVRG		3.4789
27)MA Cyclohexane		0.6539269	0.7888441	0.7280129	0.6997621	0.6791586				
	0.6669308	0.6241319	0.6414700				0.6853	AVRG		7.7564
28)MA 1,1-Dichloropropene		0.4217771	0.4753578	0.4367348	0.4446077	0.4345751				
	0.4231636	0.3973891	0.4069398				0.4301	AVRG		5.5906
29)MA Carbon tetrachloride		0.4125331	0.4426331	0.4420677	0.4370215	0.4391862				
	0.4417947	0.4243788	0.4293978				0.4336	AVRG		2.4805
30)SA 1,2-Dichloroethane-d4		0.2719860	0.2720121	0.2724395	0.2753257	0.2704073				
	0.2686363	0.2718092	0.2713822				0.2717	AVRG		0.6957
31)MA 1,2-Dichloroethane		0.3692611	0.3951583	0.3817203	0.3856788	0.3889377				
	0.3828196	0.3680527	0.3691571				0.3801	AVRG		2.6837

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Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
32)MA Benzene		1.2920141	1.3654984	1.2875323	1.2840544	1.2489246				
	1.2055792	1.1130347	1.1452310				1.2427	AVRG		6.7298
33)MA Cyclohexene		0.5994122	0.6712486	0.6463044	0.6150784	0.6104755				
	0.5981587	0.5584960	0.5715783				0.6088	AVRG		6.0399
34)MA n-Butyl alcohol	0.0086181	0.0075891	0.0066841	0.0084871	0.0096434	0.0074136				
	0.0093340	0.0086540	0.0090807				0.0084	AVRG	#	11.5993
35)MA Trichloroethylene		0.3282376	0.3410319	0.3379236	0.3249943	0.3214061				
	0.3202656	0.2999736	0.3040507				0.3222	AVRG		4.5031
36)MA 2-Pentanone			0.2136571	0.2141159	0.2230747	0.2192788				
	0.2207875	0.2049117	0.2106949				0.2152	AVRG		2.9360
37)MCA 1,2-Dichloropropane		0.3147464	0.3285919	0.3421032	0.3435698	0.3383209				
	0.3264887	0.3056809	0.3130283				0.3266	AVRG		4.3797
38)MA Methylcyclohexane		0.5890689	0.6872936	0.6583995	0.6276664	0.6164910				
	0.6011311	0.5502186	0.5685148				0.6123	AVRG		7.4168
39)MA Dibromomethane		0.1684410	0.1812422	0.1681781	0.1691810	0.1650478				
	0.1641637	0.1600389	0.1606669				0.1671	AVRG		3.9908
40)MA Bromodichloromethane		0.3628153	0.4103655	0.3854662	0.3977078	0.4026066				
	0.3999634	0.3969779	0.3904653				0.3933	AVRG		3.6644
41)MA 2-Chloroethylvinyl ether		0.1367115	0.1437345	0.1822324	0.1488195	0.1489280				
	0.1491568	0.1381147	0.1410028				0.1486	AVRG		9.7337
42)MA cis-1,3-Dichloropropylen		0.4498589	0.5026241	0.4942925	0.4971470	0.4991946				
	0.4872752	0.4782556	0.4797292				0.4860	AVRG		3.5213
44)MA 4-Methyl-2-pentanone		0.1521653	0.1765909	0.1590832	0.1651938	0.1612326				
	0.1544977	0.1412451	0.1478495				0.1572	AVRG		6.9436
45)SA Toluene-d8		1.4599180	1.4318285	1.4488981	1.4092147	1.4161083				
	1.4029245	1.4137137	1.4246942				1.4259	AVRG		1.3959
46)MCA Toluene		1.8843332	2.0379214	1.8666643	1.8501546	1.8083677				
	1.7073162	1.5563178	1.6176189				1.7911	AVRG		8.7352
47)MA trans-1,3-Dichloropropyl		0.5131284	0.5621049	0.5647121	0.5817443	0.5918986				
	0.5758160	0.5581646	0.5721135				0.5650	AVRG		4.1872

Response Factor Report VOA4
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For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
48)MA 1,1,2-Trichloroethane		0.2784856	0.3115978	0.2813906	0.2863625	0.2833495				
	0.2779272	0.2691675	0.2715085				0.2825	AVRG		4.6335
49)MA 2-Hexanone		0.3937056	0.4666833	0.4361292	0.4178598	0.4037719				
	0.3592686	0.3062202	0.3441521				0.3910	AVRG		13.3414
50)MA 1,3-Dichloropropane		0.5304421	0.5995361	0.5840075	0.5797783	0.5798673				
	0.5318935	0.4920049	0.5113549				0.5511	AVRG		7.1755
51)MA Tetrachloroethylene		0.3642863	0.3880494	0.3758265	0.3426202	0.3547125				
	0.3389146	0.3170339	0.3259785				0.3509	AVRG		6.9595
52)MA Dibromochloromethane		0.3201642	0.3642487	0.3556897	0.3785152	0.3831415				
	0.3816497	0.3832863	0.3833719				0.3688	AVRG		6.0163
53)MA 1,2-Dibromoethane		0.2870727	0.3397419	0.3198160	0.3418973	0.3331819				
	0.3328780	0.3216343	0.3239899				0.3250	AVRG		5.3411
54)MPA Chlorobenzene		1.1843143	1.2841048	1.2098885	1.1964987	1.1673890				
	1.1361211	1.0506767	1.0827783				1.1640	AVRG		6.3489
55)MA 1,1,1,2-Tetrachloroethan		0.3938173	0.4512235	0.4185689	0.4152209	0.4241653				
	0.4120126	0.3897662	0.3983972				0.4129	AVRG		4.7948
56)MCA Ethylbenzene		2.1772702	2.3803117	2.2505179	2.1409153	2.1086647				
	1.9858080	1.7557670	1.8459701				2.0807	AVRG		9.9832
57)MA m,p-Xylenes		0.8134656	0.8862562	0.8643637	0.8473015	0.8215523				
	0.7584882	0.6739281	0.7086450				0.7968	AVRG		9.5284
58)MA o-Xylene		1.9079301	1.8925750	1.8321559	1.7567858	1.7237058				
	1.6005644	1.4125785	1.4891300				1.7019	AVRG		10.8458
59)MA Styrene		1.3034160	1.4089699	1.3475081	1.3501586	1.3148630				
	1.2403514	1.1056523	1.1579502				1.2786	AVRG		8.0807
61)MPA Bromoform		0.3259264	0.3931366	0.3737819	0.4292556	0.4342191				
	0.4463923	0.4612162	0.4483448				0.4140	AVRG		11.1467
62)MA Isopropylbenzene		4.2215292	4.5702130	4.2499962	4.2905206	4.1248197				
	3.9029753	3.4897665	3.6345884				4.0606	AVRG		8.8826
63)SA Bromofluorobenzene		1.1023366	1.0837592	1.0816596	1.0814327	1.0736913				
	1.0824176	1.0897425	1.0838981				1.0849	AVRG		0.7666

Response Factor Report VOA4
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Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
64)MPA 1,1,2,2-Tetrachloroethan		0.8880102	0.8921281	0.9027344	0.9061443	0.8893180				
	0.8808304	0.8448042	0.8484294				0.8815	AVRG		2.6134
65)MA 1,2,3-Trichloropropane		0.2064554	0.2706532	0.2282189	0.2357152	0.2414259				
	0.2319875	0.2273882	0.2276203				0.2337	AVRG		7.7253
66)MA Bromobenzene		0.8960987	0.9981181	0.9527549	0.9520013	0.9403289				
	0.9115637	0.8591900	0.8740216				0.9230	AVRG		5.0143
67)MA n-Propylbenzene		5.3450338	5.6265986	5.2265160	5.0806418	4.9682162				
	4.6109881	4.0085865	4.2728669				4.8924	AVRG		11.3038
68)MA 1,3,5-Trimethylbenzene		3.4158625	3.8820212	3.5898413	3.6398760	3.4915291				
	3.2527044	2.8821969	3.0394375				3.3992	AVRG		9.6576
69)MA 2-Chlorotoluene		0.9690277	1.0119753	0.9648534	0.9654718	0.9380292				
	0.8842351	0.7994816	0.8324064				0.9207	AVRG		8.0802
70)MA 4-Chlorotoluene		3.2715956	3.3079309	3.1665472	3.1260242	3.0225341				
	2.8978383	2.6533101	2.7505192				3.0245	AVRG		7.9111
71)MA tert-Butylbenzene		0.7063507	0.7933708	0.7320594	0.7443032	0.7171631				
	0.7044287	0.6518893	0.6771592				0.7158	AVRG		5.9951
72)MA 1,2,4-Trimethylbenzene		3.5306925	3.9463047	3.6851041	3.6357531	3.5658502				
	3.3695278	3.0292464	3.1570163				3.4899	AVRG		8.4767
73)MA sec-Butylbenzene		4.4750570	4.9873461	4.8796253	4.8686653	4.6820579				
	4.3696813	3.8252534	4.0614181				4.5186	AVRG		9.2130
74)MA 4-Isopropyltoluene		3.6227157	4.1986394	4.0011387	4.0094800	3.8719673				
	3.6308727	3.2677659	3.4142679				3.7521	AVRG		8.5605
75)MA 1,3-Dichlorobenzene		2.0108518	2.0903295	1.9815066	1.9962350	1.9591600				
	1.8702444	1.7460870	1.7987478				1.9316	AVRG		6.0225
76)MA 1,4-Dichlorobenzene		1.9037125	2.0724842	1.9423137	1.9402136	1.9230644				
	1.8414905	1.7347245	1.7809617				1.8924	AVRG		5.5835
77)MA n-Butylbenzene		4.0573726	4.2051286	4.0646303	4.0012083	3.8756716				
	3.6234105	3.2400713	3.3931008				3.8076	AVRG		9.1864
78)MA 1,2-Dichlorobenzene		1.8270707	1.9053876	1.8227268	1.8680638	1.8136015				
	1.7506145	1.6676291	1.6921929				1.7934	AVRG		4.6370

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Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
79)MA 1,2-Dibromo-3-chloroprop		0.1271617	0.1454660	0.1443175	0.1611540	0.1617868				
	0.1754082	0.1751386	0.1720107				0.1578	AVRG		11.0082
80)MA 1,2,4-Trichlorobenzene		1.1028193	1.2634313	1.2222002	1.2096661	1.1883663				
	1.1594121	1.1130078	1.1270742				1.1732	AVRG		4.8853
81)MA Hexachlorobutadiene		0.6069020	0.7231388	0.6793192	0.6941808	0.7087811				
	0.6913275	0.6487213	0.6611181				0.6767	AVRG		5.4754
82)MA Naphthalene		2.4327793	2.5540360	2.5529054	2.6447923	2.6467410				
	2.5750529	2.4815621	2.5165903				2.5506	AVRG		2.9090
83)MA 1,2,3-Trichlorobenzene		0.9064414	1.0329299	1.0462640	1.0683614	1.0246456				
	1.0243869	0.9945790	0.9987502				1.0120	AVRG		4.8297
85)B Acrolein		0.0482524	0.0387182		0.0449619	0.0436578				
	0.0480362	0.0458191					0.0449	AVRG		7.8211
86)B Trichlorotrifluoroethane		0.1426851	0.0905405		0.1219794	0.1244292				
	0.1206906	0.1127733					0.1188	AVRG		14.3323
87)B Isopropyl Alcohol		27274	29153		228789	424797				
0.0312 | 0.0191 | 0.00	1149555	1997808						LINR	#	0.9933
88)B Allyl chloride		0.5888172	0.4104241		0.5530493	0.5725825				
	0.5184631	0.4605448					0.5173	AVRG		13.4188
89)B tert-Butyl Alcohol		41185	42463		336042	643092				
0.0469 | 0.0287 | 0.00	1737086	2998811						LINR	#	0.9926
90)B Acrylonitrile		11131	13625		97958	187065				
0.0088 | 0.0861 | 0.00	489800	905676						LINR	#	0.9976
91)B Isopropyl ether		1.2797925	0.8272586		1.1235138	1.1637317				
	1.1316793	1.0668769					1.0988	AVRG		13.7069
92)B 2-Chloro-1,3-butadiene		0.5548123	0.3473312		0.4823384	0.5117029				
	0.4902357	0.4744928					0.4768	AVRG		14.6154
93)B Ethyl tert-butyl ether		1.0639314	0.6701995		0.9565245	0.9841002				
	0.9631465	0.9156030					0.9256	AVRG		14.5155
94)B Ethyl acetate		35088	39362		269952	516665				
0.0432 | 0.2221 | 0.00	1332801	2330834						LINR	#	0.9937

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Compound	8	1	2	3	4	5	Avg	Curve	Exp	%RSD/r2	
b m1 m2	6	7	9								
95)B Propionitrile		4376	5331		38428	74859					
0.0033 0.0348 0.00	199591	364703						LINR	#	0.9970	
96)B Methacrylonitrile		20104	25597		168736	319127					
0.0192 0.1436 0.00	826351	1512181						LINR	#	0.9970	
97)B Tetrahydrofuran		12390	13128		92541	171931					
0.0110 0.0775 0.00	447131	816409						LINR	#	0.9969	
98)B Isobutyl alcohol		16751	17727		110106	208385					
0.0175 0.0092 0.00	553238	964615						LINR	$ #	0.9938	
99)B Methyl tert-amyl ether		0.8990633	0.5556370		0.7672401	0.8019037					
	0.7765606	0.7430705					0.7572	AVRG		14.8735	
100)B Methyl methacrylate		22417	24752		182704	342569					
0.0301 0.1449 0.00	867689	1523469						LINR	#	0.9938	
101)B 1,4-Dioxane		3447	3620		29270	53179					
0.0043 0.0023 0.00	140067	244804						LINR	# #	0.9936	
102)B 2-Nitropropane		9242	10660		75958	144736					
0.0045 0.0702 0.00	396647	736685						LINR	#	0.9979	
104)B Ethyl methacrylate		43437	49573		361510	668367					
0.1110 0.3598 0.00	1623737	2765094						LINR	#	0.9896	#
106)B 1-Chlorohexane		9828	11276		72061	139276					
0.0143 0.8197 0.00	342715	679965						LINR	#	0.9995	
107)B cis-1,4-Dichloro-2-buten		12631	14930		109717	216614					
0.0348 0.2482 0.00	561516	1016706						LINR	#	0.9968	
108)B Cyclohexanone		0.0228806	0.0171563		0.0214503	0.0212597					
	0.0202782	0.0181292					0.0202	AVRG		10.7204	
109)B trans-1,4-Dichloro-2-but		11957	13071		99455	194436					
0.0300 0.2258 0.00	510379	924462						LINR	#	0.9969	
110)B Pentachloroethane		23077	27748		195519	377097					
0.0918 0.3938 0.00	903545	1624581						LINR	#	0.9953	
111)B Benzyl chloride		68931	77370		605835	1135638					
0.3729 1.1341 0.00	2807855	4642640						LINR	#	0.9876	#

Response Factor Report VOA4
GEL Laboratories, LLC

Method File : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Last Update : Tue Nov 01 08:22:19 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	8	1	2	3	4	5	Avg	Curve	Exp	%RSD/r2
b m1 m2	6	7	9							
112)B bis(2-Chloroisopropyl)et		22681	22934		181179	345542				
0.0717 0.3951 0.00	932501	1610266						LINR	#	0.9936

(#) = Out of Range ($) = Individual RF Out of Range
AVRG = Average, LINR = Linear Regression, 1/x = the inverse of concentration, 1/x^2 = the inverse square of concentration

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H102.D
Acq On : 31 Oct 2016 16:55
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-01|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD0005 5UL N/A MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 08:08:42 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	1032830	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	748214	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	392507	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	275353	40.98	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1060003	55.12	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	423827	49.66	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.741	4.749	0.459	2719	0.31	ug/L	#	43
3) Chloromethane	50	5.078	5.102	0.492	4361	0.42	ug/L		94
4) Vinyl chloride	62	5.306	5.322	0.514	2192	N.D.			
5) Bromomethane	94	5.887	5.887	0.570	2787	0.37	ug/L		86
6) Chloroethane	64	5.989	6.005	0.580	2933	0.43	ug/L		62
7) Trichlorofluoromethane	101	6.370	6.377	0.617	4284	0.33	ug/L		97
8) Ethyl ether	59	6.724	6.712	0.651	2532	0.47	ug/L		83
9) Acetone	43	7.077	7.066	0.685	10836	2.82	ug/L		95
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	5079	0.44	ug/L		98
11) Iodomethane	142	7.334	7.334	0.710	28109	2.54	ug/L		92
12) Acetonitrile	41	7.419	7.413	0.718	10263	13.33	ug/L	#	34
13) Methyl acetate	43	7.468	7.456	0.723	9931	2.26	ug/L		96
14) Carbon disulfide	76	7.474	7.474	0.724	61843	3.06	ug/L		95
15) Methylene chloride	84	7.644	7.651	0.740	9728	1.35	ug/L		92
16) tert-Butyl methyl ether	73	7.955	7.956	0.770	8738	0.53	ug/L		86
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	5302	0.48	ug/L		95
18) Hexane	57	8.285	8.285	0.802	7779	N.D.			
19) Vinyl acetate	43	8.419	8.419	0.815	31409	2.63	ug/L		92
20) 1,1-Dichloroethane	63	8.467	8.462	0.820	6218	0.48	ug/L		98
21) 2-Butanone	43	9.041	9.035	0.875	11098	2.58	ug/L		97
22) cis-1,2-Dichloroethylene	96	9.095	9.096	0.881	3594	0.50	ug/L		98
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	5387	0.48	ug/L	#	18
24) Bromochloromethane	128	9.370	9.364	0.907	1273	0.38	ug/L	#	78
25) Chloroform	83	9.394	9.400	0.910	5891	0.46	ug/L		89
26) 1,1,1-Trichloroethane	97	9.693	9.687	0.939	5068	0.42	ug/L		93
27) Cyclohexane	56	9.796	9.791	0.949	8564	0.67	ug/L		86
28) 1,1-Dichloropropene	75	9.839	9.845	0.953	4265	0.46	ug/L	#	95
29) Carbon tetrachloride	117	9.888	9.882	0.957	4631	0.41	ug/L		98
31) 1,2-Dichloroethane	62	10.053	10.047	0.973	3939	0.39	ug/L	#	43
32) Benzene	78	10.083	10.077	0.976	14377	0.57	ug/L	#	76
33) Cyclohexene	67	10.205	10.205	0.988	6781	0.54	ug/L		97
34) n-Butyl alcohol	56	10.406	10.406	1.008	8901	52.63	ug/L		93
35) Trichloroethylene	95	10.717	10.717	1.038	3536	0.48	ug/L		96
36) 2-Pentanone	43	10.790	10.784	1.045	11369	N.D.			
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	3613	0.53	ug/L		89
38) Methylcyclohexane	83	10.973	10.979	1.063	6957	0.61	ug/L		84
39) Dibromomethane	93	11.083	11.083	1.073	1908	0.47	ug/L		92
40) Bromodichloromethane	83	11.199	11.199	1.084	3849	0.40	ug/L	#	94
41) 2-Chloroethylvinyl ether	63	11.424	11.418	1.106	6713	2.61	ug/L		94
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	4872	0.50	ug/L		77

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H102.D
Acq On : 31 Oct 2016 16:55
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-01|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD0005 5UL N/A MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 08:08:42 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	11.735	11.735	0.870	5891	2.78	ug/L	#	76
46)	Toluene	91	12.046	12.040	0.893	15887	0.64	ug/L		98
47)	trans-1,3-Dichloroprop...	75	12.192	12.180	0.904	3941	0.48	ug/L	#	64
48)	1,1,2-Trichloroethane	83	12.400	12.400	0.919	2278	0.56	ug/L		98
49)	2-Hexanone	43	12.589	12.583	0.933	16729	3.11	ug/L		94
50)	1,3-Dichloropropane	76	12.595	12.595	0.934	3902	0.49	ug/L	#	44
51)	Tetrachloroethylene	164	12.637	12.638	0.937	3125	0.59	ug/L		95
52)	Dibromochloromethane	129	12.869	12.863	0.954	2680	0.45	ug/L		100
53)	1,2-Dibromoethane	107	13.040	13.034	0.967	2261	0.45	ug/L		99
54)	Chlorobenzene	112	13.521	13.522	1.002	8815	0.52	ug/L	#	31
55)	1,1,1,2-Tetrachloroethane	131	13.582	13.570	1.007	3210	0.48	ug/L	#	64
56)	Ethylbenzene	91	13.588	13.589	1.007	17377	0.60	ug/L		90
57)	m,p-Xylenes	106	13.698	13.698	1.015	13015	1.22	ug/L		86
58)	o-Xylene	91	14.131	14.131	1.047	13291	0.57	ug/L		98
59)	Styrene	104	14.131	14.131	1.047	10220	0.62	ug/L		99
61)	Bromoform	173	14.393	14.381	0.905	1454	0.41	ug/L		99
62)	Isopropylbenzene	105	14.491	14.491	0.911	18303	0.64	ug/L		96
64)	1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.927	3472	0.52	ug/L		98
65)	1,2,3-Trichloropropane	110	14.844	14.838	0.933	768	0.39	ug/L	#	79
66)	Bromobenzene	156	14.899	14.893	0.937	4166	0.55	ug/L		95
67)	n-Propylbenzene	91	14.917	14.918	0.938	22831	0.65	ug/L		95
68)	1,3,5-Trimethylbenzene	105	15.070	15.070	0.947	14332	0.56	ug/L		90
69)	2-Chlorotoluene	126	15.064	15.064	0.947	3697	0.50	ug/L	#	84
70)	4-Chlorotoluene	91	15.167	15.162	0.954	14130	0.61	ug/L		90
71)	tert-Butylbenzene	134	15.436	15.442	0.970	2475	0.50	ug/L	#	64
72)	1,2,4-Trimethylbenzene	105	15.478	15.479	0.973	13875	0.53	ug/L		98
73)	sec-Butylbenzene	105	15.667	15.661	0.985	19082	0.58	ug/L		97
74)	4-Isopropyltoluene	119	15.783	15.783	0.992	15472	0.55	ug/L		97
75)	1,3-Dichlorobenzene	146	15.850	15.844	0.997	8531	0.56	ug/L		96
76)	1,4-Dichlorobenzene	146	15.929	15.930	1.002	7935	0.52	ug/L	#	50
77)	n-Butylbenzene	91	16.234	16.228	1.021	16532	0.60	ug/L		92
78)	1,2-Dichlorobenzene	146	16.356	16.356	1.028	7186	0.51	ug/L		93
79)	1,2-Dibromo-3-chloropr...	157	17.216	17.228	1.082	122	N.D.			
80)	1,2,4-Trichlorobenzene	180	18.307	18.301	1.151	5216	0.51	ug/L		99
81)	Hexachlorobutadiene	225	18.490	18.490	1.163	2605	0.38	ug/L		96
82)	Naphthalene	128	18.691	18.691	1.175	11188	0.58	ug/L		95
83)	1,2,3-Trichlorobenzene	180	19.032	19.033	1.197	4432	0.48	ug/L		98
85)	Acrolein		6.931	6.889	0.671	0m	N.D.	d		
86)	Trichlorotrifluoroethane		0.000	7.090	0.000	0	N.D.			
87)	Isopropyl Alcohol		0.000	7.145	0.000	0	N.D.			
88)	Allyl chloride		7.419	7.504	0.718	0m	N.D.	d		
89)	tert-Butyl Alcohol		0.000	7.639	0.000	0	N.D.			
90)	Acrylonitrile		0.000	7.882	0.000	0	N.D.			
91)	Isopropyl ether		0.000	8.456	0.000	0	N.D.			
92)	2-Chloro-1,3-butadiene		0.000	8.577	0.000	0	N.D.			
93)	Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.			
94)	Ethyl acetate		9.041	9.053	0.875	0m	N.D.	d		
95)	Propionitrile		0.000	9.096	0.000	0	N.D.			
96)	Methacrylonitrile		9.284	9.278	0.899	0m	N.D.	d		
97)	Tetrahydrofuran		9.431	9.419	0.913	0m	N.D.	d		
98)	Isobutyl alcohol		9.711	9.717	0.940	0m	N.D.	d		
99)	Methyl tert-amyl ether		0.000	10.102	0.000	0	N.D.			
100)	Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d		
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.			
102)	2-Nitropropane		11.418	11.388	1.106	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H102.D
Acq On : 31 Oct 2016 16:55
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-01|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD0005 5UL N/A MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 08:08:42 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

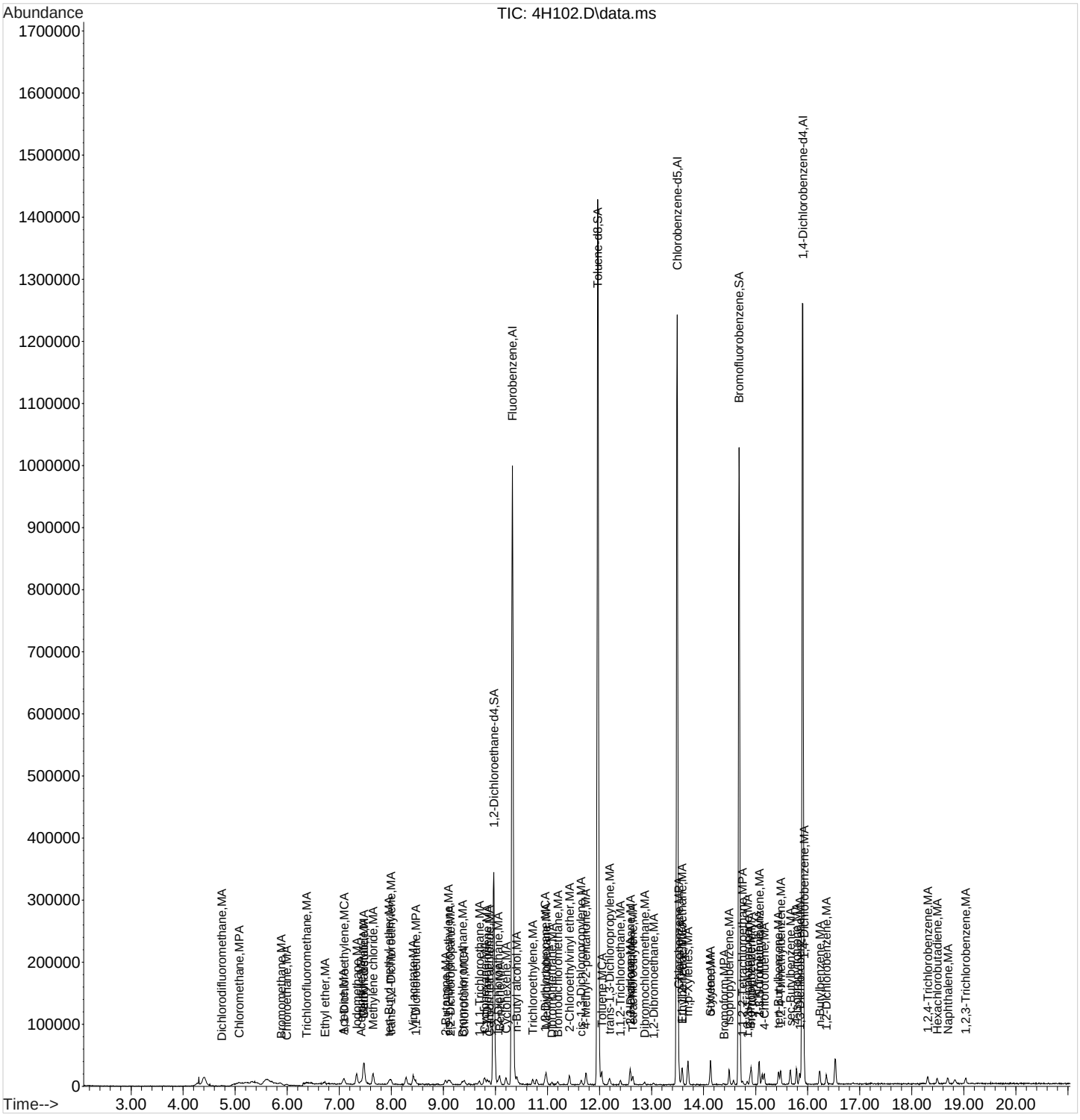
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		0.000	12.186	0.000	0	N.D.	
106) 1-Chlorohexane		13.412	13.394	0.843	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.497	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.552	14.625	0.915	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		0.000	14.796	0.000	0	N.D.	
110) Pentachloroethane		0.000	15.503	0.000	0	N.D.	
111) Benzyl chloride		15.990	16.039	1.005	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		16.527	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H102.D
Acq On : 31 Oct 2016 16:55
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-01|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD0005 5UL N/A MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 08:08:42 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H103.D
Acq On : 31 Oct 2016 17:24
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-02|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD001 5UL N/A MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 01 08:08:46 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	1000647	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	716195	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	377079	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	272162	41.81	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1045586	56.80	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	415668	50.70	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.749	4.749	0.460	5510	0.65	ug/L		66
3) Chloromethane	50	5.071	5.102	0.491	7295	0.72	ug/L		99
4) Vinyl chloride	62	5.314	5.322	0.515	4899	0.61	ug/L		74
5) Bromomethane	94	5.864	5.887	0.568	5390	0.74	ug/L		92
6) Chloroethane	64	5.989	6.005	0.580	5201	0.79	ug/L		96
7) Trichlorofluoromethane	101	6.383	6.377	0.618	8022	0.65	ug/L		92
8) Ethyl ether	59	6.712	6.712	0.650	4950	0.94	ug/L		93
9) Acetone	43	7.065	7.066	0.684	17885	4.81	ug/L		98
10) 1,1-Dichloroethylene	61	7.096	7.090	0.687	9781	0.87	ug/L		97
11) Iodomethane	142	7.327	7.334	0.710	48266	4.51	ug/L		90
12) Acetonitrile	41	7.413	7.413	0.718	18366	24.62	ug/L		87
13) Methyl acetate	43	7.462	7.456	0.723	20294	4.78	ug/L		94
14) Carbon disulfide	76	7.474	7.474	0.724	101997	5.20	ug/L		93
15) Methylene chloride	84	7.651	7.651	0.741	13213	1.89	ug/L		98
16) tert-Butyl methyl ether	73	7.949	7.956	0.770	15391	0.97	ug/L		93
17) trans-1,2-Dichloroethy...	61	7.986	7.992	0.773	8752	0.82	ug/L		95
18) Hexane	57	8.285	8.285	0.802	13141	1.34	ug/L		91
19) Vinyl acetate	43	8.419	8.419	0.815	57933	5.01	ug/L		93
20) 1,1-Dichloroethane	63	8.461	8.462	0.819	11084	0.88	ug/L		94
21) 2-Butanone	43	9.034	9.035	0.875	20303	4.88	ug/L		93
22) cis-1,2-Dichloroethylene	96	9.095	9.096	0.881	6289	0.90	ug/L		95
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	9703	0.89	ug/L	#	18
24) Bromochloromethane	128	9.364	9.364	0.907	2711	0.84	ug/L		93
25) Chloroform	83	9.394	9.400	0.910	10146	0.81	ug/L		99
26) 1,1,1-Trichloroethane	97	9.693	9.687	0.939	9906	0.84	ug/L		87
27) Cyclohexane	56	9.790	9.791	0.948	13087	1.06	ug/L		99
28) 1,1-Dichloropropene	75	9.839	9.845	0.953	8441	0.95	ug/L	#	91
29) Carbon tetrachloride	117	9.882	9.882	0.957	8256	0.75	ug/L		93
31) 1,2-Dichloroethane	62	10.046	10.047	0.973	7390	0.75	ug/L	#	43
32) Benzene	78	10.083	10.077	0.976	25857	1.05	ug/L	#	78
33) Cyclohexene	67	10.199	10.205	0.988	11996	0.99	ug/L		97
34) n-Butyl alcohol	56	10.412	10.406	1.008	15188	92.69	ug/L		96
35) Trichloroethylene	95	10.717	10.717	1.038	6569	0.93	ug/L		96
36) 2-Pentanone	43	10.778	10.784	1.044	22558	5.06	ug/L		95
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	6299	0.96	ug/L	#	24
38) Methylcyclohexane	83	10.973	10.979	1.063	11789	1.06	ug/L		89
39) Dibromomethane	93	11.083	11.083	1.073	3371	0.86	ug/L		94
40) Bromodichloromethane	83	11.193	11.199	1.084	7261	0.79	ug/L		97
41) 2-Chloroethylvinyl ether	63	11.418	11.418	1.106	13680	5.50	ug/L		96
42) cis-1,3-Dichloropropylene	75	11.650	11.644	1.128	9003	0.95	ug/L		88

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H103.D
Acq On : 31 Oct 2016 17:24
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-02|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD001 5UL N/A MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 01 08:08:46 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	11.741	11.735	0.870	10898	5.37	ug/L		85
46)	Toluene	91	12.040	12.040	0.892	26991	1.14	ug/L		98
47)	trans-1,3-Dichloroprop...	75	12.186	12.180	0.903	7350	0.93	ug/L		86
48)	1,1,2-Trichloroethane	83	12.400	12.400	0.919	3989	1.02	ug/L		95
49)	2-Hexanone	43	12.583	12.583	0.933	28197	5.48	ug/L		97
50)	1,3-Dichloropropane	76	12.595	12.595	0.934	7598	0.99	ug/L	#	58
51)	Tetrachloroethylene	164	12.637	12.638	0.937	5218	1.03	ug/L		98
52)	Dibromochloromethane	129	12.863	12.863	0.953	4586	0.80	ug/L		91
53)	1,2-Dibromoethane	107	13.040	13.034	0.967	4112	0.85	ug/L		93
54)	Chlorobenzene	112	13.521	13.522	1.002	16964	1.04	ug/L		78
55)	1,1,1,2-Tetrachloroethane	131	13.576	13.570	1.006	5641	0.89	ug/L		97
56)	Ethylbenzene	91	13.588	13.589	1.007	31187	1.13	ug/L		97
57)	m,p-Xylenes	106	13.698	13.698	1.015	23304	2.28	ug/L		85
58)	o-Xylene	91	14.131	14.131	1.047	27329	1.22	ug/L		86
59)	Styrene	104	14.131	14.131	1.047	18670	1.18	ug/L		97
61)	Bromoform	173	14.381	14.381	0.904	2458	0.72	ug/L		92
62)	Isopropylbenzene	105	14.491	14.491	0.911	31837	1.16	ug/L		96
64)	1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.927	6697	1.05	ug/L		89
65)	1,2,3-Trichloropropane	110	14.838	14.838	0.933	1557	0.82	ug/L	#	85
66)	Bromobenzene	156	14.893	14.893	0.936	6758	0.93	ug/L		97
67)	n-Propylbenzene	91	14.917	14.918	0.938	40310	1.19	ug/L		92
68)	1,3,5-Trimethylbenzene	105	15.064	15.070	0.947	25761	1.06	ug/L		93
69)	2-Chlorotoluene	126	15.058	15.064	0.947	7308	1.03	ug/L		100
70)	4-Chlorotoluene	91	15.167	15.162	0.954	24673	1.11	ug/L		93
71)	tert-Butylbenzene	134	15.442	15.442	0.971	5327	1.11	ug/L		95
72)	1,2,4-Trimethylbenzene	105	15.478	15.479	0.973	26627	1.06	ug/L		84
73)	sec-Butylbenzene	105	15.667	15.661	0.985	33749	1.06	ug/L		95
74)	4-Isopropyltoluene	119	15.783	15.783	0.992	27321	1.01	ug/L		98
75)	1,3-Dichlorobenzene	146	15.844	15.844	0.996	15165	1.05	ug/L		97
76)	1,4-Dichlorobenzene	146	15.929	15.930	1.002	14357	0.99	ug/L		80
77)	n-Butylbenzene	91	16.228	16.228	1.020	30599	1.15	ug/L		92
78)	1,2-Dichlorobenzene	146	16.356	16.356	1.028	13779	1.02	ug/L		94
79)	1,2-Dibromo-3-chloropr...	157	17.228	17.228	1.083	959	0.79	ug/L	#	71
80)	1,2,4-Trichlorobenzene	180	18.313	18.301	1.151	8317	0.84	ug/L		96
81)	Hexachlorobutadiene	225	18.484	18.490	1.162	4577	0.69	ug/L		98
82)	Naphthalene	128	18.691	18.691	1.175	18347	1.00	ug/L		99
83)	1,2,3-Trichlorobenzene	180	19.039	19.033	1.197	6836	0.77	ug/L		92
85)	Acrolein		6.882	6.889	0.666	0m	N.D.	d		
86)	Trichlorotrifluoroethane		0.000	7.090	0.000	0	N.D.			
87)	Isopropyl Alcohol		0.000	7.145	0.000	0	N.D.			
88)	Allyl chloride		7.413	7.504	0.718	0m	N.D.	d		
89)	tert-Butyl Alcohol		0.000	7.639	0.000	0	N.D.			
90)	Acrylonitrile		0.000	7.882	0.000	0	N.D.			
91)	Isopropyl ether		8.400	8.456	0.813	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		0.000	8.577	0.000	0	N.D.			
93)	Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.			
94)	Ethyl acetate		9.034	9.053	0.875	0m	N.D.	d		
95)	Propionitrile		0.000	9.096	0.000	0	N.D.			
96)	Methacrylonitrile		0.000	9.278	0.000	0	N.D.			
97)	Tetrahydrofuran		9.431	9.419	0.913	0m	N.D.	d		
98)	Isobutyl alcohol		9.711	9.717	0.940	0m	N.D.	d		
99)	Methyl tert-amyl ether		10.083	10.102	0.976	0m	N.D.	d		
100)	Methyl methacrylate		10.924	10.925	1.058	0m	N.D.	d		
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.			
102)	2-Nitropropane		11.418	11.388	1.106	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H103.D
Acq On : 31 Oct 2016 17:24
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-02|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD001 5UL N/A MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 01 08:08:46 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

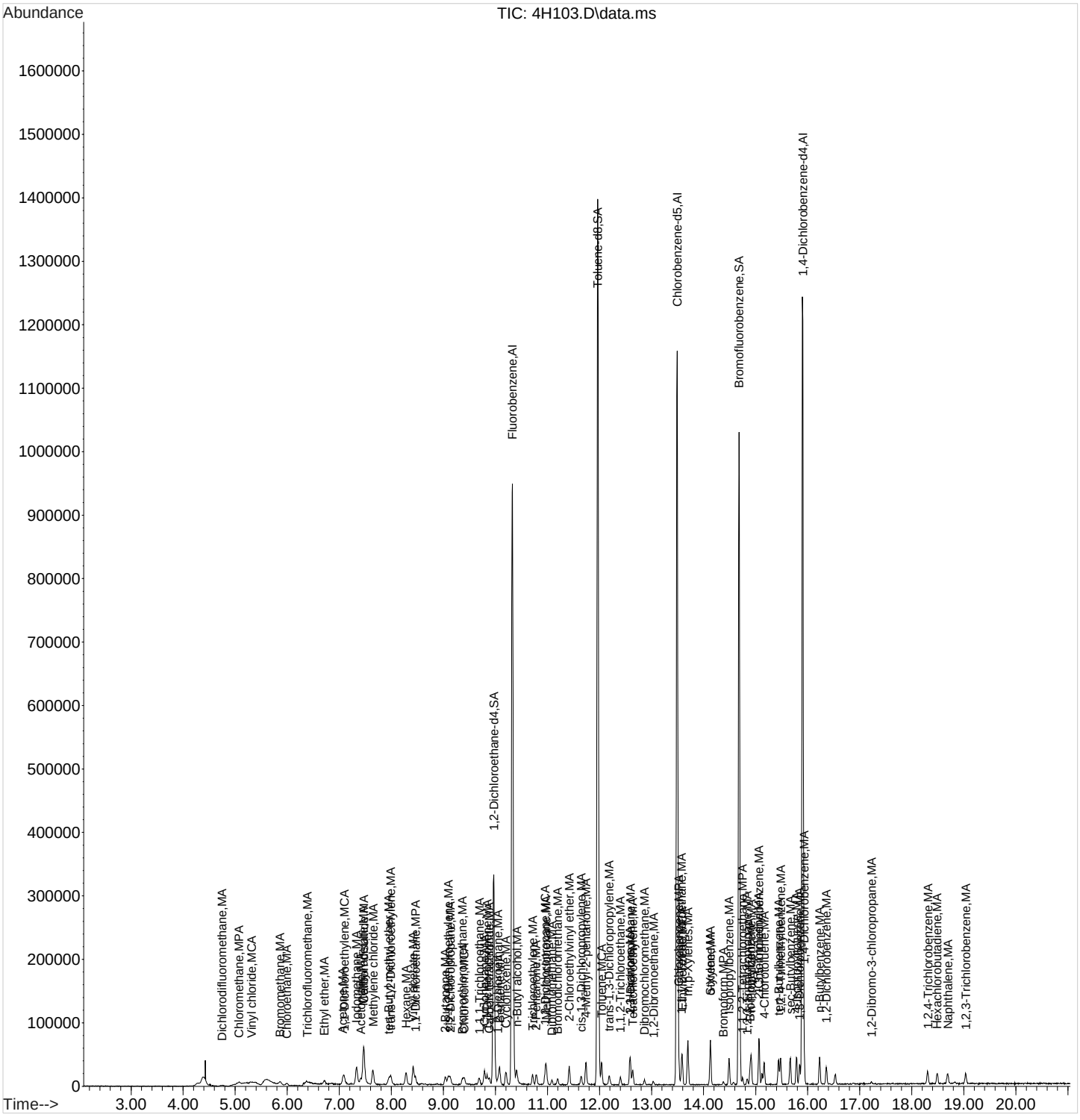
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		0.000	12.186	0.000	0	N.D.	
106) 1-Chlorohexane		13.357	13.394	0.840	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.491	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.619	14.625	0.919	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		0.000	14.796	0.000	0	N.D.	
110) Pentachloroethane		0.000	15.503	0.000	0	N.D.	
111) Benzyl chloride		15.978	16.039	1.005	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		16.515	16.442	1.038	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H103.D
Acq On : 31 Oct 2016 17:24
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-02|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD001 5UL N/A MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 01 08:08:46 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H104.D
Acq On : 31 Oct 2016 17:53
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-03|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD002 5UL N/A MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 01 08:08:49 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	984732	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	707964	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	369846	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	267859	41.82	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1013683	55.71	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	400824	49.85	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.756	4.749	0.461	12528	1.49	ug/L		86
3) Chloromethane	50	5.078	5.102	0.492	14756	1.48	ug/L		97
4) Vinyl chloride	62	5.314	5.322	0.515	11321	1.42	ug/L	#	43
5) Bromomethane	94	5.871	5.887	0.569	11036	1.55	ug/L		98
6) Chloroethane	64	5.997	6.005	0.581	11044	1.71	ug/L		95
7) Trichlorofluoromethane	101	6.370	6.377	0.617	18446	1.51	ug/L		97
8) Ethyl ether	59	6.718	6.712	0.651	10166	1.96	ug/L		98
9) Acetone	43	7.065	7.066	0.684	37299	10.20	ug/L		98
10) 1,1-Dichloroethylene	61	7.096	7.090	0.687	21079	1.90	ug/L		96
11) Iodomethane	142	7.334	7.334	0.710	106033	10.06	ug/L		91
12) Acetonitrile	41	7.413	7.413	0.718	36576	49.82	ug/L		97
13) Methyl acetate	43	7.462	7.456	0.723	41778	9.99	ug/L		93
14) Carbon disulfide	76	7.468	7.474	0.723	228004	11.81	ug/L		93
15) Methylene chloride	84	7.651	7.651	0.741	17666	2.57	ug/L		93
16) tert-Butyl methyl ether	73	7.955	7.956	0.770	32803	2.10	ug/L		91
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	20856	1.98	ug/L		99
18) Hexane	57	8.285	8.285	0.802	24048	2.49	ug/L		99
19) Vinyl acetate	43	8.419	8.419	0.815	115586	10.17	ug/L		95
20) 1,1-Dichloroethane	63	8.455	8.462	0.819	25089	2.02	ug/L		98
21) 2-Butanone	43	9.034	9.035	0.875	44834	10.95	ug/L		96
22) cis-1,2-Dichloroethylene	96	9.089	9.096	0.880	13746	2.00	ug/L		98
23) 2,2-Dichloropropane	77	9.126	9.132	0.884	20756	1.93	ug/L		91
24) Bromochloromethane	128	9.364	9.364	0.907	5648	1.77	ug/L		92
25) Chloroform	83	9.400	9.400	0.910	22579	1.84	ug/L		93
26) 1,1,1-Trichloroethane	97	9.693	9.687	0.939	20854	1.81	ug/L		93
27) Cyclohexane	56	9.797	9.791	0.949	31072	2.57	ug/L		95
28) 1,1-Dichloropropene	75	9.839	9.845	0.953	18724	2.14	ug/L	#	100
29) Carbon tetrachloride	117	9.888	9.882	0.957	17435	1.62	ug/L		99
31) 1,2-Dichloroethane	62	10.053	10.047	0.973	15565	1.60	ug/L		98
32) Benzene	78	10.083	10.077	0.976	53786	2.22	ug/L	#	79
33) Cyclohexene	67	10.199	10.205	0.988	26440	2.23	ug/L		96
34) n-Butyl alcohol	56	10.412	10.406	1.008	32910	204.08	ug/L		96
35) Trichloroethylene	95	10.717	10.717	1.038	13433	1.93	ug/L		97
36) 2-Pentanone	43	10.784	10.784	1.044	42079	9.59	ug/L		95
37) 1,2-Dichloropropane	63	10.949	10.955	1.060	12943	2.00	ug/L		82
38) Methylcyclohexane	83	10.973	10.979	1.063	27072	2.48	ug/L		95
39) Dibromomethane	93	11.083	11.083	1.073	7139	1.86	ug/L		98
40) Bromodichloromethane	83	11.193	11.199	1.084	16164	1.78	ug/L		98
41) 2-Chloroethylvinyl ether	63	11.418	11.418	1.106	28308	11.56	ug/L		98
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	19798	2.12	ug/L		94

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H104.D
Acq On : 31 Oct 2016 17:53
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-03|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD002 5UL N/A MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 01 08:08:49 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	11.735	11.735	0.870	25004	12.45	ug/L		89
46)	Toluene	91	12.040	12.040	0.892	57711	2.46	ug/L		97
47)	trans-1,3-Dichloroprop...	75	12.186	12.180	0.903	15918	2.03	ug/L		93
48)	1,1,2-Trichloroethane	83	12.406	12.400	0.920	8824	2.28	ug/L		97
49)	2-Hexanone	43	12.583	12.583	0.933	66079	12.99	ug/L		95
50)	1,3-Dichloropropane	76	12.589	12.595	0.933	16978	2.24	ug/L		93
51)	Tetrachloroethylene	164	12.637	12.638	0.937	10989	2.19	ug/L		97
52)	Dibromochloromethane	129	12.863	12.863	0.953	10315	1.81	ug/L		94
53)	1,2-Dibromoethane	107	13.034	13.034	0.966	9621	2.01	ug/L		100
54)	Chlorobenzene	112	13.521	13.522	1.002	36364	2.26	ug/L		89
55)	1,1,1,2-Tetrachloroethane	131	13.570	13.570	1.006	12778	2.04	ug/L		95
56)	Ethylbenzene	91	13.588	13.589	1.007	67407	2.47	ug/L		96
57)	m,p-Xylenes	106	13.698	13.698	1.015	50195	4.97	ug/L		88
58)	o-Xylene	91	14.131	14.131	1.047	53595	2.41	ug/L		97
59)	Styrene	104	14.131	14.131	1.047	39900	2.54	ug/L		94
61)	Bromoform	173	14.381	14.381	0.905	5816	1.74	ug/L		99
62)	Isopropylbenzene	105	14.491	14.491	0.911	67611	2.52	ug/L		96
64)	1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.928	13198	2.11	ug/L		97
65)	1,2,3-Trichloropropane	110	14.838	14.838	0.933	4004	2.15	ug/L	#	83
66)	Bromobenzene	156	14.893	14.893	0.937	14766	2.07	ug/L		97
67)	n-Propylbenzene	91	14.911	14.918	0.938	83239	2.51	ug/L		93
68)	1,3,5-Trimethylbenzene	105	15.064	15.070	0.947	57430	2.40	ug/L		93
69)	2-Chlorotoluene	126	15.058	15.064	0.947	14971	2.15	ug/L	#	83
70)	4-Chlorotoluene	91	15.161	15.162	0.954	48937	2.24	ug/L		96
71)	tert-Butylbenzene	134	15.442	15.442	0.971	11737	2.49	ug/L		97
72)	1,2,4-Trimethylbenzene	105	15.478	15.479	0.974	58381	2.37	ug/L		81
73)	sec-Butylbenzene	105	15.667	15.661	0.985	73782	2.37	ug/L		98
74)	4-Isopropyltoluene	119	15.783	15.783	0.993	62114	2.34	ug/L		99
75)	1,3-Dichlorobenzene	146	15.844	15.844	0.997	30924	2.17	ug/L		97
76)	1,4-Dichlorobenzene	146	15.929	15.930	1.002	30660	2.15	ug/L	#	72
77)	n-Butylbenzene	91	16.228	16.228	1.021	62210	2.39	ug/L		98
78)	1,2-Dichlorobenzene	146	16.362	16.356	1.029	28188	2.13	ug/L		97
79)	1,2-Dibromo-3-chloropr...	157	17.228	17.228	1.084	2152	1.81	ug/L		97
80)	1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	18691	1.92	ug/L		99
81)	Hexachlorobutadiene	225	18.490	18.490	1.163	10698	1.65	ug/L		98
82)	Naphthalene	128	18.691	18.691	1.176	37784	2.09	ug/L		99
83)	1,2,3-Trichlorobenzene	180	19.039	19.033	1.197	15281	1.76	ug/L		96
85)	Acrolein		6.889	6.889	0.667	0m	N.D.	d		
86)	Trichlorotrifluoroethane		0.000	7.090	0.000	0	N.D.			
87)	Isopropyl Alcohol		0.000	7.145	0.000	0	N.D.			
88)	Allyl chloride		7.413	7.504	0.718	0m	N.D.	d		
89)	tert-Butyl Alcohol		0.000	7.639	0.000	0	N.D.			
90)	Acrylonitrile		7.943	7.882	0.769	0m	N.D.	d		
91)	Isopropyl ether		8.419	8.456	0.815	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		0.000	8.577	0.000	0	N.D.			
93)	Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.			
94)	Ethyl acetate		9.034	9.053	0.875	0m	N.D.	d		
95)	Propionitrile		0.000	9.096	0.000	0	N.D.			
96)	Methacrylonitrile		0.000	9.278	0.000	0	N.D.			
97)	Tetrahydrofuran		9.431	9.419	0.913	0m	N.D.	d		
98)	Isobutyl alcohol		9.784	9.717	0.947	0m	N.D.	d		
99)	Methyl tert-amyl ether		10.083	10.102	0.976	0m	N.D.	d		
100)	Methyl methacrylate		10.906	10.925	1.056	0m	N.D.	d		
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.			
102)	2-Nitropropane		11.418	11.388	1.106	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H104.D
Acq On : 31 Oct 2016 17:53
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-03|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD002 5UL N/A MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 01 08:08:49 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

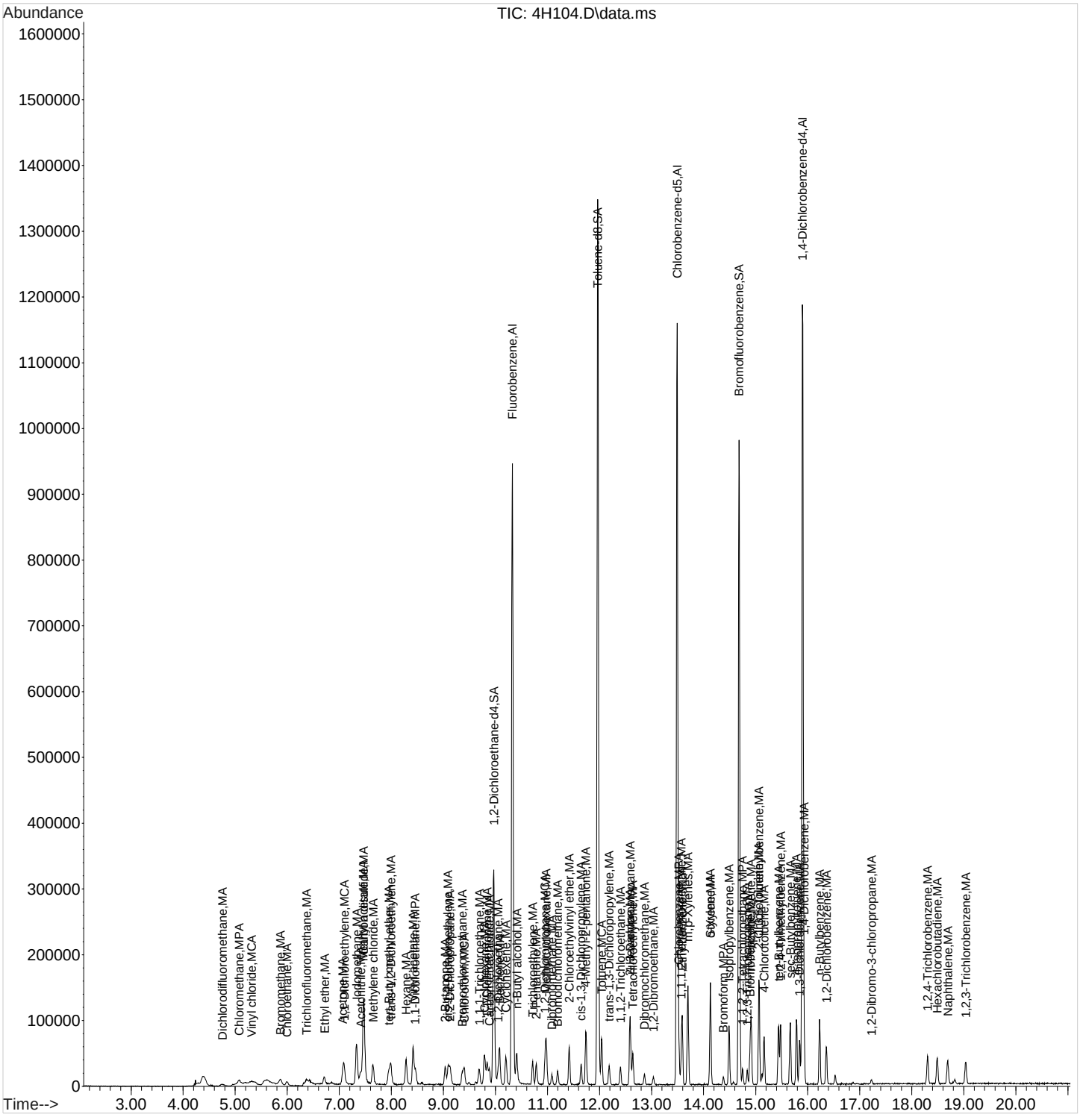
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		0.000	12.186	0.000	0	N.D.	
106) 1-Chlorohexane		13.369	13.394	0.841	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.479	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.564	14.625	0.916	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.911	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		0.000	15.503	0.000	0	N.D.	
111) Benzyl chloride		0.000	16.039	0.000	0	N.D.	
112) bis(2-Chloroisopropyl)...		16.515	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H104.D
Acq On : 31 Oct 2016 17:53
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-03|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD002 5UL N/A MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 01 08:08:49 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H105.D
Acq On : 31 Oct 2016 18:22
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-04|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD005 5UL N/A MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 01 08:08:51 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	1014460	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	725042	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	393438	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	276379	41.88	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1050512	56.37	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	425566	49.75	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.757	4.749	0.461	36136	4.18	ug/L		95
3) Chloromethane	50	5.079	5.102	0.492	37798	3.67	ug/L		100
4) Vinyl chloride	62	5.322	5.322	0.515	29465	3.60	ug/L		87
5) Bromomethane	94	5.879	5.887	0.569	30401	4.14	ug/L		100
6) Chloroethane	64	5.997	6.005	0.581	29399	4.41	ug/L		99
7) Trichlorofluoromethane	101	6.371	6.377	0.617	49152	3.90	ug/L		97
8) Ethyl ether	59	6.712	6.712	0.650	26052	4.87	ug/L		94
9) Acetone	43	7.066	7.066	0.684	82407	21.87	ug/L		97
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	52803	4.63	ug/L		100
11) Iodomethane	142	7.334	7.334	0.710	266712	24.56	ug/L		91
12) Acetonitrile	41	7.413	7.413	0.718	92793	122.69	ug/L		97
13) Methyl acetate	43	7.462	7.456	0.723	100272	23.28	ug/L		96
14) Carbon disulfide	76	7.468	7.474	0.723	564836	28.41	ug/L		93
15) Methylene chloride	84	7.651	7.651	0.741	37525	5.30	ug/L		97
16) tert-Butyl methyl ether	73	7.956	7.956	0.770	83462	5.19	ug/L		97
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	49719	4.59	ug/L		98
18) Hexane	57	8.285	8.285	0.802	57465	5.77	ug/L		99
19) Vinyl acetate	43	8.419	8.419	0.815	296176	25.28	ug/L		96
20) 1,1-Dichloroethane	63	8.468	8.462	0.820	61477	4.80	ug/L		99
21) 2-Butanone	43	9.035	9.035	0.875	105740	25.06	ug/L		95
22) cis-1,2-Dichloroethylene	96	9.089	9.096	0.880	35379	5.00	ug/L		98
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	52542	4.74	ug/L		97
24) Bromochloromethane	128	9.370	9.364	0.907	14070	4.28	ug/L		93
25) Chloroform	83	9.400	9.400	0.910	54811	4.33	ug/L		100
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	53661	4.51	ug/L		93
27) Cyclohexane	56	9.791	9.791	0.948	73854	5.92	ug/L		97
28) 1,1-Dichloropropene	75	9.839	9.845	0.953	44305	4.91	ug/L	#	98
29) Carbon tetrachloride	117	9.882	9.882	0.957	44846	4.03	ug/L		100
31) 1,2-Dichloroethane	62	10.047	10.047	0.973	38724	3.87	ug/L		100
32) Benzene	78	10.077	10.077	0.976	130615	5.23	ug/L	#	77
33) Cyclohexene	67	10.205	10.205	0.988	65565	5.36	ug/L		95
34) n-Butyl alcohol	56	10.406	10.406	1.008	86098	518.26	ug/L		97
35) Trichloroethylene	95	10.717	10.717	1.038	34281	4.77	ug/L		99
36) 2-Pentanone	43	10.784	10.784	1.044	108606	24.02	ug/L		97
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	34705	5.20	ug/L		92
38) Methylcyclohexane	83	10.979	10.979	1.063	66792	5.93	ug/L		94
39) Dibromomethane	93	11.083	11.083	1.073	17061	4.32	ug/L		99
40) Bromodichloromethane	83	11.193	11.199	1.084	39104	4.19	ug/L		100
41) 2-Chloroethylvinyl ether	63	11.418	11.418	1.106	73947	29.30	ug/L		98
42) cis-1,3-Dichloropropylene	75	11.650	11.644	1.128	50144	5.21	ug/L		98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H105.D
Acq On : 31 Oct 2016 18:22
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-04|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD005 5UL N/A MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 01 08:08:51 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44)	4-Methyl-2-pentanone	58	11.741	11.735	0.870	57671	28.05	ug/L #	84
46)	Toluene	91	12.040	12.040	0.892	135341	5.63	ug/L	100
47)	trans-1,3-Dichloroprop...	75	12.186	12.180	0.903	40944	5.11	ug/L	99
48)	1,1,2-Trichloroethane	83	12.400	12.400	0.919	20402	5.14	ug/L	97
49)	2-Hexanone	43	12.583	12.583	0.933	158106	30.34	ug/L	95
50)	1,3-Dichloropropane	76	12.595	12.595	0.934	42343	5.46	ug/L	98
51)	Tetrachloroethylene	164	12.638	12.638	0.937	27249	5.29	ug/L	96
52)	Dibromochloromethane	129	12.863	12.863	0.953	25789	4.42	ug/L	99
53)	1,2-Dibromoethane	107	13.034	13.034	0.966	23188	4.74	ug/L	100
54)	Chlorobenzene	112	13.522	13.522	1.002	87722	5.33	ug/L	95
55)	1,1,1,2-Tetrachloroethane	131	13.576	13.570	1.006	30348	4.73	ug/L	96
56)	Ethylbenzene	91	13.589	13.589	1.007	163172	5.85	ug/L	96
57)	m,p-Xylenes	106	13.698	13.698	1.015	125340	12.11	ug/L	89
58)	o-Xylene	91	14.131	14.131	1.047	132839	5.84	ug/L	99
59)	Styrene	104	14.131	14.131	1.047	97700	6.07	ug/L	97
61)	Bromoform	173	14.387	14.381	0.905	14706	4.15	ug/L	99
62)	Isopropylbenzene	105	14.491	14.491	0.911	167211	5.86	ug/L	95
64)	1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.927	35517	5.34	ug/L	94
65)	1,2,3-Trichloropropane	110	14.838	14.838	0.933	8979	4.53	ug/L	96
66)	Bromobenzene	156	14.893	14.893	0.936	37485	4.95	ug/L	99
67)	n-Propylbenzene	91	14.912	14.918	0.938	205631	5.83	ug/L	96
68)	1,3,5-Trimethylbenzene	105	15.070	15.070	0.947	141238	5.55	ug/L	98
69)	2-Chlorotoluene	126	15.064	15.064	0.947	37961	5.12	ug/L	88
70)	4-Chlorotoluene	91	15.161	15.162	0.953	124584	5.35	ug/L	96
71)	tert-Butylbenzene	134	15.442	15.442	0.971	28802	5.75	ug/L	98
72)	1,2,4-Trimethylbenzene	105	15.479	15.479	0.973	144986	5.53	ug/L	84
73)	sec-Butylbenzene	105	15.667	15.661	0.985	191983	5.80	ug/L	98
74)	4-Isopropyltoluene	119	15.783	15.783	0.992	157420	5.58	ug/L	97
75)	1,3-Dichlorobenzene	146	15.844	15.844	0.996	77960	5.15	ug/L	98
76)	1,4-Dichlorobenzene	146	15.930	15.930	1.002	76418	5.03	ug/L	98
77)	n-Butylbenzene	91	16.228	16.228	1.020	159918	5.78	ug/L	99
78)	1,2-Dichlorobenzene	146	16.362	16.356	1.029	71713	5.10	ug/L	97
79)	1,2-Dibromo-3-chloropr...	157	17.222	17.228	1.083	5678	4.50	ug/L	97
80)	1,2,4-Trichlorobenzene	180	18.307	18.301	1.151	48086	4.65	ug/L	98
81)	Hexachlorobutadiene	225	18.490	18.490	1.163	26727	3.88	ug/L	97
82)	Naphthalene	128	18.685	18.691	1.175	100441	5.23	ug/L	99
83)	1,2,3-Trichlorobenzene	180	19.033	19.033	1.197	41164	4.45	ug/L	96
85)	Acrolein		6.901	6.889	0.668	0m	N.D.	d	
86)	Trichlorotrifluoroethane		0.000	7.090	0.000	0	N.D.		
87)	Isopropyl Alcohol		0.000	7.145	0.000	0	N.D.		
88)	Allyl chloride		7.413	7.504	0.718	0m	N.D.	d	
89)	tert-Butyl Alcohol		0.000	7.639	0.000	0	N.D.		
90)	Acrylonitrile		7.956	7.882	0.770	0m	N.D.	d	
91)	Isopropyl ether		8.419	8.456	0.815	0m	N.D.	d	
92)	2-Chloro-1,3-butadiene		8.584	8.577	0.831	0m	N.D.	d	
93)	Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94)	Ethyl acetate		9.035	9.053	0.875	0m	N.D.	d	
95)	Propionitrile		0.000	9.096	0.000	0	N.D.		
96)	Methacrylonitrile		9.315	9.278	0.902	0m	N.D.	d	
97)	Tetrahydrofuran		9.419	9.419	0.912	0m	N.D.	d	
98)	Isobutyl alcohol		9.791	9.717	0.948	0m	N.D.	d	
99)	Methyl tert-amyl ether		10.077	10.102	0.976	0m	N.D.	d	
100)	Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d	
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.		
102)	2-Nitropropane		11.412	11.388	1.105	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H105.D
Acq On : 31 Oct 2016 18:22
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-04|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD005 5UL N/A MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 01 08:08:51 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

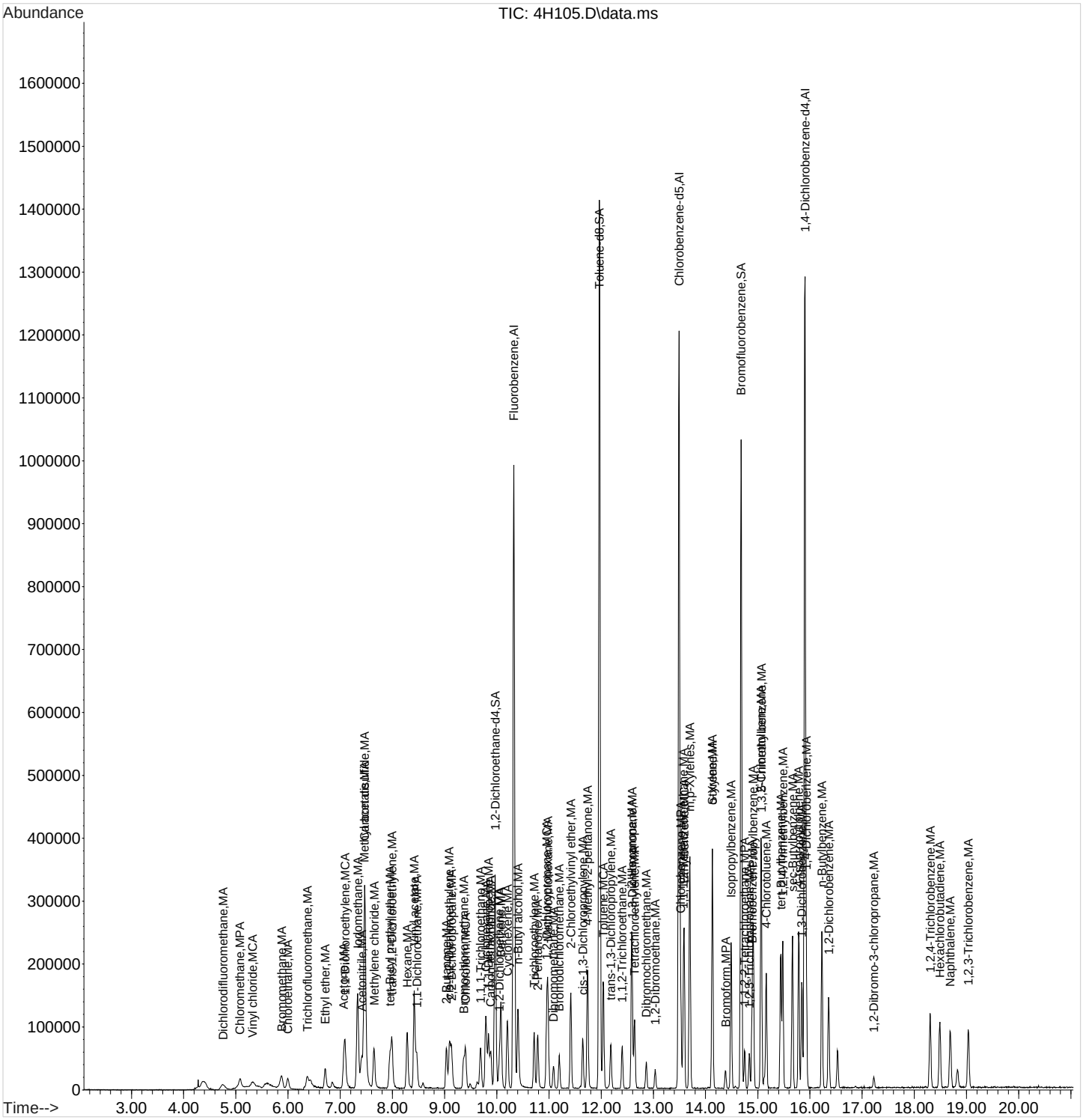
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		12.132	12.186	0.899	0m	N.D.	d
106) 1-Chlorohexane		13.424	13.394	0.844	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.491	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.729	14.625	0.926	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.918	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		0.000	15.503	0.000	0	N.D.	
111) Benzyl chloride		0.000	16.039	0.000	0	N.D.	
112) bis(2-Chloroisopropyl)...		16.527	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H105.D
Acq On : 31 Oct 2016 18:22
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-04|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD005 5UL N/A MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 01 08:08:51 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H106.D
Acq On : 31 Oct 2016 18:52
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-05|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD010 5UL N/A MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 01 08:08:54 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	1019618	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	740076	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	385656	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	280727	42.33	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1042926	54.83	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	417061	49.74	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.756	4.749	0.461	63603	7.32	ug/L		98
3) Chloromethane	50	5.086	5.102	0.493	70196	6.78	ug/L		97
4) Vinyl chloride	62	5.322	5.322	0.515	55728	6.77	ug/L		94
5) Bromomethane	94	5.879	5.887	0.569	56851	7.69	ug/L		98
6) Chloroethane	64	5.997	6.005	0.581	55491	8.29	ug/L		100
7) Trichlorofluoromethane	101	6.370	6.377	0.617	94753	7.48	ug/L		98
8) Ethyl ether	59	6.712	6.712	0.650	51556	9.59	ug/L		92
9) Acetone	43	7.065	7.066	0.684	171027	45.16	ug/L		98
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	108880	9.49	ug/L		100
11) Iodomethane	142	7.334	7.334	0.710	536302	49.13	ug/L		91
12) Acetonitrile	41	7.413	7.413	0.718	190863	251.07	ug/L		99
13) Methyl acetate	43	7.462	7.456	0.723	223168	51.55	ug/L		95
14) Carbon disulfide	76	7.474	7.474	0.724	1117382	55.92	ug/L		93
15) Methylene chloride	84	7.645	7.651	0.740	70750	9.95	ug/L		95
16) tert-Butyl methyl ether	73	7.955	7.956	0.770	165529	10.23	ug/L		98
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	102677	9.42	ug/L		99
18) Hexane	57	8.285	8.285	0.802	113699	11.36	ug/L		99
19) Vinyl acetate	43	8.419	8.419	0.815	570691	48.47	ug/L		95
20) 1,1-Dichloroethane	63	8.468	8.462	0.820	119616	9.29	ug/L		100
21) 2-Butanone	43	9.034	9.035	0.875	215112	50.73	ug/L		97
22) cis-1,2-Dichloroethylene	96	9.095	9.096	0.881	70858	9.96	ug/L		97
23) 2,2-Dichloropropane	77	9.126	9.132	0.884	103639	9.31	ug/L		96
24) Bromochloromethane	128	9.364	9.364	0.907	28602	8.65	ug/L		95
25) Chloroform	83	9.400	9.400	0.910	110491	8.68	ug/L		99
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	105518	8.83	ug/L		95
27) Cyclohexane	56	9.790	9.791	0.948	142698	11.38	ug/L		97
28) 1,1-Dichloropropene	75	9.845	9.845	0.953	90666	10.00	ug/L	#	98
29) Carbon tetrachloride	117	9.882	9.882	0.957	89119	7.98	ug/L		98
31) 1,2-Dichloroethane	62	10.047	10.047	0.973	78649	7.82	ug/L		100
32) Benzene	78	10.077	10.077	0.976	261849	10.43	ug/L	#	77
33) Cyclohexene	67	10.205	10.205	0.988	125429	10.20	ug/L		94
34) n-Butyl alcohol	56	10.406	10.406	1.008	196652	1177.74	ug/L		97
35) Trichloroethylene	95	10.717	10.717	1.038	66274	9.18	ug/L		96
36) 2-Pentanone	43	10.784	10.784	1.044	227451	50.06	ug/L		97
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	70062	10.44	ug/L		96
38) Methylcyclohexane	83	10.973	10.979	1.063	127996	11.30	ug/L		95
39) Dibromomethane	93	11.089	11.083	1.074	34500	8.69	ug/L		96
40) Bromodichloromethane	83	11.193	11.199	1.084	81102	8.64	ug/L		100
41) 2-Chloroethylvinyl ether	63	11.418	11.418	1.106	151739	59.83	ug/L		98
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	101380	10.49	ug/L		99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H106.D
Acq On : 31 Oct 2016 18:52
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-05|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD010 5UL N/A MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 01 08:08:54 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44)	4-Methyl-2-pentanone	58	11.741	11.735	0.870	122256	58.25	ug/L	89
46)	Toluene	91	12.040	12.040	0.892	273851	11.15	ug/L	99
47)	trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	86107	10.53	ug/L	99
48)	1,1,2-Trichloroethane	83	12.400	12.400	0.919	42386	10.47	ug/L	96
49)	2-Hexanone	43	12.583	12.583	0.933	309248	58.14	ug/L	96
50)	1,3-Dichloropropane	76	12.595	12.595	0.934	85816	10.85	ug/L	94
51)	Tetrachloroethylene	164	12.637	12.638	0.937	50713	9.65	ug/L	98
52)	Dibromochloromethane	129	12.863	12.863	0.953	56026	9.41	ug/L	98
53)	1,2-Dibromoethane	107	13.034	13.034	0.966	50606	10.13	ug/L	95
54)	Chlorobenzene	112	13.521	13.522	1.002	177100	10.55	ug/L	98
55)	1,1,1,2-Tetrachloroethane	131	13.576	13.570	1.006	61459	9.39	ug/L	98
56)	Ethylbenzene	91	13.589	13.589	1.007	316888	11.12	ug/L	97
57)	m,p-Xylenes	106	13.698	13.698	1.015	250827	23.74	ug/L	90
58)	o-Xylene	91	14.131	14.131	1.047	260031	11.20	ug/L	97
59)	Styrene	104	14.131	14.131	1.047	199844	12.17	ug/L	95
61)	Bromoform	173	14.381	14.381	0.905	33109	9.52	ug/L	96
62)	Isopropylbenzene	105	14.491	14.491	0.911	330933	11.83	ug/L	96
64)	1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.928	69892	10.72	ug/L	99
65)	1,2,3-Trichloropropane	110	14.838	14.838	0.933	18181	9.35	ug/L	97
66)	Bromobenzene	156	14.893	14.893	0.937	73429	9.88	ug/L	98
67)	n-Propylbenzene	91	14.911	14.918	0.938	391876	11.33	ug/L	96
68)	1,3,5-Trimethylbenzene	105	15.064	15.070	0.947	280748	11.26	ug/L	96
69)	2-Chlorotoluene	126	15.064	15.064	0.947	74468	10.24	ug/L	87
70)	4-Chlorotoluene	91	15.161	15.162	0.954	241114	10.57	ug/L	95
71)	tert-Butylbenzene	134	15.436	15.442	0.971	57409	11.70	ug/L	96
72)	1,2,4-Trimethylbenzene	105	15.478	15.479	0.974	280430	10.90	ug/L	87
73)	sec-Butylbenzene	105	15.661	15.661	0.985	375526	11.56	ug/L	98
74)	4-Isopropyltoluene	119	15.783	15.783	0.993	309256	11.18	ug/L	98
75)	1,3-Dichlorobenzene	146	15.844	15.844	0.997	153972	10.38	ug/L	97
76)	1,4-Dichlorobenzene	146	15.930	15.930	1.002	149651	10.05	ug/L	98
77)	n-Butylbenzene	91	16.228	16.228	1.021	308618	11.37	ug/L	97
78)	1,2-Dichlorobenzene	146	16.356	16.356	1.029	144086	10.45	ug/L	97
79)	1,2-Dibromo-3-chloropr...	157	17.222	17.228	1.083	12430	10.04	ug/L	97
80)	1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	93303	9.21	ug/L	99
81)	Hexachlorobutadiene	225	18.490	18.490	1.163	53543	7.94	ug/L	98
82)	Naphthalene	128	18.685	18.691	1.175	203996	10.84	ug/L	99
83)	1,2,3-Trichlorobenzene	180	19.039	19.033	1.197	82404	9.09	ug/L	96
85)	Acrolein		6.968	6.889	0.675	0m	N.D.	d	
86)	Trichlorotrifluoroethane		0.000	7.090	0.000	0	N.D.		
87)	Isopropyl Alcohol		0.000	7.145	0.000	0	N.D.		
88)	Allyl chloride		7.413	7.504	0.718	0m	N.D.	d	
89)	tert-Butyl Alcohol		7.626	7.639	0.738	0m	N.D.	d	
90)	Acrylonitrile		7.955	7.882	0.770	0m	N.D.	d	
91)	Isopropyl ether		8.425	8.456	0.816	0m	N.D.	d	
92)	2-Chloro-1,3-butadiene		8.602	8.577	0.833	0m	N.D.	d	
93)	Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94)	Ethyl acetate		9.034	9.053	0.875	0m	N.D.	d	
95)	Propionitrile		9.022	9.096	0.874	0m	N.D.	d	
96)	Methacrylonitrile		9.327	9.278	0.903	0m	N.D.	d	
97)	Tetrahydrofuran		9.412	9.419	0.911	0m	N.D.	d	
98)	Isobutyl alcohol		9.626	9.717	0.932	0m	N.D.	d	
99)	Methyl tert-amyl ether		10.083	10.102	0.976	0m	N.D.	d	
100)	Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d	
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.		
102)	2-Nitropropane		11.418	11.388	1.106	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H106.D
Acq On : 31 Oct 2016 18:52
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-05|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD010 5UL N/A MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 01 08:08:54 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

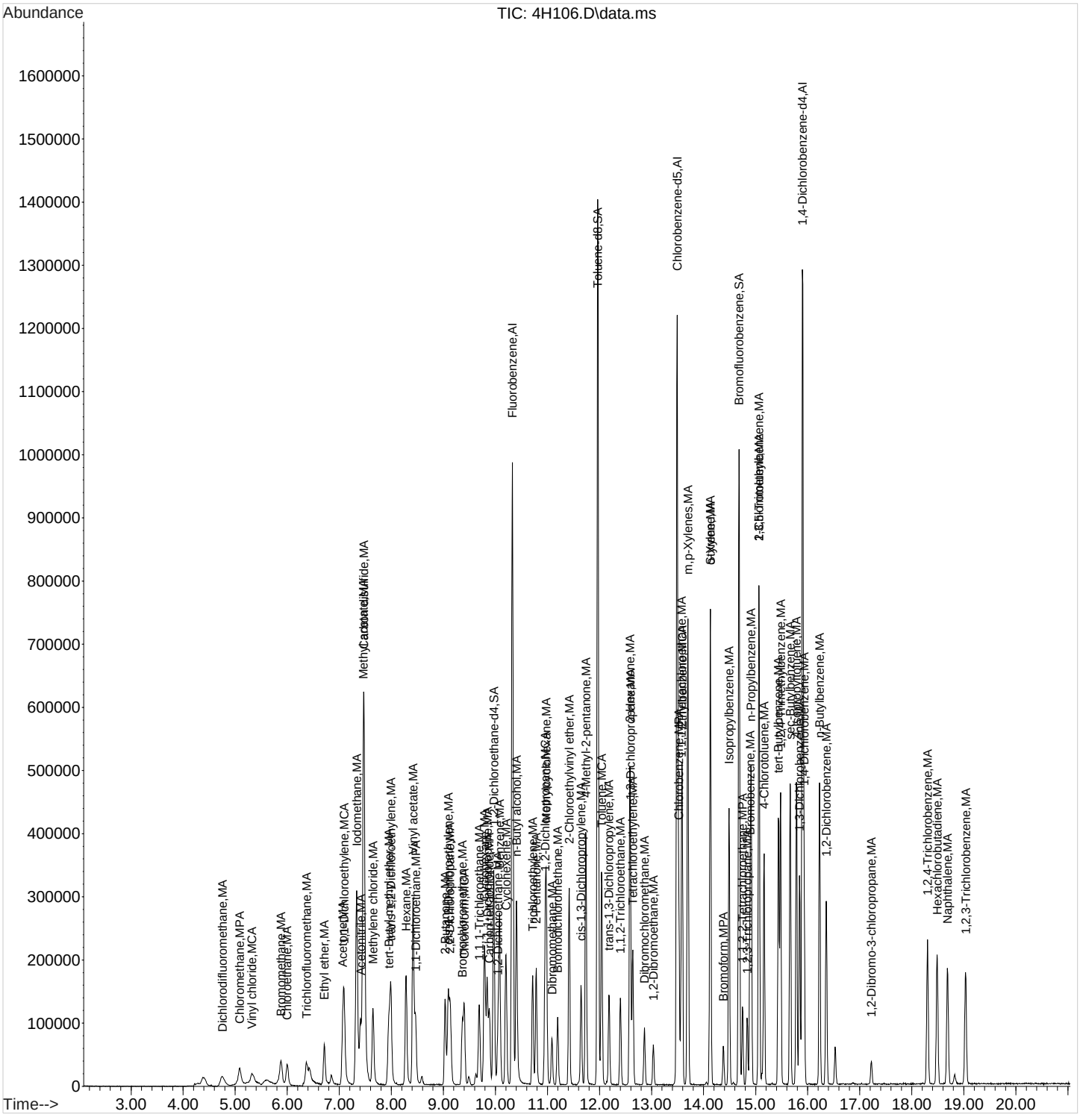
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		12.211	12.186	0.905	0m	N.D.	d
106) 1-Chlorohexane		13.381	13.394	0.842	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.485	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.564	14.625	0.916	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.905	14.796	0.937	0m	N.D.	d
110) Pentachloroethane		15.503	15.503	0.975	0m	N.D.	d
111) Benzyl chloride		16.045	16.039	1.009	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		16.527	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H106.D
Acq On : 31 Oct 2016 18:52
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-05|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD010 5UL N/A MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 01 08:08:54 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H107.D
Acq On : 31 Oct 2016 19:21
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-06|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD020 5UL N/A MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 01 08:08:57 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	1018190	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	727688	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	382664	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	275326	41.57	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1030485	55.10	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	410863	49.38	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.749	4.749	0.460	128735	14.84	ug/L		99
3) Chloromethane	50	5.094	5.102	0.493	135434	13.11	ug/L		99
4) Vinyl chloride	62	5.330	5.322	0.516	112417	13.67	ug/L		98
5) Bromomethane	94	5.887	5.887	0.570	113074	15.32	ug/L		99
6) Chloroethane	64	6.005	6.005	0.581	110225	16.48	ug/L		99
7) Trichlorofluoromethane	101	6.370	6.377	0.617	183995	14.55	ug/L		98
8) Ethyl ether	59	6.712	6.712	0.650	106376	19.82	ug/L		96
9) Acetone	43	7.071	7.066	0.685	319211	84.42	ug/L		97
10) 1,1-Dichloroethylene	61	7.096	7.090	0.687	206530	18.03	ug/L		97
11) Iodomethane	142	7.334	7.334	0.710	1030370	94.53	ug/L		92
12) Acetonitrile	41	7.407	7.413	0.717	363986	479.48	ug/L		98
13) Methyl acetate	43	7.462	7.456	0.723	412604	95.45	ug/L		96
14) Carbon disulfide	76	7.474	7.474	0.724	2084457	104.47	ug/L		94
15) Methylene chloride	84	7.651	7.651	0.741	136850	19.27	ug/L		96
16) tert-Butyl methyl ether	73	7.955	7.956	0.770	334077	20.68	ug/L		100
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	198749	18.27	ug/L		98
18) Hexane	57	8.285	8.285	0.802	218779	21.89	ug/L		98
19) Vinyl acetate	43	8.419	8.419	0.815	1198213	101.92	ug/L		96
20) 1,1-Dichloroethane	63	8.461	8.462	0.819	239103	18.59	ug/L		98
21) 2-Butanone	43	9.034	9.035	0.875	411774	97.25	ug/L		96
22) cis-1,2-Dichloroethylene	96	9.095	9.096	0.881	140106	19.71	ug/L		98
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	201664	18.14	ug/L		95
24) Bromochloromethane	128	9.364	9.364	0.907	58762	17.80	ug/L		98
25) Chloroform	83	9.400	9.400	0.910	217633	17.13	ug/L		100
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	206695	17.32	ug/L		95
27) Cyclohexane	56	9.790	9.791	0.948	276605	22.09	ug/L		98
28) 1,1-Dichloropropene	75	9.839	9.845	0.953	176992	19.55	ug/L	#	98
29) Carbon tetrachloride	117	9.882	9.882	0.957	178870	16.03	ug/L		99
31) 1,2-Dichloroethane	62	10.046	10.047	0.973	158405	15.76	ug/L		100
32) Benzene	78	10.077	10.077	0.976	508657	20.28	ug/L	#	77
33) Cyclohexene	67	10.205	10.205	0.988	248632	20.24	ug/L		96
34) n-Butyl alcohol	56	10.406	10.406	1.008	377422	2263.54	ug/L		99
35) Trichloroethylene	95	10.717	10.717	1.038	130901	18.16	ug/L		97
36) 2-Pentanone	43	10.784	10.784	1.044	446535	98.41	ug/L		97
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	137790	20.56	ug/L		97
38) Methylcyclohexane	83	10.973	10.979	1.063	251082	22.21	ug/L		97
39) Dibromomethane	93	11.083	11.083	1.073	67220	16.95	ug/L		93
40) Bromodichloromethane	83	11.193	11.199	1.084	163972	17.50	ug/L		99
41) 2-Chloroethylvinyl ether	63	11.418	11.418	1.106	303274	119.74	ug/L		98
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	203310	21.06	ug/L		99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H107.D
Acq On : 31 Oct 2016 19:21
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-06|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD020 5UL N/A MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 01 08:08:57 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44)	4-Methyl-2-pentanone	58	11.735	11.735	0.870	234654	113.71	ug/L	89
46)	Toluene	91	12.040	12.040	0.892	526371	21.80	ug/L	99
47)	trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	172287	21.43	ug/L	99
48)	1,1,2-Trichloroethane	83	12.400	12.400	0.919	82476	20.72	ug/L	96
49)	2-Hexanone	43	12.583	12.583	0.933	587640	112.37	ug/L	95
50)	1,3-Dichloropropane	76	12.595	12.595	0.934	168785	21.70	ug/L	99
51)	Tetrachloroethylene	164	12.637	12.638	0.937	103248	19.99	ug/L	97
52)	Dibromochloromethane	129	12.863	12.863	0.953	111523	19.04	ug/L	99
53)	1,2-Dibromoethane	107	13.034	13.034	0.966	96981	19.74	ug/L	100
54)	Chlorobenzene	112	13.521	13.522	1.002	339798	20.58	ug/L	100
55)	1,1,1,2-Tetrachloroethane	131	13.570	13.570	1.006	123464	19.18	ug/L	97
56)	Ethylbenzene	91	13.588	13.589	1.007	613780	21.91	ug/L	97
57)	m,p-Xylenes	106	13.698	13.698	1.015	478267	46.05	ug/L	89
58)	o-Xylene	91	14.131	14.131	1.047	501728	21.98	ug/L	98
59)	Styrene	104	14.131	14.131	1.047	382724	23.71	ug/L	97
61)	Bromoform	173	14.381	14.381	0.905	66464	19.27	ug/L	98
62)	Isopropylbenzene	105	14.491	14.491	0.911	631368	22.75	ug/L	96
64)	1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.928	136124	21.05	ug/L	99
65)	1,2,3-Trichloropropane	110	14.838	14.838	0.933	36954	19.16	ug/L	91
66)	Bromobenzene	156	14.893	14.893	0.937	143932	19.52	ug/L	98
67)	n-Propylbenzene	91	14.917	14.918	0.938	760463	22.16	ug/L	97
68)	1,3,5-Trimethylbenzene	105	15.064	15.070	0.947	534433	21.60	ug/L	97
69)	2-Chlorotoluene	126	15.064	15.064	0.947	143580	19.90	ug/L	89
70)	4-Chlorotoluene	91	15.161	15.162	0.954	462646	20.44	ug/L	96
71)	tert-Butylbenzene	134	15.442	15.442	0.971	109773	22.55	ug/L	97
72)	1,2,4-Trimethylbenzene	105	15.478	15.479	0.974	545809	21.39	ug/L	88
73)	sec-Butylbenzene	105	15.661	15.661	0.985	716662	22.24	ug/L	98
74)	4-Isopropyltoluene	119	15.783	15.783	0.993	592665	21.59	ug/L	98
75)	1,3-Dichlorobenzene	146	15.844	15.844	0.997	299880	20.36	ug/L	97
76)	1,4-Dichlorobenzene	146	15.929	15.930	1.002	294355	19.91	ug/L	97
77)	n-Butylbenzene	91	16.228	16.228	1.021	593232	22.03	ug/L	98
78)	1,2-Dichlorobenzene	146	16.356	16.356	1.029	277600	20.28	ug/L	97
79)	1,2-Dibromo-3-chloropr...	157	17.228	17.228	1.084	24764	20.16	ug/L	98
80)	1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	181898	18.09	ug/L	99
81)	Hexachlorobutadiene	225	18.490	18.490	1.163	108490	16.21	ug/L	98
82)	Naphthalene	128	18.685	18.691	1.175	405125	21.69	ug/L	99
83)	1,2,3-Trichlorobenzene	180	19.039	19.033	1.197	156838	17.43	ug/L	97
85)	Acrolein		6.870	6.889	0.665	0m	N.D.	d	
86)	Trichlorotrifluoroethane		0.000	7.090	0.000	0	N.D.		
87)	Isopropyl Alcohol		7.059	7.145	0.684	0m	N.D.	d	
88)	Allyl chloride		7.407	7.504	0.717	0m	N.D.	d	
89)	tert-Butyl Alcohol		0.000	7.639	0.000	0	N.D.		
90)	Acrylonitrile		7.962	7.882	0.771	0m	N.D.	d	
91)	Isopropyl ether		8.419	8.456	0.815	0m	N.D.	d	
92)	2-Chloro-1,3-butadiene		8.577	8.577	0.831	0m	N.D.	d	
93)	Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94)	Ethyl acetate		9.034	9.053	0.875	0m	N.D.	d	
95)	Propionitrile		9.028	9.096	0.874	0m	N.D.	d	
96)	Methacrylonitrile		9.291	9.278	0.900	0m	N.D.	d	
97)	Tetrahydrofuran		9.394	9.419	0.910	0m	N.D.	d	
98)	Isobutyl alcohol		9.790	9.717	0.948	0m	N.D.	d	
99)	Methyl tert-amyl ether		10.077	10.102	0.976	0m	N.D.	d	
100)	Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d	
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.		
102)	2-Nitropropane		11.418	11.388	1.106	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H107.D
Acq On : 31 Oct 2016 19:21
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-06|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD020 5UL N/A MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 01 08:08:57 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

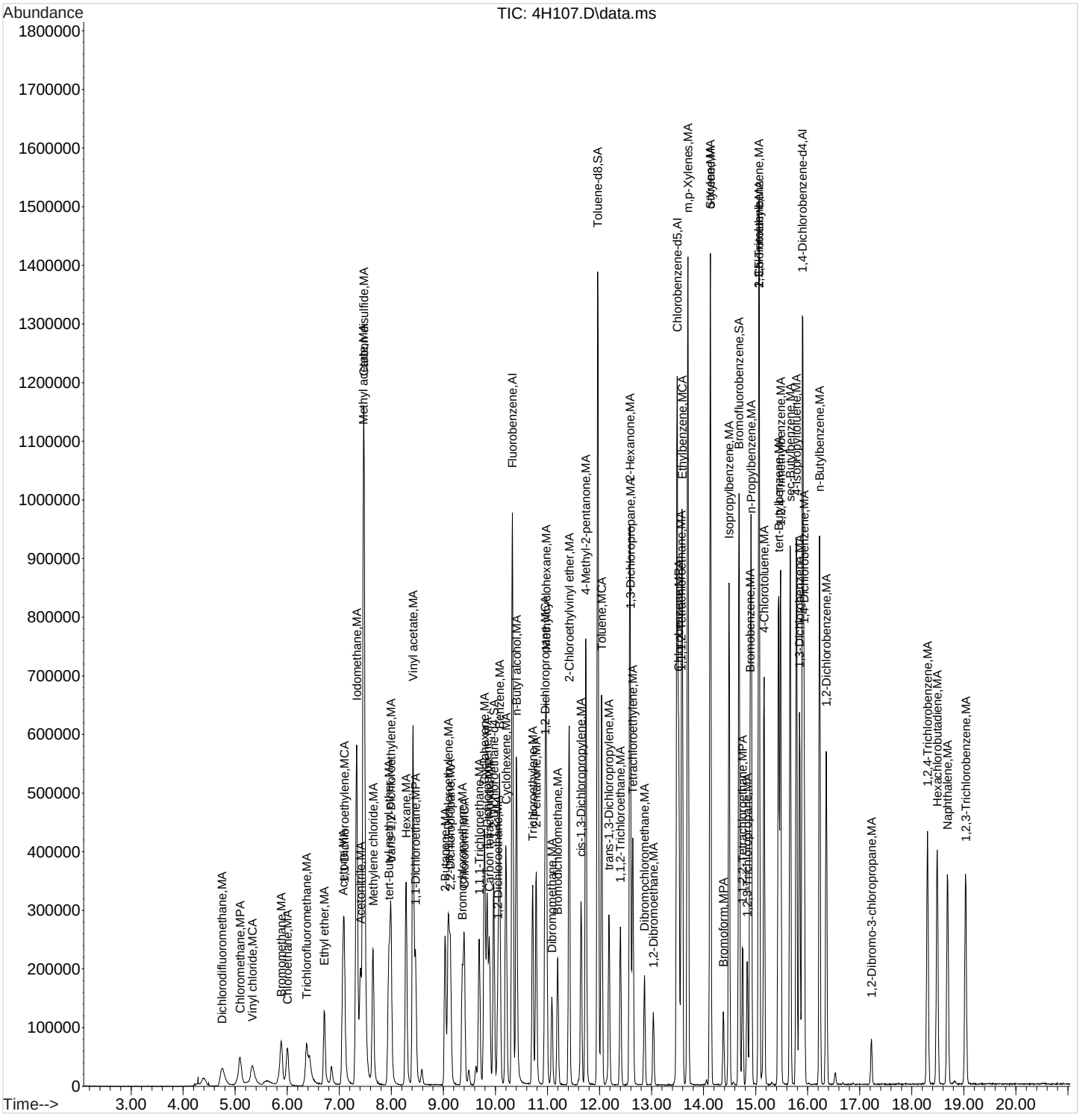
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		0.000	12.186	0.000	0	N.D.	
106) 1-Chlorohexane		13.387	13.394	0.842	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.491	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.576	14.625	0.917	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.917	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		15.503	15.503	0.975	0m	N.D.	d
111) Benzyl chloride		0.000	16.039	0.000	0	N.D.	
112) bis(2-Chloroisopropyl)...		16.527	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H107.D
Acq On : 31 Oct 2016 19:21
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-06|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD020 5UL N/A MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 01 08:08:57 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H108.D
Acq On : 31 Oct 2016 19:49
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-07|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD050 5UL N/A MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 01 08:09:00 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	995811	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	722592	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	384469	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	267511	41.30	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1013742	54.59	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	416156	49.79	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.749	4.749	0.460	322301	37.98	ug/L		99
3) Chloromethane	50	5.094	5.102	0.493	318062	31.47	ug/L		100
4) Vinyl chloride	62	5.322	5.322	0.515	279022	34.70	ug/L		100
5) Bromomethane	94	5.887	5.887	0.570	278592	38.60	ug/L		99
6) Chloroethane	64	6.005	6.005	0.581	269541	41.22	ug/L		99
7) Trichlorofluoromethane	101	6.370	6.377	0.617	462471	37.38	ug/L		100
8) Ethyl ether	59	6.706	6.712	0.649	258922	49.33	ug/L		95
9) Acetone	43	7.059	7.066	0.684	740231	200.15	ug/L		99
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	497044	44.36	ug/L		98
11) Iodomethane	142	7.327	7.334	0.710	2375473	222.83	ug/L		93
12) Acetonitrile	41	7.407	7.413	0.717	884435	1191.26	ug/L		98
13) Methyl acetate	43	7.456	7.456	0.722	984858	232.95	ug/L		95
14) Carbon disulfide	76	7.468	7.474	0.723	4661417	238.86	ug/L		95
15) Methylene chloride	84	7.645	7.651	0.740	311573	44.85	ug/L		94
16) tert-Butyl methyl ether	73	7.955	7.956	0.770	803482	50.85	ug/L		100
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	471540	44.31	ug/L		98
18) Hexane	57	8.285	8.285	0.802	528406	54.05	ug/L		99
19) Vinyl acetate	43	8.413	8.419	0.815	2686225	233.62	ug/L		97
20) 1,1-Dichloroethane	63	8.461	8.462	0.819	562370	44.70	ug/L		100
21) 2-Butanone	43	9.028	9.035	0.874	963688	232.71	ug/L		97
22) cis-1,2-Dichloroethylene	96	9.095	9.096	0.881	330565	47.56	ug/L		99
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	490869	45.15	ug/L		94
24) Bromochloromethane	128	9.364	9.364	0.907	138748	42.97	ug/L		98
25) Chloroform	83	9.400	9.400	0.910	518345	41.71	ug/L		98
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	502626	43.06	ug/L		95
27) Cyclohexane	56	9.790	9.791	0.948	664137	54.23	ug/L		97
28) 1,1-Dichloropropene	75	9.839	9.845	0.953	421391	47.58	ug/L	#	98
29) Carbon tetrachloride	117	9.882	9.882	0.957	439944	40.32	ug/L		99
31) 1,2-Dichloroethane	62	10.046	10.047	0.973	381216	38.79	ug/L		99
32) Benzene	78	10.077	10.077	0.976	1200529	48.95	ug/L		99
33) Cyclohexene	67	10.199	10.205	0.988	595653	49.58	ug/L		95
34) n-Butyl alcohol	56	10.400	10.406	1.007	929489	5699.77	ug/L		99
35) Trichloroethylene	95	10.717	10.717	1.038	318924	45.24	ug/L		99
36) 2-Pentanone	43	10.778	10.784	1.044	1099313	247.71	ug/L		98
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	325121	49.60	ug/L		97
38) Methylcyclohexane	83	10.973	10.979	1.063	598613	54.13	ug/L		96
39) Dibromomethane	93	11.083	11.083	1.073	163476	42.14	ug/L		95
40) Bromodichloromethane	83	11.193	11.199	1.084	398288	43.46	ug/L		99
41) 2-Chloroethylvinyl ether	63	11.412	11.418	1.105	742660	299.81	ug/L		98
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	485234	51.39	ug/L		99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H108.D
Acq On : 31 Oct 2016 19:49
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-07|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD050 5UL N/A MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 01 08:09:00 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone	58	11.735	11.735	0.870	558194	272.41	ug/L	90
46) Toluene	91	12.040	12.040	0.892	1233693	51.46	ug/L	100
47) trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	416080	52.11	ug/L	99
48) 1,1,2-Trichloroethane	83	12.400	12.400	0.919	200828	50.81	ug/L	98
49) 2-Hexanone	43	12.583	12.583	0.933	1298023	249.95	ug/L	96
50) 1,3-Dichloropropane	76	12.595	12.595	0.934	384342	49.75	ug/L	98
51) Tetrachloroethylene	164	12.637	12.638	0.937	244897	47.74	ug/L	97
52) Dibromochloromethane	129	12.863	12.863	0.953	275777	47.42	ug/L	99
53) 1,2-Dibromoethane	107	13.034	13.034	0.966	240535	49.31	ug/L	98
54) Chlorobenzene	112	13.521	13.522	1.002	820952	50.08	ug/L	98
55) 1,1,1,2-Tetrachloroethane	131	13.576	13.570	1.006	297717	46.57	ug/L	97
56) Ethylbenzene	91	13.588	13.589	1.007	1434929	51.58	ug/L	97
57) m,p-Xylenes	106	13.698	13.698	1.015	1096155	106.28	ug/L	91
58) o-Xylene	91	14.131	14.131	1.047	1156555	51.03	ug/L	99
59) Styrene	104	14.131	14.131	1.047	896268	55.91	ug/L	96
61) Bromoform	173	14.381	14.381	0.904	171624	49.52	ug/L	100
62) Isopropylbenzene	105	14.491	14.491	0.911	1500573	53.81	ug/L	97
64) 1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.927	338652	52.11	ug/L	98
65) 1,2,3-Trichloropropane	110	14.838	14.838	0.933	89192	46.03	ug/L	93
66) Bromobenzene	156	14.893	14.893	0.936	350468	47.32	ug/L	96
67) n-Propylbenzene	91	14.917	14.918	0.938	1772782	51.41	ug/L	97
68) 1,3,5-Trimethylbenzene	105	15.070	15.070	0.947	1250564	50.30	ug/L	97
69) 2-Chlorotoluene	126	15.064	15.064	0.947	339961	46.89	ug/L	92
70) 4-Chlorotoluene	91	15.161	15.162	0.953	1114129	48.99	ug/L	97
71) tert-Butylbenzene	134	15.442	15.442	0.971	270831	55.38	ug/L	96
72) 1,2,4-Trimethylbenzene	105	15.478	15.479	0.973	1295479	50.52	ug/L	86
73) sec-Butylbenzene	105	15.661	15.661	0.985	1680007	51.90	ug/L	100
74) 4-Isopropyltoluene	119	15.783	15.783	0.992	1395958	50.62	ug/L	98
75) 1,3-Dichlorobenzene	146	15.844	15.844	0.996	719051	48.60	ug/L	97
76) 1,4-Dichlorobenzene	146	15.929	15.930	1.002	707996	47.67	ug/L	97
77) n-Butylbenzene	91	16.228	16.228	1.020	1393089	51.48	ug/L	98
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.028	673057	48.95	ug/L	98
79) 1,2-Dibromo-3-chloropr...	157	17.228	17.228	1.083	67439	54.65	ug/L	94
80) 1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	445758	44.13	ug/L	99
81) Hexachlorobutadiene	225	18.490	18.490	1.163	265794	39.54	ug/L	100
82) Naphthalene	128	18.685	18.691	1.175	990028	52.75	ug/L	99
83) 1,2,3-Trichlorobenzene	180	19.033	19.033	1.197	393845	43.56	ug/L	96
85) Acrolein		6.895	6.889	0.668	0m	N.D.	d	
86) Trichlorotrifluoroethane		0.000	7.090	0.000	0	N.D.		
87) Isopropyl Alcohol		7.163	7.145	0.694	0m	N.D.	d	
88) Allyl chloride		7.407	7.504	0.717	0m	N.D.	d	
89) tert-Butyl Alcohol		7.632	7.639	0.739	0m	N.D.	d	
90) Acrylonitrile		7.955	7.882	0.770	0m	N.D.	d	
91) Isopropyl ether		8.413	8.456	0.815	0m	N.D.	d	
92) 2-Chloro-1,3-butadiene		8.583	8.577	0.831	0m	N.D.	d	
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate		9.028	9.053	0.874	0m	N.D.	d	
95) Propionitrile		9.028	9.096	0.874	0m	N.D.	d	
96) Methacrylonitrile		9.315	9.278	0.902	0m	N.D.	d	
97) Tetrahydrofuran		9.412	9.419	0.911	0m	N.D.	d	
98) Isobutyl alcohol		9.705	9.717	0.940	0m	N.D.	d	
99) Methyl tert-amyl ether		10.077	10.102	0.976	0m	N.D.	d	
100) Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d	
101) 1,4-Dioxane		11.089	11.034	1.074	0m	N.D.	d	
102) 2-Nitropropane		11.412	11.388	1.105	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H108.D
Acq On : 31 Oct 2016 19:49
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-07|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD050 5UL N/A MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 01 08:09:00 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

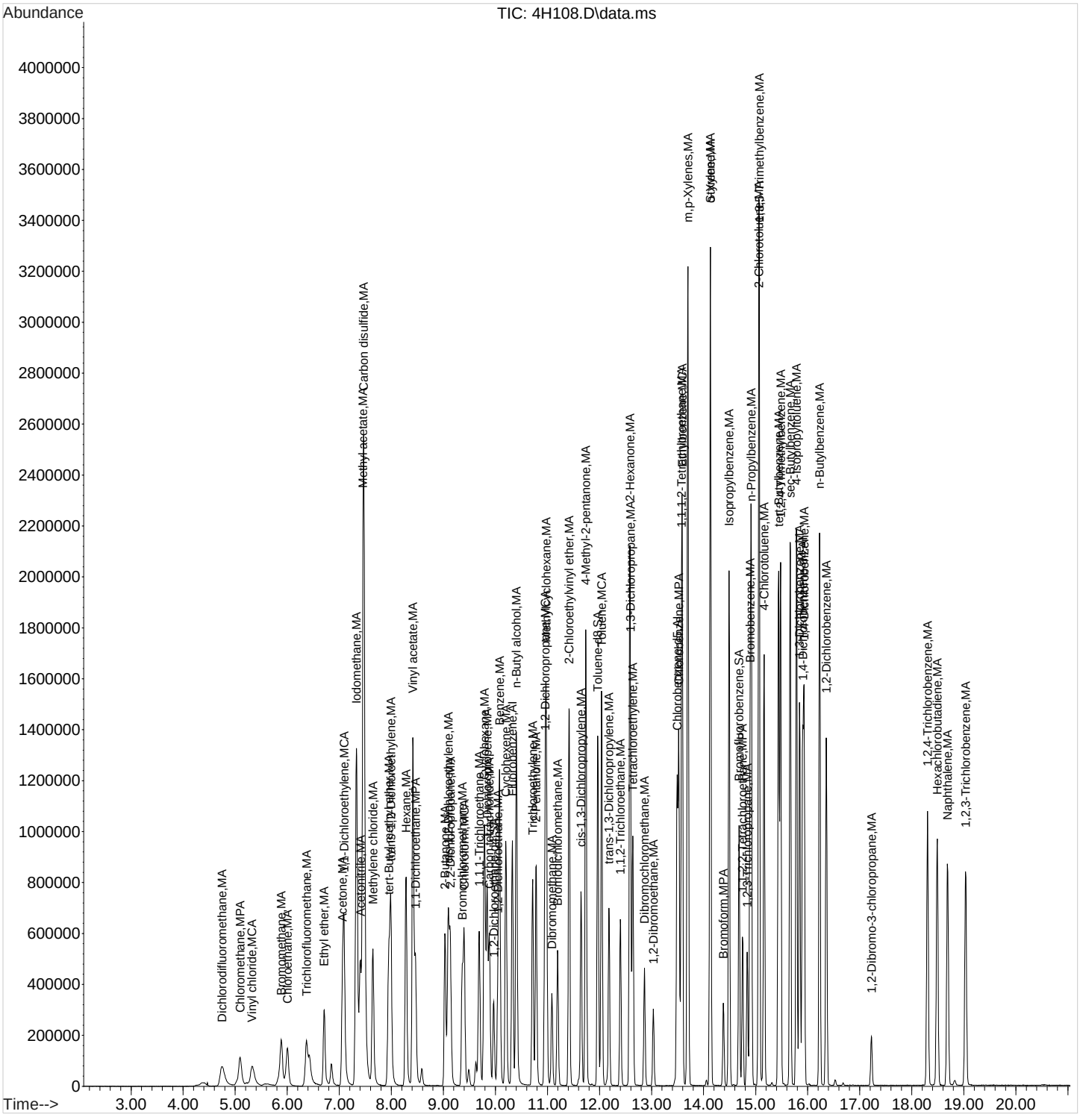
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		12.144	12.186	0.900	0m	N.D.	d
106) 1-Chlorohexane		13.442	13.394	0.845	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.491	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.692	14.625	0.924	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.917	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		15.509	15.503	0.975	0m	N.D.	d
111) Benzyl chloride		0.000	16.039	0.000	0	N.D.	
112) bis(2-Chloroisopropyl)...		16.533	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H108.D
Acq On : 31 Oct 2016 19:49
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-07|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD050 5UL N/A MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 01 08:09:00 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H109.D
Acq On : 31 Oct 2016 20:19
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-08|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD080 5UL N/A MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 01 08:09:03 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	980079	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	712800	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	378948	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	265976	41.72	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1015522	55.43	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	410741	49.85	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.749	4.749	0.460	400774	47.98	ug/L		99
3) Chloromethane	50	5.102	5.102	0.494	441839	44.42	ug/L		100
4) Vinyl chloride	62	5.330	5.322	0.516	393481	49.73	ug/L		100
5) Bromomethane	94	5.887	5.887	0.570	409398	57.64	ug/L		100
6) Chloroethane	64	6.005	6.005	0.581	396644	61.62	ug/L		99
7) Trichlorofluoromethane	101	6.371	6.377	0.617	680731	55.91	ug/L		100
8) Ethyl ether	59	6.712	6.712	0.650	381251	73.80	ug/L		93
9) Acetone	43	7.059	7.066	0.684	1090811	299.68	ug/L		98
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	762533	69.14	ug/L		98
11) Iodomethane	142	7.328	7.334	0.710	3509852	334.52	ug/L		94
12) Acetonitrile	41	7.407	7.413	0.717	1353736	1852.64	ug/L		98
13) Methyl acetate	43	7.456	7.456	0.722	1419232	341.08	ug/L		96
14) Carbon disulfide	76	7.468	7.474	0.723	6609000	344.10	ug/L		96
15) Methylene chloride	84	7.645	7.651	0.740	481415	70.41	ug/L		95
16) tert-Butyl methyl ether	73	7.956	7.956	0.770	1217360	78.28	ug/L		100
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	709423	67.74	ug/L		98
18) Hexane	57	8.285	8.285	0.802	806580	83.83	ug/L		99
19) Vinyl acetate	43	8.413	8.419	0.815	3906780	345.22	ug/L		97
20) 1,1-Dichloroethane	63	8.462	8.462	0.819	858153	69.30	ug/L		100
21) 2-Butanone	43	9.029	9.035	0.874	1423019	349.15	ug/L		96
22) cis-1,2-Dichloroethylene	96	9.096	9.096	0.881	502976	73.52	ug/L		97
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	753653	70.44	ug/L		93
24) Bromochloromethane	128	9.364	9.364	0.907	213882	67.31	ug/L		98
25) Chloroform	83	9.400	9.400	0.910	790250	64.61	ug/L		98
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	764651	66.56	ug/L		95
27) Cyclohexane	56	9.791	9.791	0.948	1005906	83.46	ug/L		97
28) 1,1-Dichloropropene	75	9.839	9.845	0.953	638133	73.21	ug/L	#	98
29) Carbon tetrachloride	117	9.882	9.882	0.957	673350	62.70	ug/L		100
31) 1,2-Dichloroethane	62	10.047	10.047	0.973	578885	59.85	ug/L		99
32) Benzene	78	10.077	10.077	0.976	1795867	74.39	ug/L		98
33) Cyclohexene	67	10.199	10.205	0.988	896307	75.80	ug/L		94
34) n-Butyl alcohol	56	10.400	10.406	1.007	1423972	8872.18	ug/L		98
35) Trichloroethylene	95	10.717	10.717	1.038	476790	68.72	ug/L		98
36) 2-Pentanone	43	10.784	10.784	1.044	1651981	378.22	ug/L		98
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	490868	76.09	ug/L		97
38) Methylcyclohexane	83	10.973	10.979	1.063	891503	81.91	ug/L		96
39) Dibromomethane	93	11.083	11.083	1.073	251946	65.99	ug/L		95
40) Bromodichloromethane	83	11.199	11.199	1.084	612299	67.89	ug/L		100
41) 2-Chloroethylvinyl ether	63	11.418	11.418	1.106	1105551	453.47	ug/L		98
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	752276	80.95	ug/L		99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H109.D
Acq On : 31 Oct 2016 20:19
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-08|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD080 5UL N/A MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 01 08:09:03 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44)	4-Methyl-2-pentanone	58	11.735	11.735	0.870	843097	417.10	ug/L	93
46)	Toluene	91	12.040	12.040	0.892	1844862	78.00	ug/L	98
47)	trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	652484	82.85	ug/L	99
48)	1,1,2-Trichloroethane	83	12.400	12.400	0.919	309650	79.42	ug/L	98
49)	2-Hexanone	43	12.583	12.583	0.933	1962493	383.10	ug/L	97
50)	1,3-Dichloropropane	76	12.595	12.595	0.934	583190	76.53	ug/L	99
51)	Tetrachloroethylene	164	12.638	12.638	0.937	371772	73.47	ug/L	96
52)	Dibromochloromethane	129	12.863	12.863	0.953	437228	76.21	ug/L	100
53)	1,2-Dibromoethane	107	13.034	13.034	0.966	369504	76.78	ug/L	97
54)	Chlorobenzene	112	13.522	13.522	1.002	1234887	76.37	ug/L	99
55)	1,1,1,2-Tetrachloroethane	131	13.576	13.570	1.006	454364	72.04	ug/L	97
56)	Ethylbenzene	91	13.589	13.589	1.007	2105292	76.71	ug/L	98
57)	m,p-Xylenes	106	13.698	13.698	1.015	1616391	158.87	ug/L	92
58)	o-Xylene	91	14.131	14.131	1.047	1698323	75.96	ug/L	99
59)	Styrene	104	14.131	14.131	1.047	1320619	83.51	ug/L	97
61)	Bromoform	173	14.381	14.381	0.905	271839	79.58	ug/L	98
62)	Isopropylbenzene	105	14.491	14.491	0.911	2203712	80.18	ug/L	98
64)	1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.928	514417	80.31	ug/L	100
65)	1,2,3-Trichloropropane	110	14.838	14.838	0.933	138010	72.27	ug/L	90
66)	Bromobenzene	156	14.893	14.893	0.937	529934	72.59	ug/L	96
67)	n-Propylbenzene	91	14.918	14.918	0.938	2590711	76.23	ug/L	99
68)	1,3,5-Trimethylbenzene	105	15.070	15.070	0.948	1842862	75.20	ug/L	97
69)	2-Chlorotoluene	126	15.064	15.064	0.947	504702	70.63	ug/L	91
70)	4-Chlorotoluene	91	15.161	15.162	0.954	1667686	74.40	ug/L	97
71)	tert-Butylbenzene	134	15.442	15.442	0.971	410573	85.17	ug/L	94
72)	1,2,4-Trimethylbenzene	105	15.479	15.479	0.974	1914152	75.74	ug/L	89
73)	sec-Butylbenzene	105	15.661	15.661	0.985	2462506	77.17	ug/L	99
74)	4-Isopropyltoluene	119	15.783	15.783	0.993	2070128	76.16	ug/L	99
75)	1,3-Dichlorobenzene	146	15.844	15.844	0.997	1090611	74.79	ug/L	97
76)	1,4-Dichlorobenzene	146	15.930	15.930	1.002	1079827	73.77	ug/L	96
77)	n-Butylbenzene	91	16.228	16.228	1.021	2057294	77.14	ug/L	98
78)	1,2-Dichlorobenzene	146	16.356	16.356	1.029	1026005	75.70	ug/L	98
79)	1,2-Dibromo-3-chloropr...	157	17.222	17.228	1.083	104293	85.75	ug/L	95
80)	1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	683364	68.63	ug/L	99
81)	Hexachlorobutadiene	225	18.490	18.490	1.163	400847	60.49	ug/L	100
82)	Naphthalene	128	18.685	18.691	1.175	1525851	82.49	ug/L	100
83)	1,2,3-Trichlorobenzene	180	19.033	19.033	1.197	605559	67.95	ug/L	97
85)	Acrolein		6.767	6.889	0.655	0m	N.D.	d	
86)	Trichlorotrifluoroethane		7.102	7.090	0.688	0m	N.D.	d	
87)	Isopropyl Alcohol		7.066	7.145	0.684	0m	N.D.	d	
88)	Allyl chloride		7.407	7.504	0.717	0m	N.D.	d	
89)	tert-Butyl Alcohol		0.000	7.639	0.000	0	N.D.		
90)	Acrylonitrile		7.956	7.882	0.770	0m	N.D.	d	
91)	Isopropyl ether		8.419	8.456	0.815	0m	N.D.	d	
92)	2-Chloro-1,3-butadiene		8.590	8.577	0.832	0m	N.D.	d	
93)	Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94)	Ethyl acetate		9.029	9.053	0.874	0m	N.D.	d	
95)	Propionitrile		9.035	9.096	0.875	0m	N.D.	d	
96)	Methacrylonitrile		0.000	9.278	0.000	0	N.D.		
97)	Tetrahydrofuran		9.400	9.419	0.910	0m	N.D.	d	
98)	Isobutyl alcohol		9.791	9.717	0.948	0m	N.D.	d	
99)	Methyl tert-amyl ether		10.077	10.102	0.976	0m	N.D.	d	
100)	Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d	
101)	1,4-Dioxane		11.083	11.034	1.073	0m	N.D.	d	
102)	2-Nitropropane		11.412	11.388	1.105	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H109.D
Acq On : 31 Oct 2016 20:19
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-08|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD080 5UL N/A MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 01 08:09:03 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

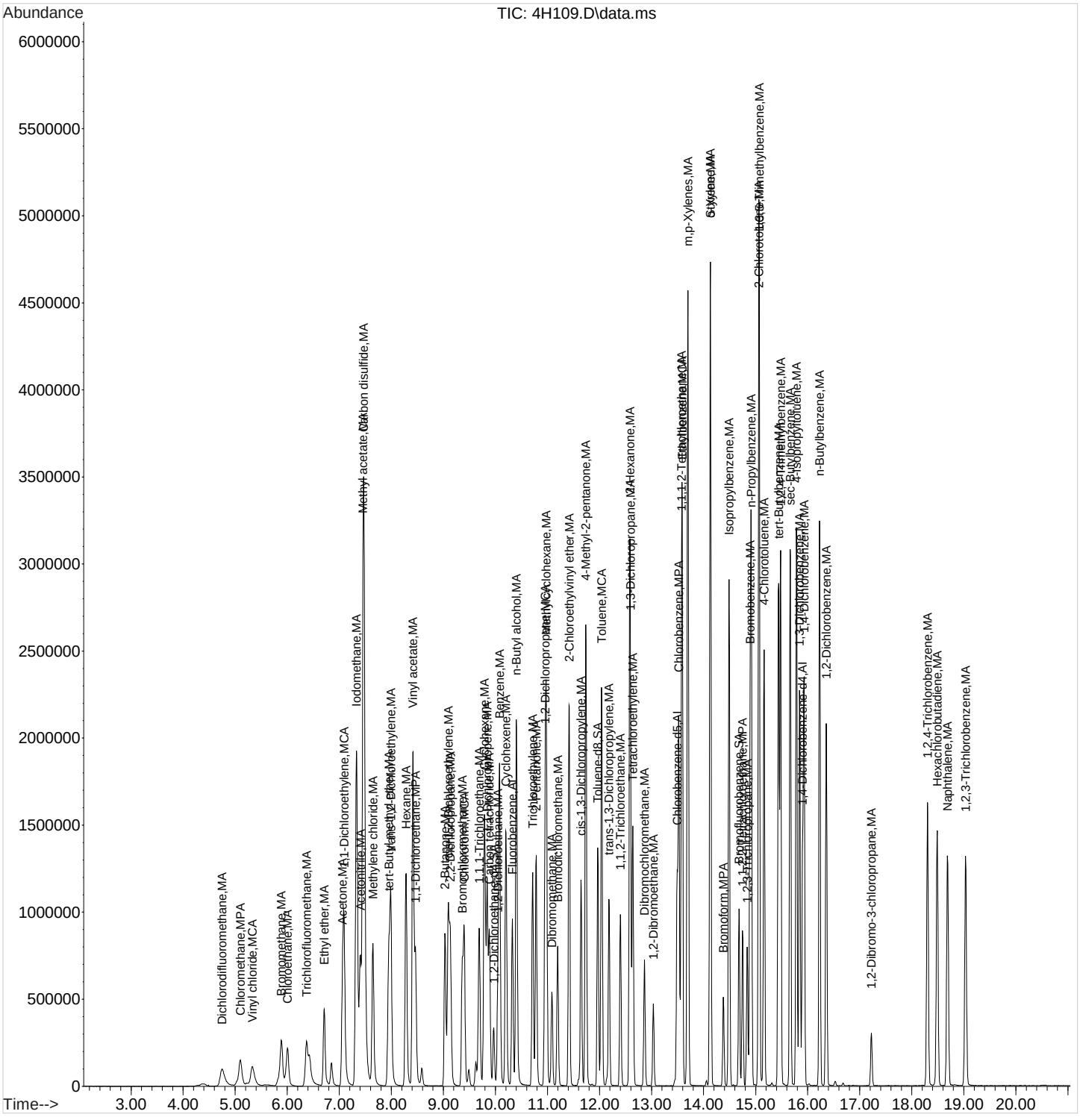
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		12.174	12.186	0.902	0m	N.D.	d
106) 1-Chlorohexane		13.363	13.394	0.840	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.491	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.649	14.625	0.921	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.912	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		15.497	15.503	0.975	0m	N.D.	d
111) Benzyl chloride		16.039	16.039	1.009	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		16.527	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H109.D
Acq On : 31 Oct 2016 20:19
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-08|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD080 5UL N/A MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 01 08:09:03 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H110.D
Acq On : 31 Oct 2016 20:48
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-09|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD100 5UL N/A MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 01 08:09:06 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	10.327	10.327	1.000	1043140	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	765904	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	404357	50.00	ug/L		0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	283535	41.78	ug/L		0.00
45) Toluene-d8	98	11.967	11.967	0.887	1082769	55.01	ug/L		0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	440645	50.12	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.756	4.749	0.461	526801	59.26	ug/L		100
3) Chloromethane	50	5.110	5.102	0.495	566137	53.47	ug/L		100
4) Vinyl chloride	62	5.330	5.322	0.516	513136	60.93	ug/L		99
5) Bromomethane	94	5.895	5.887	0.571	541824	71.67	ug/L		99
6) Chloroethane	64	6.013	6.005	0.582	519220	75.79	ug/L		99
7) Trichlorofluoromethane	101	6.376	6.377	0.617	884572	68.26	ug/L		99
8) Ethyl ether	59	6.712	6.712	0.650	515485	93.75	ug/L		94
9) Acetone	43	7.065	7.066	0.684	1406916	363.16	ug/L		98
10) 1,1-Dichloroethylene	61	7.096	7.090	0.687	998452	85.06	ug/L		96
11) Iodomethane	142	7.334	7.334	0.710	4522353	404.97	ug/L		95
12) Acetonitrile	41	7.407	7.413	0.717	1709420	2197.98	ug/L		99
13) Methyl acetate	43	7.455	7.456	0.722	1815212	409.88	ug/L		96
14) Carbon disulfide	76	7.474	7.474	0.724	8115060	396.97	ug/L		97
15) Methylene chloride	84	7.644	7.651	0.740	644179	88.53	ug/L		95
16) tert-Butyl methyl ether	73	7.955	7.956	0.770	1628571	98.39	ug/L		100
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	937155	84.07	ug/L		98
18) Hexane	57	8.285	8.285	0.802	1034414	101.02	ug/L		99 A
19) Vinyl acetate	43	8.419	8.419	0.815	4957401	411.58	ug/L		97
20) 1,1-Dichloroethane	63	8.467	8.462	0.820	1131536	85.86	ug/L		100
21) 2-Butanone	43	9.028	9.035	0.874	1824501	420.59	ug/L		97
22) cis-1,2-Dichloroethylene	96	9.095	9.096	0.881	662424	90.97	ug/L		97
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	975369	85.65	ug/L		94
24) Bromochloromethane	128	9.364	9.364	0.907	286255	84.64	ug/L		98
25) Chloroform	83	9.400	9.400	0.910	1046814	80.41	ug/L		98
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	1008542	82.48	ug/L		95
27) Cyclohexane	56	9.790	9.791	0.948	1302114	101.51	ug/L		98 A
28) 1,1-Dichloropropene	75	9.839	9.845	0.953	829065	89.36	ug/L	#	97
29) Carbon tetrachloride	117	9.882	9.882	0.957	885373	77.46	ug/L		99
31) 1,2-Dichloroethane	62	10.046	10.047	0.973	767861	74.59	ug/L		100
32) Benzene	78	10.077	10.077	0.976	2322102	90.38	ug/L		98
33) Cyclohexene	67	10.199	10.205	0.988	1165179	92.58	ug/L		94
34) n-Butyl alcohol	56	10.406	10.406	1.008	1805461	10569.03	ug/L		98 A
35) Trichloroethylene	95	10.717	10.717	1.038	625829	84.75	ug/L		98
36) 2-Pentanone	43	10.784	10.784	1.044	2137516	459.80	ug/L		98
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	637736	92.88	ug/L		97
38) Methylcyclohexane	83	10.973	10.979	1.063	1147910	99.09	ug/L		96
39) Dibromomethane	93	11.083	11.083	1.073	333886	82.17	ug/L		93
40) Bromodichloromethane	83	11.193	11.199	1.084	828207	86.27	ug/L		99
41) 2-Chloroethylvinyl ether	63	11.418	11.418	1.106	1440730	555.22	ug/L		98 A
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	997775	100.88	ug/L		99 A

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H110.D
Acq On : 31 Oct 2016 20:48
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-09|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD100 5UL N/A MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 01 08:09:06 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	11.735	11.735	0.870	1081802	498.09	ug/L	95	
46)	Toluene	91	12.040	12.040	0.892	2383980	93.81	ug/L	99	
47)	trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	855001	101.03	ug/L	99	A
48)	1,1,2-Trichloroethane	83	12.400	12.400	0.919	412313	98.42	ug/L	98	
49)	2-Hexanone	43	12.583	12.583	0.933	2345353	426.09	ug/L	97	
50)	1,3-Dichloropropane	76	12.595	12.595	0.934	753657	92.04	ug/L	99	
51)	Tetrachloroethylene	164	12.637	12.638	0.937	485635	89.32	ug/L	97	
52)	Dibromochloromethane	129	12.863	12.863	0.953	587121	95.24	ug/L	99	
53)	1,2-Dibromoethane	107	13.034	13.034	0.966	492682	95.28	ug/L	98	
54)	Chlorobenzene	112	13.521	13.522	1.002	1609435	92.63	ug/L	99	
55)	1,1,1,2-Tetrachloroethane	131	13.576	13.570	1.006	597047	88.10	ug/L	97	
56)	Ethylbenzene	91	13.588	13.589	1.007	2689498	91.20	ug/L	99	
57)	m,p-Xylenes	106	13.698	13.698	1.015	2064657	188.86	ug/L	96	
58)	o-Xylene	91	14.131	14.131	1.047	2163799	90.07	ug/L	100	
59)	Styrene	104	14.131	14.131	1.047	1693647	99.67	ug/L	98	
61)	Bromoform	173	14.381	14.381	0.904	372992	102.34	ug/L	98	A
62)	Isopropylbenzene	105	14.491	14.491	0.911	2822223	96.23	ug/L	99	
64)	1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.927	683205	99.96	ug/L	99	
65)	1,2,3-Trichloropropane	110	14.838	14.838	0.933	183892	90.24	ug/L	91	
66)	Bromobenzene	156	14.893	14.893	0.936	694839	89.20	ug/L	95	
67)	n-Propylbenzene	91	14.917	14.918	0.938	3241800	89.39	ug/L	100	
68)	1,3,5-Trimethylbenzene	105	15.070	15.070	0.947	2330873	89.14	ug/L	98	
69)	2-Chlorotoluene	126	15.064	15.064	0.947	646552	84.80	ug/L	94	
70)	4-Chlorotoluene	91	15.161	15.162	0.953	2145769	89.71	ug/L	98	
71)	tert-Butylbenzene	134	15.442	15.442	0.971	527192	102.49	ug/L	94	A
72)	1,2,4-Trimethylbenzene	105	15.478	15.479	0.973	2449794	90.84	ug/L	89	
73)	sec-Butylbenzene	105	15.667	15.661	0.985	3093536	90.86	ug/L	98	
74)	4-Isopropyltoluene	119	15.783	15.783	0.992	2642688	91.12	ug/L	98	
75)	1,3-Dichlorobenzene	146	15.844	15.844	0.996	1412085	90.75	ug/L	97	
76)	1,4-Dichlorobenzene	146	15.929	15.930	1.002	1402896	89.82	ug/L	97	
77)	n-Butylbenzene	91	16.228	16.228	1.020	2620291	92.07	ug/L	98	
78)	1,2-Dichlorobenzene	146	16.356	16.356	1.028	1348635	93.25	ug/L	97	
79)	1,2-Dibromo-3-chloropr...	157	17.228	17.228	1.083	141637	109.13	ug/L	95	A
80)	1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	900105	84.72	ug/L	100	
81)	Hexachlorobutadiene	225	18.490	18.490	1.163	524630	74.20	ug/L	100	
82)	Naphthalene	128	18.685	18.691	1.175	2006874	101.68	ug/L	99	A
83)	1,2,3-Trichlorobenzene	180	19.032	19.033	1.197	804330	84.59	ug/L	98	
85)	Acrolein		6.846	6.889	0.663	0m	N.D.	d		
86)	Trichlorotrifluoroethane		7.071	7.090	0.685	0m	N.D.	d		
87)	Isopropyl Alcohol		7.059	7.145	0.684	0m	N.D.	d		
88)	Allyl chloride		7.407	7.504	0.717	0m	N.D.	d		
89)	tert-Butyl Alcohol		0.000	7.639	0.000	0	N.D.			
90)	Acrylonitrile		7.955	7.882	0.770	0m	N.D.	d		
91)	Isopropyl ether		8.419	8.456	0.815	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		8.583	8.577	0.831	0m	N.D.	d		
93)	Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.			
94)	Ethyl acetate		9.028	9.053	0.874	0m	N.D.	d		
95)	Propionitrile		9.034	9.096	0.875	0m	N.D.	d		
96)	Methacrylonitrile		0.000	9.278	0.000	0	N.D.			
97)	Tetrahydrofuran		9.406	9.419	0.911	0m	N.D.	d		
98)	Isobutyl alcohol		9.790	9.717	0.948	0m	N.D.	d		
99)	Methyl tert-amyl ether		10.077	10.102	0.976	0m	N.D.	d		
100)	Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d		
101)	1,4-Dioxane		11.089	11.034	1.074	0m	N.D.	d		
102)	2-Nitropropane		11.418	11.388	1.106	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H110.D
Acq On : 31 Oct 2016 20:48
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-09|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD100 5UL N/A MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 01 08:09:06 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

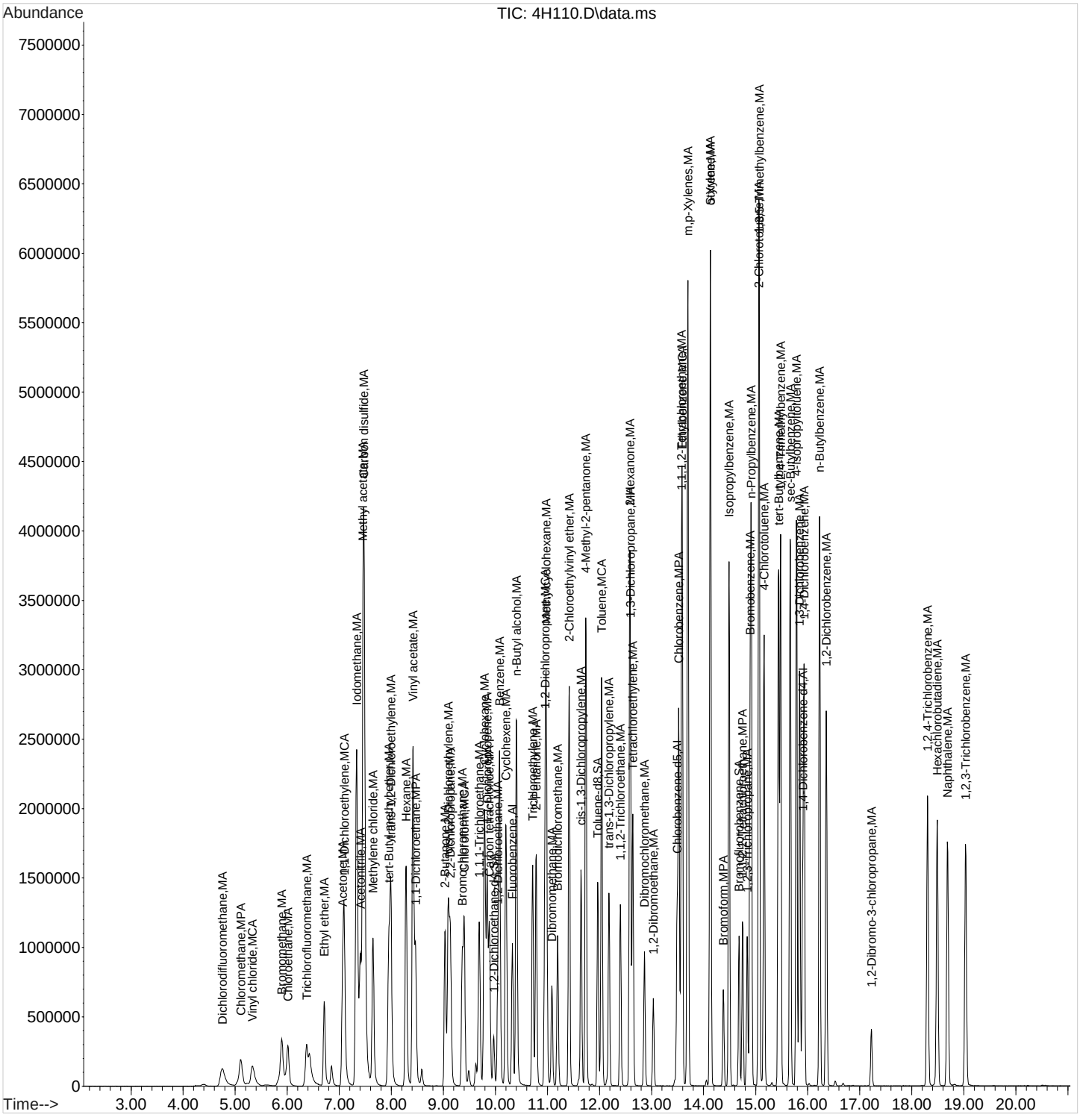
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		12.137	12.186	0.900	0m	N.D.	d
106) 1-Chlorohexane		13.442	13.394	0.845	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.485	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.625	14.625	0.920	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.911	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		15.503	15.503	0.975	0m	N.D.	d
111) Benzyl chloride		16.033	16.039	1.008	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		16.533	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H110.D
Acq On : 31 Oct 2016 20:48
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-09|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD100 5UL N/A MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 01 08:09:06 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA4.I **Injection Date:** 31-OCT-16 21:46

Data File: 103116V4\4H112.D **Init. Cal. Date(s)** 31-OCT-16 16:55 - 01-NOV-16 00:4

Lab Sample ID W4VM161031-10 **Method:** 103116V4\VOA4-8260-103116.M

Quant Type ISTD **Method Update:** 01-NOV-16 08:22

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
S	1,2-Dichloroethane-d4	0.2717	0.26944		.01		-0.8318	60		Averaged	
S	Toluene-d8	1.4259	1.4428		.01		1.18522	60		Averaged	
S	Bromofluorobenzene	1.0849	1.07816		.01		-0.62126	60		Averaged	
	Dichlorodifluoromethane	0.3012	0.31556		.01		4.7676	60		Averaged	
	Chloromethane	0.3326	0.31103		.1		-6.48527	60		Averaged	SPCC
	Vinyl chloride	0.2686	0.26926		.01		0.24572	20		Averaged	CCC
	Bromomethane	0.2758	0.27518		.01		-0.2248	60		Averaged	
	Chloroethane	0.2682	0.26659		.01		-0.6003	60		Averaged	
	Trichlorofluoromethane	0.4491	0.45021		.01		0.24716	60		Averaged	
	Acetone	0.1597	0.13643		.01		-14.57107	60		Averaged	
	1,1-Dichloroethylene	0.5062	0.44604		.01		-11.88463	20		Averaged	CCC
	Methyl acetate	0.1984	0.1836		.01		-7.45968	60		Averaged	
	Carbon disulfide	0.9959	0.89991		.01		-9.63852	60		Averaged	
	Methylene chloride	0.3471	0.30692		.01		-11.57591	60		Averaged	
	tert-Butyl methyl ether	0.8025	0.78377		.01		-2.33396	60		Averaged	
	trans-1,2-Dichloroethylene	0.4779	0.45629		.01		-4.52187	60		Averaged	
	1,1-Dichloroethane	0.5781	0.55219		.1		-4.48192	60		Averaged	SPCC
	2-Butanone	0.2003	0.17925		.01		-10.50924	60		Averaged	
	cis-1,2-Dichloroethylene	0.3342	0.32894		.01		-1.57391	60		Averaged	
	Bromochloromethane	0.1394	0.13635		.01		-2.18795	60		Averaged	
	Chloroform	0.5279	0.50662		.01		-4.03107	20		Averaged	CCC
	1,1,1-Trichloroethane	0.5068	0.4647		.01		-8.30702	60		Averaged	
	Cyclohexane	0.6853	0.6467		.01		-5.63257	60		Averaged	
	Carbon tetrachloride	0.4336	0.41363		.01		-4.60563	60		Averaged	
	1,2-Dichloroethane	0.3801	0.36709		.01		-3.42278	60		Averaged	
	Benzene	1.2427	1.15599		.01		-6.97755	60		Averaged	
	Trichloroethylene	0.3222	0.30742		.01		-4.58721	60		Averaged	
	1,2-Dichloropropane	0.3266	0.32015		.01		-1.97489	20		Averaged	CCC
	Methylcyclohexane	0.6123	0.58609		.01		-4.28058	60		Averaged	
	Bromodichloromethane	0.3933	0.3927		.01		-0.15256	60		Averaged	
	cis-1,3-Dichloropropylene	0.486	0.4732		.01		-2.63374	60		Averaged	
	4-Methyl-2-pentanone	0.1572	0.14445		.01		-8.11069	60		Averaged	
	Toluene	1.7911	1.69604		.01		-5.30735	20		Averaged	CCC
	trans-1,3-Dichloropropylene	0.565	0.57502		.01		1.77345	60		Averaged	
	1,1,2-Trichloroethane	0.2825	0.27238		.01		-3.5823	60		Averaged	
	2-Hexanone	0.391	0.33753		.01		-13.67519	60		Averaged	
	Tetrachloroethylene	0.3509	0.32657		.01		-6.9336	60		Averaged	

Continuing Calibration Summary

Instrument ID: VOA4.I **Injection Date:** 31-OCT-16 21:46

Data File: 103116V4\4H112.D **Init. Cal. Date(s)** 31-OCT-16 16:55 01-NOV-16 00:4

Lab Sample ID W4VM161031-10 **Method:** 103116V4\VOA4-8260-103116.M

Quant Type ISTD

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
Dibromochloromethane	0.3688	0.38291		.01		3.82592	60		Averaged	
1,2-Dibromoethane	0.325	0.32405		.01		-0.29231	60		Averaged	
Chlorobenzene	1.164	1.10087		.3		-5.42354	60		Averaged	SPCC
Ethylbenzene	2.0807	1.97216		.01		-5.21651	20		Averaged	CCC
m,p-Xylenes	0.7968	0.7462		.01		-6.3504	60		Averaged	
Styrene	1.2786	1.21531		.01		-4.94995	60		Averaged	
o-Xylene	1.7019	1.55979		.01		-8.35008	60		Averaged	
Bromoform	0.414	0.4384		.1		5.89372	60		Averaged	SPCC
Isopropylbenzene	4.0606	3.83771		.01		-5.48909	60		Averaged	
1,1,2,2-Tetrachloroethane	0.8815	0.82725		.3		-6.15428	60		Averaged	SPCC
1,3-Dichlorobenzene	1.9316	1.79889		.01		-6.87047	60		Averaged	
1,4-Dichlorobenzene	1.8924	1.79726		.01		-5.02748	60		Averaged	
1,2-Dichlorobenzene	1.7934	1.71021		.01		-4.63868	60		Averaged	
1,2-Dibromo-3-chloropropane	0.1578	0.16274		.01		3.13054	60		Averaged	
1,2,4-Trichlorobenzene	1.1732	1.10273		.01		-6.00665	60		Averaged	
1,2,3-Trichlorobenzene	1.012	0.97789		.01		-3.37055	60		Averaged	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H112.D
Acq On : 31 Oct 2016 21:46
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-10|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5UL N/A MIX[A]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 01 10:41:27 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	998619	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	720659	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.905	1.000	380235	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	998619	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	720659	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	380235	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	269065	49.57	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1039767	50.59	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	409956	49.69	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.749	4.749	0.460	315129	52.39	ug/L	100
3) Chloromethane	50	5.094	5.094	0.493	310604	46.75	ug/L	100
4) Vinyl chloride	62	5.330	5.322	0.516	268893	50.12	ug/L	100
5) Bromomethane	94	5.887	5.887	0.570	274801	49.89	ug/L	100
6) Chloroethane	64	6.005	6.005	0.581	266219	49.71	ug/L	99
7) Trichlorofluoromethane	101	6.371	6.370	0.617	449588	50.13	ug/L	99
8) Ethyl ether	59	6.712	6.706	0.650	252214	49.85	ug/L	99
9) Acetone	43	7.066	7.059	0.684	681208	213.55	ug/L	98
10) 1,1-Dichloroethylene	61	7.096	7.090	0.687	445427	44.06	ug/L	99
11) Iodomethane	142	7.334	7.327	0.710	2283669	232.35	ug/L	100
12) Acetonitrile	41	7.407	7.407	0.717	827380	1156.92	ug/L	99
13) Methyl acetate	43	7.456	7.456	0.722	916735	231.39	ug/L	99
14) Carbon disulfide	76	7.468	7.468	0.723	4493344	225.91	ug/L	100
15) Methylene chloride	84	7.645	7.645	0.740	306499	44.21	ug/L	97
16) tert-Butyl methyl ether	73	7.956	7.955	0.770	782683	48.83	ug/L	99
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	455660	47.73	ug/L	100
18) Hexane	57	8.285	8.285	0.802	467632	43.87	ug/L	99
19) Vinyl acetate	43	8.419	8.413	0.815	2773619	251.87	ug/L	100
20) 1,1-Dichloroethane	63	8.468	8.461	0.820	551423	47.76	ug/L	100
21) 2-Butanone	43	9.035	9.028	0.875	895027	223.77	ug/L	99
22) cis-1,2-Dichloroethylene	96	9.096	9.095	0.881	328484	49.21	ug/L	99
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	463380	46.70	ug/L	100
24) Bromochloromethane	128	9.364	9.364	0.907	136159	48.91	ug/L	99
25) Chloroform	83	9.400	9.400	0.910	505923	47.99	ug/L	100
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	464059	45.85	ug/L	100
27) Cyclohexane	56	9.791	9.790	0.948	645806	47.19	ug/L	100
28) 1,1-Dichloropropene	75	9.839	9.839	0.953	398555	46.40	ug/L	99
29) Carbon tetrachloride	117	9.882	9.882	0.957	413058	47.69	ug/L	100
31) 1,2-Dichloroethane	62	10.047	10.046	0.973	366580	48.29	ug/L	100
32) Benzene	78	10.077	10.077	0.976	1154389	46.51	ug/L	100
33) Cyclohexene	67	10.205	10.199	0.988	617553	50.79	ug/L	100
34) n-Butyl alcohol	56	10.406	10.400	1.008	868870	5185.58	ug/L	99
35) Trichloroethylene	95	10.717	10.717	1.038	307000	47.70	ug/L	99
36) 2-Pentanone	43	10.784	10.778	1.044	1052076	244.76	ug/L	99
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	319708	49.02	ug/L	100
38) Methylcyclohexane	83	10.973	10.973	1.063	585281	47.86	ug/L	100
39) Dibromomethane	93	11.083	11.083	1.073	159421	47.76	ug/L	99
40) Bromodichloromethane	83	11.199	11.193	1.084	392160	49.92	ug/L	99
41) 2-Chloroethylvinyl ether	63	11.418	11.412	1.106	593365	199.94	ug/L	100
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	472547	48.68	ug/L	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H112.D
Acq On : 31 Oct 2016 21:46
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-10|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5UL N/A MIX[A]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 01 10:41:27 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone	58	11.735	11.735	0.870	520513	229.68	ug/L	100
46) Toluene	91	12.040	12.040	0.892	1222267	47.35	ug/L	100
47) trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	414390	50.89	ug/L	100
48) 1,1,2-Trichloroethane	83	12.400	12.400	0.919	196293	48.21	ug/L	99
49) 2-Hexanone	43	12.583	12.583	0.933	1216206	215.82	ug/L	99
50) 1,3-Dichloropropane	76	12.595	12.595	0.934	385365	48.51	ug/L	96
51) Tetrachloroethylene	164	12.638	12.637	0.937	235347	46.53	ug/L	100
52) Dibromochloromethane	129	12.863	12.863	0.953	275949	51.92	ug/L	100
53) 1,2-Dibromoethane	107	13.034	13.034	0.966	233528	49.85	ug/L	99
54) Chlorobenzene	112	13.522	13.521	1.002	793352	47.29	ug/L	99
55) 1,1,1,2-Tetrachloroethane	131	13.576	13.576	1.006	296975	49.90	ug/L	99
56) Ethylbenzene	91	13.589	13.588	1.007	1421255	47.39	ug/L	100
57) m,p-Xylenes	106	13.698	13.698	1.015	1075508	93.66	ug/L	100
58) o-Xylene	91	14.131	14.131	1.047	1124074	45.82	ug/L	100
59) Styrene	104	14.131	14.131	1.047	875823	47.52	ug/L	100
61) Bromoform	173	14.381	14.381	0.904	166696	52.94	ug/L	97
62) Isopropylbenzene	105	14.491	14.491	0.911	1459231	47.26	ug/L	100
64) 1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.927	314549	46.92	ug/L	99
65) 1,2,3-Trichloropropane	110	14.838	14.838	0.933	85146	47.91	ug/L	99
66) Bromobenzene	156	14.893	14.893	0.936	338542	48.23	ug/L	99
67) n-Propylbenzene	91	14.918	14.917	0.938	1681072	45.18	ug/L	100
68) 1,3,5-Trimethylbenzene	105	15.070	15.070	0.947	1208694	46.76	ug/L	100
69) 2-Chlorotoluene	126	15.064	15.064	0.947	330130	47.15	ug/L	98
70) 4-Chlorotoluene	91	15.162	15.161	0.953	1059186	46.05	ug/L	100
71) tert-Butylbenzene	134	15.442	15.442	0.971	262582	48.24	ug/L	99
72) 1,2,4-Trimethylbenzene	105	15.479	15.478	0.973	1249582	47.08	ug/L	87
73) sec-Butylbenzene	105	15.661	15.661	0.985	1629339	47.42	ug/L	100
74) 4-Isopropyltoluene	119	15.783	15.783	0.992	1331665	46.67	ug/L	100
75) 1,3-Dichlorobenzene	146	15.844	15.844	0.996	684000	46.56	ug/L	99
76) 1,4-Dichlorobenzene	146	15.930	15.929	1.002	683382	47.49	ug/L	99
77) n-Butylbenzene	91	16.228	16.228	1.020	1347359	46.53	ug/L	100
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.028	650281	47.68	ug/L	99
79) 1,2-Dibromo-3-chloropr...	157	17.228	17.228	1.083	61878	51.56	ug/L	98
80) 1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	419295	46.99	ug/L	99
81) Hexachlorobutadiene	225	18.490	18.490	1.163	252426	49.05	ug/L	100
82) Naphthalene	128	18.685	18.685	1.175	950735	49.02	ug/L	99
83) 1,2,3-Trichlorobenzene	180	19.033	19.033	1.197	371827	48.31	ug/L	98
85) Acrolein		6.931	6.895	0.671	0m	N.D.	d	
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol		7.157	7.139	0.693	0m	N.D.	d	
88) Allyl chloride		7.407	7.511	0.717	0m	N.D.	d	
89) tert-Butyl Alcohol		7.626	7.639	0.738	0m	N.D.	d	
90) Acrylonitrile		7.956	7.882	0.770	0m	N.D.	d	
91) Isopropyl ether		8.419	8.455	0.815	0m	N.D.	d	
92) 2-Chloro-1,3-butadiene		8.584	8.577	0.831	0m	N.D.	d	
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate		9.035	9.047	0.875	0m	N.D.	d	
95) Propionitrile		9.047	9.096	0.876	0m	N.D.	d	
96) Methacrylonitrile		0.000	9.278	0.000	0	N.D.		
97) Tetrahydrofuran		9.388	9.419	0.909	0m	N.D.	d	
98) Isobutyl alcohol		9.791	9.717	0.948	0m	N.D.	d	
99) Methyl tert-amyl ether		10.083	10.101	0.976	0m	N.D.	d	
100) Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d	
101) 1,4-Dioxane		11.083	11.034	1.073	0m	N.D.	d	
102) 2-Nitropropane		11.412	11.388	1.105	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H112.D
Acq On : 31 Oct 2016 21:46
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-10|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5UL N/A MIX[A]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 01 10:41:27 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

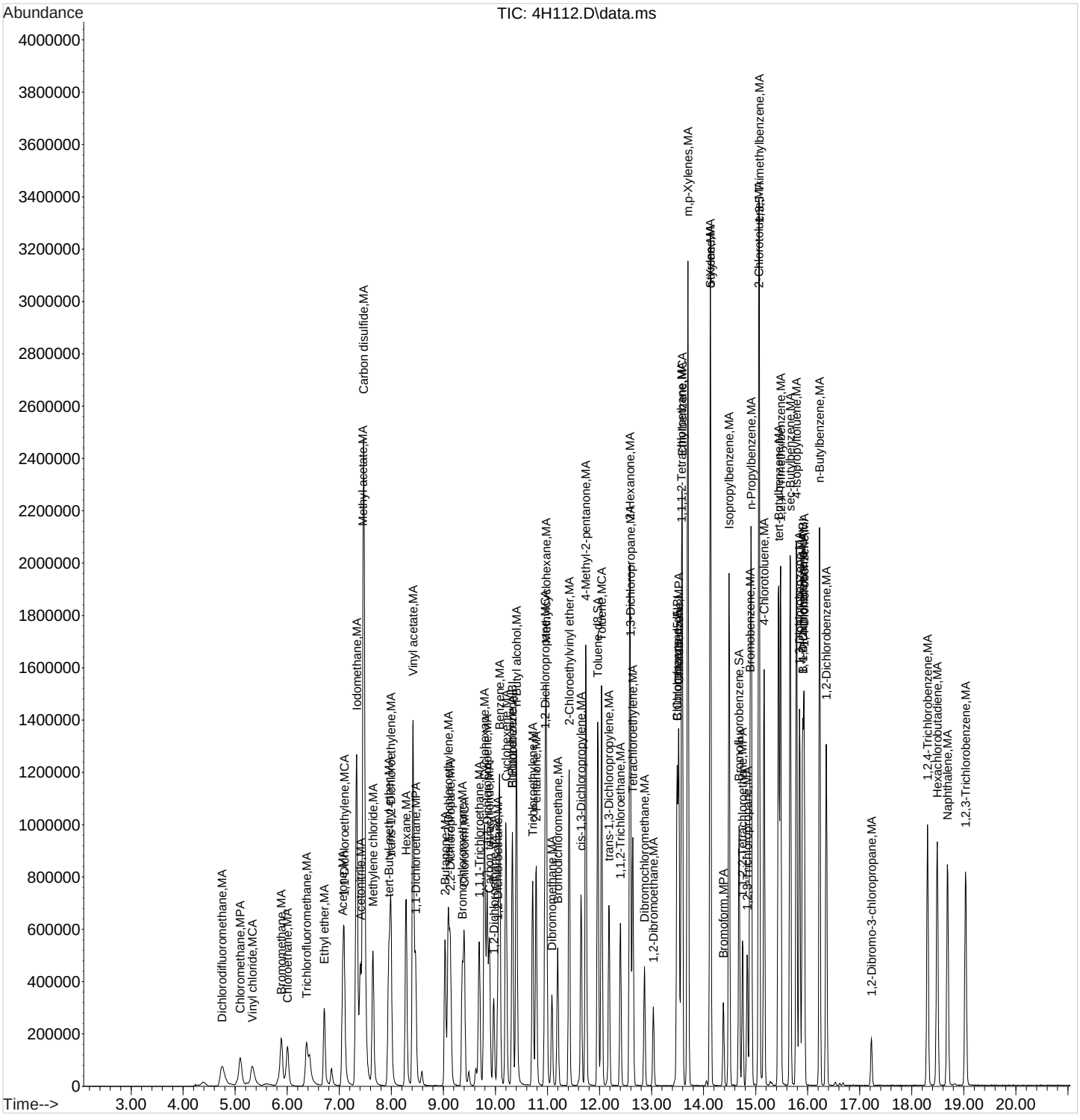
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		12.138	12.186	0.900	0m	N.D.	d
106) 1-Chlorohexane		13.333	13.387	0.838	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.491	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.643	14.631	0.921	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.918	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		15.509	15.503	0.975	0m	N.D.	d
111) Benzyl chloride		0.000	16.039	0.000	0	N.D.	
112) bis(2-Chloroisopropyl)...		16.533	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H112.D
Acq On : 31 Oct 2016 21:46
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-10|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5UL N/A MIX[A]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 01 10:41:27 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H113.D
Acq On : 31 Oct 2016 22:15
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-11|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD005S 5UL N/A MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 01 08:09:14 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1047201	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	751089	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	394046	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	0d	0.00	ug/L	
45) Toluene-d8	98	11.967	11.967	0.887	0d	0.00	ug/L	
63) Bromofluorobenzene	95	14.680	14.680	0.923	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		5.071	5.102	0.491	0m	N.D.	d	
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.377	0.000	0	N.D.		
8) Ethyl ether		0.000	6.712	0.000	0	N.D.		
9) Acetone		7.071	7.066	0.685	0m	N.D.	d	
10) 1,1-Dichloroethylene		7.090	7.090	0.687	0m	N.D.	d	
11) Iodomethane		7.327	7.334	0.710	0m	N.D.	d	
12) Acetonitrile		7.419	7.413	0.718	0m	N.D.	d	
13) Methyl acetate		0.000	7.456	0.000	0	N.D.		
14) Carbon disulfide		7.510	7.474	0.727	0m	N.D.	d	
15) Methylene chloride		7.645	7.651	0.740	0m	N.D.	d	
16) tert-Butyl methyl ether		0.000	7.956	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		7.992	7.992	0.774	0m	N.D.	d	
18) Hexane		8.272	8.285	0.801	0m	N.D.	d	
19) Vinyl acetate		8.455	8.419	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		8.449	8.462	0.818	0m	N.D.	d	
21) 2-Butanone		9.059	9.035	0.877	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		9.089	9.096	0.880	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.388	9.400	0.909	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		9.729	9.791	0.942	0m	N.D.	d	
28) 1,1-Dichloropropene		9.851	9.845	0.954	0m	N.D.	d	
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		10.040	10.047	0.972	0m	N.D.	d	
32) Benzene		10.077	10.077	0.976	0m	N.D.	d	
33) Cyclohexene		10.205	10.205	0.988	0m	N.D.	d	
34) n-Butyl alcohol		10.418	10.406	1.009	0m	N.D.	d	
35) Trichloroethylene		10.717	10.717	1.038	0m	N.D.	d	
36) 2-Pentanone		10.784	10.784	1.044	0m	N.D.	d	
37) 1,2-Dichloropropane		10.943	10.955	1.060	0m	N.D.	d	
38) Methylcyclohexane		10.979	10.979	1.063	0m	N.D.	d	
39) Dibromomethane		11.089	11.083	1.074	0m	N.D.	d	
40) Bromodichloromethane		11.199	11.199	1.084	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		0.000	11.418	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		11.650	11.644	1.128	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H113.D
Acq On : 31 Oct 2016 22:15
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-11|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD005S 5UL N/A MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 01 08:09:14 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone		11.741	11.735	0.870	0m	N.D.	d	
46) Toluene		12.034	12.040	0.892	0m	N.D.	d	
47) trans-1,3-Dichloroprop...		12.186	12.180	0.903	0m	N.D.	d	
48) 1,1,2-Trichloroethane		12.400	12.400	0.919	0m	N.D.	d	
49) 2-Hexanone		12.583	12.583	0.933	0m	N.D.	d	
50) 1,3-Dichloropropane		12.601	12.595	0.934	0m	N.D.	d	
51) Tetrachloroethylene		12.637	12.638	0.937	0m	N.D.	d	
52) Dibromochloromethane		12.863	12.863	0.953	0m	N.D.	d	
53) 1,2-Dibromoethane		13.034	13.034	0.966	0m	N.D.	d	
54) Chlorobenzene		13.528	13.522	1.003	0m	N.D.	d	
55) 1,1,1,2-Tetrachloroethane		13.570	13.570	1.006	0m	N.D.	d	
56) Ethylbenzene		13.588	13.589	1.007	0m	N.D.	d	
57) m,p-Xylenes		13.698	13.698	1.015	0m	N.D.	d	
58) o-Xylene		14.131	14.131	1.047	0m	N.D.	d	
59) Styrene		14.131	14.131	1.047	0m	N.D.	d	
61) Bromoform		14.381	14.381	0.904	0m	N.D.	d	
62) Isopropylbenzene		14.485	14.491	0.911	0m	N.D.	d	
64) 1,1,2,2-Tetrachloroethane		14.747	14.747	0.927	0m	N.D.	d	
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.		
66) Bromobenzene		14.899	14.893	0.937	0m	N.D.	d	
67) n-Propylbenzene		14.917	14.918	0.938	0m	N.D.	d	
68) 1,3,5-Trimethylbenzene		15.064	15.070	0.947	0m	N.D.	d	
69) 2-Chlorotoluene		15.064	15.064	0.947	0m	N.D.	d	
70) 4-Chlorotoluene		15.161	15.162	0.953	0m	N.D.	d	
71) tert-Butylbenzene		15.436	15.442	0.970	0m	N.D.	d	
72) 1,2,4-Trimethylbenzene		15.478	15.479	0.973	0m	N.D.	d	
73) sec-Butylbenzene		15.661	15.661	0.985	0m	N.D.	d	
74) 4-Isopropyltoluene		15.783	15.783	0.992	0m	N.D.	d	
75) 1,3-Dichlorobenzene		15.844	15.844	0.996	0m	N.D.	d	
76) 1,4-Dichlorobenzene		15.929	15.930	1.002	0m	N.D.	d	
77) n-Butylbenzene		16.234	16.228	1.021	0m	N.D.	d	
78) 1,2-Dichlorobenzene		16.362	16.356	1.029	0m	N.D.	d	
79) 1,2-Dibromo-3-chloropr...		17.228	17.228	1.083	0m	N.D.	d	
80) 1,2,4-Trichlorobenzene		18.301	18.301	1.151	0m	N.D.	d	
81) Hexachlorobutadiene		18.484	18.490	1.162	0m	N.D.	d	
82) Naphthalene		18.691	18.691	1.175	0m	N.D.	d	
83) 1,2,3-Trichlorobenzene		19.033	19.033	1.197	0m	N.D.	d	
85) Acrolein	56	6.895	6.889	0.668	5053	5.30	ug/L #	56
86) Trichlorotrifluoroethane	85	7.096	7.090	0.687	14942	4.69	ug/L	89
87) Isopropyl Alcohol	45	7.151	7.145	0.692	27274	68.91	ug/L #	53
88) Allyl chloride	41	7.510	7.504	0.727	61661	5.41	ug/L	84
89) tert-Butyl Alcohol	59	7.638	7.639	0.740	41185	64.11	ug/L #	100
90) Acrylonitrile	53	7.882	7.882	0.763	11131	5.74	ug/L	97
91) Isopropyl ether	45	8.455	8.456	0.819	26804	1.22	ug/L #	64
92) 2-Chloro-1,3-butadiene	53	8.583	8.577	0.831	11620	1.01	ug/L	94
93) Ethyl tert-butyl ether	59	8.858	8.858	0.858	22283	1.15	ug/L	95
94) Ethyl acetate	43	9.059	9.053	0.877	35088	6.52	ug/L	97
95) Propionitrile	54	9.108	9.096	0.882	4376	5.61	ug/L	78
96) Methacrylonitrile	41	9.278	9.278	0.898	20104	6.11	ug/L	95
97) Tetrahydrofuran	42	9.425	9.419	0.913	12390	7.47	ug/L	91
98) Isobutyl alcohol	41	9.723	9.717	0.942	16751	79.79	ug/L	96
99) Methyl tert-amyl ether	73	10.101	10.102	0.978	18830	1.33	ug/L	92
100) Methyl methacrylate	69	10.930	10.925	1.058	22417	7.07	ug/L	92
101) 1,4-Dioxane	88	11.046	11.034	1.070	3447	70.41	ug/L	95
102) 2-Nitropropane	43	11.388	11.388	1.103	9242	5.83	ug/L	83

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H113.D
Acq On : 31 Oct 2016 22:15
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-11|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD005S 5UL N/A MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 01 08:09:14 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

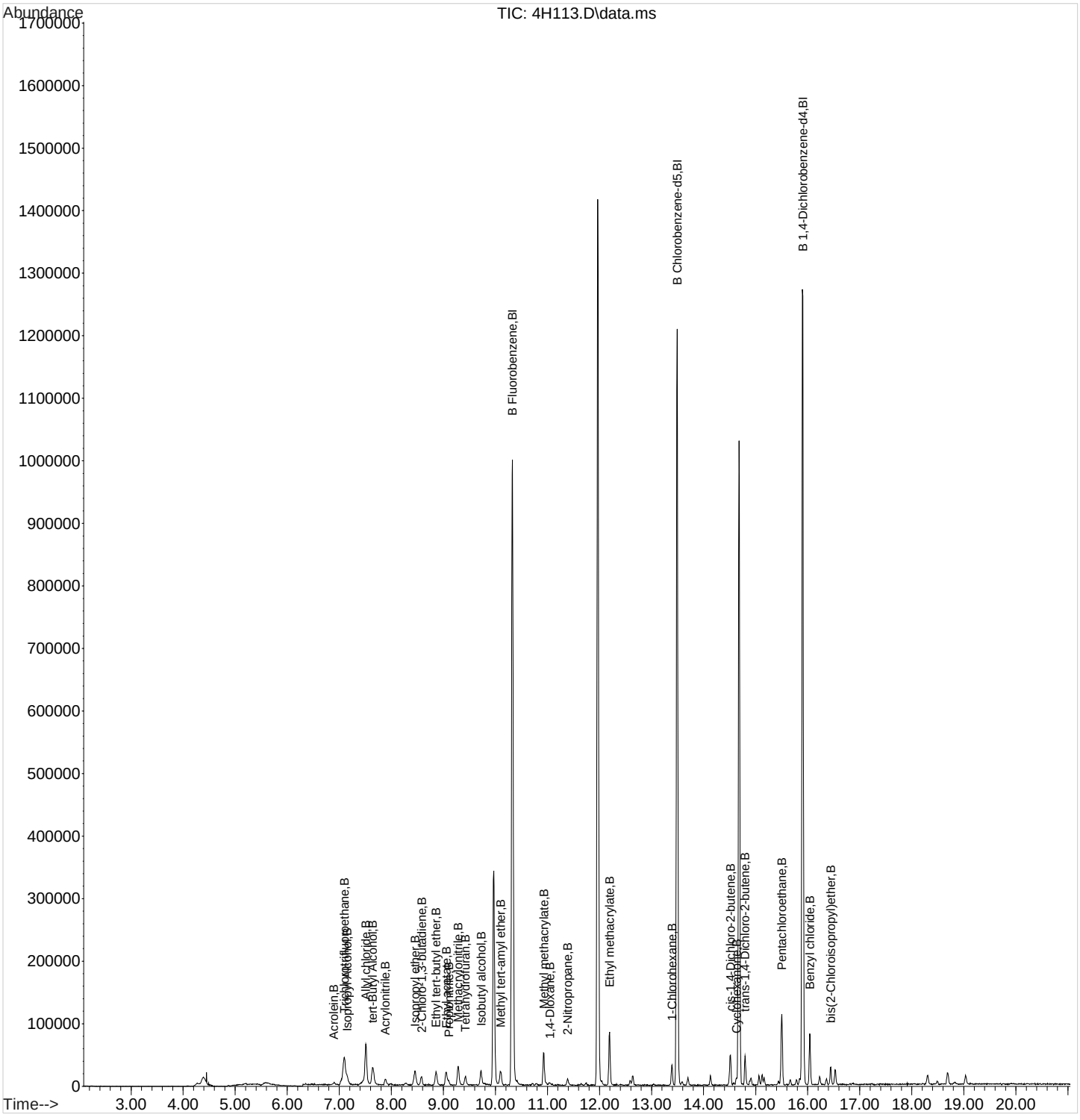
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
104) Ethyl methacrylate	69	12.192	12.186	0.904	43437	7.91	ug/L		98
106) 1-Chlorohexane	55	13.393	13.394	0.842	9828	1.48	ug/L		99
107) cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	12631	5.50	ug/L		94
108) Cyclohexanone	42	14.631	14.625	0.920	4508	32.83	ug/L	#	74
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.930	11957	5.52	ug/L		96
110) Pentachloroethane	167	15.503	15.503	0.975	23077	5.31	ug/L		96
111) Benzyl chloride	91	16.039	16.039	1.008	68931	5.58	ug/L		91
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	22681	7.99	ug/L		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H113.D
Acq On : 31 Oct 2016 22:15
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-11|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD005S 5UL N/A MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 01 08:09:14 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H114.D
Acq On : 31 Oct 2016 22:45
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-12|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD010S 5UL N/A MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 01 08:09:17 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1077142	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	766133	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	397404	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	0d	0.00	ug/L	
45) Toluene-d8	98	11.967	11.967	0.887	0d	0.00	ug/L	
63) Bromofluorobenzene	95	14.680	14.680	0.923	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		5.196	5.102	0.503	0m	N.D.	d	
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.377	0.000	0	N.D.		
8) Ethyl ether		0.000	6.712	0.000	0	N.D.		
9) Acetone		0.000	7.066	0.000	0	N.D.		
10) 1,1-Dichloroethylene		0.000	7.090	0.000	0	N.D.		
11) Iodomethane		7.328	7.334	0.710	0m	N.D.	d	
12) Acetonitrile		7.407	7.413	0.717	0m	N.D.	d	
13) Methyl acetate		0.000	7.456	0.000	0	N.D.		
14) Carbon disulfide		7.517	7.474	0.728	0m	N.D.	d	
15) Methylene chloride		7.651	7.651	0.741	0m	N.D.	d	
16) tert-Butyl methyl ether		0.000	7.956	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		7.986	7.992	0.773	0m	N.D.	d	
18) Hexane		8.291	8.285	0.803	0m	N.D.	d	
19) Vinyl acetate		8.455	8.419	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		0.000	8.462	0.000	0	N.D.		
21) 2-Butanone		9.053	9.035	0.877	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		9.108	9.096	0.882	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.388	9.400	0.909	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		9.772	9.791	0.946	0m	N.D.	d	
28) 1,1-Dichloropropene		9.851	9.845	0.954	0m	N.D.	d	
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		10.047	10.047	0.973	0m	N.D.	d	
32) Benzene		10.089	10.077	0.977	0m	N.D.	d	
33) Cyclohexene		10.199	10.205	0.988	0m	N.D.	d	
34) n-Butyl alcohol		10.412	10.406	1.008	0m	N.D.	d	
35) Trichloroethylene		10.717	10.717	1.038	0m	N.D.	d	
36) 2-Pentanone		10.796	10.784	1.045	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.979	0.000	0	N.D.		
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		11.199	11.199	1.084	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		0.000	11.418	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		11.650	11.644	1.128	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H114.D
Acq On : 31 Oct 2016 22:45
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-12|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD010S 5UL N/A MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 01 08:09:17 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone		11.747	11.735	0.871	0m	N.D.	d		
46) Toluene		12.040	12.040	0.892	0m	N.D.	d		
47) trans-1,3-Dichloroprop...		12.192	12.180	0.904	0m	N.D.	d		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.			
49) 2-Hexanone		12.595	12.583	0.934	0m	N.D.	d		
50) 1,3-Dichloropropane		12.595	12.595	0.934	0m	N.D.	d		
51) Tetrachloroethylene		12.637	12.638	0.937	0m	N.D.	d		
52) Dibromochloromethane		12.863	12.863	0.953	0m	N.D.	d		
53) 1,2-Dibromoethane		13.028	13.034	0.966	0m	N.D.	d		
54) Chlorobenzene		13.521	13.522	1.002	0m	N.D.	d		
55) 1,1,1,2-Tetrachloroethane		0.000	13.570	0.000	0	N.D.			
56) Ethylbenzene		13.589	13.589	1.007	0m	N.D.	d		
57) m,p-Xylenes		13.698	13.698	1.015	0m	N.D.	d		
58) o-Xylene		14.137	14.131	1.048	0m	N.D.	d		
59) Styrene		14.131	14.131	1.047	0m	N.D.	d		
61) Bromoform		0.000	14.381	0.000	0	N.D.			
62) Isopropylbenzene		14.491	14.491	0.911	0m	N.D.	d		
64) 1,1,2,2-Tetrachloroethane		14.735	14.747	0.926	0m	N.D.	d		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.			
66) Bromobenzene		14.899	14.893	0.937	0m	N.D.	d		
67) n-Propylbenzene		14.918	14.918	0.938	0m	N.D.	d		
68) 1,3,5-Trimethylbenzene		15.064	15.070	0.947	0m	N.D.	d		
69) 2-Chlorotoluene		15.064	15.064	0.947	0m	N.D.	d		
70) 4-Chlorotoluene		15.161	15.162	0.953	0m	N.D.	d		
71) tert-Butylbenzene		15.503	15.442	0.975	0m	N.D.	d		
72) 1,2,4-Trimethylbenzene		15.485	15.479	0.974	0m	N.D.	d		
73) sec-Butylbenzene		15.661	15.661	0.985	0m	N.D.	d		
74) 4-Isopropyltoluene		15.777	15.783	0.992	0m	N.D.	d		
75) 1,3-Dichlorobenzene		15.844	15.844	0.996	0m	N.D.	d		
76) 1,4-Dichlorobenzene		15.930	15.930	1.002	0m	N.D.	d		
77) n-Butylbenzene		16.228	16.228	1.020	0m	N.D.	d		
78) 1,2-Dichlorobenzene		16.368	16.356	1.029	0m	N.D.	d		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.			
80) 1,2,4-Trichlorobenzene		18.307	18.301	1.151	0m	N.D.	d		
81) Hexachlorobutadiene		18.484	18.490	1.162	0m	N.D.	d		
82) Naphthalene		18.691	18.691	1.175	0m	N.D.	d		
83) 1,2,3-Trichlorobenzene		19.039	19.033	1.197	0m	N.D.	d		
85) Acrolein	56	6.901	6.889	0.668	8341	8.51	ug/L		77
86) Trichlorotrifluoroethane	85	7.096	7.090	0.687	19505	5.95	ug/L		96
87) Isopropyl Alcohol	45	7.145	7.145	0.692	29153	71.61	ug/L	#	53
88) Allyl chloride	41	7.510	7.504	0.727	88417	7.54	ug/L		89
89) tert-Butyl Alcohol	59	7.638	7.639	0.740	42463	64.26	ug/L	#	100
90) Acrylonitrile	53	7.882	7.882	0.763	13625	6.83	ug/L		97
91) Isopropyl ether	45	8.455	8.456	0.819	35643	1.57	ug/L		90
92) 2-Chloro-1,3-butadiene	53	8.577	8.577	0.831	14965	1.26	ug/L		99
93) Ethyl tert-butyl ether	59	8.858	8.858	0.858	28876	1.44	ug/L		98
94) Ethyl acetate	43	9.053	9.053	0.877	39362	7.11	ug/L		98
95) Propionitrile	54	9.096	9.096	0.881	5331	6.65	ug/L		61
96) Methacrylonitrile	41	9.284	9.278	0.899	25597	7.56	ug/L		96
97) Tetrahydrofuran	42	9.419	9.419	0.912	13128	7.69	ug/L		91
98) Isobutyl alcohol	41	9.723	9.717	0.942	17727	82.10	ug/L		88
99) Methyl tert-amyl ether	73	10.101	10.102	0.978	23940	1.64	ug/L		96
100) Methyl methacrylate	69	10.924	10.925	1.058	24752	7.59	ug/L		85
101) 1,4-Dioxane	88	11.034	11.034	1.068	3620	71.89	ug/L		94
102) 2-Nitropropane	43	11.388	11.388	1.103	10660	6.54	ug/L		99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H114.D
Acq On : 31 Oct 2016 22:45
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-12|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD010S 5UL N/A MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 01 08:09:17 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

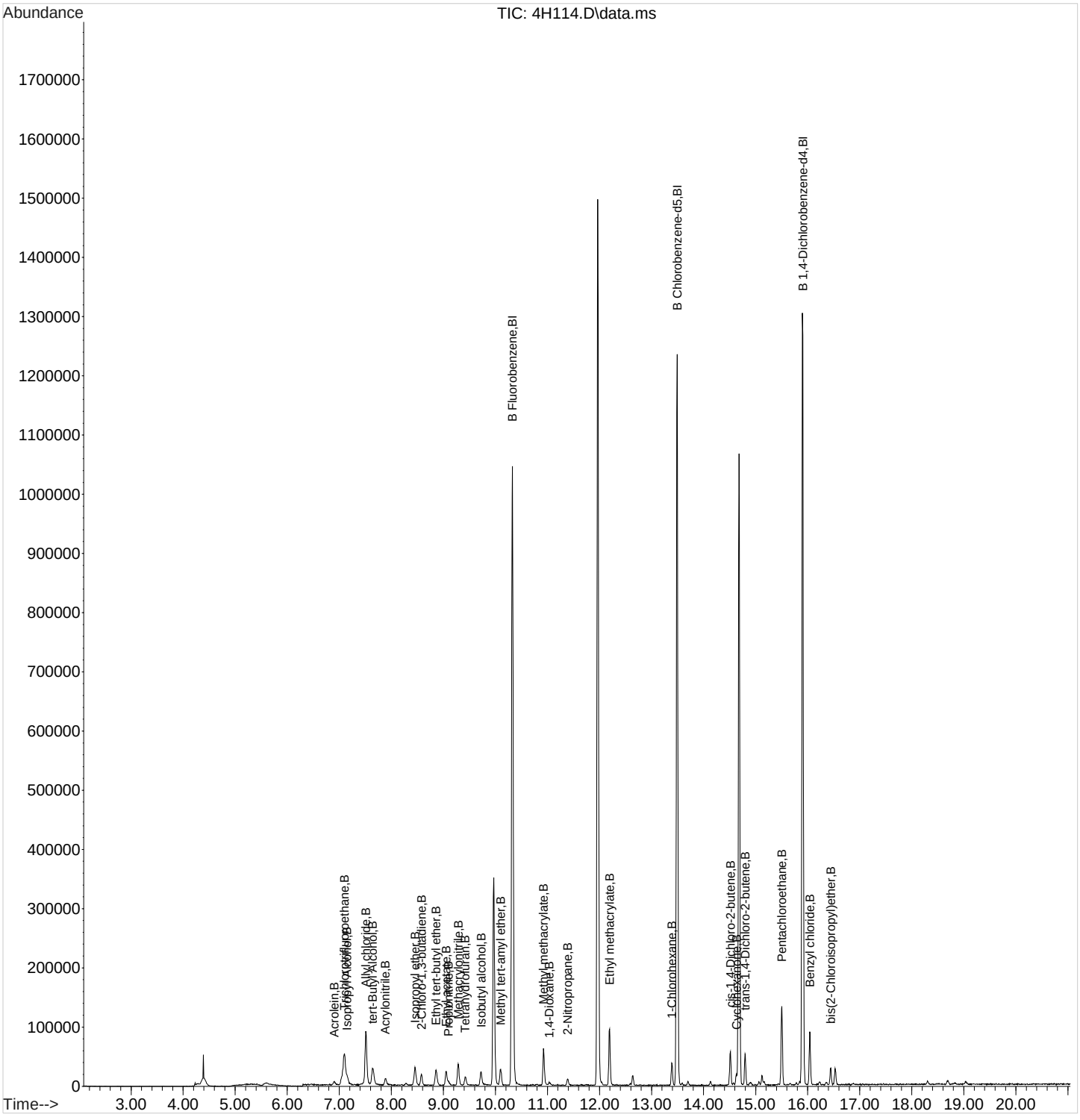
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	12.192	12.186	0.904	49573	8.85	ug/L	96
106) 1-Chlorohexane	55	13.387	13.394	0.842	11276	1.68	ug/L	98
107) cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	14930	6.45	ug/L	93
108) Cyclohexanone	42	14.631	14.625	0.920	6818	49.23	ug/L	96
109) trans-1,4-Dichloro-2-b...	53	14.802	14.796	0.931	13071	5.98	ug/L	94
110) Pentachloroethane	167	15.503	15.503	0.975	27748	6.33	ug/L	99
111) Benzyl chloride	91	16.039	16.039	1.008	77370	6.21	ug/L	93
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	22934	8.01	ug/L	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H114.D
Acq On : 31 Oct 2016 22:45
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-12|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD010S 5UL N/A MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 01 08:09:17 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H115.D
Acq On : 31 Oct 2016 23:14
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-13|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD050S 5UL N/A MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 01 08:09:21 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1040815	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	750545	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	392087	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	0d	0.00	ug/L	
45) Toluene-d8	98	11.967	11.967	0.887	0d	0.00	ug/L	
63) Bromofluorobenzene	95	14.680	14.680	0.923	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		5.086	5.102	0.493	0m	N.D.	d	
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.377	0.000	0	N.D.		
8) Ethyl ether		0.000	6.712	0.000	0	N.D.		
9) Acetone		6.998	7.066	0.678	0m	N.D.	d	
10) 1,1-Dichloroethylene		7.078	7.090	0.685	0m	N.D.	d	
11) Iodomethane		7.309	7.334	0.708	0m	N.D.	d	
12) Acetonitrile		7.358	7.413	0.713	0m	N.D.	d	
13) Methyl acetate		0.000	7.456	0.000	0	N.D.		
14) Carbon disulfide		7.510	7.474	0.727	0m	N.D.	d	
15) Methylene chloride		7.645	7.651	0.740	0m	N.D.	d	
16) tert-Butyl methyl ether		0.000	7.956	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane		8.285	8.285	0.802	0m	N.D.	d	
19) Vinyl acetate		8.455	8.419	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		8.571	8.462	0.830	0m	N.D.	d	
21) 2-Butanone		9.053	9.035	0.877	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		9.102	9.096	0.881	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.400	9.400	0.910	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		9.833	9.791	0.952	0m	N.D.	d	
28) 1,1-Dichloropropene		0.000	9.845	0.000	0	N.D.		
29) Carbon tetrachloride		9.882	9.882	0.957	0m	N.D.	d	
31) 1,2-Dichloroethane		0.000	10.047	0.000	0	N.D.		
32) Benzene		10.077	10.077	0.976	0m	N.D.	d	
33) Cyclohexene		10.321	10.205	0.999	0m	N.D.	d	
34) n-Butyl alcohol		10.400	10.406	1.007	0m	N.D.	d	
35) Trichloroethylene		10.717	10.717	1.038	0m	N.D.	d	
36) 2-Pentanone		10.784	10.784	1.044	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		10.924	10.979	1.058	0m	N.D.	d	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.199	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	11.418	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		11.644	11.644	1.128	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H115.D
Acq On : 31 Oct 2016 23:14
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-13|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD050S 5UL N/A MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 01 08:09:21 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.			
46) Toluene		12.046	12.040	0.893	0m	N.D.	d		
47) trans-1,3-Dichloroprop...		12.192	12.180	0.904	0m	N.D.	d		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.			
49) 2-Hexanone		12.583	12.583	0.933	0m	N.D.	d		
50) 1,3-Dichloropropane		0.000	12.595	0.000	0	N.D.			
51) Tetrachloroethylene		12.637	12.638	0.937	0m	N.D.	d		
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.			
53) 1,2-Dibromoethane		13.028	13.034	0.966	0m	N.D.	d		
54) Chlorobenzene		13.521	13.522	1.002	0m	N.D.	d		
55) 1,1,1,2-Tetrachloroethane		0.000	13.570	0.000	0	N.D.			
56) Ethylbenzene		13.582	13.589	1.007	0m	N.D.	d		
57) m,p-Xylenes		13.692	13.698	1.015	0m	N.D.	d		
58) o-Xylene		14.125	14.131	1.047	0m	N.D.	d		
59) Styrene		14.131	14.131	1.047	0m	N.D.	d		
61) Bromoform		0.000	14.381	0.000	0	N.D.			
62) Isopropylbenzene		14.497	14.491	0.912	0m	N.D.	d		
64) 1,1,2,2-Tetrachloroethane		14.765	14.747	0.929	0m	N.D.	d		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.			
66) Bromobenzene		14.893	14.893	0.937	0m	N.D.	d		
67) n-Propylbenzene		14.911	14.918	0.938	0m	N.D.	d		
68) 1,3,5-Trimethylbenzene		15.070	15.070	0.948	0m	N.D.	d		
69) 2-Chlorotoluene		15.064	15.064	0.947	0m	N.D.	d		
70) 4-Chlorotoluene		15.167	15.162	0.954	0m	N.D.	d		
71) tert-Butylbenzene		15.503	15.442	0.975	0m	N.D.	d		
72) 1,2,4-Trimethylbenzene		15.485	15.479	0.974	0m	N.D.	d		
73) sec-Butylbenzene		15.655	15.661	0.985	0m	N.D.	d		
74) 4-Isopropyltoluene		15.783	15.783	0.993	0m	N.D.	d		
75) 1,3-Dichlorobenzene		15.844	15.844	0.997	0m	N.D.	d		
76) 1,4-Dichlorobenzene		15.930	15.930	1.002	0m	N.D.	d		
77) n-Butylbenzene		16.295	16.228	1.025	0m	N.D.	d		
78) 1,2-Dichlorobenzene		16.350	16.356	1.028	0m	N.D.	d		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.			
80) 1,2,4-Trichlorobenzene		18.307	18.301	1.151	0m	N.D.	d		
81) Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.			
82) Naphthalene		18.697	18.691	1.176	0m	N.D.	d		
83) 1,2,3-Trichlorobenzene		19.033	19.033	1.197	0m	N.D.	d		
85) Acrolein	56	6.901	6.889	0.668	46797	49.43	ug/L		99
86) Trichlorotrifluoroethane	85	7.096	7.090	0.687	126958	40.06	ug/L		95
87) Isopropyl Alcohol	45	7.145	7.145	0.692	228789	581.64	ug/L		91
88) Allyl chloride	41	7.510	7.504	0.727	575622	50.82	ug/L		89
89) tert-Butyl Alcohol	59	7.638	7.639	0.740	336042	526.32	ug/L	#	100
90) Acrylonitrile	53	7.882	7.882	0.763	97958	50.84	ug/L		100
91) Isopropyl ether	45	8.455	8.456	0.819	233874	10.68	ug/L		96
92) 2-Chloro-1,3-butadiene	53	8.577	8.577	0.831	100405	8.76	ug/L		99
93) Ethyl tert-butyl ether	59	8.858	8.858	0.858	199113	10.30	ug/L		100
94) Ethyl acetate	43	9.053	9.053	0.877	269952	50.47	ug/L		98
95) Propionitrile	54	9.095	9.096	0.881	38428	49.60	ug/L		98
96) Methacrylonitrile	41	9.284	9.278	0.899	168736	51.58	ug/L		97
97) Tetrahydrofuran	42	9.419	9.419	0.912	92541	56.11	ug/L		92
98) Isobutyl alcohol	41	9.717	9.717	0.941	110106	527.71	ug/L		91
99) Methyl tert-amyl ether	73	10.101	10.102	0.978	159711	11.33	ug/L		99
100) Methyl methacrylate	69	10.924	10.925	1.058	182704	57.97	ug/L		91
101) 1,4-Dioxane	88	11.034	11.034	1.068	29270	601.55	ug/L		99
102) 2-Nitropropane	43	11.388	11.388	1.103	75958	48.20	ug/L		97

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H115.D
Acq On : 31 Oct 2016 23:14
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-13|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD050S 5UL N/A MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 01 08:09:21 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

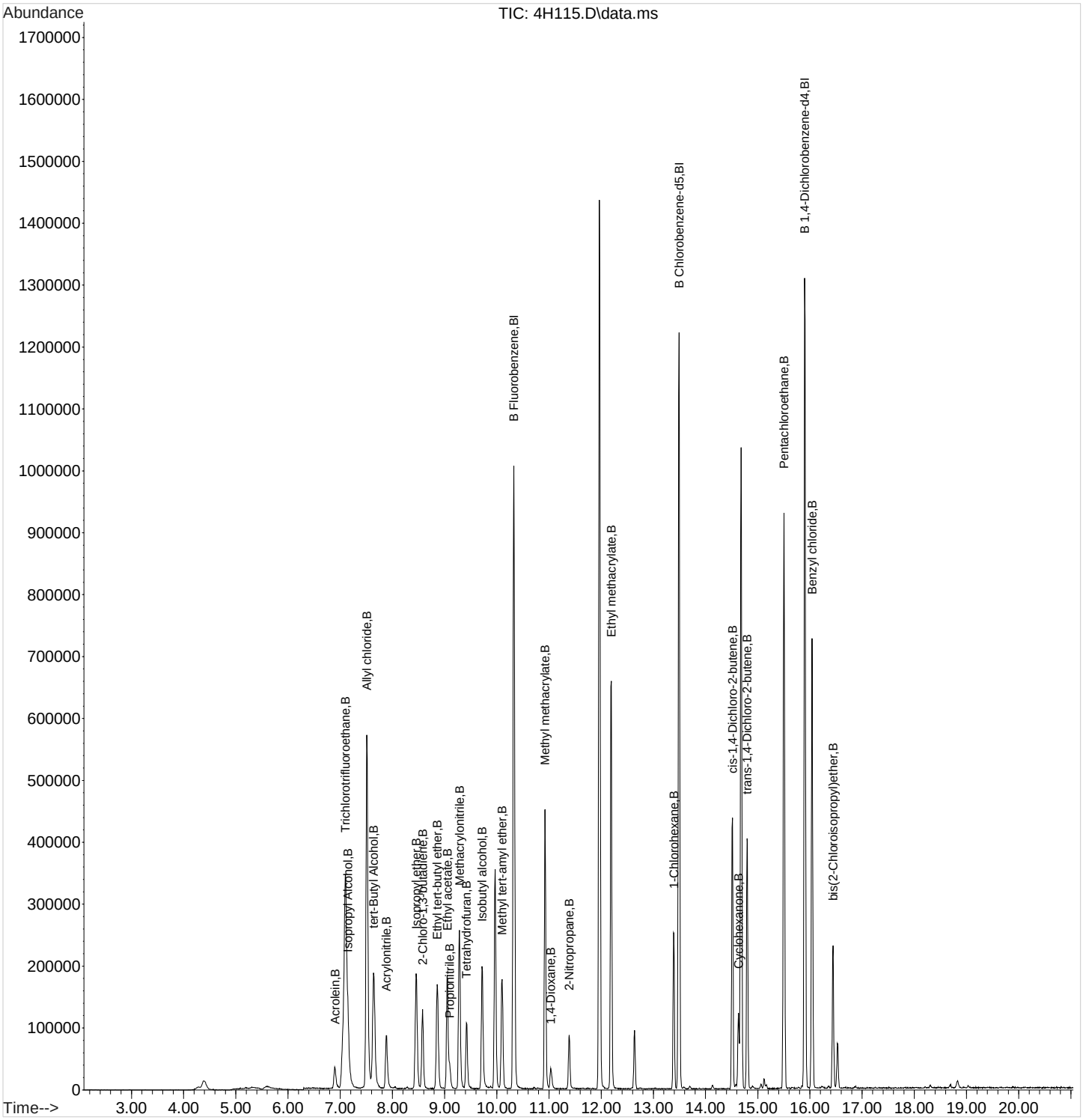
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	12.192	12.186	0.904	361510	65.91	ug/L	99
106) 1-Chlorohexane	55	13.393	13.394	0.842	72061	10.90	ug/L	97
107) cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	109717	48.02	ug/L	98
108) Cyclohexanone	42	14.631	14.625	0.920	42052	307.77	ug/L	90
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.931	99455	46.12	ug/L	99
110) Pentachloroethane	167	15.503	15.503	0.975	195519	45.20	ug/L	94
111) Benzyl chloride	91	16.039	16.039	1.009	605835	49.27	ug/L	92
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	181179	64.16	ug/L	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H115.D
Acq On : 31 Oct 2016 23:14
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-13|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD050S 5UL N/A MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 01 08:09:21 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H116.D
Acq On : 31 Oct 2016 23:43
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-14|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD100S 5UL N/A MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 01 08:09:25 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	991210	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	716803	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	379258	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	0d	0.00	ug/L	
45) Toluene-d8	98	11.967	11.967	0.887	0d	0.00	ug/L	
63) Bromofluorobenzene	95	14.680	14.680	0.923	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		5.306	5.102	0.514	0m	N.D.	d	
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.377	0.000	0	N.D.		
8) Ethyl ether		0.000	6.712	0.000	0	N.D.		
9) Acetone		7.145	7.066	0.692	0m	N.D.	d	
10) 1,1-Dichloroethylene		7.090	7.090	0.687	0m	N.D.	d	
11) Iodomethane		0.000	7.334	0.000	0	N.D.		
12) Acetonitrile		7.401	7.413	0.717	0m	N.D.	d	
13) Methyl acetate		0.000	7.456	0.000	0	N.D.		
14) Carbon disulfide		7.511	7.474	0.727	0m	N.D.	d	
15) Methylene chloride		7.651	7.651	0.741	0m	N.D.	d	
16) tert-Butyl methyl ether		0.000	7.956	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane		8.279	8.285	0.802	0m	N.D.	d	
19) Vinyl acetate		8.456	8.419	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		8.577	8.462	0.831	0m	N.D.	d	
21) 2-Butanone		9.053	9.035	0.877	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		0.000	9.096	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.382	9.400	0.908	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		9.845	9.791	0.953	0m	N.D.	d	
28) 1,1-Dichloropropene		0.000	9.845	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		10.034	10.047	0.972	0m	N.D.	d	
32) Benzene		10.083	10.077	0.976	0m	N.D.	d	
33) Cyclohexene		10.339	10.205	1.001	0m	N.D.	d	
34) n-Butyl alcohol		10.412	10.406	1.008	0m	N.D.	d	
35) Trichloroethylene		10.711	10.717	1.037	0m	N.D.	d	
36) 2-Pentanone		0.000	10.784	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		10.912	10.979	1.057	0m	N.D.	d	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		11.199	11.199	1.084	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		0.000	11.418	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		11.626	11.644	1.126	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H116.D
Acq On : 31 Oct 2016 23:43
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-14|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD100S 5UL N/A MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 01 08:09:25 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.			
46)	Toluene		12.040	12.040	0.892	0m	N.D.	d		
47)	trans-1,3-Dichloroprop...		12.186	12.180	0.903	0m	N.D.	d		
48)	1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.			
49)	2-Hexanone		12.601	12.583	0.934	0m	N.D.	d		
50)	1,3-Dichloropropane		12.601	12.595	0.934	0m	N.D.	d		
51)	Tetrachloroethylene		12.638	12.638	0.937	0m	N.D.	d		
52)	Dibromochloromethane		0.000	12.863	0.000	0	N.D.			
53)	1,2-Dibromoethane		13.028	13.034	0.966	0m	N.D.	d		
54)	Chlorobenzene		13.522	13.522	1.002	0m	N.D.	d		
55)	1,1,1,2-Tetrachloroethane		0.000	13.570	0.000	0	N.D.			
56)	Ethylbenzene		13.589	13.589	1.007	0m	N.D.	d		
57)	m,p-Xylenes		13.692	13.698	1.015	0m	N.D.	d		
58)	o-Xylene		14.131	14.131	1.047	0m	N.D.	d		
59)	Styrene		14.137	14.131	1.048	0m	N.D.	d		
61)	Bromoform		0.000	14.381	0.000	0	N.D.			
62)	Isopropylbenzene		14.485	14.491	0.911	0m	N.D.	d		
64)	1,1,2,2-Tetrachloroethane		14.747	14.747	0.928	0m	N.D.	d		
65)	1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.			
66)	Bromobenzene		14.893	14.893	0.937	0m	N.D.	d		
67)	n-Propylbenzene		14.912	14.918	0.938	0m	N.D.	d		
68)	1,3,5-Trimethylbenzene		15.064	15.070	0.947	0m	N.D.	d		
69)	2-Chlorotoluene		15.064	15.064	0.947	0m	N.D.	d		
70)	4-Chlorotoluene		15.162	15.162	0.954	0m	N.D.	d		
71)	tert-Butylbenzene		15.503	15.442	0.975	0m	N.D.	d		
72)	1,2,4-Trimethylbenzene		15.485	15.479	0.974	0m	N.D.	d		
73)	sec-Butylbenzene		15.661	15.661	0.985	0m	N.D.	d		
74)	4-Isopropyltoluene		15.783	15.783	0.993	0m	N.D.	d		
75)	1,3-Dichlorobenzene		15.850	15.844	0.997	0m	N.D.	d		
76)	1,4-Dichlorobenzene		15.930	15.930	1.002	0m	N.D.	d		
77)	n-Butylbenzene		16.295	16.228	1.025	0m	N.D.	d		
78)	1,2-Dichlorobenzene		16.356	16.356	1.029	0m	N.D.	d		
79)	1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.			
80)	1,2,4-Trichlorobenzene		18.307	18.301	1.151	0m	N.D.	d		
81)	Hexachlorobutadiene		18.490	18.490	1.163	0m	N.D.	d		
82)	Naphthalene		18.697	18.691	1.176	0m	N.D.	d		
83)	1,2,3-Trichlorobenzene		19.027	19.033	1.197	0m	N.D.	d		
85)	Acrolein	56	6.895	6.889	0.668	86548	96.00	ug/L		94
86)	Trichlorotrifluoroethane	85	7.096	7.090	0.687	246671	81.74	ug/L		94
87)	Isopropyl Alcohol	45	7.145	7.145	0.692	424797	1133.99	ug/L		89
88)	Allyl chloride	41	7.511	7.504	0.727	1135099	105.24	ug/L		89
89)	tert-Butyl Alcohol	59	7.639	7.639	0.740	643092	1057.64	ug/L	#	100
90)	Acrylonitrile	53	7.882	7.882	0.763	187065	101.94	ug/L		99
91)	Isopropyl ether	45	8.456	8.456	0.819	461401	22.13	ug/L		97
92)	2-Chloro-1,3-butadiene	53	8.571	8.577	0.830	202882	18.58	ug/L		97
93)	Ethyl tert-butyl ether	59	8.858	8.858	0.858	390180	21.20	ug/L		100
94)	Ethyl acetate	43	9.053	9.053	0.877	516665	101.42	ug/L		97
95)	Propionitrile	54	9.096	9.096	0.881	74859	101.47	ug/L		96
96)	Methacrylonitrile	41	9.279	9.278	0.898	319127	102.43	ug/L		97
97)	Tetrahydrofuran	42	9.419	9.419	0.912	171931	109.46	ug/L		94
98)	Isobutyl alcohol	41	9.717	9.717	0.941	208385	1048.71	ug/L		93
99)	Methyl tert-amyl ether	73	10.102	10.102	0.978	317942	23.69	ug/L		99
100)	Methyl methacrylate	69	10.925	10.925	1.058	342569	114.13	ug/L		89
101)	1,4-Dioxane	88	11.034	11.034	1.068	53179	1147.61	ug/L		97
102)	2-Nitropropane	43	11.388	11.388	1.103	144736	96.44	ug/L		96

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H116.D
Acq On : 31 Oct 2016 23:43
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-14|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD100S 5UL N/A MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 01 08:09:25 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

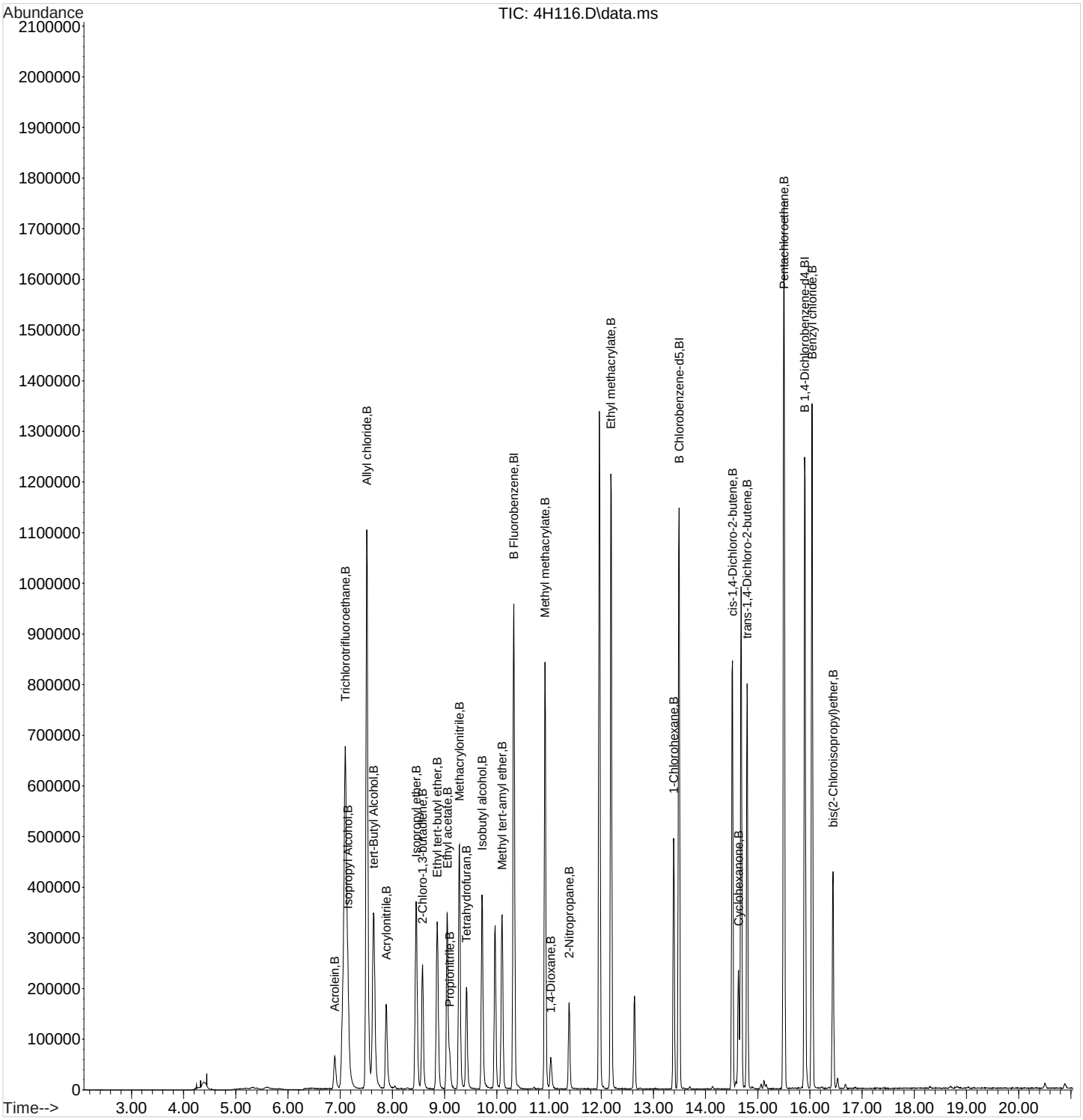
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	12.186	12.186	0.903	668367	127.59	ug/L	98
106) 1-Chlorohexane	55	13.387	13.394	0.842	139276	21.78	ug/L	98
107) cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	216614	98.02	ug/L	99
108) Cyclohexanone	42	14.631	14.625	0.920	80629	610.07	ug/L	99
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.931	194436	93.21	ug/L	99
110) Pentachloroethane	167	15.503	15.503	0.975	377097	90.13	ug/L	92
111) Benzyl chloride	91	16.039	16.039	1.009	1135638	95.48	ug/L	93
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	345542	126.51	ug/L	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H116.D
Acq On : 31 Oct 2016 23:43
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-14|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD100S 5UL N/A MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 01 08:09:25 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H117.D
Acq On : 01 Nov 2016 00:12
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-15|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD250S 5UL N/A MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 01 08:09:29 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1046360	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	760139	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	411704	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	0d	0.00	ug/L	
45) Toluene-d8	98	11.967	11.967	0.887	0d	0.00	ug/L	
63) Bromofluorobenzene	95	14.680	14.680	0.923	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		5.322	5.102	0.515	0m	N.D.	d	
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.377	0.000	0	N.D.		
8) Ethyl ether		0.000	6.712	0.000	0	N.D.		
9) Acetone		7.145	7.066	0.692	0m	N.D.	d	
10) 1,1-Dichloroethylene		7.096	7.090	0.687	0m	N.D.	d	
11) Iodomethane		0.000	7.334	0.000	0	N.D.		
12) Acetonitrile		7.511	7.413	0.727	0m	N.D.	d	
13) Methyl acetate		7.450	7.456	0.721	0m	N.D.	d	
14) Carbon disulfide		7.511	7.474	0.727	0m	N.D.	d	
15) Methylene chloride		7.645	7.651	0.740	0m	N.D.	d	
16) tert-Butyl methyl ether		7.949	7.956	0.770	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane		8.279	8.285	0.802	0m	N.D.	d	
19) Vinyl acetate		8.455	8.419	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		8.577	8.462	0.831	0m	N.D.	d	
21) 2-Butanone		9.047	9.035	0.876	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		0.000	9.096	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.388	9.400	0.909	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		9.717	9.791	0.941	0m	N.D.	d	
28) 1,1-Dichloropropene		0.000	9.845	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		10.108	10.047	0.979	0m	N.D.	d	
32) Benzene		10.077	10.077	0.976	0m	N.D.	d	
33) Cyclohexene		10.315	10.205	0.999	0m	N.D.	d	
34) n-Butyl alcohol		10.412	10.406	1.008	0m	N.D.	d	
35) Trichloroethylene		10.717	10.717	1.038	0m	N.D.	d	
36) 2-Pentanone		10.790	10.784	1.045	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		10.918	10.979	1.057	0m	N.D.	d	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.199	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	11.418	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		11.644	11.644	1.128	0m	N.D.	d	

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H117.D
Acq On : 01 Nov 2016 00:12
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-15|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD250S 5UL N/A MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 01 08:09:29 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone		11.741	11.735	0.870	0m	N.D.	d		
46) Toluene		12.046	12.040	0.893	0m	N.D.	d		
47) trans-1,3-Dichloroprop...		12.186	12.180	0.903	0m	N.D.	d		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.			
49) 2-Hexanone		12.589	12.583	0.933	0m	N.D.	d		
50) 1,3-Dichloropropane		12.644	12.595	0.937	0m	N.D.	d		
51) Tetrachloroethylene		12.638	12.638	0.937	0m	N.D.	d		
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.			
53) 1,2-Dibromoethane		13.034	13.034	0.966	0m	N.D.	d		
54) Chlorobenzene		13.528	13.522	1.003	0m	N.D.	d		
55) 1,1,1,2-Tetrachloroethane		13.570	13.570	1.006	0m	N.D.	d		
56) Ethylbenzene		13.583	13.589	1.007	0m	N.D.	d		
57) m,p-Xylenes		13.698	13.698	1.015	0m	N.D.	d		
58) o-Xylene		14.125	14.131	1.047	0m	N.D.	d		
59) Styrene		14.137	14.131	1.048	0m	N.D.	d		
61) Bromoform		0.000	14.381	0.000	0	N.D.			
62) Isopropylbenzene		14.491	14.491	0.911	0m	N.D.	d		
64) 1,1,2,2-Tetrachloroethane		14.747	14.747	0.928	0m	N.D.	d		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.			
66) Bromobenzene		14.887	14.893	0.936	0m	N.D.	d		
67) n-Propylbenzene		14.912	14.918	0.938	0m	N.D.	d		
68) 1,3,5-Trimethylbenzene		15.070	15.070	0.948	0m	N.D.	d		
69) 2-Chlorotoluene		15.058	15.064	0.947	0m	N.D.	d		
70) 4-Chlorotoluene		15.161	15.162	0.954	0m	N.D.	d		
71) tert-Butylbenzene		15.503	15.442	0.975	0m	N.D.	d		
72) 1,2,4-Trimethylbenzene		15.478	15.479	0.974	0m	N.D.	d		
73) sec-Butylbenzene		15.667	15.661	0.985	0m	N.D.	d		
74) 4-Isopropyltoluene		15.796	15.783	0.993	0m	N.D.	d		
75) 1,3-Dichlorobenzene		15.844	15.844	0.997	0m	N.D.	d		
76) 1,4-Dichlorobenzene		15.930	15.930	1.002	0m	N.D.	d		
77) n-Butylbenzene		0.000	16.228	0.000	0	N.D.			
78) 1,2-Dichlorobenzene		16.362	16.356	1.029	0m	N.D.	d		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.			
80) 1,2,4-Trichlorobenzene		18.301	18.301	1.151	0m	N.D.	d		
81) Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.			
82) Naphthalene		18.685	18.691	1.175	0m	N.D.	d		
83) 1,2,3-Trichlorobenzene		19.039	19.033	1.197	0m	N.D.	d		
85) Acrolein	56	6.895	6.889	0.668	251316	264.06	ug/L		99
86) Trichlorotrifluoroethane	85	7.096	7.090	0.687	631429	198.20	ug/L		96
87) Isopropyl Alcohol	45	7.139	7.145	0.691	1149555	2906.97	ug/L		92
88) Allyl chloride	41	7.511	7.504	0.727	2712495	238.22	ug/L		90
89) tert-Butyl Alcohol	59	7.639	7.639	0.740	1737086	2706.26	ug/L	#	100
90) Acrylonitrile	53	7.882	7.882	0.763	489800	252.84	ug/L		99
91) Isopropyl ether	45	8.455	8.456	0.819	1184144	53.81	ug/L		96
92) 2-Chloro-1,3-butadiene	53	8.577	8.577	0.831	512963	44.49	ug/L		97
93) Ethyl tert-butyl ether	59	8.858	8.858	0.858	1007798	51.88	ug/L		99
94) Ethyl acetate	43	9.047	9.053	0.876	1332801	247.84	ug/L		98
95) Propionitrile	54	9.096	9.096	0.881	199591	256.27	ug/L		100
96) Methacrylonitrile	41	9.278	9.278	0.898	826351	251.25	ug/L		98
97) Tetrahydrofuran	42	9.419	9.419	0.912	447131	269.65	ug/L		95
98) Isobutyl alcohol	41	9.717	9.717	0.941	553238	2637.47	ug/L		93
99) Methyl tert-amyl ether	73	10.101	10.102	0.978	812562	57.36	ug/L		98
100) Methyl methacrylate	69	10.925	10.925	1.058	867689	273.85	ug/L		90
101) 1,4-Dioxane	88	11.034	11.034	1.068	140067	2863.36	ug/L		95
102) 2-Nitropropane	43	11.388	11.388	1.103	396647	250.37	ug/L		97

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H117.D
Acq On : 01 Nov 2016 00:12
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-15|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD250S 5UL N/A MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 01 08:09:29 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

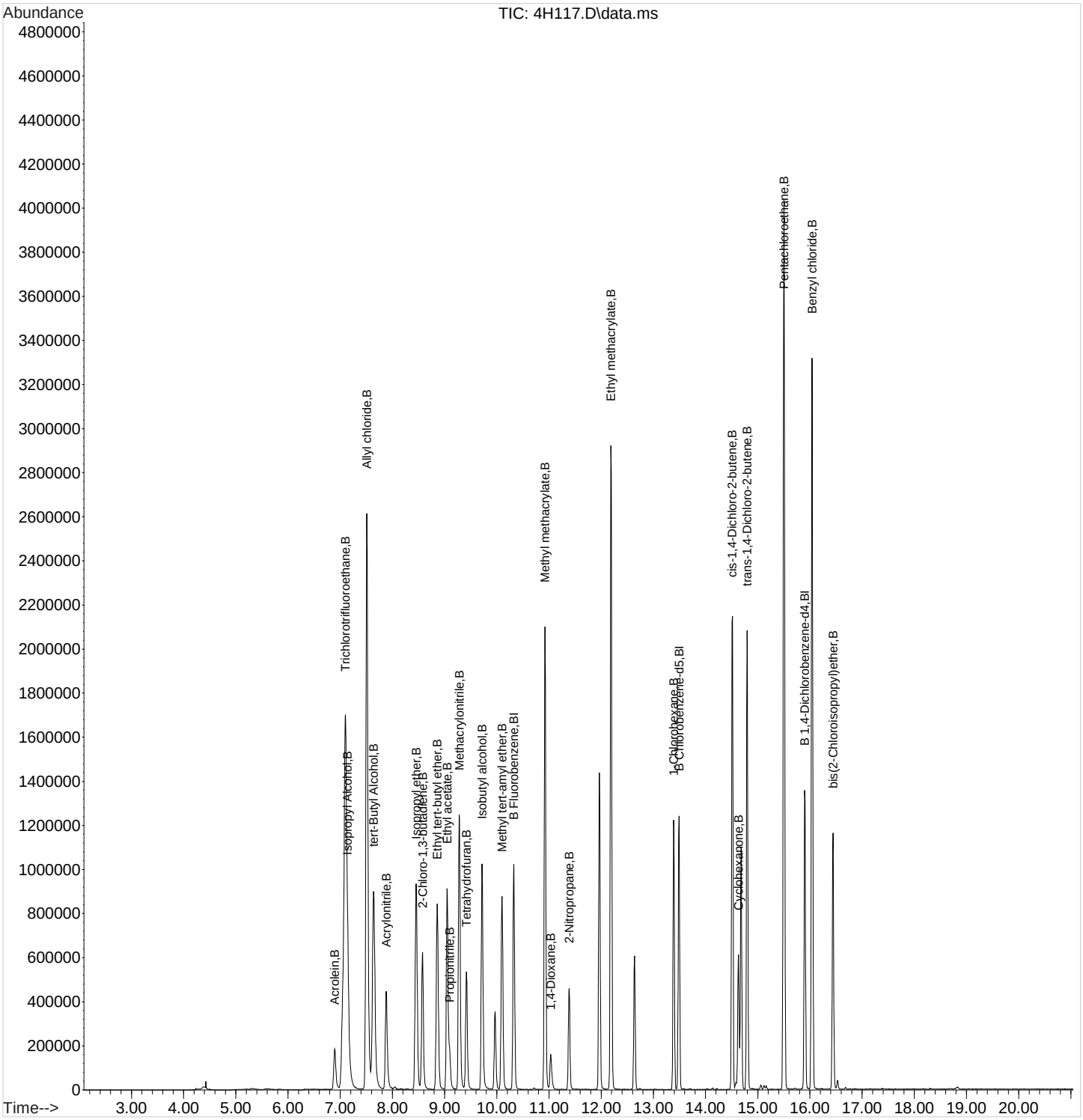
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	12.186	12.186	0.903	1623737	292.29	ug/L	98
106) 1-Chlorohexane	55	13.387	13.394	0.842	342715	49.37	ug/L	97
107) cis-1,4-Dichloro-2-butene	53	14.509	14.509	0.913	561516	234.07	ug/L	97
108) Cyclohexanone	42	14.631	14.625	0.920	208715	1454.75	ug/L	96
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.931	510379	225.39	ug/L	99
110) Pentachloroethane	167	15.503	15.503	0.975	903545	198.93	ug/L	89
111) Benzyl chloride	91	16.039	16.039	1.009	2807855	217.46	ug/L	94
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	932501	314.50	ug/L	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H117.D
Acq On : 01 Nov 2016 00:12
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-15|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD250S 5UL N/A MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 01 08:09:29 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H118.D
Acq On : 01 Nov 2016 00:41
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-16|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD500S 5UL N/A MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 01 08:09:33 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1059641	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	772851	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	412223	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	0d	0.00	ug/L	
45) Toluene-d8	98	11.967	11.967	0.887	0d	0.00	ug/L	
63) Bromofluorobenzene	95	14.680	14.680	0.923	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		5.322	5.102	0.515	0m	N.D.	d	
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.377	0.000	0	N.D.		
8) Ethyl ether		6.706	6.712	0.649	0m	N.D.	d	
9) Acetone		7.138	7.066	0.691	0m	N.D.	d	
10) 1,1-Dichloroethylene		7.102	7.090	0.688	0m	N.D.	d	
11) Iodomethane		0.000	7.334	0.000	0	N.D.		
12) Acetonitrile		7.413	7.413	0.718	0m	N.D.	d	
13) Methyl acetate		7.455	7.456	0.722	0m	N.D.	d	
14) Carbon disulfide		7.510	7.474	0.727	0m	N.D.	d	
15) Methylene chloride		7.651	7.651	0.741	0m	N.D.	d	
16) tert-Butyl methyl ether		7.968	7.956	0.772	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane		8.291	8.285	0.803	0m	N.D.	d	
19) Vinyl acetate		8.455	8.419	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		8.577	8.462	0.831	0m	N.D.	d	
21) 2-Butanone		9.047	9.035	0.876	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		0.000	9.096	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.394	9.400	0.910	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		9.717	9.791	0.941	0m	N.D.	d	
28) 1,1-Dichloropropene		0.000	9.845	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		10.101	10.047	0.978	0m	N.D.	d	
32) Benzene		10.083	10.077	0.976	0m	N.D.	d	
33) Cyclohexene		10.327	10.205	1.000	0m	N.D.	d	
34) n-Butyl alcohol		10.400	10.406	1.007	0m	N.D.	d	
35) Trichloroethylene		10.717	10.717	1.038	0m	N.D.	d	
36) 2-Pentanone		0.000	10.784	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		10.918	10.979	1.057	0m	N.D.	d	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.199	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		11.436	11.418	1.107	0m	N.D.	d	
42) cis-1,3-Dichloropropylene		11.650	11.644	1.128	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H118.D
Acq On : 01 Nov 2016 00:41
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-16|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD500S 5UL N/A MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 01 08:09:33 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.			
46) Toluene		12.046	12.040	0.893	0m	N.D.	d		
47) trans-1,3-Dichloroprop...		12.180	12.180	0.903	0m	N.D.	d		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.			
49) 2-Hexanone		12.576	12.583	0.932	0m	N.D.	d		
50) 1,3-Dichloropropane		12.601	12.595	0.934	0m	N.D.	d		
51) Tetrachloroethylene		12.637	12.638	0.937	0m	N.D.	d		
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.			
53) 1,2-Dibromoethane		13.034	13.034	0.966	0m	N.D.	d		
54) Chlorobenzene		13.521	13.522	1.002	0m	N.D.	d		
55) 1,1,1,2-Tetrachloroethane		13.576	13.570	1.006	0m	N.D.	d		
56) Ethylbenzene		13.588	13.589	1.007	0m	N.D.	d		
57) m,p-Xylenes		13.698	13.698	1.015	0m	N.D.	d		
58) o-Xylene		14.235	14.131	1.055	0m	N.D.	d		
59) Styrene		14.131	14.131	1.047	0m	N.D.	d		
61) Bromoform		0.000	14.381	0.000	0	N.D.			
62) Isopropylbenzene		14.503	14.491	0.912	0m	N.D.	d		
64) 1,1,2,2-Tetrachloroethane		14.747	14.747	0.927	0m	N.D.	d		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.			
66) Bromobenzene		14.899	14.893	0.937	0m	N.D.	d		
67) n-Propylbenzene		14.917	14.918	0.938	0m	N.D.	d		
68) 1,3,5-Trimethylbenzene		15.064	15.070	0.947	0m	N.D.	d		
69) 2-Chlorotoluene		15.064	15.064	0.947	0m	N.D.	d		
70) 4-Chlorotoluene		15.161	15.162	0.953	0m	N.D.	d		
71) tert-Butylbenzene		15.503	15.442	0.975	0m	N.D.	d		
72) 1,2,4-Trimethylbenzene		15.478	15.479	0.973	0m	N.D.	d		
73) sec-Butylbenzene		15.661	15.661	0.985	0m	N.D.	d		
74) 4-Isopropyltoluene		15.783	15.783	0.992	0m	N.D.	d		
75) 1,3-Dichlorobenzene		15.844	15.844	0.996	0m	N.D.	d		
76) 1,4-Dichlorobenzene		15.929	15.930	1.002	0m	N.D.	d		
77) n-Butylbenzene		0.000	16.228	0.000	0	N.D.			
78) 1,2-Dichlorobenzene		16.362	16.356	1.029	0m	N.D.	d		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.			
80) 1,2,4-Trichlorobenzene		18.301	18.301	1.151	0m	N.D.	d		
81) Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.			
82) Naphthalene		18.691	18.691	1.175	0m	N.D.	d		
83) 1,2,3-Trichlorobenzene		19.045	19.033	1.197	0m	N.D.	d		
85) Acrolein	56	6.895	6.889	0.668	485518	503.74	ug/L		99 A
86) Trichlorotrifluoroethane	85	7.102	7.090	0.688	1194992	370.39	ug/L		97
87) Isopropyl Alcohol	45	7.145	7.145	0.692	1997808	4988.70	ug/L		91 A
88) Allyl chloride	41	7.510	7.504	0.727	4880122	423.22	ug/L		92
89) tert-Butyl Alcohol	59	7.638	7.639	0.740	2998811	4613.38	ug/L	#	100 A
90) Acrylonitrile	53	7.882	7.882	0.763	905676	461.66	ug/L		98
91) Isopropyl ether	45	8.455	8.456	0.819	2261013	101.45	ug/L		97 A
92) 2-Chloro-1,3-butadiene	53	8.577	8.577	0.831	1005584	86.13	ug/L		98
93) Ethyl tert-butyl ether	59	8.858	8.858	0.858	1940421	98.64	ug/L		99
94) Ethyl acetate	43	9.047	9.053	0.876	2330834	427.99	ug/L		98
95) Propionitrile	54	9.095	9.096	0.881	364703	462.40	ug/L		99
96) Methacrylonitrile	41	9.278	9.278	0.898	1512181	454.01	ug/L		98
97) Tetrahydrofuran	42	9.418	9.419	0.912	816409	486.18	ug/L		95
98) Isobutyl alcohol	41	9.717	9.717	0.941	964615	4541.00	ug/L		93
99) Methyl tert-amyl ether	73	10.101	10.102	0.978	1574776	109.77	ug/L		97 A
100) Methyl methacrylate	69	10.924	10.925	1.058	1523469	474.79	ug/L		91
101) 1,4-Dioxane	88	11.034	11.034	1.068	244804	4941.75	ug/L		95
102) 2-Nitropropane	43	11.388	11.388	1.103	736685	459.19	ug/L		95

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H118.D
Acq On : 01 Nov 2016 00:41
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-16|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD500S 5UL N/A MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 01 08:09:33 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE

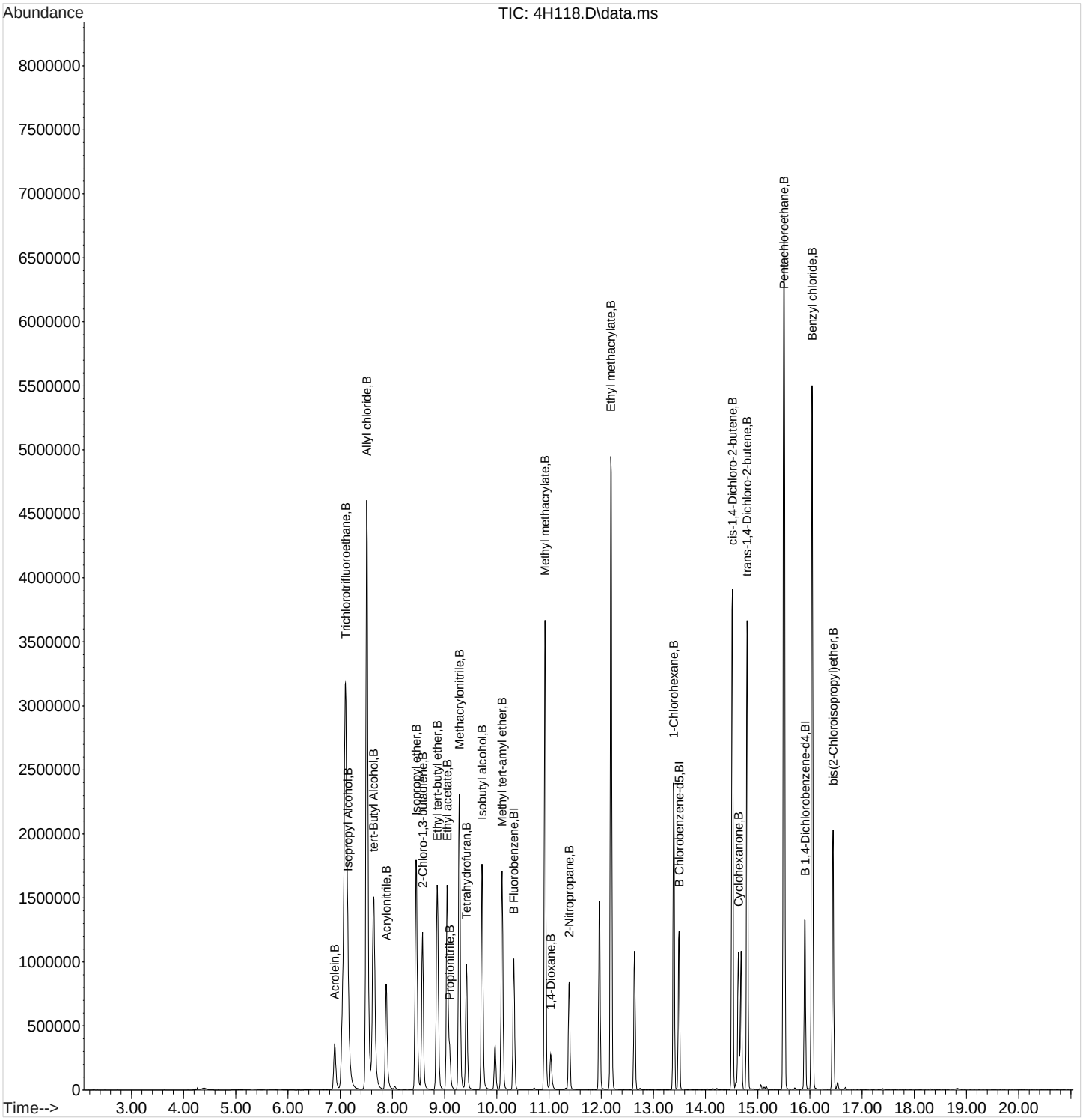
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
104) Ethyl methacrylate	69	12.186	12.186	0.903	2765094	489.56	ug/L	97	
106) 1-Chlorohexane	55	13.387	13.394	0.842	679965	97.83	ug/L	96	
107) cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	1016706	423.29	ug/L	95	
108) Cyclohexanone	42	14.631	14.625	0.920	373663	2601.17	ug/L	95	A
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.930	924462	407.75	ug/L	98	
110) Pentachloroethane	167	15.503	15.503	0.975	1624581	357.23	ug/L	91	
111) Benzyl chloride	91	16.039	16.039	1.008	4642640	359.11	ug/L	98	A
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	1610266	542.41	ug/L	95	A

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H118.D
Acq On : 01 Nov 2016 00:41
Operator : ACJ
InstName : VOA4
Sample : |W4VM161031-16|ICAL|1|VOAF|1|VOA8260BL|
Misc : VSTD500S 5UL N/A MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Nov 01 08:09:33 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:08:00 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA4.I **Injection Date:** 01-NOV-16 09:21

Data File: 110116V4\4H202.D **Init. Cal. Date(s)** 31-OCT-16 16:55 - 01-NOV-16 00:4

Lab Sample ID W4VM161101-01 **Method:** 103116V4\VOA4-8260-103116.M

Quant Type ISTD **Method Update:** 01-NOV-16 08:22

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	1,2-Dichloroethane-d4	0.2717	0.26886		.01		-1.04527	60		Averaged
S	Toluene-d8	1.4259	1.40697		.01		-1.32758	60		Averaged
S	Bromofluorobenzene	1.0849	1.05285		.01		-2.95419	60		Averaged
	Trichlorotrifluoroethane	0.1188	0.12631		.01		6.32155	60		Averaged
	1,4-Dioxane	2500	2535.07	2500			1.4028	60		Linear

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V4\
Data File : 4H202.D
Acq On : 01 Nov 2016 09:21
Operator : ACJ
InstName : VOA4
Sample : |W4VM161101-01|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5UL N/A MIX[B]
ALS Vial : 2 Sample Multiplier: 1

11/08/2016

Quant Time: Nov 01 10:41:51 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1133380	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	833087	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.905	1.000	449991	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1133380	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	833087	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	449991	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	304715	49.47	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1172130	49.34	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	473771	48.52	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		5.306	5.094	0.514	0m	N.D.	d	
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.370	0.000	0	N.D.		
8) Ethyl ether		0.000	6.706	0.000	0	N.D.		
9) Acetone		7.145	7.059	0.692	0m	N.D.	d	
10) 1,1-Dichloroethylene		7.090	7.090	0.687	0m	N.D.	d	
11) Iodomethane		7.321	7.327	0.709	0m	N.D.	d	
12) Acetonitrile		7.388	7.407	0.715	0m	N.D.	d	
13) Methyl acetate		7.456	7.456	0.722	0m	N.D.	d	
14) Carbon disulfide		7.510	7.468	0.727	0m	N.D.	d	
15) Methylene chloride		7.651	7.645	0.741	0m	N.D.	d	
16) tert-Butyl methyl ether		0.000	7.955	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane		8.297	8.285	0.803	0m	N.D.	d	
19) Vinyl acetate		8.455	8.413	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		8.577	8.461	0.831	0m	N.D.	d	
21) 2-Butanone		9.047	9.028	0.876	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		0.000	9.095	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.412	9.400	0.911	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		9.717	9.790	0.941	0m	N.D.	d	
28) 1,1-Dichloropropene		0.000	9.839	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		10.040	10.046	0.972	0m	N.D.	d	
32) Benzene		10.083	10.077	0.976	0m	N.D.	d	
33) Cyclohexene		10.339	10.199	1.001	0m	N.D.	d	
34) n-Butyl alcohol		10.321	10.400	0.999	0m	N.D.	d	
35) Trichloroethylene		10.717	10.717	1.038	0m	N.D.	d	
36) 2-Pentanone		10.790	10.778	1.045	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		10.924	10.973	1.058	0m	N.D.	d	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.193	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		11.430	11.412	1.107	0m	N.D.	d	
42) cis-1,3-Dichloropropylene		0.000	11.644	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V4\
Data File : 4H202.D
Acq On : 01 Nov 2016 09:21
Operator : ACJ
InstName : VOA4
Sample : |W4VM161101-01|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5UL N/A MIX[B]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 10:41:51 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.			
46)	Toluene		12.040	12.040	0.892	0m	N.D.	d		
47)	trans-1,3-Dichloroprop...		12.186	12.180	0.903	0m	N.D.	d		
48)	1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.			
49)	2-Hexanone		12.583	12.583	0.933	0m	N.D.	d		
50)	1,3-Dichloropropane		12.637	12.595	0.937	0m	N.D.	d		
51)	Tetrachloroethylene		12.637	12.637	0.937	0m	N.D.	d		
52)	Dibromochloromethane		0.000	12.863	0.000	0	N.D.			
53)	1,2-Dibromoethane		13.034	13.034	0.966	0m	N.D.	d		
54)	Chlorobenzene		13.515	13.521	1.002	0m	N.D.	d		
55)	1,1,1,2-Tetrachloroethane		13.570	13.576	1.006	0m	N.D.	d		
56)	Ethylbenzene		13.582	13.588	1.007	0m	N.D.	d		
57)	m,p-Xylenes		13.698	13.698	1.015	0m	N.D.	d		
58)	o-Xylene		14.119	14.131	1.047	0m	N.D.	d		
59)	Styrene		14.131	14.131	1.047	0m	N.D.	d		
61)	Bromoform		0.000	14.381	0.000	0	N.D.			
62)	Isopropylbenzene		14.491	14.491	0.911	0m	N.D.	d		
64)	1,1,2,2-Tetrachloroethane		14.753	14.747	0.928	0m	N.D.	d		
65)	1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.			
66)	Bromobenzene		14.899	14.893	0.937	0m	N.D.	d		
67)	n-Propylbenzene		15.058	14.917	0.947	0m	N.D.	d		
68)	1,3,5-Trimethylbenzene		15.076	15.070	0.948	0m	N.D.	d		
69)	2-Chlorotoluene		15.058	15.064	0.947	0m	N.D.	d		
70)	4-Chlorotoluene		15.161	15.161	0.953	0m	N.D.	d		
71)	tert-Butylbenzene		15.503	15.442	0.975	0m	N.D.	d		
72)	1,2,4-Trimethylbenzene		15.478	15.478	0.973	0m	N.D.	d		
73)	sec-Butylbenzene		15.667	15.661	0.985	0m	N.D.	d		
74)	4-Isopropyltoluene		15.777	15.783	0.992	0m	N.D.	d		
75)	1,3-Dichlorobenzene		15.838	15.844	0.996	0m	N.D.	d		
76)	1,4-Dichlorobenzene		15.929	15.929	1.002	0m	N.D.	d		
77)	n-Butylbenzene		16.338	16.228	1.027	0m	N.D.	d		
78)	1,2-Dichlorobenzene		16.362	16.356	1.029	0m	N.D.	d		
79)	1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.			
80)	1,2,4-Trichlorobenzene		18.301	18.301	1.151	0m	N.D.	d		
81)	Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.			
82)	Naphthalene		18.691	18.685	1.175	0m	N.D.	d		
83)	1,2,3-Trichlorobenzene		19.039	19.033	1.197	0m	N.D.	d		
85)	Acrolein	56	6.895	6.895	0.668	234427	230.29	ug/L		98
86)	Trichlorotrifluoroethane	85	7.090	7.096	0.687	715780	265.69	ug/L		99
87)	Isopropyl Alcohol	45	7.138	7.139	0.691	1126369	2517.78	ug/L		99
88)	Allyl chloride	41	7.510	7.511	0.727	2746051	234.18	ug/L		99
89)	tert-Butyl Alcohol	59	7.638	7.639	0.740	1741424	2591.60	ug/L	#	100
90)	Acrylonitrile	53	7.882	7.882	0.763	498682	250.31	ug/L		99
91)	Isopropyl ether	45	8.455	8.455	0.819	1084791	43.55	ug/L		100
92)	2-Chloro-1,3-butadiene	53	8.571	8.577	0.830	605267	56.00	ug/L		98
93)	Ethyl tert-butyl ether	59	8.858	8.858	0.858	948470	45.21	ug/L		100
94)	Ethyl acetate	43	9.047	9.047	0.876	1352478	258.89	ug/L		100
95)	Propionitrile	54	9.095	9.096	0.881	194776	242.24	ug/L		98
96)	Methacrylonitrile	41	9.278	9.278	0.898	827516	247.47	ug/L		99
97)	Tetrahydrofuran	42	9.419	9.419	0.912	458270	253.76	ug/L		100
98)	Isobutyl alcohol	41	9.717	9.717	0.941	570741	2643.27	ug/L		100
99)	Methyl tert-amyl ether	73	10.101	10.101	0.978	801128	46.67	ug/L		99
100)	Methyl methacrylate	69	10.924	10.925	1.058	872221	255.14	ug/L		100
101)	1,4-Dioxane	88	11.034	11.034	1.068	139091	2535.07	ug/L		99
102)	2-Nitropropane	43	11.388	11.388	1.103	400884	248.63	ug/L		100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V4\
Data File : 4H202.D
Acq On : 01 Nov 2016 09:21
Operator : ACJ
InstName : VOA4
Sample : |W4VM161101-01|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5UL N/A MIX[B]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 10:41:51 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

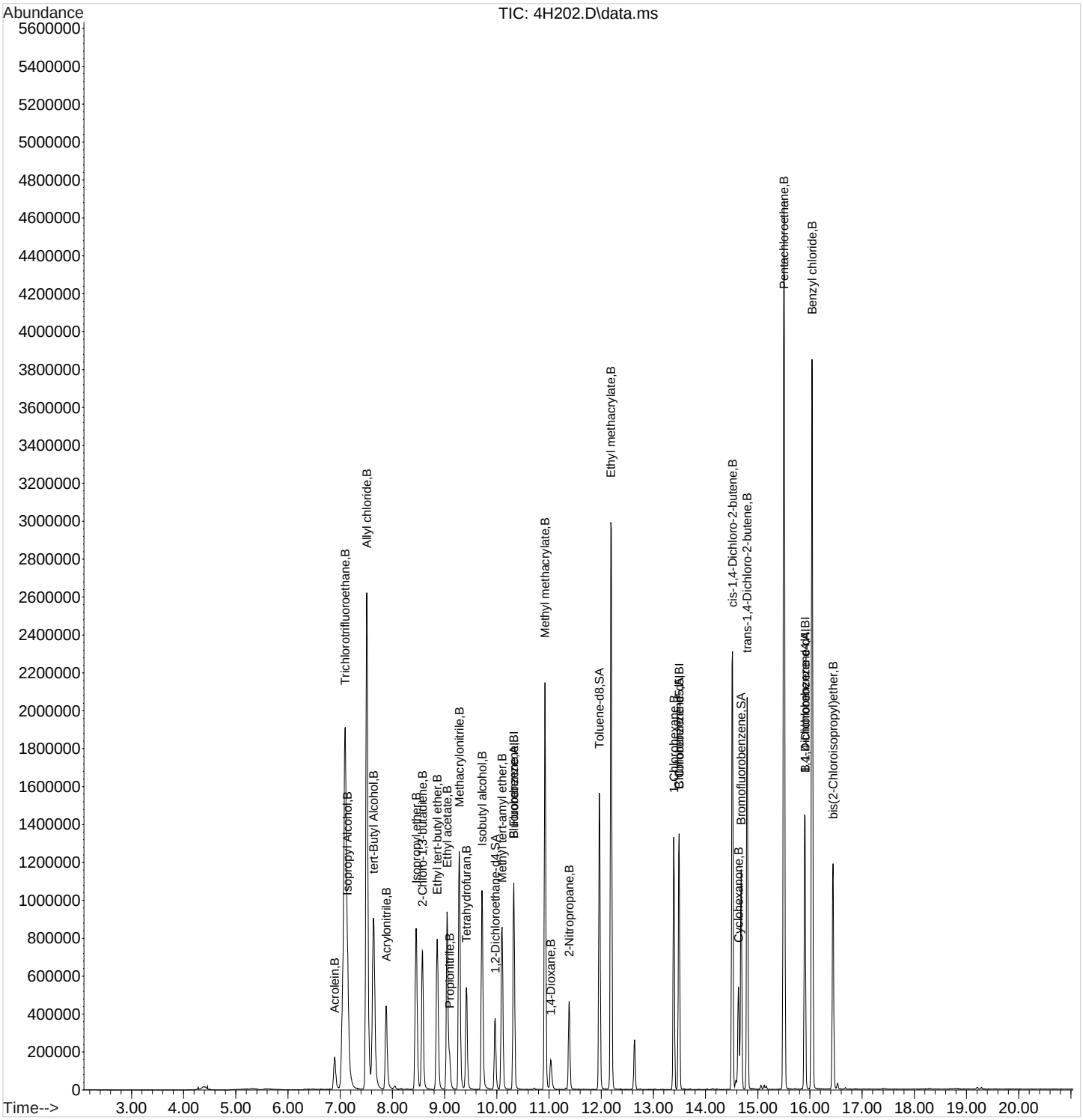
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	12.186	12.186	0.903	1676766	264.27	ug/L	100
106) 1-Chlorohexane	55	13.393	13.387	0.842	370363	49.33	ug/L	99
107) cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	599661	261.44	ug/L	98
108) Cyclohexanone	42	14.631	14.631	0.920	185020	1018.12	ug/L	96
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.930	515890	247.23	ug/L	99
110) Pentachloroethane	167	15.503	15.503	0.975	1061513	287.87	ug/L	99
111) Benzyl chloride	91	16.039	16.039	1.008	3282958	305.20	ug/L	99
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	969839	263.70	ug/L	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V4\
Data File : 4H202.D
Acq On : 01 Nov 2016 09:21
Operator : ACJ
InstName : VOA4
Sample : |W4VM161101-01|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5UL N/A MIX[B]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 10:41:51 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA4.I **Injection Date:** 02-NOV-16 10:27

Data File: 110216V4\4H302.D **Init. Cal. Date(s)** 31-OCT-16 16:55 - 01-NOV-16 00:4

Lab Sample ID W4VM161102-01 **Method:** 103116V4\VOA4-8260-103116.M

Quant Type ISTD **Method Update:** 01-NOV-16 08:22

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
S	1,2-Dichloroethane-d4	0.2717	0.26015		.01		-4.25101	60		Averaged	
S	Toluene-d8	1.4259	1.33964		.01		-6.04951	60		Averaged	
S	Bromofluorobenzene	1.0849	1.03058		.01		-5.00691	60		Averaged	
	Dichlorodifluoromethane	0.3012	0.30285		.01		0.54781	60		Averaged	
	Chloromethane	0.3326	0.28253		.1		-15.05412	60		Averaged	SPCC
	Vinyl chloride	0.2686	0.26671		.01		-0.70365	20		Averaged	CCC
	Bromomethane	0.2758	0.26593		.01		-3.57868	60		Averaged	
	Chloroethane	0.2682	0.25354		.01		-5.46607	60		Averaged	
	Trichlorofluoromethane	0.4491	0.4337		.01		-3.42908	60		Averaged	
	Acetone	0.1597	0.143		.01		-10.45711	60		Averaged	
	1,1-Dichloroethylene	0.5062	0.45028		.01		-11.04702	20		Averaged	CCC
	Methyl acetate	0.1984	0.16039		.01		-19.15827	60		Averaged	
	Carbon disulfide	0.9959	0.83912		.01		-15.74254	60		Averaged	
	Methylene chloride	0.3471	0.27595		.01		-20.49842	60		Averaged	
	tert-Butyl methyl ether	0.8025	0.68556		.01		-14.57196	60		Averaged	
	trans-1,2-Dichloroethylene	0.4779	0.42136		.01		-11.83093	60		Averaged	
	1,1-Dichloroethane	0.5781	0.50607		.1		-12.45978	60		Averaged	SPCC
	2-Butanone	0.2003	0.18045		.01		-9.91013	60		Averaged	
	cis-1,2-Dichloroethylene	0.3342	0.29636		.01		-11.32256	60		Averaged	
	Bromochloromethane	0.1394	0.12101		.01		-13.19225	60		Averaged	
	Chloroform	0.5279	0.4659		.01		-11.74465	20		Averaged	CCC
	1,1,1-Trichloroethane	0.5068	0.4534		.01		-10.5367	60		Averaged	
	Cyclohexane	0.6853	0.58675		.01		-14.38056	60		Averaged	
	Carbon tetrachloride	0.4336	0.39232		.01		-9.5203	60		Averaged	
	1,2-Dichloroethane	0.3801	0.32568		.01		-14.31728	60		Averaged	
	Benzene	1.2427	1.06707		.01		-14.13294	60		Averaged	
	Trichloroethylene	0.3222	0.28416		.01		-11.80633	60		Averaged	
	1,2-Dichloropropane	0.3266	0.29344		.01		-10.15309	20		Averaged	CCC
	Methylcyclohexane	0.6123	0.52642		.01		-14.0258	60		Averaged	
	Bromodichloromethane	0.3933	0.35565		.01		-9.57285	60		Averaged	
	cis-1,3-Dichloropropylene	0.486	0.43583		.01		-10.32305	60		Averaged	
	4-Methyl-2-pentanone	0.1572	0.13315		.01		-15.29898	60		Averaged	
	Toluene	1.7911	1.51061		.01		-15.66021	20		Averaged	CCC
	trans-1,3-Dichloropropylene	0.565	0.50334		.01		-10.91327	60		Averaged	
	1,1,2-Trichloroethane	0.2825	0.23927		.01		-15.30265	60		Averaged	
	2-Hexanone	0.391	0.3452		.01		-11.71355	60		Averaged	
	Tetrachloroethylene	0.3509	0.29774		.01		-15.14962	60		Averaged	

Continuing Calibration Summary

Instrument ID: VOA4.I **Injection Date:** 02-NOV-16 10:27

Data File: 110216V4\4H302.D **Init. Cal. Date(s)** 31-OCT-16 16:55 01-NOV-16 00:4

Lab Sample ID W4VM161102-01 **Method:** 103116V4\VOA4-8260-103116.M

Quant Type ISTD

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
Dibromochloromethane	0.3688	0.33458		.01		-9.27874	60		Averaged	
1,2-Dibromoethane	0.325	0.2828		.01		-12.98462	60		Averaged	
Chlorobenzene	1.164	0.99035		.3		-14.91838	60		Averaged	SPCC
Ethylbenzene	2.0807	1.75721		.01		-15.54717	20		Averaged	CCC
m,p-Xylenes	0.7968	0.67012		.01		-15.89859	60		Averaged	
Styrene	1.2786	1.0924		.01		-14.5628	60		Averaged	
o-Xylene	1.7019	1.40252		.01		-17.59093	60		Averaged	
Bromoform	0.414	0.38513		.1		-6.97343	60		Averaged	SPCC
Isopropylbenzene	4.0606	3.41689		.01		-15.85258	60		Averaged	
1,1,2,2-Tetrachloroethane	0.8815	0.74663		.3		-15.30006	60		Averaged	SPCC
1,3-Dichlorobenzene	1.9316	1.64958		.01		-14.60033	60		Averaged	
1,4-Dichlorobenzene	1.8924	1.61173		.01		-14.83143	60		Averaged	
1,2-Dichlorobenzene	1.7934	1.50269		.01		-16.20999	60		Averaged	
1,2-Dibromo-3-chloropropane	0.1578	0.14567		.01		-7.68695	60		Averaged	
1,2,4-Trichlorobenzene	1.1732	0.99311		.01		-15.35032	60		Averaged	
1,2,3-Trichlorobenzene	1.012	0.86004		.01		-15.01581	60		Averaged	

Quantitation Report
GEL Laboratories, LLC

11/15/2016

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H302.D
Acq On : 02 Nov 2016 10:27
Operator : ACJ
InstName : VOA4
Sample : |W4VM161102-01|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[A] 1026-07E/1024-07E
ALS Vial : 2 Sample Multiplier: 1

11/03/2016

Quant Time: Nov 02 11:23:04 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	1162907	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	859639	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.905	15.905	1.000	455873	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1162907	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	859639	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.905	15.899	1.000	455873	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	302525	47.86	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1151609	46.97	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	469814	47.50	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.749	4.749	0.460	352183	50.28	ug/L	100
3) Chloromethane	50	5.102	5.094	0.494	328561	42.47	ug/L	100
4) Vinyl chloride	62	5.330	5.322	0.516	310157	49.64	ug/L	100
5) Bromomethane	94	5.895	5.887	0.571	309255	48.22	ug/L	99
6) Chloroethane	64	6.005	6.005	0.581	294849	47.27	ug/L	100
7) Trichlorofluoromethane	101	6.371	6.370	0.617	504353	48.29	ug/L	99
8) Ethyl ether	59	6.712	6.706	0.650	265032	44.99	ug/L	98
9) Acetone	43	7.066	7.059	0.684	831464	223.83	ug/L	98
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	523628	44.48	ug/L	99
11) Iodomethane	142	7.334	7.327	0.710	2437840	213.00	ug/L	100
12) Acetonitrile	41	7.407	7.407	0.717	863857	1037.28	ug/L	99
13) Methyl acetate	43	7.456	7.456	0.722	932608	202.14	ug/L	99
14) Carbon disulfide	76	7.474	7.468	0.724	4879091	210.65	ug/L	100
15) Methylene chloride	84	7.645	7.645	0.740	320910	39.75	ug/L	99
16) tert-Butyl methyl ether	73	7.956	7.955	0.770	797245	42.71	ug/L	99
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	489997	44.08	ug/L	99
18) Hexane	57	8.285	8.285	0.802	1323	N.D.		
19) Vinyl acetate	43	8.413	8.413	0.815	2858025	222.87	ug/L	100
20) 1,1-Dichloroethane	63	8.462	8.461	0.819	588512	43.77	ug/L	100
21) 2-Butanone	43	9.035	9.028	0.875	1049248	225.26	ug/L	99
22) cis-1,2-Dichloroethylene	96	9.096	9.095	0.881	344639	44.34	ug/L	100
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	530291	45.90	ug/L	100
24) Bromochloromethane	128	9.364	9.364	0.907	140723	43.41	ug/L	100
25) Chloroform	83	9.400	9.400	0.910	541795	44.13	ug/L	100
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	527263	44.74	ug/L	100
27) Cyclohexane	56	9.791	9.790	0.948	682332	42.81	ug/L	99
28) 1,1-Dichloropropene	75	9.839	9.839	0.953	446139	44.60	ug/L	100
29) Carbon tetrachloride	117	9.882	9.882	0.957	456234	45.24	ug/L	99
31) 1,2-Dichloroethane	62	10.047	10.046	0.973	378730	42.84	ug/L	100
32) Benzene	78	10.077	10.077	0.976	1240904	42.93	ug/L	100
33) Cyclohexene	67	10.205	10.199	0.988	631966	44.63	ug/L	99
34) n-Butyl alcohol	56	10.400	10.400	1.007	922399	4727.34	ug/L	99
35) Trichloroethylene	95	10.711	10.717	1.037	330452	44.09	ug/L	100
36) 2-Pentanone	43	10.851	10.778	1.051	255	N.D.		
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	341246	44.93	ug/L	100
38) Methylcyclohexane	83	10.973	10.973	1.063	612173	42.98	ug/L	99
39) Dibromomethane	93	11.083	11.083	1.073	167644	43.13	ug/L	98
40) Bromodichloromethane	83	11.193	11.193	1.084	413588	45.21	ug/L	100
41) 2-Chloroethylvinyl ether	63	11.418	11.412	1.106	726806	210.31	ug/L	99
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	506833	44.83	ug/L	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H302.D
Acq On : 02 Nov 2016 10:27
Operator : ACJ
InstName : VOA4
Sample : |W4VM161102-01|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[A] 1026-07E/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 02 11:23:04 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone	58	11.735	11.735	0.870	572324	211.72	ug/L	99
46) Toluene	91	12.040	12.040	0.892	1298581	42.17	ug/L	100
47) trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	432692	44.55	ug/L	100
48) 1,1,2-Trichloroethane	83	12.400	12.400	0.919	205687	42.35	ug/L	100
49) 2-Hexanone	43	12.583	12.583	0.933	1483738	220.73	ug/L	100
50) 1,3-Dichloropropane	76	12.595	12.595	0.934	392640	41.44	ug/L	95
51) Tetrachloroethylene	164	12.638	12.637	0.937	255950	42.42	ug/L	99
52) Dibromochloromethane	129	12.863	12.863	0.953	287615	45.37	ug/L	98
53) 1,2-Dibromoethane	107	13.034	13.034	0.966	243108	43.50	ug/L	98
54) Chlorobenzene	112	13.522	13.521	1.002	851342	42.54	ug/L	99
55) 1,1,1,2-Tetrachloroethane	131	13.576	13.576	1.006	309802	43.64	ug/L	100
56) Ethylbenzene	91	13.589	13.588	1.007	1510566	42.23	ug/L	100
57) m,p-Xylenes	106	13.698	13.698	1.015	1152122	84.11	ug/L	99
58) o-Xylene	91	14.131	14.131	1.047	1205657	41.20	ug/L	100
59) Styrene	104	14.131	14.131	1.047	939073	42.72	ug/L	100
61) Bromoform	173	14.381	14.381	0.904	175569	46.51	ug/L	99
62) Isopropylbenzene	105	14.491	14.491	0.911	1557667	42.07	ug/L	100
64) 1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.927	340367	42.35	ug/L	100
65) 1,2,3-Trichloropropane	110	14.838	14.838	0.933	90011	42.25	ug/L	97
66) Bromobenzene	156	14.893	14.893	0.936	362292	43.05	ug/L	99
67) n-Propylbenzene	91	14.918	14.917	0.938	1857238	41.64	ug/L	100
68) 1,3,5-Trimethylbenzene	105	15.064	15.070	0.947	1297463	41.86	ug/L	100
69) 2-Chlorotoluene	126	15.064	15.064	0.947	352466	41.99	ug/L	97
70) 4-Chlorotoluene	91	15.161	15.161	0.953	1163794	42.20	ug/L	100
71) tert-Butylbenzene	134	15.442	15.442	0.971	280645	43.00	ug/L	99
72) 1,2,4-Trimethylbenzene	105	15.479	15.478	0.973	1343454	42.22	ug/L	86
73) sec-Butylbenzene	105	15.661	15.661	0.985	1756798	42.64	ug/L	99
74) 4-Isopropyltoluene	119	15.783	15.783	0.992	1465298	42.83	ug/L	100
75) 1,3-Dichlorobenzene	146	15.844	15.844	0.996	751998	42.70	ug/L	100
76) 1,4-Dichlorobenzene	146	15.930	15.929	1.002	734743	42.58	ug/L	100
77) n-Butylbenzene	91	16.228	16.228	1.020	1461365	42.10	ug/L	100
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.028	685036	41.89	ug/L	100
79) 1,2-Dibromo-3-chloropr...	157	17.222	17.228	1.083	66406	46.15	ug/L	98
80) 1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	452733	42.32	ug/L	100
81) Hexachlorobutadiene	225	18.490	18.490	1.163	268989	43.60	ug/L	100
82) Naphthalene	128	18.685	18.685	1.175	971870	41.79	ug/L	100
83) 1,2,3-Trichlorobenzene	180	19.033	19.033	1.197	392071	42.49	ug/L	99
85) Acrolein		6.852	6.895	0.664	0m	N.D.	d	
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol		7.059	7.139	0.684	0m	N.D.	d	
88) Allyl chloride		7.407	7.511	0.717	0m	N.D.	d	
89) tert-Butyl Alcohol		7.645	7.639	0.740	0m	N.D.	d	
90) Acrylonitrile		7.949	7.882	0.770	0m	N.D.	d	
91) Isopropyl ether		8.413	8.455	0.815	0m	N.D.	d	
92) 2-Chloro-1,3-butadiene		8.584	8.577	0.831	0m	N.D.	d	
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate		9.035	9.047	0.875	0m	N.D.	d	
95) Propionitrile		9.035	9.096	0.875	0m	N.D.	d	
96) Methacrylonitrile		0.000	9.278	0.000	0	N.D.		
97) Tetrahydrofuran		9.413	9.419	0.911	0m	N.D.	d	
98) Isobutyl alcohol		9.791	9.717	0.948	0m	N.D.	d	
99) Methyl tert-amyl ether		10.083	10.101	0.976	0m	N.D.	d	
100) Methyl methacrylate		10.979	10.925	1.063	0m	N.D.	d	
101) 1,4-Dioxane		11.083	11.034	1.073	0m	N.D.	d	
102) 2-Nitropropane		11.412	11.388	1.105	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H302.D
Acq On : 02 Nov 2016 10:27
Operator : ACJ
InstName : VOA4
Sample : |W4VM161102-01|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[A] 1026-07E/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 02 11:23:04 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

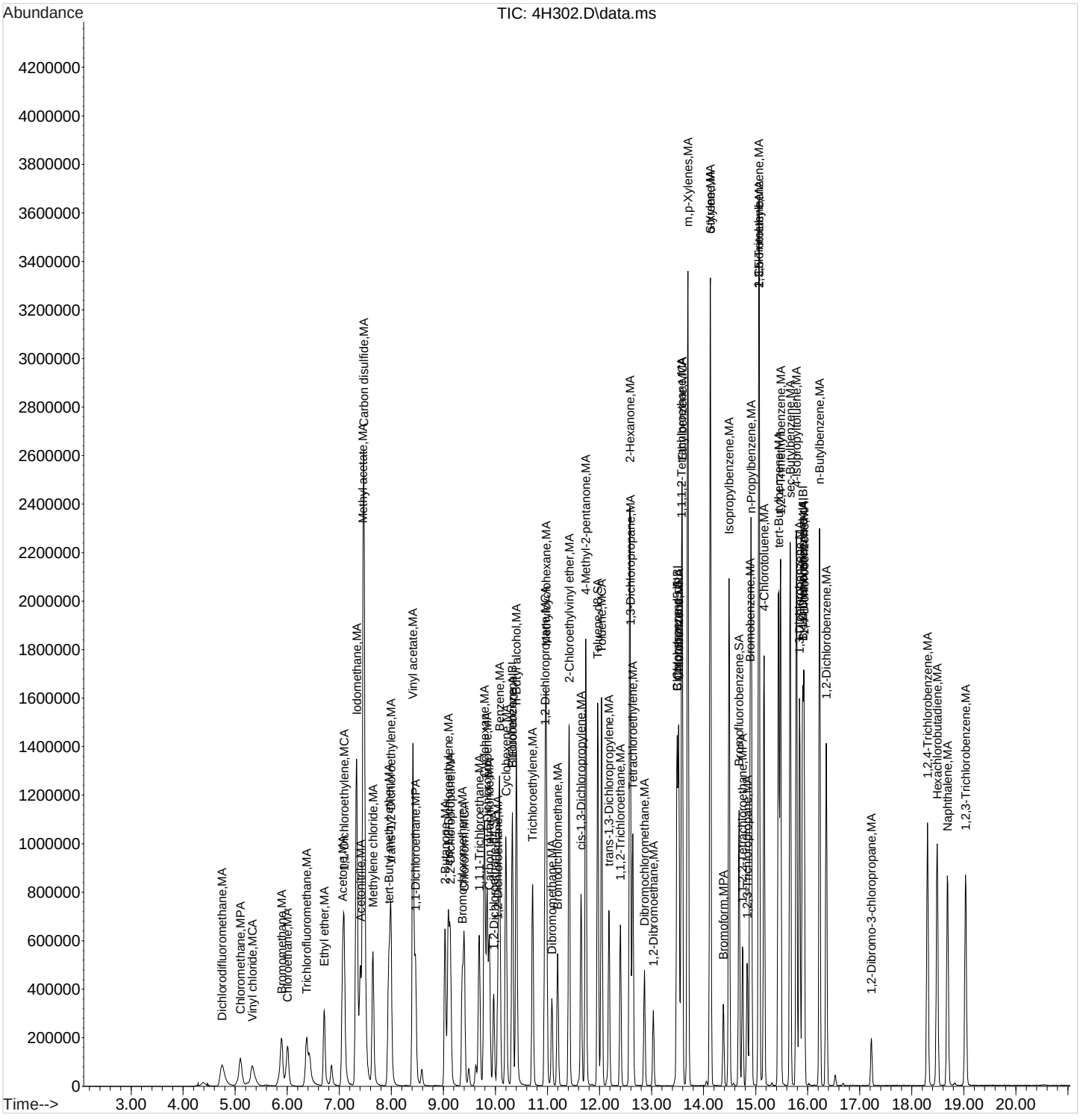
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		12.193	12.186	0.904	0m	N.D.	d
106) 1-Chlorohexane		13.387	13.387	0.842	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.491	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.637	14.631	0.920	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.918	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		15.503	15.503	0.975	0m	N.D.	d
111) Benzyl chloride		16.045	16.039	1.009	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		16.527	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H302.D
Acq On : 02 Nov 2016 10:27
Operator : ACJ
InstName : VOA4
Sample : |W4VM161102-01|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[A] 1026-07E/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 02 11:23:04 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA4.I

Injection Date: 02-NOV-16 12:24

Data File: 110216V4\4H306.D

Init. Cal. Date(s) 31-OCT-16 16:55 - 01-NOV-16 00:4

Lab Sample ID W4VM161102-05

Method: 103116V4\VOA4-8260-103116.M

Quant Type ISTD

Method Update: 01-NOV-16 08:22

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	1,2-Dichloroethane-d4	0.2717	0.25921		.01		-4.59698	60		Averaged
S	Toluene-d8	1.4259	1.37618		.01		-3.48692	60		Averaged
S	Bromofluorobenzene	1.0849	1.04312		.01		-3.85105	60		Averaged
	Trichlorotrifluoroethane	0.1188	0.12		.01		1.0101	60		Averaged
	1,4-Dioxane	2500	2460.38	2500			-1.5848	60		Linear

Quantitation Report
GEL Laboratories, LLC

11/15/2016

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H306.D
Acq On : 02 Nov 2016 12:24
Operator : ACJ
InstName : VOA4
Sample : |W4VM161102-05|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[B] 1025-06E/0913-06F
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 02 13:31:09 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	1061700	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	776821	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.905	1.000	410886	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1061700	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	776821	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	410886	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	275208	47.69	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1069043	48.26	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	428602	48.08	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		4.749	4.749	0.460	0m	N.D.	d	
3) Chloromethane		5.071	5.094	0.491	0m	N.D.	d	
4) Vinyl chloride		5.322	5.322	0.515	0m	N.D.	d	
5) Bromomethane		5.879	5.887	0.569	0m	N.D.	d	
6) Chloroethane		5.997	6.005	0.581	0m	N.D.	d	
7) Trichlorofluoromethane		6.389	6.370	0.619	0m	N.D.	d	
8) Ethyl ether		6.712	6.706	0.650	0m	N.D.	d	
9) Acetone		7.138	7.059	0.691	0m	N.D.	d	
10) 1,1-Dichloroethylene		7.102	7.090	0.688	0m	N.D.	d	
11) Iodomethane		7.327	7.327	0.710	0m	N.D.	d	
12) Acetonitrile		7.413	7.407	0.718	0m	N.D.	d	
13) Methyl acetate		7.455	7.456	0.722	0m	N.D.	d	
14) Carbon disulfide		7.510	7.468	0.727	0m	N.D.	d	
15) Methylene chloride		7.644	7.645	0.740	0m	N.D.	d	
16) tert-Butyl methyl ether		7.943	7.955	0.769	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		7.980	7.992	0.773	0m	N.D.	d	
18) Hexane		8.291	8.285	0.803	0m	N.D.	d	
19) Vinyl acetate		8.455	8.413	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		8.467	8.461	0.820	0m	N.D.	d	
21) 2-Butanone		9.047	9.028	0.876	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		9.089	9.095	0.880	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.394	9.400	0.910	0m	N.D.	d	
26) 1,1,1-Trichloroethane		9.681	9.687	0.937	0m	N.D.	d	
27) Cyclohexane		9.717	9.790	0.941	0m	N.D.	d	
28) 1,1-Dichloropropene		9.845	9.839	0.953	0m	N.D.	d	
29) Carbon tetrachloride		9.882	9.882	0.957	0m	N.D.	d	
31) 1,2-Dichloroethane		10.040	10.046	0.972	0m	N.D.	d	
32) Benzene		10.071	10.077	0.975	0m	N.D.	d	
33) Cyclohexene		10.199	10.199	0.988	0m	N.D.	d	
34) n-Butyl alcohol		10.565	10.400	1.023	0m	N.D.	d	
35) Trichloroethylene		10.717	10.717	1.038	0m	N.D.	d	
36) 2-Pentanone		10.790	10.778	1.045	0m	N.D.	d	
37) 1,2-Dichloropropane		10.961	10.955	1.061	0m	N.D.	d	
38) Methylcyclohexane		10.924	10.973	1.058	0m	N.D.	d	
39) Dibromomethane		11.065	11.083	1.071	0m	N.D.	d	
40) Bromodichloromethane		11.199	11.193	1.084	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		11.412	11.412	1.105	0m	N.D.	d	
42) cis-1,3-Dichloropropylene		11.650	11.644	1.128	0m	N.D.	d	

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H306.D
Acq On : 02 Nov 2016 12:24
Operator : ACJ
InstName : VOA4
Sample : |W4VM161102-05|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[B] 1025-06E/0913-06F
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 02 13:31:09 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone		11.735	11.735	0.870	0m	N.D.	d		
46)	Toluene		12.040	12.040	0.892	0m	N.D.	d		
47)	trans-1,3-Dichloroprop...		12.180	12.180	0.903	0m	N.D.	d		
48)	1,1,2-Trichloroethane		12.387	12.400	0.918	0m	N.D.	d		
49)	2-Hexanone		12.583	12.583	0.933	0m	N.D.	d		
50)	1,3-Dichloropropane		12.595	12.595	0.934	0m	N.D.	d		
51)	Tetrachloroethylene		12.637	12.637	0.937	0m	N.D.	d		
52)	Dibromochloromethane		12.863	12.863	0.953	0m	N.D.	d		
53)	1,2-Dibromoethane		13.028	13.034	0.966	0m	N.D.	d		
54)	Chlorobenzene		13.527	13.521	1.003	0m	N.D.	d		
55)	1,1,1,2-Tetrachloroethane		13.576	13.576	1.006	0m	N.D.	d		
56)	Ethylbenzene		13.588	13.588	1.007	0m	N.D.	d		
57)	m,p-Xylenes		13.698	13.698	1.015	0m	N.D.	d		
58)	o-Xylene		14.131	14.131	1.047	0m	N.D.	d		
59)	Styrene		14.131	14.131	1.047	0m	N.D.	d		
61)	Bromoform		14.381	14.381	0.905	0m	N.D.	d		
62)	Isopropylbenzene		14.491	14.491	0.911	0m	N.D.	d		
64)	1,1,2,2-Tetrachloroethane		14.759	14.747	0.928	0m	N.D.	d		
65)	1,2,3-Trichloropropane		14.832	14.838	0.933	0m	N.D.	d		
66)	Bromobenzene		14.899	14.893	0.937	0m	N.D.	d		
67)	n-Propylbenzene		14.911	14.917	0.938	0m	N.D.	d		
68)	1,3,5-Trimethylbenzene		15.064	15.070	0.947	0m	N.D.	d		
69)	2-Chlorotoluene		15.064	15.064	0.947	0m	N.D.	d		
70)	4-Chlorotoluene		15.161	15.161	0.954	0m	N.D.	d		
71)	tert-Butylbenzene		15.436	15.442	0.971	0m	N.D.	d		
72)	1,2,4-Trimethylbenzene		15.478	15.478	0.974	0m	N.D.	d		
73)	sec-Butylbenzene		15.661	15.661	0.985	0m	N.D.	d		
74)	4-Isopropyltoluene		15.783	15.783	0.993	0m	N.D.	d		
75)	1,3-Dichlorobenzene		15.850	15.844	0.997	0m	N.D.	d		
76)	1,4-Dichlorobenzene		15.929	15.929	1.002	0m	N.D.	d		
77)	n-Butylbenzene		16.228	16.228	1.021	0m	N.D.	d		
78)	1,2-Dichlorobenzene		16.362	16.356	1.029	0m	N.D.	d		
79)	1,2-Dibromo-3-chloropr...		17.228	17.228	1.084	0m	N.D.	d		
80)	1,2,4-Trichlorobenzene		18.301	18.301	1.151	0m	N.D.	d		
81)	Hexachlorobutadiene		18.490	18.490	1.163	0m	N.D.	d		
82)	Naphthalene		18.691	18.685	1.176	0m	N.D.	d		
83)	1,2,3-Trichlorobenzene		19.032	19.033	1.197	0m	N.D.	d		
85)	Acrolein	56	6.889	6.895	0.667	252402	264.69	ug/L		99
86)	Trichlorotrifluoroethane	85	7.090	7.096	0.687	637009	252.42	ug/L		99
87)	Isopropyl Alcohol	45	7.138	7.139	0.691	1032886	2462.98	ug/L		98
88)	Allyl chloride	41	7.510	7.511	0.727	2685278	244.46	ug/L		99
89)	tert-Butyl Alcohol	59	7.638	7.639	0.740	1578834	2505.64	ug/L	#	100
90)	Acrylonitrile	53	7.876	7.882	0.763	455377	243.88	ug/L		99
91)	Isopropyl ether	45	8.455	8.455	0.819	1115125	47.79	ug/L		97
92)	2-Chloro-1,3-butadiene	53	8.571	8.577	0.830	507763	50.15	ug/L		99
93)	Ethyl tert-butyl ether	59	8.858	8.858	0.858	944570	48.06	ug/L		100
94)	Ethyl acetate	43	9.047	9.047	0.876	1242267	253.66	ug/L		100
95)	Propionitrile	54	9.095	9.096	0.881	182809	242.71	ug/L		99
96)	Methacrylonitrile	41	9.278	9.278	0.898	777164	248.12	ug/L		99
97)	Tetrahydrofuran	42	9.419	9.419	0.912	414001	244.48	ug/L		100
98)	Isobutyl alcohol	41	9.717	9.717	0.941	508059	2507.10	ug/L		98
99)	Methyl tert-amyl ether	73	10.101	10.101	0.978	773540	48.11	ug/L		99
100)	Methyl methacrylate	69	10.924	10.925	1.058	826839	258.32	ug/L		99
101)	1,4-Dioxane	88	11.034	11.034	1.068	126591	2460.38	ug/L		100
102)	2-Nitropropane	43	11.388	11.388	1.103	378281	250.48	ug/L		96

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H306.D
Acq On : 02 Nov 2016 12:24
Operator : ACJ
InstName : VOA4
Sample : |W4VM161102-05|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[B] 1025-06E/0913-06F
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 02 13:31:09 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

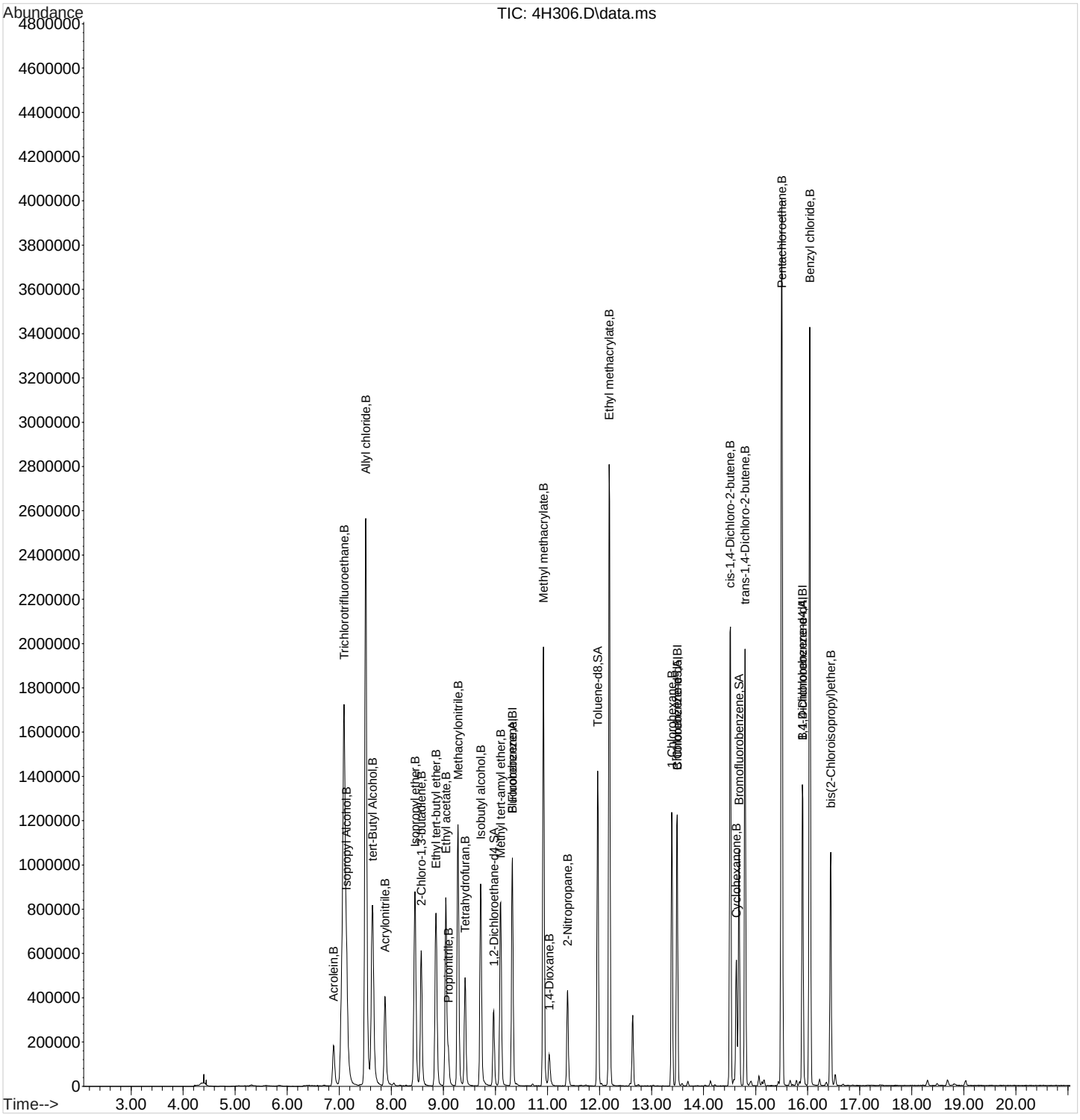
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	12.186	12.186	0.903	1549696	261.80	ug/L	99
106) 1-Chlorohexane	55	13.387	13.387	0.842	344118	50.21	ug/L	99
107) cis-1,4-Dichloro-2-butene	53	14.509	14.509	0.913	533816	254.70	ug/L	99
108) Cyclohexanone	42	14.625	14.631	0.920	193052	1163.42	ug/L	98
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.931	485988	255.28	ug/L	100
110) Pentachloroethane	167	15.503	15.503	0.975	913185	270.54	ug/L	100
111) Benzyl chloride	91	16.039	16.039	1.009	2900936	294.83	ug/L	99
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	843779	250.83	ug/L	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H306.D
Acq On : 02 Nov 2016 12:24
Operator : ACJ
InstName : VOA4
Sample : |W4VM161102-05|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[B] 1025-06E/0913-06F
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 02 13:31:09 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA4.I **Injection Date:** 03-NOV-16 10:46

Data File: 110316V4\4H402.D **Init. Cal. Date(s)** 31-OCT-16 16:55 - 01-NOV-16 00:4

Lab Sample ID W4VM161103-01 **Method:** 103116V4\VOA4-8260-103116.M

Quant Type ISTD **Method Update:** 01-NOV-16 08:22

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
S	1,2-Dichloroethane-d4	0.2717	0.25103		.01		-7.60766	60		Averaged	
S	Toluene-d8	1.4259	1.27862		.01		-10.32892	60		Averaged	
S	Bromofluorobenzene	1.0849	0.96994		.01		-10.59637	60		Averaged	
	Dichlorodifluoromethane	0.3012	0.31048		.01		3.08101	60		Averaged	
	Chloromethane	0.3326	0.29718		.1		-10.64943	60		Averaged	SPCC
	Vinyl chloride	0.2686	0.27256		.01		1.47431	20		Averaged	CCC
	Bromomethane	0.2758	0.26984		.01		-2.16099	60		Averaged	
	Chloroethane	0.2682	0.25941		.01		-3.2774	60		Averaged	
	Trichlorofluoromethane	0.4491	0.44122		.01		-1.75462	60		Averaged	
	Acetone	0.1597	0.15349		.01		-3.88854	60		Averaged	
	1,1-Dichloroethylene	0.5062	0.4297		.01		-15.1126	20		Averaged	CCC
	Methyl acetate	0.1984	0.16904		.01		-14.79839	60		Averaged	
	Carbon disulfide	0.9959	0.7435		.01		-25.34391	60		Averaged	
	Methylene chloride	0.3471	0.27956		.01		-19.45837	60		Averaged	
	tert-Butyl methyl ether	0.8025	0.71231		.01		-11.23863	60		Averaged	
	trans-1,2-Dichloroethylene	0.4779	0.42662		.01		-10.73028	60		Averaged	
	1,1-Dichloroethane	0.5781	0.51881		.1		-10.25601	60		Averaged	SPCC
	2-Butanone	0.2003	0.19683		.01		-1.7324	60		Averaged	
	cis-1,2-Dichloroethylene	0.3342	0.30587		.01		-8.47696	60		Averaged	
	Bromochloromethane	0.1394	0.12624		.01		-9.44046	60		Averaged	
	Chloroform	0.5279	0.49196		.01		-6.80811	20		Averaged	CCC
	1,1,1-Trichloroethane	0.5068	0.46687		.01		-7.87885	60		Averaged	
	Cyclohexane	0.6853	0.58276		.01		-14.96279	60		Averaged	
	Carbon tetrachloride	0.4336	0.40661		.01		-6.22463	60		Averaged	
	1,2-Dichloroethane	0.3801	0.34559		.01		-9.07919	60		Averaged	
	Benzene	1.2427	1.10445		.01		-11.12497	60		Averaged	
	Trichloroethylene	0.3222	0.29707		.01		-7.7995	60		Averaged	
	1,2-Dichloropropane	0.3266	0.31162		.01		-4.58665	20		Averaged	CCC
	Methylcyclohexane	0.6123	0.53872		.01		-12.01699	60		Averaged	
	Bromodichloromethane	0.3933	0.38387		.01		-2.39766	60		Averaged	
	cis-1,3-Dichloropropylene	0.486	0.46739		.01		-3.82922	60		Averaged	
	4-Methyl-2-pentanone	0.1572	0.14686		.01		-6.57761	60		Averaged	
	Toluene	1.7911	1.59876		.01		-10.73865	20		Averaged	CCC
	trans-1,3-Dichloropropylene	0.565	0.55206		.01		-2.29027	60		Averaged	
	1,1,2-Trichloroethane	0.2825	0.26248		.01		-7.08673	60		Averaged	
	2-Hexanone	0.391	0.39738		.01		1.63171	60		Averaged	
	Tetrachloroethylene	0.3509	0.31041		.01		-11.5389	60		Averaged	

Continuing Calibration Summary

Instrument ID: VOA4.I **Injection Date:** 03-NOV-16 10:46

Data File: 110316V4\4H402.D **Init. Cal. Date(s)** 31-OCT-16 16:55 01-NOV-16 00:4

Lab Sample ID W4VM161103-01 **Method:** 103116V4\VOA4-8260-103116.M

Quant Type ISTD

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
Dibromochloromethane	0.3688	0.36722		.01		-0.42842	60		Averaged	
1,2-Dibromoethane	0.325	0.30659		.01		-5.66462	60		Averaged	
Chlorobenzene	1.164	1.06171		.3		-8.7878	60		Averaged	SPCC
Ethylbenzene	2.0807	1.86295		.01		-10.46523	20		Averaged	CCC
m,p-Xylenes	0.7968	0.71513		.01		-10.24975	60		Averaged	
Styrene	1.2786	1.15642		.01		-9.55576	60		Averaged	
o-Xylene	1.7019	1.49994		.01		-11.86674	60		Averaged	
Bromoform	0.414	0.4237		.1		2.343	60		Averaged	SPCC
Isopropylbenzene	4.0606	3.68424		.01		-9.26858	60		Averaged	
1,1,2,2-Tetrachloroethane	0.8815	0.82864		.3		-5.9966	60		Averaged	SPCC
1,3-Dichlorobenzene	1.9316	1.79509		.01		-7.0672	60		Averaged	
1,4-Dichlorobenzene	1.8924	1.75018		.01		-7.51532	60		Averaged	
1,2-Dichlorobenzene	1.7934	1.65713		.01		-7.59842	60		Averaged	
1,2-Dibromo-3-chloropropane	0.1578	0.1616		.01		2.40811	60		Averaged	
1,2,4-Trichlorobenzene	1.1732	1.11159		.01		-5.25145	60		Averaged	
1,2,3-Trichlorobenzene	1.012	0.96988		.01		-4.16206	60		Averaged	

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H402.D
Acq On : 03 Nov 2016 10:46
Operator : ACJ
InstName : VOA4
Sample : |W4VM161103-01|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[A] 1026-07E/1024-07E
ALS Vial : 2 Sample Multiplier: 1

11/09/2016

Quant Time: Nov 03 11:11:58 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	1176019	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	869583	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.905	1.000	457978	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1176019	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	869583	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	457978	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	295215	46.19	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1111863	44.84	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	444212	44.70	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.749	4.749	0.460	365133	51.55	ug/L	99
3) Chloromethane	50	5.094	5.094	0.493	349491	44.67	ug/L	100
4) Vinyl chloride	62	5.330	5.322	0.516	320539	50.73	ug/L	99
5) Bromomethane	94	5.895	5.887	0.571	317337	48.93	ug/L	100
6) Chloroethane	64	6.005	6.005	0.581	305073	48.37	ug/L	100
7) Trichlorofluoromethane	101	6.370	6.370	0.617	518884	49.13	ug/L	99
8) Ethyl ether	59	6.706	6.706	0.649	276424	46.40	ug/L	98
9) Acetone	43	7.059	7.059	0.684	902512	240.25	ug/L	98
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	505331	42.45	ug/L	99
11) Iodomethane	142	7.334	7.327	0.710	2324521	200.83	ug/L	100
12) Acetonitrile	41	7.401	7.407	0.717	913920	1085.16	ug/L	98
13) Methyl acetate	43	7.455	7.456	0.722	993996	213.04	ug/L	99
14) Carbon disulfide	76	7.468	7.468	0.723	4371846	186.64	ug/L	100
15) Methylene chloride	84	7.644	7.645	0.740	328766	40.27	ug/L	100
16) tert-Butyl methyl ether	73	7.955	7.955	0.770	837695	44.38	ug/L	100
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	501710	44.63	ug/L	99
18) Hexane	57	8.278	8.285	0.802	1621	N.D.		
19) Vinyl acetate	43	8.413	8.413	0.815	2966122	228.72	ug/L	100
20) 1,1-Dichloroethane	63	8.461	8.461	0.819	610127	44.87	ug/L	100
21) 2-Butanone	43	9.028	9.028	0.874	1157373	245.71	ug/L	99
22) cis-1,2-Dichloroethylene	96	9.089	9.095	0.880	359704	45.76	ug/L	99
23) 2,2-Dichloropropane	77	9.126	9.132	0.884	548668	46.96	ug/L	99
24) Bromochloromethane	128	9.364	9.364	0.907	148460	45.29	ug/L	98
25) Chloroform	83	9.400	9.400	0.910	578552	46.60	ug/L	100
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	549052	46.06	ug/L	99
27) Cyclohexane	56	9.790	9.790	0.948	685336	42.52	ug/L	100
28) 1,1-Dichloropropene	75	9.839	9.839	0.953	458338	45.31	ug/L	99
29) Carbon tetrachloride	117	9.882	9.882	0.957	478186	46.89	ug/L	99
31) 1,2-Dichloroethane	62	10.046	10.046	0.973	406416	45.46	ug/L	100
32) Benzene	78	10.077	10.077	0.976	1298853	44.44	ug/L	99
33) Cyclohexene	67	10.199	10.199	0.988	639868	44.68	ug/L	100
34) n-Butyl alcohol	56	10.400	10.400	1.007	1030422	5222.08	ug/L	99
35) Trichloroethylene	95	10.717	10.717	1.038	349358	46.09	ug/L	99
36) 2-Pentanone		0.000	10.778	0.000	0	N.D.		
37) 1,2-Dichloropropane	63	10.949	10.955	1.060	366472	47.71	ug/L	98
38) Methylcyclohexane	83	10.973	10.973	1.063	633546	43.99	ug/L	100
39) Dibromomethane	93	11.083	11.083	1.073	180362	45.89	ug/L	99
40) Bromodichloromethane	83	11.193	11.193	1.084	451444	48.80	ug/L	100
41) 2-Chloroethylvinyl ether	63	11.418	11.412	1.106	774361	221.57	ug/L	100
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	549662	48.08	ug/L	98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H402.D
Acq On : 03 Nov 2016 10:46
Operator : ACJ
InstName : VOA4
Sample : |W4VM161103-01|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[A] 1026-07E/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 03 11:11:58 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone	58	11.735	11.735	0.870	638547	233.51	ug/L	99
46) Toluene	91	12.040	12.040	0.892	1390258	44.63	ug/L	100
47) trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	480060	48.86	ug/L	99
48) 1,1,2-Trichloroethane	83	12.400	12.400	0.919	228245	46.46	ug/L	100
49) 2-Hexanone	43	12.583	12.583	0.933	1727773	254.10	ug/L	100
50) 1,3-Dichloropropane	76	12.595	12.595	0.934	432505	45.12	ug/L	92
51) Tetrachloroethylene	164	12.637	12.637	0.937	269927	44.23	ug/L	99
52) Dibromochloromethane	129	12.863	12.863	0.953	319328	49.79	ug/L	100
53) 1,2-Dibromoethane	107	13.034	13.034	0.966	266605	47.16	ug/L	99
54) Chlorobenzene	112	13.521	13.521	1.002	923246	45.61	ug/L	99
55) 1,1,1,2-Tetrachloroethane	131	13.576	13.576	1.006	341410	47.54	ug/L	99
56) Ethylbenzene	91	13.588	13.588	1.007	1619992	44.77	ug/L	100
57) m,p-Xylenes	106	13.698	13.698	1.015	1243727	89.76	ug/L	100
58) o-Xylene	91	14.131	14.131	1.047	1304323	44.07	ug/L	100
59) Styrene	104	14.131	14.131	1.047	1005602	45.22	ug/L	98
61) Bromoform	173	14.381	14.381	0.905	194047	51.17	ug/L	99
62) Isopropylbenzene	105	14.491	14.491	0.911	1687299	45.37	ug/L	100
64) 1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.928	379499	47.00	ug/L	98
65) 1,2,3-Trichloropropane	110	14.838	14.838	0.933	99576	46.52	ug/L	98
66) Bromobenzene	156	14.893	14.893	0.937	394944	46.71	ug/L	98
67) n-Propylbenzene	91	14.917	14.917	0.938	2011371	44.88	ug/L	100
68) 1,3,5-Trimethylbenzene	105	15.070	15.070	0.948	1409853	45.28	ug/L	100
69) 2-Chlorotoluene	126	15.064	15.064	0.947	387462	45.95	ug/L	100
70) 4-Chlorotoluene	91	15.161	15.161	0.954	1276165	46.07	ug/L	99
71) tert-Butylbenzene	134	15.442	15.442	0.971	306839	46.80	ug/L	99
72) 1,2,4-Trimethylbenzene	105	15.478	15.478	0.974	1463207	45.77	ug/L	86
73) sec-Butylbenzene	105	15.661	15.661	0.985	1893918	45.76	ug/L	100
74) 4-Isopropyltoluene	119	15.783	15.783	0.993	1587309	46.19	ug/L	99
75) 1,3-Dichlorobenzene	146	15.844	15.844	0.997	822110	46.47	ug/L	100
76) 1,4-Dichlorobenzene	146	15.929	15.929	1.002	801543	46.24	ug/L	100
77) n-Butylbenzene	91	16.228	16.228	1.021	1607893	46.10	ug/L	100
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.029	758927	46.20	ug/L	99
79) 1,2-Dibromo-3-chloropr...	157	17.222	17.228	1.083	74008	51.20	ug/L	99
80) 1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	509086	47.37	ug/L	100
81) Hexachlorobutadiene	225	18.490	18.490	1.163	295951	47.75	ug/L	100
82) Naphthalene	128	18.685	18.685	1.175	1086842	46.52	ug/L	100
83) 1,2,3-Trichlorobenzene	180	19.032	19.033	1.197	444185	47.92	ug/L	100
85) Acrolein		6.925	6.895	0.671	0m	N.D.	d	
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol		7.126	7.139	0.690	0m	N.D.	d	
88) Allyl chloride		7.401	7.511	0.717	0m	N.D.	d	
89) tert-Butyl Alcohol		7.638	7.639	0.740	0m	N.D.	d	
90) Acrylonitrile		7.949	7.882	0.770	0m	N.D.	d	
91) Isopropyl ether		8.413	8.455	0.815	0m	N.D.	d	
92) 2-Chloro-1,3-butadiene		8.577	8.577	0.831	0m	N.D.	d	
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate		9.028	9.047	0.874	0m	N.D.	d	
95) Propionitrile		9.034	9.096	0.875	0m	N.D.	d	
96) Methacrylonitrile		0.000	9.278	0.000	0	N.D.		
97) Tetrahydrofuran		9.412	9.419	0.911	0m	N.D.	d	
98) Isobutyl alcohol		9.790	9.717	0.948	0m	N.D.	d	
99) Methyl tert-amyl ether		10.077	10.101	0.976	0m	N.D.	d	
100) Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d	
101) 1,4-Dioxane		11.083	11.034	1.073	0m	N.D.	d	
102) 2-Nitropropane		11.412	11.388	1.105	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H402.D
Acq On : 03 Nov 2016 10:46
Operator : ACJ
InstName : VOA4
Sample : |W4VM161103-01|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[A] 1026-07E/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 03 11:11:58 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

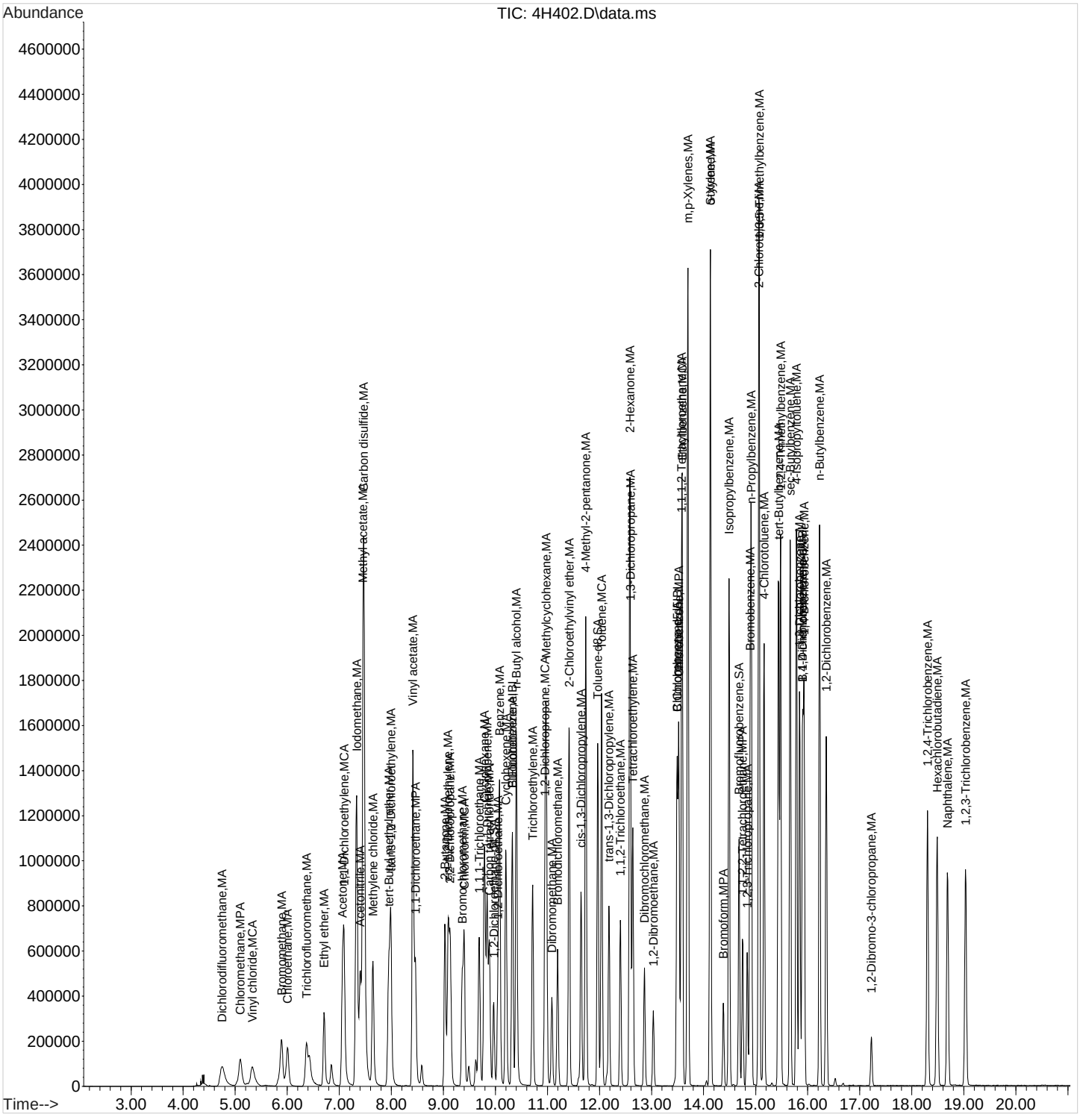
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		12.198	12.186	0.904	0m	N.D.	d
106) 1-Chlorohexane		13.387	13.387	0.842	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		14.491	14.509	0.911	0m	N.D.	d
108) Cyclohexanone		14.491	14.631	0.911	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.917	14.796	0.938	0m	N.D.	d
110) Pentachloroethane		15.509	15.503	0.975	0m	N.D.	d
111) Benzyl chloride		16.021	16.039	1.008	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		16.527	16.442	1.039	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H402.D
Acq On : 03 Nov 2016 10:46
Operator : ACJ
InstName : VOA4
Sample : |W4VM161103-01|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[A] 1026-07E/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 03 11:11:58 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA4.I **Injection Date:** 03-NOV-16 12:14

Data File: 110316V4\4H405.D **Init. Cal. Date(s)** 31-OCT-16 16:55 - 01-NOV-16 00:4

Lab Sample ID W4VM161103-04 **Method:** 103116V4\VOA4-8260-103116.M

Quant Type ISTD **Method Update:** 01-NOV-16 08:22

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	1,2-Dichloroethane-d4	0.2717	0.24351		.01		-10.37541	60		Averaged
S	Toluene-d8	1.4259	1.32202		.01		-7.28522	60		Averaged
S	Bromofluorobenzene	1.0849	0.97792		.01		-9.86082	60		Averaged
	Trichlorotrifluoroethane	0.1188	0.12798		.01		7.72727	60		Averaged
	1,4-Dioxane	2500	2611.38	2500			4.4552	60		Linear

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H405.D
Acq On : 03 Nov 2016 12:14
Operator : ACJ
InstName : VOA4
Sample : |W4VM161103-04|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[B] 1025-06E/0913-06F
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 03 13:37:17 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	10.327	10.327	1.000	1076067	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	781464	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.905	1.000	413511	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1076067	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	781464	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	413511	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	262032	44.80	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1033113	46.36	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	404381	45.07	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		4.741	4.749	0.459	0m	N.D.	d	
3) Chloromethane		5.322	5.094	0.515	0m	N.D.	d	
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		5.864	5.887	0.568	0m	N.D.	d	
6) Chloroethane		5.997	6.005	0.581	0m	N.D.	d	
7) Trichlorofluoromethane		6.371	6.370	0.617	0m	N.D.	d	
8) Ethyl ether		6.718	6.706	0.651	0m	N.D.	d	
9) Acetone		7.145	7.059	0.692	0m	N.D.	d	
10) 1,1-Dichloroethylene		7.096	7.090	0.687	0m	N.D.	d	
11) Iodomethane		7.328	7.327	0.710	0m	N.D.	d	
12) Acetonitrile		7.431	7.407	0.720	0m	N.D.	d	
13) Methyl acetate		7.474	7.456	0.724	0m	N.D.	d	
14) Carbon disulfide		7.511	7.468	0.727	0m	N.D.	d	
15) Methylene chloride		7.651	7.645	0.741	0m	N.D.	d	
16) tert-Butyl methyl ether		7.949	7.955	0.770	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		7.986	7.992	0.773	0m	N.D.	d	
18) Hexane		8.285	8.285	0.802	0m	N.D.	d	
19) Vinyl acetate		8.456	8.413	0.819	0m	N.D.	d	
20) 1,1-Dichloroethane		8.462	8.461	0.819	0m	N.D.	d	
21) 2-Butanone		9.047	9.028	0.876	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		9.083	9.095	0.880	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		9.400	9.400	0.910	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane		9.717	9.790	0.941	0m	N.D.	d	
28) 1,1-Dichloropropene		9.839	9.839	0.953	0m	N.D.	d	
29) Carbon tetrachloride		9.888	9.882	0.957	0m	N.D.	d	
31) 1,2-Dichloroethane		10.041	10.046	0.972	0m	N.D.	d	
32) Benzene		10.071	10.077	0.975	0m	N.D.	d	
33) Cyclohexene		10.205	10.199	0.988	0m	N.D.	d	
34) n-Butyl alcohol		10.412	10.400	1.008	0m	N.D.	d	
35) Trichloroethylene		10.711	10.717	1.037	0m	N.D.	d	
36) 2-Pentanone		10.790	10.778	1.045	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		10.925	10.973	1.058	0m	N.D.	d	
39) Dibromomethane		11.083	11.083	1.073	0m	N.D.	d	
40) Bromodichloromethane		11.193	11.193	1.084	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		11.418	11.412	1.106	0m	N.D.	d	
42) cis-1,3-Dichloropropylene		11.644	11.644	1.128	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H405.D
Acq On : 03 Nov 2016 12:14
Operator : ACJ
InstName : VOA4
Sample : |W4VM161103-04|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[B] 1025-06E/0913-06F
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 03 13:37:17 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone		11.741	11.735	0.870	0m	N.D.	d		
46) Toluene		12.040	12.040	0.892	0m	N.D.	d		
47) trans-1,3-Dichloroprop...		12.180	12.180	0.903	0m	N.D.	d		
48) 1,1,2-Trichloroethane		12.400	12.400	0.919	0m	N.D.	d		
49) 2-Hexanone		12.583	12.583	0.933	0m	N.D.	d		
50) 1,3-Dichloropropane		12.595	12.595	0.934	0m	N.D.	d		
51) Tetrachloroethylene		12.638	12.637	0.937	0m	N.D.	d		
52) Dibromochloromethane		12.857	12.863	0.953	0m	N.D.	d		
53) 1,2-Dibromoethane		13.034	13.034	0.966	0m	N.D.	d		
54) Chlorobenzene		13.522	13.521	1.002	0m	N.D.	d		
55) 1,1,1,2-Tetrachloroethane		13.576	13.576	1.006	0m	N.D.	d		
56) Ethylbenzene		13.583	13.588	1.007	0m	N.D.	d		
57) m,p-Xylenes		13.692	13.698	1.015	0m	N.D.	d		
58) o-Xylene		14.125	14.131	1.047	0m	N.D.	d		
59) Styrene		14.131	14.131	1.047	0m	N.D.	d		
61) Bromoform		14.387	14.381	0.905	0m	N.D.	d		
62) Isopropylbenzene		14.491	14.491	0.911	0m	N.D.	d		
64) 1,1,2,2-Tetrachloroethane		14.753	14.747	0.928	0m	N.D.	d		
65) 1,2,3-Trichloropropane		14.844	14.838	0.934	0m	N.D.	d		
66) Bromobenzene		14.893	14.893	0.937	0m	N.D.	d		
67) n-Propylbenzene		14.912	14.917	0.938	0m	N.D.	d		
68) 1,3,5-Trimethylbenzene		15.064	15.070	0.947	0m	N.D.	d		
69) 2-Chlorotoluene		15.058	15.064	0.947	0m	N.D.	d		
70) 4-Chlorotoluene		15.162	15.161	0.954	0m	N.D.	d		
71) tert-Butylbenzene		15.448	15.442	0.972	0m	N.D.	d		
72) 1,2,4-Trimethylbenzene		15.479	15.478	0.974	0m	N.D.	d		
73) sec-Butylbenzene		15.661	15.661	0.985	0m	N.D.	d		
74) 4-Isopropyltoluene		15.783	15.783	0.993	0m	N.D.	d		
75) 1,3-Dichlorobenzene		15.844	15.844	0.997	0m	N.D.	d		
76) 1,4-Dichlorobenzene		15.930	15.929	1.002	0m	N.D.	d		
77) n-Butylbenzene		16.228	16.228	1.021	0m	N.D.	d		
78) 1,2-Dichlorobenzene		16.356	16.356	1.029	0m	N.D.	d		
79) 1,2-Dibromo-3-chloropr...		17.216	17.228	1.083	0m	N.D.	d		
80) 1,2,4-Trichlorobenzene		18.301	18.301	1.151	0m	N.D.	d		
81) Hexachlorobutadiene		18.484	18.490	1.163	0m	N.D.	d		
82) Naphthalene		18.691	18.685	1.176	0m	N.D.	d		
83) 1,2,3-Trichlorobenzene		19.033	19.033	1.197	0m	N.D.	d		
85) Acrolein	56	6.895	6.895	0.668	261508	270.58	ug/L		100
86) Trichlorotrifluoroethane	85	7.096	7.096	0.687	688561	269.20	ug/L		99
87) Isopropyl Alcohol	45	7.139	7.139	0.691	1061907	2499.55	ug/L		97
88) Allyl chloride	41	7.511	7.511	0.727	2861423	257.02	ug/L		99
89) tert-Butyl Alcohol	59	7.639	7.639	0.740	1582050	2476.30	ug/L	#	100
90) Acrylonitrile	53	7.882	7.882	0.763	485187	256.64	ug/L		99
91) Isopropyl ether	45	8.456	8.455	0.819	1188831	50.27	ug/L		98
92) 2-Chloro-1,3-butadiene	53	8.571	8.577	0.830	550798	53.67	ug/L		100
93) Ethyl tert-butyl ether	59	8.858	8.858	0.858	1009233	50.66	ug/L		100
94) Ethyl acetate	43	9.047	9.047	0.876	1302200	262.68	ug/L		100
95) Propionitrile	54	9.096	9.096	0.881	190119	249.17	ug/L		100
96) Methacrylonitrile	41	9.278	9.278	0.898	829687	261.70	ug/L		99
97) Tetrahydrofuran	42	9.419	9.419	0.912	434600	253.47	ug/L		99
98) Isobutyl alcohol	41	9.717	9.717	0.941	519261	2528.97	ug/L		99
99) Methyl tert-amyl ether	73	10.102	10.101	0.978	817202	50.14	ug/L		99
100) Methyl methacrylate	69	10.925	10.925	1.058	865501	267.13	ug/L		99
101) 1,4-Dioxane	88	11.034	11.034	1.068	135892	2611.38	ug/L		99
102) 2-Nitropropane	43	11.388	11.388	1.103	395499	258.48	ug/L		98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H405.D
Acq On : 03 Nov 2016 12:14
Operator : ACJ
InstName : VOA4
Sample : |W4VM161103-04|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[B] 1025-06E/0913-06F
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 03 13:37:17 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

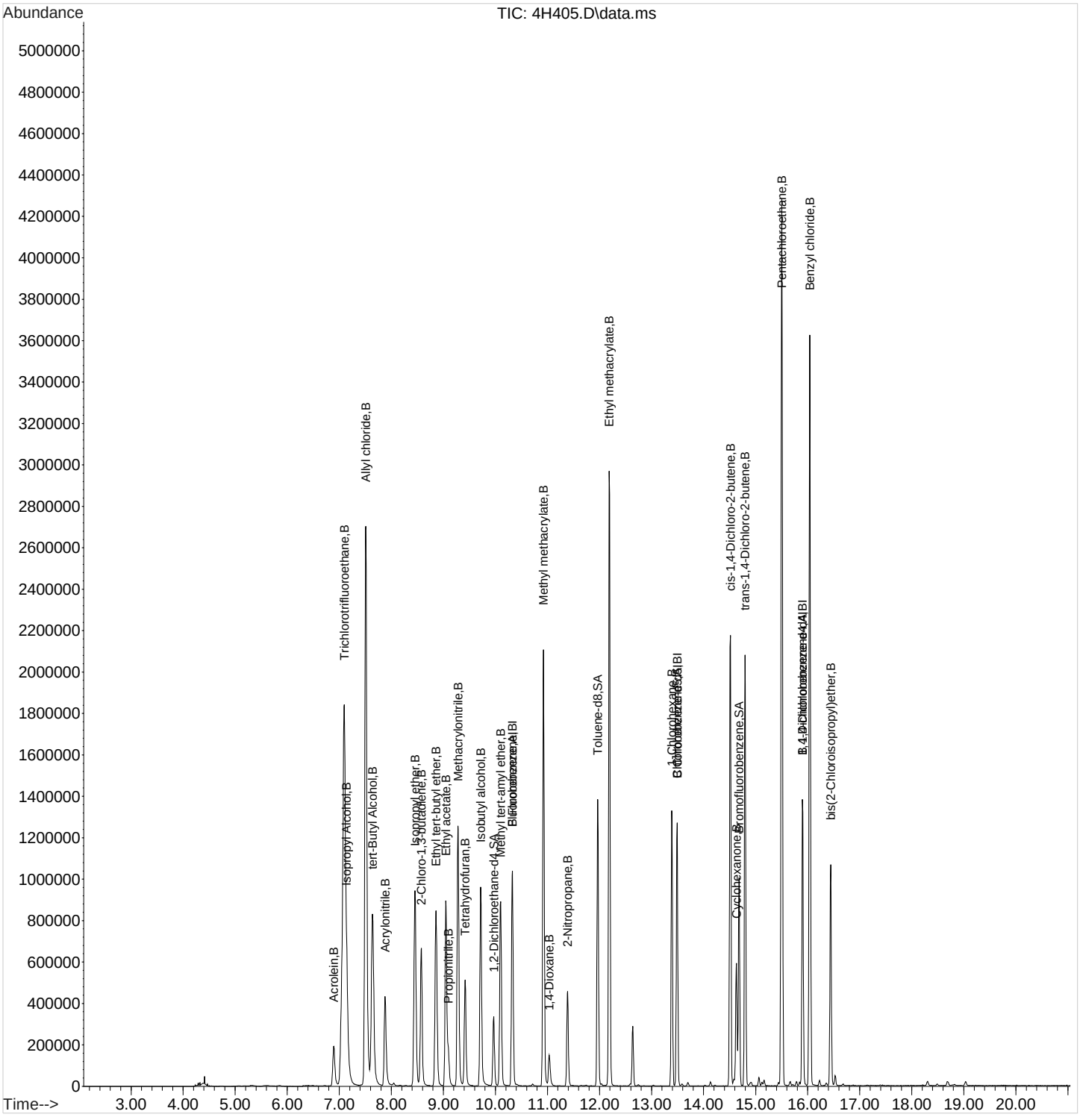
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	12.186	12.186	0.903	1615253	271.81	ug/L	100
106) 1-Chlorohexane	55	13.387	13.387	0.842	369923	53.69	ug/L	100
107) cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	564625	268.05	ug/L	99
108) Cyclohexanone	42	14.631	14.631	0.920	204551	1224.89	ug/L	99
109) trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.931	510827	266.92	ug/L	100
110) Pentachloroethane	167	15.503	15.503	0.975	963085	284.07	ug/L	99
111) Benzyl chloride	91	16.039	16.039	1.009	3052875	309.05	ug/L	99
112) bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	860487	254.30	ug/L	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H405.D
Acq On : 03 Nov 2016 12:14
Operator : ACJ
InstName : VOA4
Sample : |W4VM161103-04|CCV|1|VOAF|1|VOA8260BL|
Misc : GEL 5UL N/A MIX[B] 1025-06E/0913-06F
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 03 13:37:17 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Calibration History Report VOA6
GEL Laboratories, LLC
Method File : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Last Update : Fri Oct 14 08:57:39 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

Cal Lvl:8 Amt:0.00 Last Updated with: C:\msdchem\1\data\101316V6\6D402.D

Injection Date	Mix	Calibration File
13 Oct 2016 17:11	A	C:\msdchem\1\data\101316V6\6D402.D

Cal Lvl:1 Amt:1.00 Last Updated with: C:\msdchem\1\data\101316V6\6D413.D

Injection Date	Mix	Calibration File
13 Oct 2016 17:39	A	C:\msdchem\1\data\101316V6\6D403.D
13 Oct 2016 22:27	B	C:\msdchem\1\data\101316V6\6D413.D

Cal Lvl:2 Amt:2.00 Last Updated with: C:\msdchem\1\data\101316V6\6D414.D

Injection Date	Mix	Calibration File
13 Oct 2016 18:08	A	C:\msdchem\1\data\101316V6\6D404.D
13 Oct 2016 22:56	B	C:\msdchem\1\data\101316V6\6D414.D

Cal Lvl:3 Amt:5.00 Last Updated with: C:\msdchem\1\data\101316V6\6D415.D

Injection Date	Mix	Calibration File
13 Oct 2016 18:37	A	C:\msdchem\1\data\101316V6\6D405.D
13 Oct 2016 23:25	B	C:\msdchem\1\data\101316V6\6D415.D

Cal Lvl:4 Amt:10.00 Last Updated with: C:\msdchem\1\data\101316V6\6D416.D

Injection Date	Mix	Calibration File
13 Oct 2016 19:06	A	C:\msdchem\1\data\101316V6\6D406.D
13 Oct 2016 23:54	B	C:\msdchem\1\data\101316V6\6D416.D

Cal Lvl:5 Amt:20.00 Last Updated with: C:\msdchem\1\data\101316V6\6D417.D

Injection Date	Mix	Calibration File
13 Oct 2016 19:35	A	C:\msdchem\1\data\101316V6\6D407.D
14 Oct 2016 00:22	B	C:\msdchem\1\data\101316V6\6D417.D

Cal Lvl:6 Amt:50.00 Last Updated with: C:\msdchem\1\data\101316V6\6D418.D

Injection Date	Mix	Calibration File
13 Oct 2016 20:03	A	C:\msdchem\1\data\101316V6\6D408.D
14 Oct 2016 00:52	B	C:\msdchem\1\data\101316V6\6D418.D

Cal Lvl:7 Amt:100.00 Last Updated with: C:\msdchem\1\data\101316V6\6D419.D

Injection Date	Mix	Calibration File
13 Oct 2016 21:01	A	C:\msdchem\1\data\101316V6\6D410.D
14 Oct 2016 01:20	B	C:\msdchem\1\data\101316V6\6D419.D

Cal Lvl:9 Amt:80.00 Last Updated with: C:\msdchem\1\data\101316V6\6D409.D

Injection Date	Mix	Calibration File
13 Oct 2016 20:32	A	C:\msdchem\1\data\101316V6\6D409.D

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VOA6-8260-101316.M Fri Nov 04 09:57:41 2016

Response Factor Report VOA6
GEL Laboratories, LLC

Method File : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Last Update : Fri Oct 14 08:57:39 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
2)MA Dichlorodifluoromethane 0.0040 | 0.3039 | 0.00	508352	13082 1010674	26466 705402	65245	107335	202455		1/x LINR	#	0.9938
3)MPA Chloromethane 0.4138055		0.5358565 0.4174179	0.4656397 0.3620156	0.4461378	0.4052888	0.3951051	0.4302	AVRG		12.3034
4)MCA Vinyl chloride 0.3315926		0.4137142 0.3366020	0.3911286 0.2889323	0.3751250	0.3276834	0.3183051	0.3479	AVRG		11.9495
5)MA Bromomethane 0.2147112		0.2506540 0.2226495	0.2318959 0.1977608	0.2355171	0.2036281	0.2000819	0.2196	AVRG		8.6312
6)MA Chloroethane 0.2413724		0.2964935 0.2488148	0.2893687 0.2186677	0.2781434	0.2423725	0.2310803	0.2558	AVRG		11.1649
7)MA Trichlorofluoromethane 0.4009537		0.4873148 0.4186019	0.4769777 0.3576334	0.4931904	0.4085267	0.3809502	0.4280	AVRG		12.0209
8)MA Ethyl ether 0.3298707		0.3877867 0.3239799	0.3864305 0.3077516	0.3522558	0.3191047	0.3132877	0.3401	AVRG		9.3910
9)MA Acetone 0.1227586		0.1778897 0.1293387	0.1614533 0.1312009	0.1296048	0.1302095	0.1247234	0.1384	AVRG		14.4536
10)MCA 1,1-Dichloroethylene 0.4481680		0.5844947 0.5414108	0.5769052 0.5213745	0.5487484	0.5388939	0.5109013	0.5339	AVRG		7.9933
11)MA Iodomethane 0.4006387		0.5040101 0.4500270	0.5039257 0.4360433	0.4724054	0.4771550	0.4556286	0.4625	AVRG		7.5266
12)MA Acetonitrile 0.0453102		0.0510675 0.0452310	0.0527491 0.0467970	0.0471126	0.0493546	0.0473023	0.0481	AVRG		5.6272
13)MA Methyl acetate 0.2537282		0.2808663 0.2673052	0.2846268 0.2702029	0.2643487	0.2827072	0.2696886	0.2717	AVRG		3.8727
14)MA Carbon disulfide 0.7156165		0.9579280 0.7687808	0.9189486 0.7605861	0.8993602	0.8897633	0.8093356	0.8400	AVRG		10.4488
15)MA Methylene chloride 0.3053059			0.4082921 0.3504237	0.3563970 0.3395149	0.3538514	0.3398870	0.3505	AVRG		8.7636
16)MA tert-Butyl methyl ether 0.9309720		1.0029698 1.0473108	1.0239250 1.0106342	0.9545785	0.9679483	0.9575309	0.9870	AVRG		4.0593

Response Factor Report VOA6
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For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	8	1	2	3	4	5	Avg	Curve	Exp	%RSD/r2
b m1 m2	6	7	9							
17)MA trans-1,2-Dichloroethyle		0.6243510	0.5835921	0.5416068	0.5502218	0.5387085				
	0.4737453	0.5532527	0.5352243				0.5501	AVRG		7.8034
18)MA Hexane				0.5904510	0.5736532	0.5799620				
	0.5581702	0.4860808	0.5659917				0.5591	AVRG		6.6977
19)MA Vinyl acetate		0.7622236	0.8418410	0.8424123	0.7560694	0.7533413				
	0.7678005	0.6766252	0.6870994				0.7609	AVRG		7.9899
20)MPA 1,1-Dichloroethane		0.7197616	0.6931038	0.6706512	0.6774077	0.6555177				
	0.5721582	0.6611493	0.6358333				0.6607	AVRG		6.6225
21)MA 2-Butanone		0.2305875	0.2438947	0.2059018	0.2081738	0.2091892				
	0.2045480	0.2176297	0.2217719				0.2177	AVRG		6.3650
22)MA cis-1,2-Dichloroethylene		0.7185393	0.7081688	0.6567338	0.6598783	0.6465022				
	0.5746580	0.6551529	0.6313049				0.6564	AVRG		6.8048
23)MA 2,2-Dichloropropane		0.5245012	0.5091750	0.4880326	0.4835186	0.4732447				
	0.4152458	0.5081358	0.4772917				0.4849	AVRG		6.8641
24)MA Bromochloromethane		0.1693330	0.1751434	0.1671389	0.1723021	0.1708701				
	0.1582861	0.1768066	0.1713619				0.1702	AVRG		3.3419
25)MCA Chloroform		0.6478016	0.6167761	0.5836256	0.5942187	0.5865520				
	0.5156149	0.5977279	0.5746014				0.5896	AVRG		6.3966
26)MA 1,1,1-Trichloroethane		0.5901563	0.5285936	0.5152103	0.5079557	0.4924963				
	0.4354476	0.5311537	0.5039350				0.5131	AVRG		8.4221
27)MA Cyclohexane		0.9191075	0.8438799	0.8011523	0.7761526	0.7291234				
	0.6282288	0.7654094	0.7315503				0.7743	AVRG		11.1115
28)MA 1,1-Dichloropropene		0.4375186	0.4377176	0.4385995	0.4148859	0.4090840				
	0.3503220	0.4185601	0.4024825				0.4136	AVRG		7.0501
29)MA Carbon tetrachloride		0.4721958	0.4529863	0.4467825	0.4402720	0.4265537				
	0.3781697	0.4736491	0.4516124				0.4428	AVRG		6.8611
30)SA 1,2-Dichloroethane-d4		0.3333827	0.3323528	0.3252418	0.3185491	0.3212572				
	0.3282023	0.3355608	0.3361584				0.3288	AVRG		2.0187
31)MA 1,2-Dichloroethane		0.5984235	0.5990174	0.5621698	0.5752359	0.5619771				
	0.5219639	0.5729170	0.5629862				0.5693	AVRG		4.2842

Response Factor Report VOA6
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For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b m1 m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
32)MA Benzene		1.4522297	1.3944448	1.2812374	1.2874218	1.2405827				
	1.0765860	1.2230800	1.1830372				1.2673	AVRG		9.2936
33)MA Cyclohexene		0.6891698	0.7245024	0.6923859	0.6482194	0.6215675				
	0.5331780	0.6456554	0.6185984				0.6467	AVRG		9.1030
34)MA n-Butyl alcohol	0.0111593	0.0110810	0.0132352	0.0122036	0.0131627	0.0137012				
	0.0128316	0.0140099	0.0141236				0.0128	AVRG		8.8590
35)MA Trichloroethylene		0.3834118	0.3515240	0.3325421	0.3320027	0.3198491				
	0.2787721	0.3291970	0.3143539				0.3302	AVRG		9.0845
36)MA 2-Pentanone			0.2898573	0.2783839	0.2869634	0.2816295				
	0.2851742	0.2914924	0.2987582				0.2875	AVRG		2.3400
37)MCA 1,2-Dichloropropane		0.4207590	0.4461741	0.3754226	0.3864920	0.3875323				
	0.3421526	0.3804820	0.3691465				0.3885	AVRG		8.2144
38)MA Methylcyclohexane		0.6670703	0.6265323	0.5960241	0.5798042	0.5510578				
	0.4741582	0.5654753	0.5463000				0.5758	AVRG		10.0088
39)MA Dibromomethane		0.2030452	0.2080768	0.1913038	0.1953867	0.1929973				
	0.1841870	0.2035601	0.1990704				0.1972	AVRG		3.9348
40)MA Bromodichloromethane		0.4464935	0.4553666	0.4312533	0.4591161	0.4655942				
	0.4357335	0.4970855	0.4789939				0.4587	AVRG		4.7861
41)MA 2-Chloroethylvinyl ether		0.2158416	0.2359425	0.2998920	0.2306568	0.2267157				
	0.2225992	0.2207607	0.2159938				0.2336	AVRG		11.8563
42)MA cis-1,3-Dichloropropylen		0.5481447	0.5570012	0.5239946	0.5495881	0.5443172				
	0.5086489	0.5772520	0.5595172				0.5461	AVRG		3.9033
44)MA 4-Methyl-2-pentanone		0.1995718	0.2138947	0.1929978	0.1985533	0.1984362				
	0.1915329	0.2045630	0.2032866				0.2004	AVRG		3.5249
45)SA Toluene-d8		1.3367333	1.3276127	1.3258292	1.3375557	1.3254407				
	1.3359939	1.3483425	1.3292543				1.3333	AVRG		0.5876
46)MCA Toluene		2.1493050	2.0156735	1.8249263	1.8362619	1.7369420				
	1.5142483	1.6937919	1.6410473				1.8015	AVRG		11.3492
47)MA trans-1,3-Dichloropropyl		0.6053131	0.6592561	0.6143528	0.6410654	0.6599830				
	0.6338976	0.7090148	0.6807357				0.6505	AVRG		5.2676

Response Factor Report VOA6
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For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
48)MA 1,1,2-Trichloroethane		0.3315422	0.3206419	0.2980942	0.3090359	0.3088462				
	0.2880032	0.3126131	0.3045248				0.3092	AVRG		4.2987
49)MA 2-Hexanone		0.4810926	0.4899531	0.4376585	0.4313102	0.4409518				
	0.4031609	0.3980806	0.4082850				0.4363	AVRG		7.8813
50)MA 1,3-Dichloropropane		0.6620068	0.6636471	0.6347826	0.6507875	0.6299800				
	0.5806172	0.6089426	0.5961270				0.6284	AVRG		4.8939
51)MA Tetrachloroethylene		0.4121898	0.4003939	0.3486527	0.3420399	0.3264037				
	0.2802140	0.3111033	0.3023705				0.3404	AVRG		13.5740
52)MA Dibromochloromethane		0.3922558	0.3968607	0.3839251	0.4196583	0.4246515				
	0.4286127	0.4888901	0.4670122				0.4252	AVRG		8.6357
53)MA 1,2-Dibromoethane		0.3499013	0.3901824	0.3629391	0.3693706	0.3749293				
	0.3633491	0.4044390	0.3905422				0.3757	AVRG		4.8011
54)MPA Chlorobenzene		1.3521533	1.3608083	1.2284637	1.2444648	1.2211793				
	1.0598467	1.1936471	1.1411522				1.2252	AVRG		8.1797
55)MA 1,1,1,2-Tetrachloroethan		0.4424430	0.4477141	0.4412962	0.4444224	0.4467762				
	0.4067559	0.4553897	0.4379135				0.4403	AVRG		3.3000
56)MCA Ethylbenzene		2.2146189	2.2739229	2.1234075	2.0953919	2.0326666				
	1.7358556	1.9384890	1.8852991				2.0375	AVRG		8.7402
57)MA m,p-Xylenes		0.9064363	0.9067631	0.8528790	0.8210501	0.7999557				
	0.6790918	0.7521692	0.7352933				0.8067	AVRG		10.1250
58)MA o-Xylene		2.0354203	1.9263226	1.8089146	1.7976009	1.7379787				
	1.4890084	1.6402799	1.5914938				1.7534	AVRG		10.1938
59)MA Styrene		1.4666183	1.5018908	1.3743665	1.4124898	1.3876554				
	1.2102237	1.3147071	1.2852306				1.3691	AVRG		7.0182
61)MPA Bromoform		0.3847273	0.4574930	0.4284537	0.4583080	0.4908476				
	0.5089375	0.5912198	0.5662110				0.4858	AVRG		14.1773
62)MA Isopropylbenzene		4.3136095	4.5819722	4.2695496	4.1751305	3.9900390				
	3.3995197	3.8759543	3.7519880				4.0447	AVRG		9.1651
63)SA Bromofluorobenzene		0.9911670	1.0034765	1.0185805	1.0076368	0.9928157				
	1.0160600	1.0420157	1.0181052				1.0112	AVRG		1.6236

Response Factor Report VOA6
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For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
64)MPA 1,1,2,2-Tetrachloroethan		0.9463881	0.9580793	0.8649190	0.8999172	0.8854484				
	0.8772982	0.9619193	0.9428626				0.9171	AVRG		4.2857
65)MA 1,2,3-Trichloropropane		0.2899361	0.3051739	0.2831785	0.2799797	0.2823207				
	0.2850006	0.3127450	0.3027009				0.2926	AVRG		4.2535
66)MA Bromobenzene		1.1596683	1.1517312	1.0622240	1.0718763	1.0584376				
	0.9485231	1.0556839	1.0064977				1.0643	AVRG		6.5148
67)MA n-Propylbenzene		5.2276894	5.0933509	4.9758814	4.8322407	4.5840174				
	3.9395856	4.3869745	4.2772576				4.6646	AVRG		9.5363
68)MA 1,3,5-Trimethylbenzene		3.9173762	3.9836031	3.7904065	3.7579942	3.5676215				
	3.0505557	3.4071669	3.2935863				3.5960	AVRG		9.0597
69)MA 2-Chlorotoluene		0.9926407	1.0613731	0.9832502	0.9931769	0.9613961				
	0.8319156	0.9141550	0.8902448				0.9535	AVRG		7.5233
70)MA 4-Chlorotoluene		3.3413139	3.3850427	3.1897183	3.1215433	3.0511803				
	2.6522108	3.0106793	2.8828349				3.0793	AVRG		7.7882
71)MA tert-Butylbenzene		0.7817227	0.8085923	0.7717650	0.7479688	0.7147821				
	0.6129699	0.7177301	0.6854294				0.7301	AVRG		8.5037
72)MA 1,2,4-Trimethylbenzene		4.0939286	4.0022412	3.8743456	3.8488761	3.7441506				
	3.1868532	3.6083033	3.4625512				3.7277	AVRG		8.0033
73)MA sec-Butylbenzene		4.9375247	5.0388146	4.7288161	4.6703796	4.4917406				
	3.8350811	4.3251087	4.1934923				4.5276	AVRG		8.8494
74)MA 4-Isopropyltoluene		3.2457607	3.3838563	3.5017904	3.1733225	3.0467151				
	2.8856475	3.0237591	2.9198202				3.1476	AVRG		6.9769
75)MA 1,3-Dichlorobenzene		2.1661772	2.1584149	2.0675900	2.0109040	1.9783909				
	1.7039857	1.9177377	1.8276200				1.9789	AVRG		8.0673
76)MA 1,4-Dichlorobenzene		2.1801216	2.1707382	1.9970238	1.9756305	1.9500829				
	1.7071145	1.9182926	1.8358912				1.9669	AVRG		8.0456
77)MA n-Butylbenzene		4.1448294	3.9808859	3.8308453	3.6770405	3.6018500				
	3.0986974	3.4804442	3.3643069				3.6474	AVRG		9.2938
78)MA 1,2-Dichlorobenzene		2.1157337	2.0894886	1.9277675	1.9400868	1.9013797				
	1.7133632	1.8807285	1.8183958				1.9234	AVRG		6.8729

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For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
79)MA 1,2-Dibromo-3-chloroprop		0.1688564	0.1923889	0.1604607	0.1685236	0.1776502				
	0.1932698	0.2321129	0.2171670				0.1888	AVRG		13.3541
80)MA 1,2,4-Trichlorobenzene		1.6870397	1.5338301	1.5088638	1.4768688	1.5028665				
	1.3299615	1.4633148	1.3851853				1.4860	AVRG		7.1319
81)MA Hexachlorobutadiene		0.9929455	0.9396327	0.8988694	0.8567306	0.8678331				
	0.7646873	0.8640798	0.8382221				0.8779	AVRG		7.7758
82)MA Naphthalene		2.9732741	3.1907402	2.9628496	3.0580603	3.1075776				
	2.9554928	3.2499209	3.1359409				3.0792	AVRG		3.6021
83)MA 1,2,3-Trichlorobenzene		1.4214109	1.3566731	1.3128839	1.3695121	1.3430159				
	1.2200380	1.3387066	1.2681790				1.3288	AVRG		4.6798
85)B Acrolein		0.0686259	0.0614101	0.0647701	0.0621244	0.0638195				
	0.0642217	0.0667161					0.0645	AVRG		3.8864
86)B Trichlorotrifluoroethane		0.1163105	0.0908626	0.1270479	0.1284515	0.1214642				
	0.1264742	0.1202498					0.1187	AVRG		10.9627
87)B Isopropyl Alcohol		0.0279904	0.0217912	0.0309842	0.0297076	0.0295580				
	0.0291852	0.0305144					0.0285	AVRG		10.9469
88)B Allyl chloride		0.7159789	0.5337962	0.6897360	0.6927614	0.6683948				
	0.6537767	0.5885335					0.6490	AVRG		10.0229
89)B tert-Butyl Alcohol		0.0421463	0.0317433	0.0453217	0.0439156	0.0454076				
	0.0439858	0.0464448					0.0427	AVRG		11.7737
90)B Acrylonitrile		0.1359018	0.1010268	0.1385309	0.1343657	0.1385164				
	0.1346188	0.1395748					0.1318	AVRG		10.4094
91)B Isopropyl ether		1.4994848	1.1874701	1.5941843	1.5943738	1.5608552				
	1.5429890	1.5084372					1.4983	AVRG		9.4804
92)B 2-Chloro-1,3-butadiene		0.5838132	0.4594044	0.6196207	0.6246339	0.6211929				
	0.6396648	0.6244305					0.5961	AVRG		10.5063
93)B Ethyl tert-butyl ether		1.3780755	1.0124388	1.3888117	1.3903062	1.3899237				
	1.3735287	1.3965453					1.3328	AVRG		10.6157
94)B Ethyl acetate		0.3905379	0.2693923	0.3811574	0.3576242	0.3670989				
	0.3515290	0.3507219					0.3526	AVRG		11.2372

Response Factor Report VOA6
GEL Laboratories, LLC
Method File : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Last Update : Fri Oct 14 08:57:39 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	8 6	1 7	2 9	3	4	5	Avg	Curve	Exp	%RSD/r2
95)B Propionitrile		0.0567330	0.0393356	0.0566074	0.0543942	0.0571367				
	0.0543556	0.0578369					0.0538	AVRG		12.0951
96)B Methacrylonitrile		0.2187188	0.1655105	0.2322637	0.2252739	0.2297865				
	0.2208707	0.2223375					0.2164	AVRG		10.6052
97)B Tetrahydrofuran		0.1362974	0.0937550	0.1275090	0.1169537	0.1211534				
	0.1146474	0.1191156					0.1185	AVRG		11.0837
98)B Isobutyl alcohol		0.0161998	0.0098640	0.0144706	0.0142358	0.0148843				
	0.0138193	0.0143659					0.0140	AVRG	$	14.0587
99)B Methyl tert-amyl ether		0.9539122	0.7461670	0.9951972	0.9918191	0.9872633				
	0.9834338	1.0066111					0.9521	AVRG		9.6873
100)B Methyl methacrylate		0.2088855	0.1568644	0.2206018	0.2150451	0.2157331				
	0.2054668	0.2030907					0.2037	AVRG		10.5746
101)B 1,4-Dioxane		0.0036187	0.0028684	0.0036585	0.0036746	0.0033842				
	0.0034370	0.0035310					0.0035	AVRG	#	8.1189
102)B 2-Nitropropane		15735	20476	84265	170964	374020				
-0.0162 | 0.1297 | 0.00	931861	2014108						LINR	#	0.9992
104)B Ethyl methacrylate		0.4953592	0.3906149	0.5476064	0.5448468	0.5456358				
	0.4979480	0.4753432					0.4996	AVRG		11.2507
106)B 1-Chlorohexane		0.8447575	0.7753202	1.0132994	0.9988537	0.9878271				
	0.9745311	0.9375970					0.9332	AVRG		9.6034
107)B cis-1,4-Dichloro-2-buten		0.3510041	0.2699403	0.3989111	0.4011991	0.4136445				
	0.3947061	0.4033114					0.3761	AVRG		13.5341
108)B Cyclohexanone		0.0246749	0.0253607	0.0272329	0.0260316	0.0262847				
	0.0264765	0.0269477					0.0261	AVRG		3.4019
109)B trans-1,4-Dichloro-2-but		0.3220469	0.2450846	0.3740966	0.3679051	0.3756421				
	0.3588879	0.3639228					0.3439	AVRG		13.7213
110)B Pentachloroethane		0.4863569	0.3744057	0.5392256	0.5832031	0.5639816				
	0.5333499	0.4934530					0.5106	AVRG		13.5904
111)B Benzyl chloride		99526	152922	583947	1138069	2353307				
0.2783 | 1.4589 | 0.00	5274087	9341659						LINR		0.9939

Response Factor Report VOA6
GEL Laboratories, LLC

Method File : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Last Update : Fri Oct 14 08:57:39 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	8	1	2	3	4	5	Avg	Curve	Exp	%RSD/r2
b m1 m2	6	7	9							
112)B bis(2-Chloroisopropyl)et		0.5228153	0.3957204	0.5770809	0.5498058	0.5674303				
	0.5361163	0.5562792					0.5293	AVRG		11.6503

(#) = Out of Range ($) = Individual RF Out of Range
AVRG = Average, LINR = Linear Regression, 1/x = the inverse of concentration, 1/x^2 = the inverse square of concentration

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D402.D
Acq On : 13 Oct 2016 17:11
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-01|ICAL005|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 14 08:48:44 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	9.440	9.446	1.000	1585850	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	12.628	12.635	1.000	1235448	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	650653	50.00	ug/L		0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	12.628	12.634	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	524861	41.14	ug/L		0.00
45) Toluene-d8	98	11.098	11.098	0.879	1616234	43.85	ug/L		0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	647955	48.26	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.001	3.993	0.424	6937	0.50	ug/L		88
3) Chloromethane	50	4.145	4.282	0.439	473	N.D.			
4) Vinyl chloride	62	4.474	4.506	0.474	7123	0.74	ug/L	#	42
5) Bromomethane	94	5.004	5.020	0.530	3985	0.54	ug/L		95
6) Chloroethane	64	5.148	5.156	0.545	4912	0.64	ug/L		94
7) Trichlorofluoromethane	101	5.549	5.509	0.588	8348	0.48	ug/L		99
8) Ethyl ether	59	5.830	5.830	0.618	5910	0.61	ug/L		99
9) Acetone	43	6.203	6.197	0.657	15551	4.52	ug/L		88
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	9430	0.55	ug/L		88
11) Iodomethane	142	6.428	6.429	0.681	42316	2.85	ug/L		93
12) Acetonitrile	41	6.556	6.550	0.695	23673	20.40	ug/L		77
13) Methyl acetate	43	6.581	6.575	0.697	24117	3.25	ug/L		89
14) Carbon disulfide	76	6.550	6.550	0.694	80963	3.05	ug/L		100
15) Methylene chloride	84	6.758	6.758	0.716	9652	Below Cal			86
16) tert-Butyl methyl ether	73	7.044	7.056	0.746	16486	0.49	ug/L		81
17) trans-1,2-Dichloroethy...	61	7.081	7.087	0.750	9549	0.56	ug/L		98
18) Hexane	57	7.367	7.367	0.780	12941	N.D.			
19) Vinyl acetate	43	7.544	7.538	0.799	63504	3.34	ug/L		93
20) 1,1-Dichloroethane	63	7.574	7.569	0.802	12176	0.60	ug/L		99
21) 2-Butanone	43	8.172	8.160	0.866	17962	3.54	ug/L		89
22) cis-1,2-Dichloroethylene	61	8.208	8.209	0.870	10571	0.53	ug/L		94
23) 2,2-Dichloropropane	77	8.239	8.233	0.873	9581	0.52	ug/L		70
24) Bromochloromethane	128	8.471	8.477	0.897	2713	0.55	ug/L	#	69
25) Chloroform	83	8.525	8.520	0.903	10239	0.49	ug/L		97
26) 1,1,1-Trichloroethane	97	8.794	8.788	0.932	9646	0.51	ug/L		93
27) Cyclohexane	56	8.867	8.879	0.939	17318	0.89	ug/L		81
28) 1,1-Dichloropropene	75	8.940	8.946	0.947	7632	0.54	ug/L		81
29) Carbon tetrachloride	117	8.977	8.977	0.951	7569	0.48	ug/L		96
31) 1,2-Dichloroethane	62	9.166	9.172	0.971	9891	0.52	ug/L	#	42
32) Benzene	78	9.184	9.184	0.973	23771	0.62	ug/L	#	75
33) Cyclohexene	67	9.294	9.294	0.985	12796	0.65	ug/L		84
34) n-Butyl alcohol	56	9.574	9.568	1.014	17697	86.06	ug/L		92
35) Trichloroethylene	95	9.830	9.830	1.041	5186	0.50	ug/L	#	70
36) 2-Pentanone	43	9.934	9.934	1.052	22940	3.22	ug/L		95
37) 1,2-Dichloropropane	63	10.074	10.080	1.067	6909	0.65	ug/L		96
38) Methylcyclohexane	83	10.074	10.074	1.067	11195	0.63	ug/L		83
39) Dibromomethane	93	10.214	10.214	1.082	3641	0.58	ug/L		89
40) Bromodichloromethane	83	10.342	10.336	1.096	7034	0.46	ug/L		92
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	16817	2.53	ug/L		98
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	8056	0.48	ug/L		85

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D402.D
Acq On : 13 Oct 2016 17:11
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-01|ICAL005|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 14 08:48:44 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	10.897	10.891	0.863	12631	3.21	ug/L		94
46)	Toluene	91	11.171	11.172	0.885	27200	0.59	ug/L		88
47)	trans-1,3-Dichloroprop...	75	11.342	11.342	0.898	7099	0.40	ug/L		79
48)	1,1,2-Trichloroethane	83	11.561	11.556	0.916	4679	0.61	ug/L		89
49)	2-Hexanone	43	11.750	11.751	0.930	30853	3.49	ug/L		93
50)	1,3-Dichloropropane	76	11.750	11.751	0.930	8718	0.51	ug/L	#	63
51)	Tetrachloroethylene	164	11.763	11.763	0.931	5001	0.53	ug/L		91
52)	Dibromochloromethane	129	12.013	12.013	0.951	4721	0.45	ug/L		97
53)	1,2-Dibromoethane	107	12.183	12.177	0.965	4508	0.50	ug/L		98
54)	Chlorobenzene	112	12.665	12.665	1.003	18204	0.60	ug/L	#	53
55)	1,1,1,2-Tetrachloroethane	131	12.720	12.726	1.007	5528	0.47	ug/L	#	70
56)	Ethylbenzene	91	12.732	12.732	1.008	31304	0.59	ug/L		98
57)	m,p-Xylenes	106	12.842	12.842	1.017	21927	1.13	ug/L		97
58)	o-Xylene	91	13.281	13.275	1.052	23613	0.52	ug/L		89
59)	Styrene	104	13.287	13.281	1.052	17028	0.56	ug/L		87
61)	Bromoform	173	13.537	13.537	0.899	2662	1.10	ug/L		96
62)	Isopropylbenzene	105	13.640	13.641	0.906	31160	0.65	ug/L		100
64)	1,1,2,2-Tetrachloroethane	83	13.921	13.927	0.925	5947	0.57	ug/L		100
65)	1,2,3-Trichloropropane	110	14.018	14.012	0.931	2005	0.54	ug/L	#	82
66)	Bromobenzene	156	14.037	14.043	0.932	7553	0.64	ug/L		93
67)	n-Propylbenzene	91	14.067	14.067	0.934	36234	0.64	ug/L		99
68)	1,3,5-Trimethylbenzene	105	14.232	14.226	0.945	27841	0.64	ug/L		98
69)	2-Chlorotoluene	126	14.213	14.214	0.944	7627	0.68	ug/L	#	82
70)	4-Chlorotoluene	91	14.317	14.317	0.951	23711	0.63	ug/L		99
71)	tert-Butylbenzene	134	14.597	14.598	0.970	5713	0.69	ug/L		91
72)	1,2,4-Trimethylbenzene	105	14.640	14.640	0.972	28782	0.65	ug/L		98
73)	sec-Butylbenzene	105	14.817	14.823	0.984	35373	0.66	ug/L		94
74)	4-Isopropyltoluene	119	14.591	14.598	0.969	25615	0.70	ug/L		98
75)	1,3-Dichlorobenzene	146	14.994	15.000	0.996	14268	0.60	ug/L		96
76)	1,4-Dichlorobenzene	146	15.079	15.085	1.002	15610	0.65	ug/L	#	55
77)	n-Butylbenzene	91	15.372	15.378	1.021	28121	0.64	ug/L		98
78)	1,2-Dichlorobenzene	146	15.494	15.494	1.029	14495	0.64	ug/L		94
79)	1,2-Dibromo-3-chloropr...	157	16.317	16.311	1.084	1368	1.33	ug/L		78
80)	1,2,4-Trichlorobenzene	180	17.280	17.286	1.148	12147	0.70	ug/L		99
81)	Hexachlorobutadiene	225	17.444	17.445	1.159	6909	0.59	ug/L		95
82)	Naphthalene	128	17.627	17.634	1.171	22386	0.69	ug/L		98
83)	1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	9855	0.63	ug/L		96
85)	Acrolein		6.038	6.032	0.640	0m	N.D.	d		
86)	Trichlorotrifluoroethane		6.136	6.184	0.650	0m	N.D.	d		
87)	Isopropyl Alcohol		6.282	6.288	0.665	0m	N.D.	d		
88)	Allyl chloride		6.751	6.611	0.715	0m	N.D.	d		
89)	tert-Butyl Alcohol		6.788	6.776	0.719	0m	N.D.	d		
90)	Acrylonitrile		7.008	7.014	0.742	0m	N.D.	d		
91)	Isopropyl ether		7.544	7.556	0.799	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		7.678	7.678	0.813	0m	N.D.	d		
93)	Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.			
94)	Ethyl acetate		8.172	8.178	0.866	0m	N.D.	d		
95)	Propionitrile		0.000	8.239	0.000	0	N.D.			
96)	Methacrylonitrile		8.458	8.416	0.896	0m	N.D.	d		
97)	Tetrahydrofuran		8.532	8.525	0.904	0m	N.D.	d		
98)	Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d		
99)	Methyl tert-amyl ether		9.178	9.214	0.972	0m	N.D.	d		
100)	Methyl methacrylate		10.068	10.068	1.067	0m	N.D.	d		
101)	1,4-Dioxane		0.000	10.178	0.000	0	N.D.			
102)	2-Nitropropane		10.568	10.549	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D402.D
Acq On : 13 Oct 2016 17:11
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-01|ICAL005|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 14 08:48:44 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

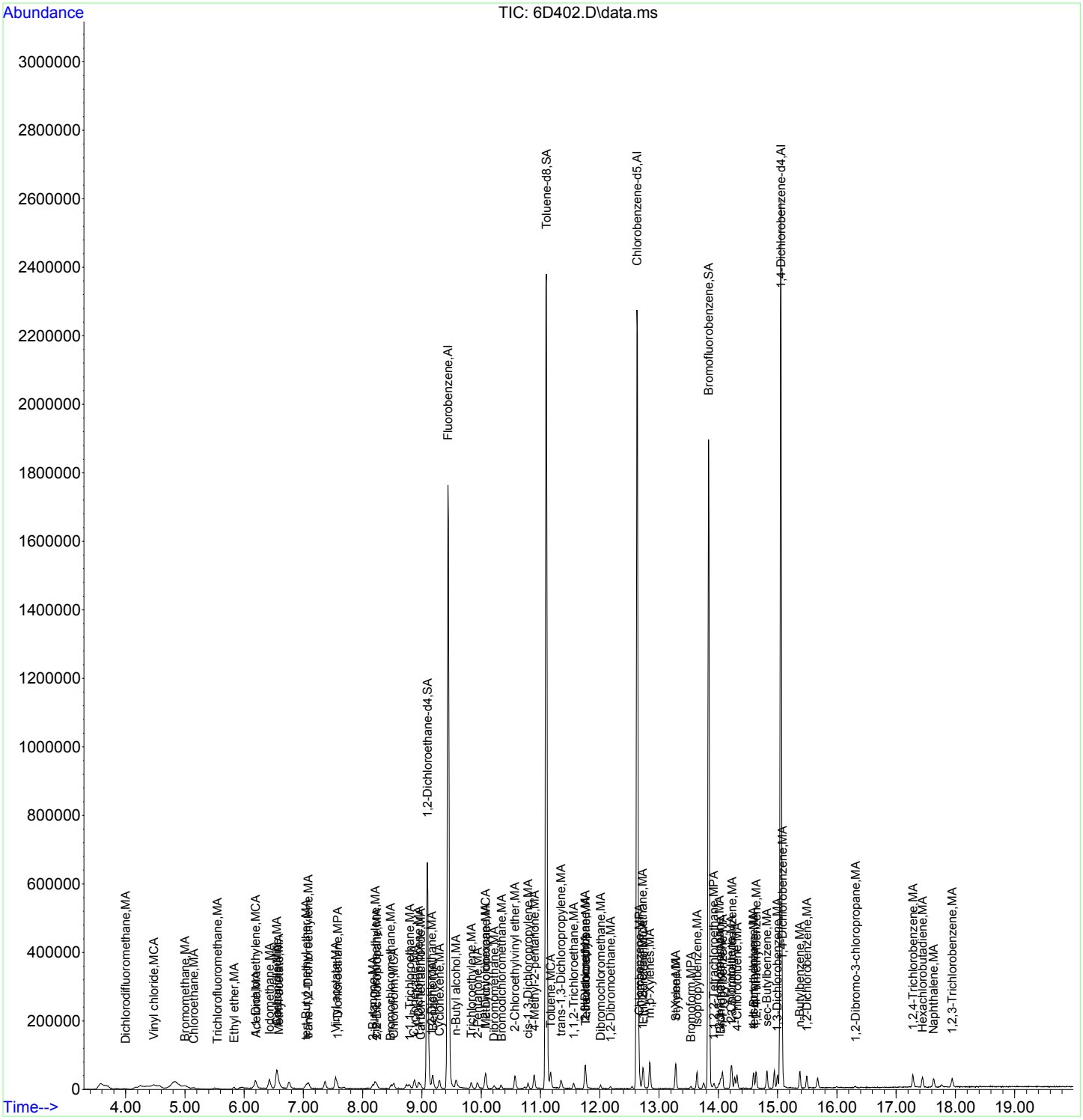
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.342	11.348	0.898	0m	N.D.	d
106) 1-Chlorohexane		12.543	12.543	0.833	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.701	13.689	0.910	0m	N.D.	d
108) Cyclohexanone		13.793	13.793	0.916	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		13.982	13.976	0.929	0m	N.D.	d
110) Pentachloroethane		14.652	14.658	0.973	0m	N.D.	d
111) Benzyl chloride		15.201	15.201	1.010	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.670	15.597	1.041	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D402.D
Acq On : 13 Oct 2016 17:11
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-01|ICAL005|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 14 08:48:44 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D403.D
Acq On : 13 Oct 2016 17:39
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-02|ICAL01|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 14 08:48:46 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	9.440	9.446	1.000	1554334	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	12.634	12.635	1.000	1206483	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	656179	50.00	ug/L		0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	12.634	12.634	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	518188	41.44	ug/L		0.00
45) Toluene-d8	98	11.098	11.098	0.878	1612746	44.81	ug/L		0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	650383	48.03	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	3.985	3.993	0.422	13082	0.96	ug/L		93
3) Chloromethane	50	4.257	4.282	0.451	16658	1.62	ug/L		100
4) Vinyl chloride	62	4.474	4.506	0.474	12861	1.36	ug/L	#	42
5) Bromomethane	94	5.004	5.020	0.530	7792	1.07	ug/L		97
6) Chloroethane	64	5.148	5.156	0.545	9217	1.23	ug/L		98
7) Trichlorofluoromethane	101	5.517	5.509	0.584	15149	0.88	ug/L		99
8) Ethyl ether	59	5.830	5.830	0.618	12055	1.26	ug/L		99
9) Acetone	43	6.203	6.197	0.657	27650	8.20	ug/L		99
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	18170	1.09	ug/L		96
11) Iodomethane	142	6.428	6.429	0.681	78340	5.38	ug/L		95
12) Acetonitrile	41	6.562	6.550	0.695	39688	34.90	ug/L		96
13) Methyl acetate	43	6.575	6.575	0.696	43656	6.00	ug/L		94
14) Carbon disulfide	76	6.550	6.550	0.694	148894	5.71	ug/L		100
15) Methylene chloride	84	6.758	6.758	0.716	15486	N.D.			
16) tert-Butyl methyl ether	73	7.056	7.056	0.747	31179	0.95	ug/L		81
17) trans-1,2-Dichloroethy...	61	7.087	7.087	0.751	19409	1.17	ug/L		99
18) Hexane	57	7.361	7.367	0.780	22347	N.D.			
19) Vinyl acetate	43	7.538	7.538	0.799	118475	6.36	ug/L		94
20) 1,1-Dichloroethane	63	7.568	7.569	0.802	22375	1.12	ug/L		98
21) 2-Butanone	43	8.166	8.160	0.865	35841	7.22	ug/L		90
22) cis-1,2-Dichloroethylene	61	8.208	8.209	0.870	22337	1.13	ug/L		99
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	16305	0.90	ug/L		78
24) Bromochloromethane	128	8.483	8.477	0.899	5264	1.09	ug/L	#	73
25) Chloroform	83	8.519	8.520	0.902	20138	0.99	ug/L		96
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	18346	0.99	ug/L		96
27) Cyclohexane	56	8.867	8.879	0.939	28572	1.49	ug/L		87
28) 1,1-Dichloropropene	75	8.946	8.946	0.948	13601	0.99	ug/L		76
29) Carbon tetrachloride	117	8.977	8.977	0.951	14679	0.94	ug/L		96
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	18603	0.99	ug/L	#	42
32) Benzene	78	9.184	9.184	0.973	45145	1.21	ug/L		97
33) Cyclohexene	67	9.300	9.294	0.985	21424	1.11	ug/L		76
34) n-Butyl alcohol	56	9.574	9.568	1.014	34447	140.26	ug/L		94
35) Trichloroethylene	95	9.830	9.830	1.041	11919	1.18	ug/L		94
36) 2-Pentanone	43	9.934	9.934	1.052	43292	6.20	ug/L		95
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	13080	1.26	ug/L		95
38) Methylcyclohexane	83	10.068	10.074	1.067	20737	1.19	ug/L		82
39) Dibromomethane	93	10.214	10.214	1.082	6312	1.02	ug/L		95
40) Bromodichloromethane	83	10.336	10.336	1.095	13880	0.93	ug/L		95
41) 2-Chloroethylvinyl ether	63	10.574	10.568	1.120	33549	5.14	ug/L		99
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	17040	1.03	ug/L		89

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D403.D
Acq On : 13 Oct 2016 17:39
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-02|ICAL01|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 14 08:48:46 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	10.891	10.891	0.862	24078	6.26	ug/L		95
46)	Toluene	91	11.171	11.172	0.884	51862	1.16	ug/L		100
47)	trans-1,3-Dichloroprop...	75	11.342	11.342	0.898	14606	0.84	ug/L		85
48)	1,1,2-Trichloroethane	83	11.555	11.556	0.915	8000	1.07	ug/L		97
49)	2-Hexanone	43	11.750	11.751	0.930	58043	6.73	ug/L		97
50)	1,3-Dichloropropane	76	11.750	11.751	0.930	15974	0.96	ug/L		81
51)	Tetrachloroethylene	164	11.763	11.763	0.931	9946	1.08	ug/L		94
52)	Dibromochloromethane	129	12.019	12.013	0.951	9465	0.93	ug/L		95
53)	1,2-Dibromoethane	107	12.177	12.177	0.964	8443	0.97	ug/L		89
54)	Chlorobenzene	112	12.665	12.665	1.002	32627	1.10	ug/L		74
55)	1,1,1,2-Tetrachloroethane	131	12.726	12.726	1.007	10676	0.93	ug/L		90
56)	Ethylbenzene	91	12.732	12.732	1.008	53438	1.03	ug/L		92
57)	m,p-Xylenes	106	12.848	12.842	1.017	43744	2.30	ug/L		96
58)	o-Xylene	91	13.275	13.275	1.051	49114	1.12	ug/L		96
59)	Styrene	104	13.281	13.281	1.051	35389	1.20	ug/L		88
61)	Bromoform	173	13.537	13.537	0.899	5049	1.45	ug/L		85
62)	Isopropylbenzene	105	13.640	13.641	0.906	56610	1.18	ug/L		96
64)	1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	12420	1.19	ug/L		94
65)	1,2,3-Trichloropropane	110	14.012	14.012	0.931	3805	1.01	ug/L	#	86
66)	Bromobenzene	156	14.043	14.043	0.933	15219	1.27	ug/L		84
67)	n-Propylbenzene	91	14.067	14.067	0.934	68606	1.20	ug/L		96
68)	1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	51410	1.17	ug/L		93
69)	2-Chlorotoluene	126	14.213	14.214	0.944	13027	1.16	ug/L		97
70)	4-Chlorotoluene	91	14.317	14.317	0.951	43850	1.16	ug/L		97
71)	tert-Butylbenzene	134	14.597	14.598	0.970	10259	1.22	ug/L		94
72)	1,2,4-Trimethylbenzene	105	14.634	14.640	0.972	53727	1.20	ug/L		99
73)	sec-Butylbenzene	105	14.823	14.823	0.985	64798	1.20	ug/L		98
74)	4-Isopropyltoluene	119	14.597	14.598	0.970	42596	1.15	ug/L		99
75)	1,3-Dichlorobenzene	146	14.994	15.000	0.996	28428	1.19	ug/L		99
76)	1,4-Dichlorobenzene	146	15.085	15.085	1.002	28611	1.19	ug/L		76
77)	n-Butylbenzene	91	15.378	15.378	1.021	54395	1.22	ug/L		99
78)	1,2-Dichlorobenzene	146	15.494	15.494	1.029	27766	1.21	ug/L		98
79)	1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	2216	1.70	ug/L		96
80)	1,2,4-Trichlorobenzene	180	17.286	17.286	1.148	22140	1.26	ug/L		96
81)	Hexachlorobutadiene	225	17.444	17.445	1.159	13031	1.10	ug/L		94
82)	Naphthalene	128	17.633	17.634	1.171	39020	1.19	ug/L		99
83)	1,2,3-Trichlorobenzene	180	17.950	17.945	1.192	18654	1.18	ug/L		94
85)	Acrolein		6.026	6.032	0.638	0m	N.D.	d		
86)	Trichlorotrifluoroethane		6.154	6.184	0.652	0m	N.D.	d		
87)	Isopropyl Alcohol		6.294	6.288	0.667	0m	N.D.	d		
88)	Allyl chloride		6.562	6.611	0.695	0m	N.D.	d		
89)	tert-Butyl Alcohol		6.788	6.776	0.719	0m	N.D.	d		
90)	Acrylonitrile		7.044	7.014	0.746	0m	N.D.	d		
91)	Isopropyl ether		7.538	7.556	0.799	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		7.654	7.678	0.811	0m	N.D.	d		
93)	Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.			
94)	Ethyl acetate		8.166	8.178	0.865	0m	N.D.	d		
95)	Propionitrile		8.184	8.239	0.867	0m	N.D.	d		
96)	Methacrylonitrile		8.404	8.416	0.890	0m	N.D.	d		
97)	Tetrahydrofuran		8.532	8.525	0.904	0m	N.D.	d		
98)	Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d		
99)	Methyl tert-amyl ether		9.178	9.214	0.972	0m	N.D.	d		
100)	Methyl methacrylate		10.074	10.068	1.067	0m	N.D.	d		
101)	1,4-Dioxane		0.000	10.178	0.000	0	N.D.			
102)	2-Nitropropane		10.574	10.549	1.120	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D403.D
Acq On : 13 Oct 2016 17:39
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-02|ICAL01|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 14 08:48:46 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

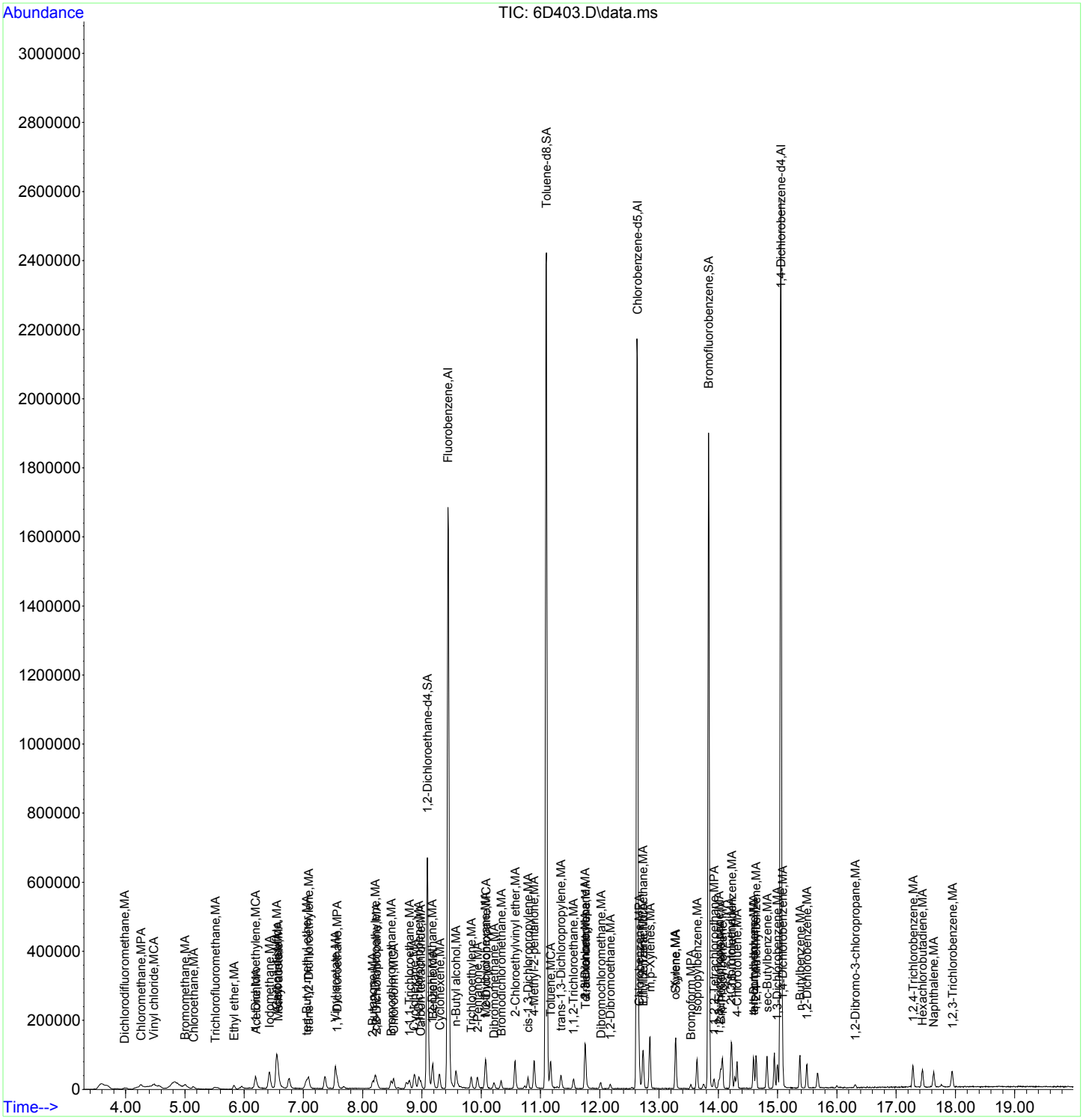
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.366	11.348	0.900	0m	N.D.	d
106) 1-Chlorohexane		12.543	12.543	0.833	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.640	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.781	13.793	0.915	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.061	13.976	0.934	0m	N.D.	d
110) Pentachloroethane		0.000	14.658	0.000	0	N.D.	
111) Benzyl chloride		15.201	15.201	1.010	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.609	15.597	1.037	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D403.D
Acq On : 13 Oct 2016 17:39
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-02|ICAL01|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 14 08:48:46 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D404.D
Acq On : 13 Oct 2016 18:08
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-03|ICAL02|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 14 08:48:48 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	9.446	9.446	1.000	1596406	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	12.628	12.635	1.000	1224107	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	653234	50.00	ug/L		0.00
84) B Fluorobenzene	96	9.446	9.446	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	12.628	12.634	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	530570	41.32	ug/L		0.00
45) Toluene-d8	98	11.098	11.098	0.879	1625140	44.50	ug/L		0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	655505	48.63	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	3.993	3.993	0.423	26466	1.88	ug/L		95
3) Chloromethane	50	4.258	4.282	0.451	29734	2.81	ug/L		92
4) Vinyl chloride	62	4.482	4.506	0.474	24976	2.57	ug/L		91
5) Bromomethane	94	5.004	5.020	0.530	14808	1.98	ug/L		93
6) Chloroethane	64	5.148	5.156	0.545	18478	2.40	ug/L		98
7) Trichlorofluoromethane	101	5.525	5.509	0.585	30458	1.73	ug/L		100
8) Ethyl ether	59	5.830	5.830	0.617	24676	2.51	ug/L		83
9) Acetone	43	6.197	6.197	0.656	51549	14.89	ug/L		96
10) 1,1-Dichloroethylene	61	6.197	6.191	0.656	36839	2.15	ug/L		98
11) Iodomethane	142	6.428	6.429	0.681	160894	10.75	ug/L		93
12) Acetonitrile	41	6.563	6.550	0.695	84209	72.09	ug/L		91
13) Methyl acetate	43	6.575	6.575	0.696	90876	12.15	ug/L		93
14) Carbon disulfide	76	6.550	6.550	0.693	293403	10.96	ug/L		99
15) Methylene chloride	84	6.758	6.758	0.715	26072	1.43	ug/L	#	81
16) tert-Butyl methyl ether	73	7.056	7.056	0.747	65384	1.94	ug/L		84
17) trans-1,2-Dichloroethy...	61	7.093	7.087	0.751	37266	2.19	ug/L		97
18) Hexane	57	7.367	7.367	0.780	41151	2.68	ug/L		98
19) Vinyl acetate	43	7.538	7.538	0.798	268784	14.05	ug/L		94
20) 1,1-Dichloroethane	63	7.568	7.569	0.801	44259	2.16	ug/L		98
21) 2-Butanone	43	8.172	8.160	0.865	77871	15.27	ug/L		89
22) cis-1,2-Dichloroethylene	61	8.202	8.209	0.868	45221	2.23	ug/L		98
23) 2,2-Dichloropropane	77	8.227	8.233	0.871	32514	1.75	ug/L		69
24) Bromochloromethane	128	8.483	8.477	0.898	11184	2.25	ug/L	#	84
25) Chloroform	83	8.519	8.520	0.902	39385	1.89	ug/L		96
26) 1,1,1-Trichloroethane	97	8.794	8.788	0.931	33754	1.77	ug/L		97
27) Cyclohexane	56	8.873	8.879	0.939	53887	2.74	ug/L		84
28) 1,1-Dichloropropene	75	8.946	8.946	0.947	27951	1.98	ug/L		80
29) Carbon tetrachloride	117	8.971	8.977	0.950	28926	1.81	ug/L		99
31) 1,2-Dichloroethane	62	9.172	9.172	0.971	38251	1.98	ug/L		98
32) Benzene	78	9.184	9.184	0.972	89044	2.32	ug/L		97
33) Cyclohexene	67	9.294	9.294	0.984	46264	2.33	ug/L		82
34) n-Butyl alcohol	56	9.574	9.568	1.014	84515	291.88	ug/L		90
35) Trichloroethylene	95	9.830	9.830	1.041	22447	2.17	ug/L		96
36) 2-Pentanone	43	9.934	9.934	1.052	92546	12.91	ug/L		95
37) 1,2-Dichloropropane	63	10.080	10.080	1.067	28491	2.68	ug/L		98
38) Methylcyclohexane	83	10.068	10.074	1.066	40008	2.23	ug/L		86
39) Dibromomethane	93	10.214	10.214	1.081	13287	2.10	ug/L		96
40) Bromodichloromethane	83	10.336	10.336	1.094	29078	1.91	ug/L		97
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	75332	11.25	ug/L		98
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.142	35568	2.09	ug/L		93

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D404.D
Acq On : 13 Oct 2016 18:08
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-03|ICAL02|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 14 08:48:48 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	10.891	10.891	0.862	52366	13.41	ug/L		96
46)	Toluene	91	11.171	11.172	0.885	98696	2.17	ug/L		99
47)	trans-1,3-Dichloroprop...	75	11.336	11.342	0.898	32280	1.83	ug/L		88
48)	1,1,2-Trichloroethane	83	11.562	11.556	0.916	15700	2.07	ug/L		94
49)	2-Hexanone	43	11.751	11.751	0.930	119951	13.70	ug/L		98
50)	1,3-Dichloropropane	76	11.751	11.751	0.930	32495	1.92	ug/L	#	74
51)	Tetrachloroethylene	164	11.763	11.763	0.931	19605	2.11	ug/L		98
52)	Dibromochloromethane	129	12.013	12.013	0.951	19432	1.88	ug/L		98
53)	1,2-Dibromoethane	107	12.177	12.177	0.964	19105	2.15	ug/L		98
54)	Chlorobenzene	112	12.665	12.665	1.003	66631	2.22	ug/L		91
55)	1,1,1,2-Tetrachloroethane	131	12.720	12.726	1.007	21922	1.88	ug/L		91
56)	Ethylbenzene	91	12.732	12.732	1.008	111341	2.12	ug/L		99
57)	m,p-Xylenes	106	12.842	12.842	1.017	88798	4.61	ug/L		87
58)	o-Xylene	91	13.275	13.275	1.051	94321	2.11	ug/L		96
59)	Styrene	104	13.281	13.281	1.052	73539	2.46	ug/L		87
61)	Bromoform	173	13.531	13.537	0.899	11954	2.46	ug/L		99
62)	Isopropylbenzene	105	13.640	13.641	0.906	119724	2.50	ug/L		100
64)	1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	25034	2.41	ug/L		98
65)	1,2,3-Trichloropropane	110	14.012	14.012	0.931	7974	2.13	ug/L	#	90
66)	Bromobenzene	156	14.037	14.043	0.932	30094	2.53	ug/L		89
67)	n-Propylbenzene	91	14.067	14.067	0.934	133086	2.34	ug/L		96
68)	1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	104089	2.39	ug/L		96
69)	2-Chlorotoluene	126	14.213	14.214	0.944	27733	2.48	ug/L		93
70)	4-Chlorotoluene	91	14.317	14.317	0.951	88449	2.35	ug/L		98
71)	tert-Butylbenzene	134	14.598	14.598	0.970	21128	2.53	ug/L	#	89
72)	1,2,4-Trimethylbenzene	105	14.634	14.640	0.972	104576	2.36	ug/L		95
73)	sec-Butylbenzene	105	14.817	14.823	0.984	131661	2.45	ug/L		99
74)	4-Isopropyltoluene	119	14.591	14.598	0.969	88418	2.40	ug/L		93
75)	1,3-Dichlorobenzene	146	15.000	15.000	0.996	56398	2.37	ug/L		97
76)	1,4-Dichlorobenzene	146	15.079	15.085	1.002	56720	2.37	ug/L		88
77)	n-Butylbenzene	91	15.378	15.378	1.021	104018	2.35	ug/L		99
78)	1,2-Dichlorobenzene	146	15.488	15.494	1.029	54597	2.38	ug/L		98
79)	1,2-Dibromo-3-chloropr...	157	16.317	16.311	1.084	5027	2.94	ug/L		90
80)	1,2,4-Trichlorobenzene	180	17.286	17.286	1.148	40078	2.30	ug/L		96
81)	Hexachlorobutadiene	225	17.445	17.445	1.159	24552	2.09	ug/L		97
82)	Naphthalene	128	17.634	17.634	1.171	83372	2.56	ug/L		99
83)	1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	35449	2.25	ug/L		99
85)	Acrolein		6.166	6.032	0.653	0m	N.D.	d		
86)	Trichlorotrifluoroethane		6.185	6.184	0.655	0m	N.D.	d		
87)	Isopropyl Alcohol		0.000	6.288	0.000	0	N.D.			
88)	Allyl chloride		6.563	6.611	0.695	0m	N.D.	d		
89)	tert-Butyl Alcohol		6.776	6.776	0.717	0m	N.D.	d		
90)	Acrylonitrile		7.038	7.014	0.745	0m	N.D.	d		
91)	Isopropyl ether		7.538	7.556	0.798	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		7.684	7.678	0.813	0m	N.D.	d		
93)	Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.			
94)	Ethyl acetate		8.172	8.178	0.865	0m	N.D.	d		
95)	Propionitrile		0.000	8.239	0.000	0	N.D.			
96)	Methacrylonitrile		8.379	8.416	0.887	0m	N.D.	d		
97)	Tetrahydrofuran		8.538	8.525	0.904	0m	N.D.	d		
98)	Isobutyl alcohol		8.873	8.873	0.939	0m	N.D.	d		
99)	Methyl tert-amyl ether		9.178	9.214	0.972	0m	N.D.	d		
100)	Methyl methacrylate		10.068	10.068	1.066	0m	N.D.	d		
101)	1,4-Dioxane		0.000	10.178	0.000	0	N.D.			
102)	2-Nitropropane		10.568	10.549	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D404.D
Acq On : 13 Oct 2016 18:08
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-03|ICAL02|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 14 08:48:48 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

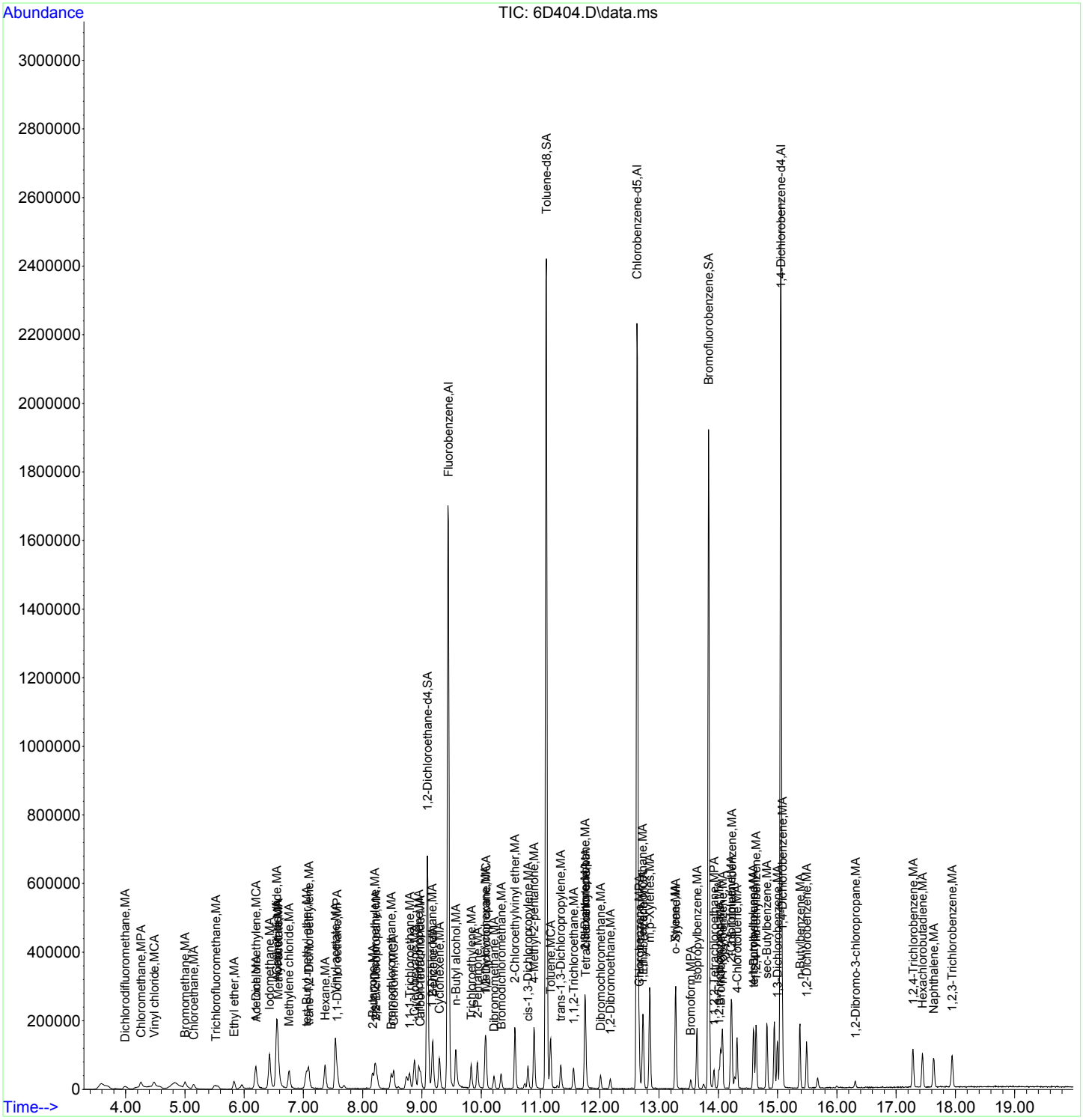
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		0.000	11.348	0.000	0	N.D.	
106) 1-Chlorohexane		12.543	12.543	0.833	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.640	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.781	13.793	0.915	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.061	13.976	0.934	0m	N.D.	d
110) Pentachloroethane		14.665	14.658	0.974	0m	N.D.	d
111) Benzyl chloride		15.183	15.201	1.009	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.670	15.597	1.041	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D404.D
Acq On : 13 Oct 2016 18:08
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-03|ICAL02|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 14 08:48:48 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D405.D
Acq On : 13 Oct 2016 18:37
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-04|ICAL05|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 14 08:48:50 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	9.440	9.446	1.000	1613089	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	12.628	12.635	1.000	1240346	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	656547	50.00	ug/L		0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	12.628	12.634	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	524644	40.43	ug/L		0.00
45) Toluene-d8	98	11.092	11.098	0.878	1644487	44.44	ug/L		0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	668746	49.36	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.001	3.993	0.424	65245	4.60	ug/L		98
3) Chloromethane	50	4.258	4.282	0.451	71966	6.72	ug/L		96
4) Vinyl chloride	62	4.482	4.506	0.475	60511	6.15	ug/L		94
5) Bromomethane	94	5.012	5.020	0.531	37991	5.02	ug/L		98
6) Chloroethane	64	5.148	5.156	0.545	44867	5.78	ug/L		98
7) Trichlorofluoromethane	101	5.509	5.509	0.584	79556	4.48	ug/L		99
8) Ethyl ether	59	5.830	5.830	0.618	56822	5.73	ug/L		89
9) Acetone	43	6.197	6.197	0.656	104532	29.88	ug/L		93
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	88518	5.10	ug/L		96
11) Iodomethane	142	6.428	6.429	0.681	381016	25.19	ug/L		94
12) Acetonitrile	41	6.556	6.550	0.695	189992	160.97	ug/L		95
13) Methyl acetate	43	6.575	6.575	0.696	213209	28.22	ug/L		94
14) Carbon disulfide	76	6.550	6.550	0.694	725374	26.82	ug/L		99
15) Methylene chloride	84	6.764	6.758	0.716	57490	4.39	ug/L	#	80
16) tert-Butyl methyl ether	73	7.050	7.056	0.747	153982	4.53	ug/L		87
17) trans-1,2-Dichloroethy...	61	7.093	7.087	0.751	87366	5.08	ug/L		99
18) Hexane	57	7.361	7.367	0.780	95245	6.13	ug/L		97
19) Vinyl acetate	43	7.538	7.538	0.799	679443	35.16	ug/L		97
20) 1,1-Dichloroethane	63	7.568	7.569	0.802	108182	5.23	ug/L		97
21) 2-Butanone	43	8.166	8.160	0.865	166069	32.22	ug/L		92
22) cis-1,2-Dichloroethylene	61	8.209	8.209	0.870	105937	5.18	ug/L		99
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	78724	4.20	ug/L		75
24) Bromochloromethane	128	8.483	8.477	0.899	26961	5.36	ug/L	#	87
25) Chloroform	83	8.520	8.520	0.902	94144	4.47	ug/L		98
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	83108	4.31	ug/L		96
27) Cyclohexane	56	8.873	8.879	0.940	129233	6.51	ug/L		86
28) 1,1-Dichloropropene	75	8.946	8.946	0.948	70750	4.96	ug/L		89
29) Carbon tetrachloride	117	8.977	8.977	0.951	72070	4.46	ug/L		99
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	90683	4.65	ug/L		96
32) Benzene	78	9.184	9.184	0.973	206675	5.33	ug/L		96
33) Cyclohexene	67	9.294	9.294	0.985	111688	5.57	ug/L		86
34) n-Butyl alcohol	56	9.568	9.568	1.014	196855	632.24	ug/L		98
35) Trichloroethylene	95	9.830	9.830	1.041	53642	5.13	ug/L		94
36) 2-Pentanone	43	9.928	9.934	1.052	224529	31.01	ug/L		95
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	60559	5.63	ug/L		91
38) Methylcyclohexane	83	10.068	10.074	1.067	96144	5.30	ug/L		86
39) Dibromomethane	93	10.214	10.214	1.082	30859	4.82	ug/L		99
40) Bromodichloromethane	83	10.330	10.336	1.094	69565	4.51	ug/L		98
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	193501	28.59	ug/L		98
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	84525	4.93	ug/L		94

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D405.D
Acq On : 13 Oct 2016 18:37
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-04|ICAL05|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 14 08:48:50 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone	58	10.891	10.891	0.862	119692	30.25	ug/L		97
46) Toluene	91	11.171	11.172	0.885	226354	4.91	ug/L		100
47) trans-1,3-Dichloroprop...	75	11.342	11.342	0.898	76201	4.25	ug/L		92
48) 1,1,2-Trichloroethane	83	11.556	11.556	0.915	36974	4.80	ug/L		94
49) 2-Hexanone	43	11.751	11.751	0.930	271424	30.60	ug/L		96
50) 1,3-Dichloropropane	76	11.745	11.751	0.930	78735	4.59	ug/L		82
51) Tetrachloroethylene	164	11.763	11.763	0.931	43245	4.59	ug/L		96
52) Dibromochloromethane	129	12.013	12.013	0.951	47620	4.54	ug/L		99
53) 1,2-Dibromoethane	107	12.177	12.177	0.964	45017	5.01	ug/L		100
54) Chlorobenzene	112	12.665	12.665	1.003	152372	5.02	ug/L		98
55) 1,1,1,2-Tetrachloroethane	131	12.720	12.726	1.007	54736	4.64	ug/L		95
56) Ethylbenzene	91	12.732	12.732	1.008	263376	4.94	ug/L		96
57) m,p-Xylenes	106	12.842	12.842	1.017	211573	10.84	ug/L		89
58) o-Xylene	91	13.275	13.275	1.051	224368	4.95	ug/L		93
59) Styrene	104	13.281	13.281	1.052	170469	5.63	ug/L		91
61) Bromoform	173	13.537	13.537	0.899	28130	4.81	ug/L		99
62) Isopropylbenzene	105	13.640	13.641	0.906	280316	5.82	ug/L		97
64) 1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	56786	5.43	ug/L		95
65) 1,2,3-Trichloropropane	110	14.006	14.012	0.930	18592	4.94	ug/L	#	90
66) Bromobenzene	156	14.037	14.043	0.932	69740	5.83	ug/L		92
67) n-Propylbenzene	91	14.067	14.067	0.934	326690	5.72	ug/L		97
68) 1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	248858	5.68	ug/L		96
69) 2-Chlorotoluene	126	14.214	14.214	0.944	64555	5.74	ug/L		95
70) 4-Chlorotoluene	91	14.317	14.317	0.951	209420	5.53	ug/L		96
71) tert-Butylbenzene	134	14.592	14.598	0.969	50670	6.05	ug/L	#	88
72) 1,2,4-Trimethylbenzene	105	14.640	14.640	0.972	254369	5.70	ug/L		95
73) sec-Butylbenzene	105	14.817	14.823	0.984	310469	5.75	ug/L		100
74) 4-Isopropyltoluene	119	14.592	14.598	0.969	229909	6.20	ug/L		90
75) 1,3-Dichlorobenzene	146	14.994	15.000	0.996	135747	5.67	ug/L		95
76) 1,4-Dichlorobenzene	146	15.079	15.085	1.002	131114	5.44	ug/L		96
77) n-Butylbenzene	91	15.378	15.378	1.021	251513	5.65	ug/L		100
78) 1,2-Dichlorobenzene	146	15.494	15.494	1.029	126567	5.50	ug/L		98
79) 1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	10535	5.34	ug/L		90
80) 1,2,4-Trichlorobenzene	180	17.286	17.286	1.148	99064	5.66	ug/L		100
81) Hexachlorobutadiene	225	17.445	17.445	1.159	59015	4.99	ug/L		96
82) Naphthalene	128	17.634	17.634	1.171	194525	5.95	ug/L		99
83) 1,2,3-Trichlorobenzene	180	17.945	17.945	1.192	86197	5.45	ug/L		99
85) Acrolein		6.118	6.032	0.648	0m	N.D.	d		
86) Trichlorotrifluoroethane		6.179	6.184	0.654	0m	N.D.	d		
87) Isopropyl Alcohol		6.294	6.288	0.667	0m	N.D.	d		
88) Allyl chloride		6.556	6.611	0.695	0m	N.D.	d		
89) tert-Butyl Alcohol		6.776	6.776	0.718	0m	N.D.	d		
90) Acrylonitrile		7.050	7.014	0.747	0m	N.D.	d		
91) Isopropyl ether		7.538	7.556	0.799	0m	N.D.	d		
92) 2-Chloro-1,3-butadiene		7.672	7.678	0.813	0m	N.D.	d		
93) Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.			
94) Ethyl acetate		8.166	8.178	0.865	0m	N.D.	d		
95) Propionitrile		8.160	8.239	0.864	0m	N.D.	d		
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.			
97) Tetrahydrofuran		8.526	8.525	0.903	0m	N.D.	d		
98) Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d		
99) Methyl tert-amyl ether		9.184	9.214	0.973	0m	N.D.	d		
100) Methyl methacrylate		10.068	10.068	1.067	0m	N.D.	d		
101) 1,4-Dioxane		0.000	10.178	0.000	0	N.D.			
102) 2-Nitropropane		10.568	10.549	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D405.D
Acq On : 13 Oct 2016 18:37
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-04|ICAL05|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 14 08:48:50 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

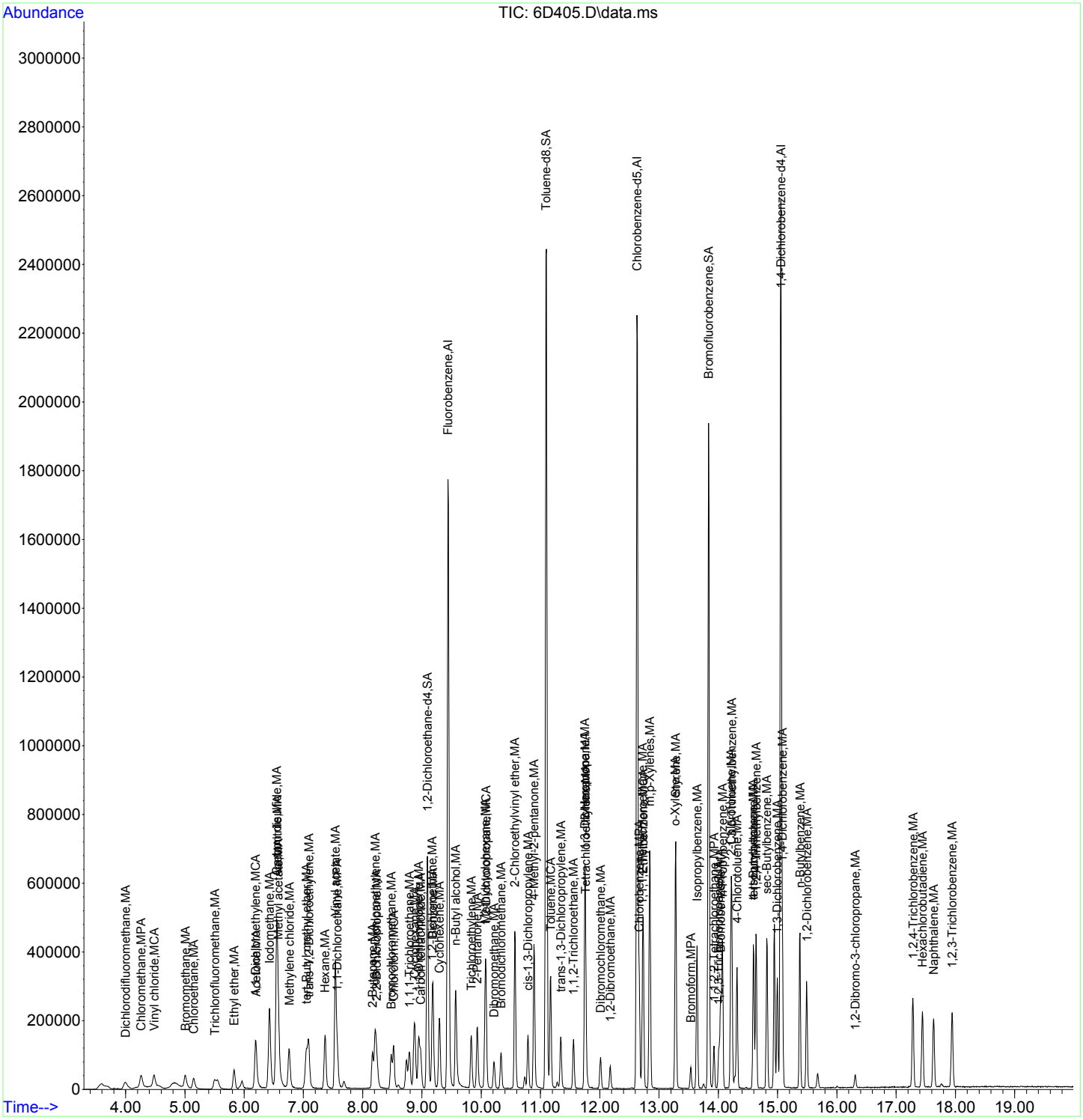
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.348	11.348	0.899	0m	N.D.	d
106) 1-Chlorohexane		12.525	12.543	0.832	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.640	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.799	13.793	0.917	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		0.000	13.976	0.000	0	N.D.	
110) Pentachloroethane		14.659	14.658	0.974	0m	N.D.	d
111) Benzyl chloride		15.189	15.201	1.009	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.671	15.597	1.041	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D405.D
Acq On : 13 Oct 2016 18:37
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-04|ICAL05|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 14 08:48:50 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D406.D
Acq On : 13 Oct 2016 19:06
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-05|ICAL010|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 14 08:48:52 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	9.440	9.446	1.000	1585906	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	12.635	12.635	1.000	1231216	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	647654	50.00	ug/L		0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	12.635	12.634	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	505189	39.60	ug/L		0.00
45) Toluene-d8	98	11.098	11.098	0.878	1646820	44.83	ug/L		0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	652600	48.83	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	3.993	3.993	0.423	107335	7.69	ug/L		100
3) Chloromethane	50	4.266	4.282	0.452	128550	12.22	ug/L		99
4) Vinyl chloride	62	4.482	4.506	0.475	103935	10.75	ug/L		99
5) Bromomethane	94	5.004	5.020	0.530	64587	8.67	ug/L		98
6) Chloroethane	64	5.148	5.156	0.545	76876	10.07	ug/L		99
7) Trichlorofluoromethane	101	5.509	5.509	0.584	129577	7.42	ug/L		99
8) Ethyl ether	59	5.830	5.830	0.618	101214	10.38	ug/L		73
9) Acetone	43	6.197	6.197	0.656	206500	60.03	ug/L		92
10) 1,1-Dichloroethylene	61	6.197	6.191	0.656	170927	10.02	ug/L		98
11) Iodomethane	142	6.429	6.429	0.681	756723	50.89	ug/L		93
12) Acetonitrile	41	6.550	6.550	0.694	391359	337.26	ug/L		96
13) Methyl acetate	43	6.575	6.575	0.696	448347	60.35	ug/L		92
14) Carbon disulfide	76	6.550	6.550	0.694	1411081	53.07	ug/L		99
15) Methylene chloride	84	6.758	6.758	0.716	112235	9.78	ug/L	#	81
16) tert-Butyl methyl ether	73	7.050	7.056	0.747	307015	9.18	ug/L		88
17) trans-1,2-Dichloroethy...	61	7.087	7.087	0.751	174520	10.31	ug/L		99
18) Hexane	57	7.367	7.367	0.780	181952	11.91	ug/L		95
19) Vinyl acetate	43	7.538	7.538	0.799	1199055	63.11	ug/L		97
20) 1,1-Dichloroethane	63	7.569	7.569	0.802	214861	10.56	ug/L		97
21) 2-Butanone	43	8.166	8.160	0.865	330144	65.15	ug/L		93
22) cis-1,2-Dichloroethylene	61	8.209	8.209	0.870	209301	10.40	ug/L		98
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	153363	8.33	ug/L		79
24) Bromochloromethane	128	8.483	8.477	0.899	54651	11.06	ug/L	#	88
25) Chloroform	83	8.520	8.520	0.902	188475	9.09	ug/L		97
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	161114	8.50	ug/L		97
27) Cyclohexane	56	8.873	8.879	0.940	246181	12.62	ug/L		84
28) 1,1-Dichloropropene	75	8.946	8.946	0.948	131594	9.39	ug/L		89
29) Carbon tetrachloride	117	8.977	8.977	0.951	139646	8.79	ug/L		99
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	182454	9.52	ug/L		98
32) Benzene	78	9.184	9.184	0.973	408346	10.70	ug/L		96
33) Cyclohexene	67	9.294	9.294	0.985	205603	10.43	ug/L		82
34) n-Butyl alcohol	56	9.568	9.568	1.014	417496	1327.88	ug/L		98
35) Trichloroethylene	95	9.830	9.830	1.041	105305	10.23	ug/L		95
36) 2-Pentanone	43	9.928	9.934	1.052	455097	63.92	ug/L		94
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	122588	11.59	ug/L		97
38) Methylcyclohexane	83	10.068	10.074	1.067	183903	10.31	ug/L		85
39) Dibromomethane	93	10.220	10.214	1.083	61973	9.85	ug/L		99
40) Bromodichloromethane	83	10.330	10.336	1.094	145623	9.61	ug/L		99
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	365800	54.97	ug/L		97
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	174319	10.33	ug/L		96

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D406.D
Acq On : 13 Oct 2016 19:06
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-05|ICAL010|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 14 08:48:52 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	10.891	10.891	0.862	244462	62.25	ug/L		94
46)	Toluene	91	11.171	11.172	0.884	452167	9.88	ug/L		99
47)	trans-1,3-Dichloroprop...	75	11.342	11.342	0.898	157858	8.87	ug/L		91
48)	1,1,2-Trichloroethane	83	11.556	11.556	0.915	76098	9.96	ug/L		98
49)	2-Hexanone	43	11.745	11.751	0.930	531036	60.32	ug/L		97
50)	1,3-Dichloropropane	76	11.751	11.751	0.930	160252	9.42	ug/L		85
51)	Tetrachloroethylene	164	11.763	11.763	0.931	84225	9.00	ug/L		96
52)	Dibromochloromethane	129	12.013	12.013	0.951	103338	9.93	ug/L		99
53)	1,2-Dibromoethane	107	12.177	12.177	0.964	90955	10.20	ug/L		98
54)	Chlorobenzene	112	12.665	12.665	1.002	306441	10.17	ug/L		98
55)	1,1,1,2-Tetrachloroethane	131	12.720	12.726	1.007	109436	9.35	ug/L		95
56)	Ethylbenzene	91	12.732	12.732	1.008	515976	9.75	ug/L		96
57)	m,p-Xylenes	106	12.842	12.842	1.016	404356	20.87	ug/L		92
58)	o-Xylene	91	13.275	13.275	1.051	442647	9.85	ug/L		95
59)	Styrene	104	13.281	13.281	1.051	347816	11.58	ug/L		88
61)	Bromoform	173	13.537	13.537	0.899	59365	9.49	ug/L		96
62)	Isopropylbenzene	105	13.641	13.641	0.906	540808	11.38	ug/L		97
64)	1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	116567	11.30	ug/L		97
65)	1,2,3-Trichloropropane	110	14.012	14.012	0.931	36266	9.77	ug/L	#	85
66)	Bromobenzene	156	14.043	14.043	0.933	138841	11.76	ug/L		92
67)	n-Propylbenzene	91	14.067	14.067	0.934	625924	11.11	ug/L		97
68)	1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	486776	11.26	ug/L		96
69)	2-Chlorotoluene	126	14.214	14.214	0.944	128647	11.61	ug/L		90
70)	4-Chlorotoluene	91	14.317	14.317	0.951	404336	10.82	ug/L		94
71)	tert-Butylbenzene	134	14.592	14.598	0.969	96885	11.72	ug/L	#	92
72)	1,2,4-Trimethylbenzene	105	14.640	14.640	0.972	498548	11.32	ug/L		96
73)	sec-Butylbenzene	105	14.817	14.823	0.984	604958	11.36	ug/L		99
74)	4-Isopropyltoluene	119	14.592	14.598	0.969	411043	11.23	ug/L		94
75)	1,3-Dichlorobenzene	146	15.000	15.000	0.996	260474	11.02	ug/L		99
76)	1,4-Dichlorobenzene	146	15.079	15.085	1.002	255905	10.77	ug/L		98
77)	n-Butylbenzene	91	15.378	15.378	1.021	476290	10.85	ug/L		99
78)	1,2-Dichlorobenzene	146	15.488	15.494	1.029	251301	11.07	ug/L		98
79)	1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	21829	10.40	ug/L		91
80)	1,2,4-Trichlorobenzene	180	17.280	17.286	1.148	191300	11.07	ug/L		100
81)	Hexachlorobutadiene	225	17.445	17.445	1.159	110973	9.51	ug/L		98
82)	Naphthalene	128	17.634	17.634	1.171	396113	12.28	ug/L		98
83)	1,2,3-Trichlorobenzene	180	17.945	17.945	1.192	177394	11.37	ug/L		95
85)	Acrolein		6.057	6.032	0.642	0m	N.D.	d		
86)	Trichlorotrifluoroethane		0.000	6.184	0.000	0	N.D.			
87)	Isopropyl Alcohol		6.282	6.288	0.665	0m	N.D.	d		
88)	Allyl chloride		6.550	6.611	0.694	0m	N.D.	d		
89)	tert-Butyl Alcohol		6.782	6.776	0.718	0m	N.D.	d		
90)	Acrylonitrile		7.050	7.014	0.747	0m	N.D.	d		
91)	Isopropyl ether		7.538	7.556	0.799	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		7.690	7.678	0.815	0m	N.D.	d		
93)	Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.			
94)	Ethyl acetate		8.166	8.178	0.865	0m	N.D.	d		
95)	Propionitrile		8.172	8.239	0.866	0m	N.D.	d		
96)	Methacrylonitrile		0.000	8.416	0.000	0	N.D.			
97)	Tetrahydrofuran		8.501	8.525	0.901	0m	N.D.	d		
98)	Isobutyl alcohol		8.879	8.873	0.941	0m	N.D.	d		
99)	Methyl tert-amyl ether		9.184	9.214	0.973	0m	N.D.	d		
100)	Methyl methacrylate		10.068	10.068	1.067	0m	N.D.	d		
101)	1,4-Dioxane		10.214	10.178	1.082	0m	N.D.	d		
102)	2-Nitropropane		10.568	10.549	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D406.D
Acq On : 13 Oct 2016 19:06
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-05|ICAL010|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 14 08:48:52 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

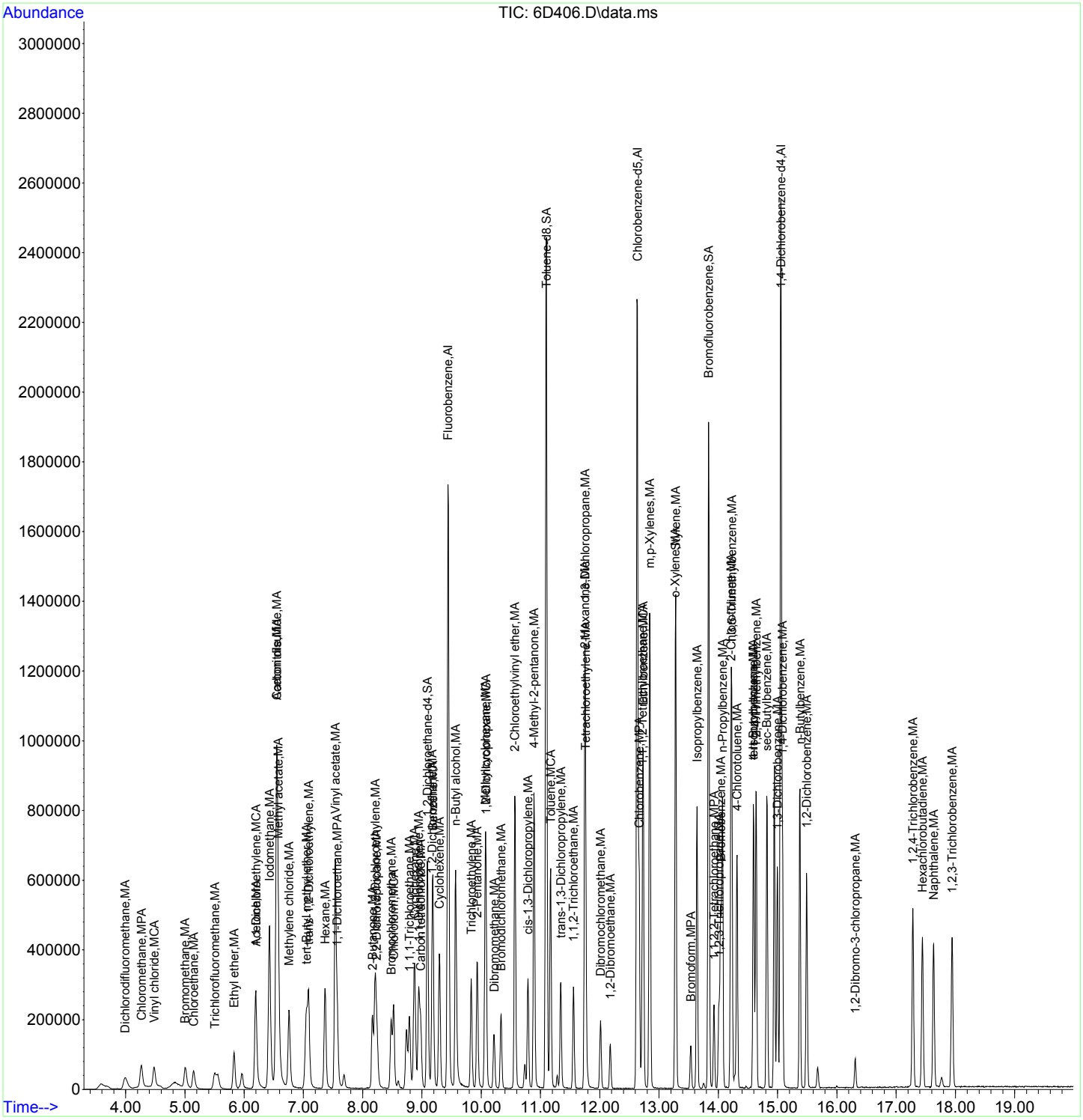
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.360	11.348	0.899	0m	N.D.	d
106) 1-Chlorohexane		12.549	12.543	0.834	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.641	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.805	13.793	0.917	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		0.000	13.976	0.000	0	N.D.	
110) Pentachloroethane		14.653	14.658	0.973	0m	N.D.	d
111) Benzyl chloride		15.171	15.201	1.008	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.604	15.597	1.036	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D406.D
Acq On : 13 Oct 2016 19:06
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-05|ICAL010|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 14 08:48:52 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D407.D
Acq On : 13 Oct 2016 19:35
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-06|ICAL020|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 14 08:48:54 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	9.440	9.446	1.000	1577017	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	12.629	12.635	1.000	1220130	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	651139	50.00	ug/L		0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	12.629	12.634	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	506628	39.94	ug/L		0.00
45) Toluene-d8	98	11.098	11.098	0.879	1617210	44.43	ug/L		0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	646461	48.11	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	3.993	3.993	0.423	202455	14.59	ug/L		100
3) Chloromethane	50	4.266	4.282	0.452	249235	23.82	ug/L		100
4) Vinyl chloride	62	4.482	4.506	0.475	200789	20.88	ug/L		95
5) Bromomethane	94	5.012	5.020	0.531	126213	17.04	ug/L		100
6) Chloroethane	64	5.148	5.156	0.545	145767	19.20	ug/L		100
7) Trichlorofluoromethane	101	5.509	5.509	0.584	240306	13.83	ug/L		100
8) Ethyl ether	59	5.830	5.830	0.618	197624	20.38	ug/L		85
9) Acetone	43	6.197	6.197	0.656	393382	115.00	ug/L		94
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	322280	19.00	ug/L		98
11) Iodomethane	142	6.429	6.429	0.681	1437068	97.19	ug/L		93
12) Acetonitrile	41	6.550	6.550	0.694	745965	646.47	ug/L		97
13) Methyl acetate	43	6.575	6.575	0.696	850607	115.14	ug/L		94
14) Carbon disulfide	76	6.550	6.550	0.694	2552672	96.55	ug/L		100
15) Methylene chloride	84	6.758	6.758	0.716	214403	19.78	ug/L	#	78
16) tert-Butyl methyl ether	73	7.050	7.056	0.747	604017	18.17	ug/L		88
17) trans-1,2-Dichloroethy...	61	7.087	7.087	0.751	339821	20.20	ug/L		100
18) Hexane	57	7.367	7.367	0.780	365844	24.08	ug/L		98
19) Vinyl acetate	43	7.538	7.538	0.799	2376064	125.77	ug/L		97
20) 1,1-Dichloroethane	63	7.569	7.569	0.802	413505	20.44	ug/L		95
21) 2-Butanone	43	8.160	8.160	0.864	659790	130.94	ug/L		93
22) cis-1,2-Dichloroethylene	61	8.203	8.209	0.869	407818	20.38	ug/L		98
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	298526	16.30	ug/L		82
24) Bromochloromethane	128	8.483	8.477	0.899	107786	21.93	ug/L		89
25) Chloroform	83	8.520	8.520	0.902	370001	17.95	ug/L		98
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	310670	16.49	ug/L		97
27) Cyclohexane	56	8.873	8.879	0.940	459936	23.71	ug/L		84
28) 1,1-Dichloropropene	75	8.946	8.946	0.948	258053	18.52	ug/L		90
29) Carbon tetrachloride	117	8.977	8.977	0.951	269073	17.03	ug/L		98
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	354499	18.60	ug/L		98
32) Benzene	78	9.184	9.184	0.973	782568	20.63	ug/L		96
33) Cyclohexene	67	9.294	9.294	0.985	392089	20.00	ug/L		81
34) n-Butyl alcohol	56	9.568	9.568	1.014	864278	2730.76	ug/L		98
35) Trichloroethylene	95	9.830	9.830	1.041	201763	19.72	ug/L		95
36) 2-Pentanone	43	9.928	9.934	1.052	888269	125.47	ug/L		95
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	244458	23.25	ug/L		94
38) Methylcyclohexane	83	10.068	10.074	1.067	347611	19.60	ug/L		86
39) Dibromomethane	93	10.214	10.214	1.082	121744	19.46	ug/L		98
40) Bromodichloromethane	83	10.336	10.336	1.095	293700	19.48	ug/L		98
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	715069	108.06	ug/L		97
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	343359	20.47	ug/L		95

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D407.D
Acq On : 13 Oct 2016 19:35
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-06|ICAL020|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 14 08:48:54 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44)	4-Methyl-2-pentanone	58	10.891	10.891	0.862	484236	124.43	ug/L	94
46)	Toluene	91	11.172	11.172	0.885	847718	18.70	ug/L	99
47)	trans-1,3-Dichloroprop...	75	11.342	11.342	0.898	322106	18.27	ug/L	94
48)	1,1,2-Trichloroethane	83	11.556	11.556	0.915	150733	19.90	ug/L	98
49)	2-Hexanone	43	11.751	11.751	0.930	1076037	123.33	ug/L	97
50)	1,3-Dichloropropane	76	11.751	11.751	0.930	307463	18.23	ug/L	82
51)	Tetrachloroethylene	164	11.763	11.763	0.931	159302	17.18	ug/L	97
52)	Dibromochloromethane	129	12.013	12.013	0.951	207252	20.09	ug/L	98
53)	1,2-Dibromoethane	107	12.177	12.177	0.964	182985	20.70	ug/L	100
54)	Chlorobenzene	112	12.665	12.665	1.003	595999	19.95	ug/L	95
55)	1,1,1,2-Tetrachloroethane	131	12.720	12.726	1.007	218050	18.81	ug/L	96
56)	Ethylbenzene	91	12.732	12.732	1.008	992047	18.92	ug/L	96
57)	m,p-Xylenes	106	12.842	12.842	1.017	780840	40.66	ug/L	90
58)	o-Xylene	91	13.275	13.275	1.051	848224	19.04	ug/L	94
59)	Styrene	104	13.281	13.281	1.052	677248	22.75	ug/L	88
61)	Bromoform	173	13.537	13.537	0.899	127844	19.51	ug/L	97
62)	Isopropylbenzene	105	13.641	13.641	0.906	1039228	21.74	ug/L	97
64)	1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	230620	22.23	ug/L	96
65)	1,2,3-Trichloropropane	110	14.012	14.012	0.931	73532	19.71	ug/L	94
66)	Bromobenzene	156	14.037	14.043	0.932	275676	23.22	ug/L	89
67)	n-Propylbenzene	91	14.067	14.067	0.934	1193933	21.08	ug/L	96
68)	1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	929207	21.38	ug/L	95
69)	2-Chlorotoluene	126	14.214	14.214	0.944	250401	22.47	ug/L	90
70)	4-Chlorotoluene	91	14.317	14.317	0.951	794697	21.14	ug/L	96
71)	tert-Butylbenzene	134	14.598	14.598	0.970	186169	22.40	ug/L	93
72)	1,2,4-Trimethylbenzene	105	14.634	14.640	0.972	975185	22.03	ug/L	95
73)	sec-Butylbenzene	105	14.817	14.823	0.984	1169899	21.85	ug/L	99
74)	4-Isopropyltoluene	119	14.592	14.598	0.969	793534	21.57	ug/L	94
75)	1,3-Dichlorobenzene	146	14.994	15.000	0.996	515283	21.69	ug/L	98
76)	1,4-Dichlorobenzene	146	15.079	15.085	1.002	507910	21.26	ug/L	99
77)	n-Butylbenzene	91	15.378	15.378	1.021	938122	21.25	ug/L	100
78)	1,2-Dichlorobenzene	146	15.488	15.494	1.029	495225	21.70	ug/L	99
79)	1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	46270	21.12	ug/L	90
80)	1,2,4-Trichlorobenzene	180	17.280	17.286	1.148	391430	22.53	ug/L	100
81)	Hexachlorobutadiene	225	17.445	17.445	1.159	226032	19.26	ug/L	99
82)	Naphthalene	128	17.634	17.634	1.171	809386	24.95	ug/L	99
83)	1,2,3-Trichlorobenzene	180	17.945	17.945	1.192	349796	22.29	ug/L	98
85)	Acrolein		6.051	6.032	0.641	0m	N.D.	d	
86)	Trichlorotrifluoroethane		6.160	6.184	0.653	0m	N.D.	d	
87)	Isopropyl Alcohol		0.000	6.288	0.000	0	N.D.		
88)	Allyl chloride		6.550	6.611	0.694	0m	N.D.	d	
89)	tert-Butyl Alcohol		6.770	6.776	0.717	0m	N.D.	d	
90)	Acrylonitrile		7.050	7.014	0.747	0m	N.D.	d	
91)	Isopropyl ether		7.532	7.556	0.798	0m	N.D.	d	
92)	2-Chloro-1,3-butadiene		7.678	7.678	0.813	0m	N.D.	d	
93)	Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.		
94)	Ethyl acetate		8.160	8.178	0.864	0m	N.D.	d	
95)	Propionitrile		8.300	8.239	0.879	0m	N.D.	d	
96)	Methacrylonitrile		8.392	8.416	0.889	0m	N.D.	d	
97)	Tetrahydrofuran		8.526	8.525	0.903	0m	N.D.	d	
98)	Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d	
99)	Methyl tert-amyl ether		9.184	9.214	0.973	0m	N.D.	d	
100)	Methyl methacrylate		10.074	10.068	1.067	0m	N.D.	d	
101)	1,4-Dioxane		10.214	10.178	1.082	0m	N.D.	d	
102)	2-Nitropropane		10.568	10.549	1.119	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D407.D
Acq On : 13 Oct 2016 19:35
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-06|ICAL020|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 14 08:48:54 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

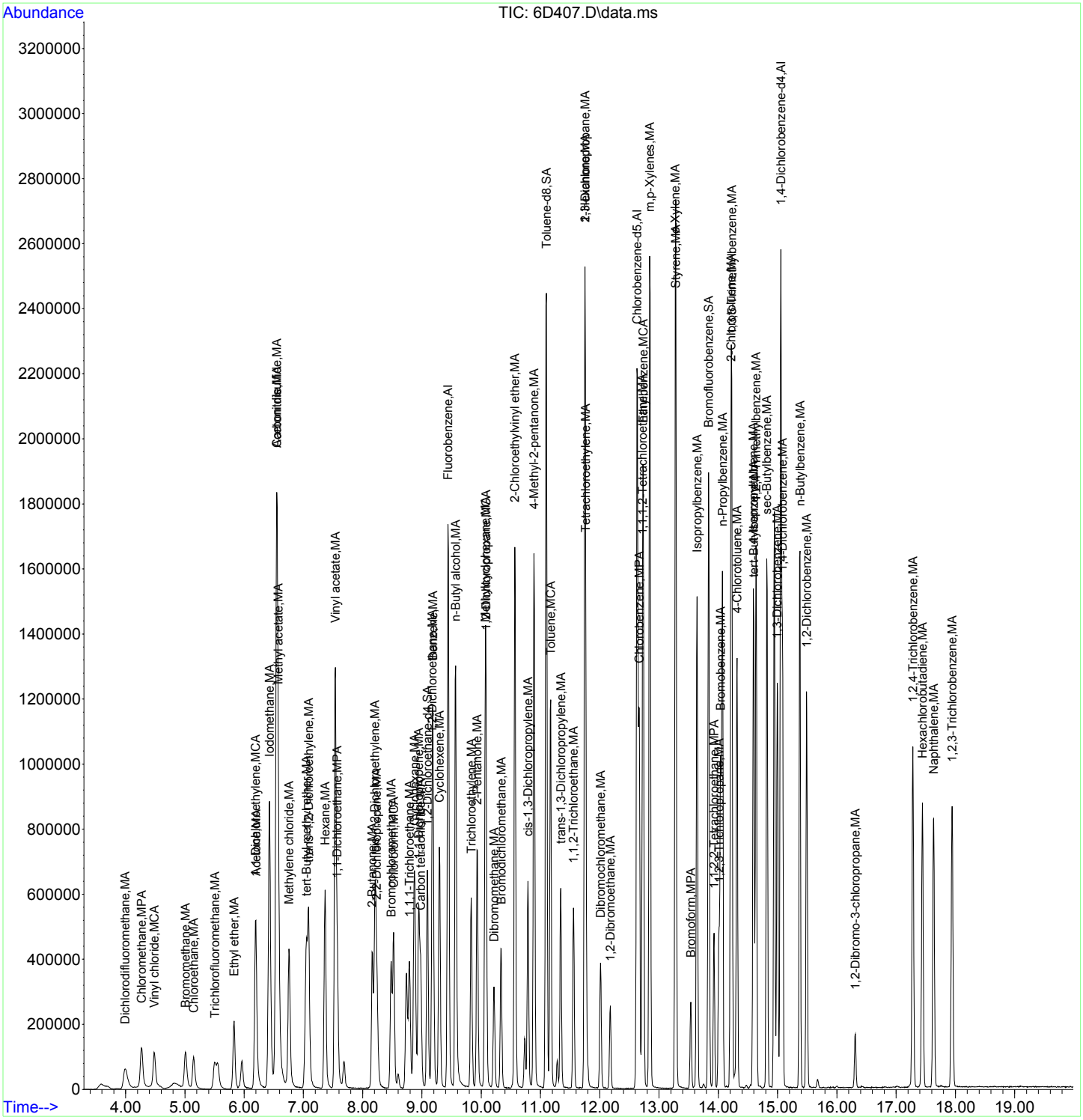
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.306	11.348	0.895	0m	N.D.	d
106) 1-Chlorohexane		12.543	12.543	0.833	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.641	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.805	13.793	0.917	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		0.000	13.976	0.000	0	N.D.	
110) Pentachloroethane		14.659	14.658	0.974	0m	N.D.	d
111) Benzyl chloride		15.244	15.201	1.013	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.616	15.597	1.037	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D407.D
Acq On : 13 Oct 2016 19:35
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-06|ICAL020|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 14 08:48:54 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D408.D
Acq On : 13 Oct 2016 20:03
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-07|ICAL50|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 14 08:48:56 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	9.440	9.446	1.000	1591296	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	12.629	12.635	1.000	1225799	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	654546	50.00	ug/L		0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	12.629	12.634	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	522267	40.80	ug/L		0.00
45) Toluene-d8	98	11.098	11.098	0.879	1637660	44.78	ug/L		0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	665058	49.24	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	4.001	3.993	0.424	508352	36.30	ug/L		100
3) Chloromethane	50	4.282	4.282	0.454	658487	62.36	ug/L		100
4) Vinyl chloride	62	4.498	4.506	0.477	527662	54.39	ug/L		96
5) Bromomethane	94	5.020	5.020	0.532	341669	45.73	ug/L		100
6) Chloroethane	64	5.156	5.156	0.546	384095	50.14	ug/L		99
7) Trichlorofluoromethane	101	5.509	5.509	0.584	638036	36.39	ug/L		100
8) Ethyl ether	59	5.830	5.830	0.618	524922	53.64	ug/L		93
9) Acetone	43	6.197	6.197	0.656	976726	282.98	ug/L		93
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	713168	41.67	ug/L		96
11) Iodomethane	142	6.429	6.429	0.681	3187674	213.65	ug/L		94
12) Acetonitrile	41	6.550	6.550	0.694	1802548	1548.11	ug/L		97
13) Methyl acetate	43	6.575	6.575	0.696	2018783	270.82	ug/L		94
14) Carbon disulfide	76	6.550	6.550	0.694	5693788	213.43	ug/L		100
15) Methylene chloride	84	6.764	6.758	0.716	485832	45.74	ug/L	#	79
16) tert-Butyl methyl ether	73	7.050	7.056	0.747	1481452	44.15	ug/L		88
17) trans-1,2-Dichloroethy...	61	7.093	7.087	0.751	753869	44.40	ug/L		99
18) Hexane	57	7.367	7.367	0.780	888214	57.93	ug/L		97
19) Vinyl acetate	43	7.538	7.538	0.799	6108989	320.45	ug/L		98
20) 1,1-Dichloroethane	63	7.575	7.569	0.802	910473	44.61	ug/L		97
21) 2-Butanone	43	8.160	8.160	0.864	1627482	320.10	ug/L		93
22) cis-1,2-Dichloroethylene	61	8.209	8.209	0.870	914451	45.29	ug/L		98
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	660779	35.75	ug/L		82
24) Bromochloromethane	128	8.483	8.477	0.899	251880	50.78	ug/L	#	88
25) Chloroform	83	8.520	8.520	0.902	820496	39.46	ug/L		95
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	692926	36.45	ug/L		98
27) Cyclohexane	56	8.873	8.879	0.940	999698	51.07	ug/L		84
28) 1,1-Dichloropropene	75	8.946	8.946	0.948	557466	39.65	ug/L		90
29) Carbon tetrachloride	117	8.977	8.977	0.951	601780	37.75	ug/L		100
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	830599	43.19	ug/L		98
32) Benzene	78	9.184	9.184	0.973	1713167	44.76	ug/L		96
33) Cyclohexene	67	9.294	9.294	0.985	848444	42.90	ug/L		82
34) n-Butyl alcohol	56	9.568	9.568	1.014	2041891	6351.94	ug/L		98
35) Trichloroethylene	95	9.830	9.830	1.041	443609	42.97	ug/L		96
36) 2-Pentanone	43	9.928	9.934	1.052	2268983	317.62	ug/L		96
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	544466	51.32	ug/L		94
38) Methylcyclohexane	83	10.068	10.074	1.067	754526	42.15	ug/L		87
39) Dibromomethane	93	10.214	10.214	1.082	293096	46.42	ug/L		99
40) Bromodichloromethane	83	10.330	10.336	1.094	693381	45.58	ug/L		97
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	1771106	265.24	ug/L		98
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	809411	47.81	ug/L		96

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D408.D
Acq On : 13 Oct 2016 20:03
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-07|ICAL50|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 14 08:48:56 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone	58	10.891	10.891	0.862	1173904	300.24	ug/L		92
46) Toluene	91	11.172	11.172	0.885	1856164	40.75	ug/L		100
47) trans-1,3-Dichloroprop...	75	11.342	11.342	0.898	777031	43.88	ug/L		93
48) 1,1,2-Trichloroethane	83	11.556	11.556	0.915	353034	46.39	ug/L		96
49) 2-Hexanone	43	11.745	11.751	0.930	2470971	281.90	ug/L		96
50) 1,3-Dichloropropane	76	11.751	11.751	0.930	711720	42.01	ug/L		82
51) Tetrachloroethylene	164	11.763	11.763	0.931	343486	36.86	ug/L		98
52) Dibromochloromethane	129	12.013	12.013	0.951	525393	50.70	ug/L		100
53) 1,2-Dibromoethane	107	12.177	12.177	0.964	445393	50.15	ug/L		100
54) Chlorobenzene	112	12.665	12.665	1.003	1299159	43.29	ug/L		96
55) 1,1,1,2-Tetrachloroethane	131	12.720	12.726	1.007	498601	42.81	ug/L		96
56) Ethylbenzene	91	12.732	12.732	1.008	2127810	40.39	ug/L		96
57) m,p-Xylenes	106	12.842	12.842	1.017	1664860	86.30	ug/L		90
58) o-Xylene	91	13.275	13.275	1.051	1825225	40.79	ug/L		95
59) Styrene	104	13.281	13.281	1.052	1483491	49.59	ug/L		89
61) Bromoform	173	13.537	13.537	0.899	333123	49.44	ug/L		98
62) Isopropylbenzene	105	13.641	13.641	0.906	2225142	46.31	ug/L		97
64) 1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	574232	55.07	ug/L		96
65) 1,2,3-Trichloropropane	110	14.012	14.012	0.931	186546	49.75	ug/L	#	89
66) Bromobenzene	156	14.043	14.043	0.933	620852	52.02	ug/L		90
67) n-Propylbenzene	91	14.067	14.067	0.934	2578640	45.29	ug/L		96
68) 1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	1996729	45.69	ug/L		95
69) 2-Chlorotoluene	126	14.214	14.214	0.944	544527	48.61	ug/L		88
70) 4-Chlorotoluene	91	14.317	14.317	0.951	1735994	45.95	ug/L		95
71) tert-Butylbenzene	134	14.592	14.598	0.969	401217	48.01	ug/L	#	85
72) 1,2,4-Trimethylbenzene	105	14.634	14.640	0.972	2085942	46.88	ug/L		94
73) sec-Butylbenzene	105	14.817	14.823	0.984	2510237	46.63	ug/L		100
74) 4-Isopropyltoluene	119	14.592	14.598	0.969	1888789	51.07	ug/L		88
75) 1,3-Dichlorobenzene	146	14.994	15.000	0.996	1115337	46.70	ug/L		99
76) 1,4-Dichlorobenzene	146	15.085	15.085	1.002	1117385	46.54	ug/L		99
77) n-Butylbenzene	91	15.372	15.378	1.021	2028240	45.71	ug/L		99
78) 1,2-Dichlorobenzene	146	15.494	15.494	1.029	1121475	48.88	ug/L		99
79) 1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	126504	56.19	ug/L		90
80) 1,2,4-Trichlorobenzene	180	17.280	17.286	1.148	870521	49.85	ug/L		98
81) Hexachlorobutadiene	225	17.445	17.445	1.159	500523	42.43	ug/L		99
82) Naphthalene	128	17.628	17.634	1.171	1934506	59.32	ug/L		99
83) 1,2,3-Trichlorobenzene	180	17.945	17.945	1.192	798571	50.63	ug/L		97
85) Acrolein		6.154	6.032	0.652	0m	N.D.	d		
86) Trichlorotrifluoroethane		6.191	6.184	0.656	0m	N.D.	d		
87) Isopropyl Alcohol		6.374	6.288	0.675	0m	N.D.	d		
88) Allyl chloride		6.550	6.611	0.694	0m	N.D.	d		
89) tert-Butyl Alcohol		6.849	6.776	0.726	0m	N.D.	d		
90) Acrylonitrile		7.056	7.014	0.747	0m	N.D.	d		
91) Isopropyl ether		7.538	7.556	0.799	0m	N.D.	d		
92) 2-Chloro-1,3-butadiene		7.684	7.678	0.814	0m	N.D.	d		
93) Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.			
94) Ethyl acetate		8.160	8.178	0.864	0m	N.D.	d		
95) Propionitrile		8.154	8.239	0.864	0m	N.D.	d		
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.			
97) Tetrahydrofuran		8.526	8.525	0.903	0m	N.D.	d		
98) Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d		
99) Methyl tert-amyl ether		9.184	9.214	0.973	0m	N.D.	d		
100) Methyl methacrylate		10.074	10.068	1.067	0m	N.D.	d		
101) 1,4-Dioxane		10.214	10.178	1.082	0m	N.D.	d		
102) 2-Nitropropane		10.568	10.549	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D408.D
Acq On : 13 Oct 2016 20:03
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-07|ICAL50|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 14 08:48:56 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

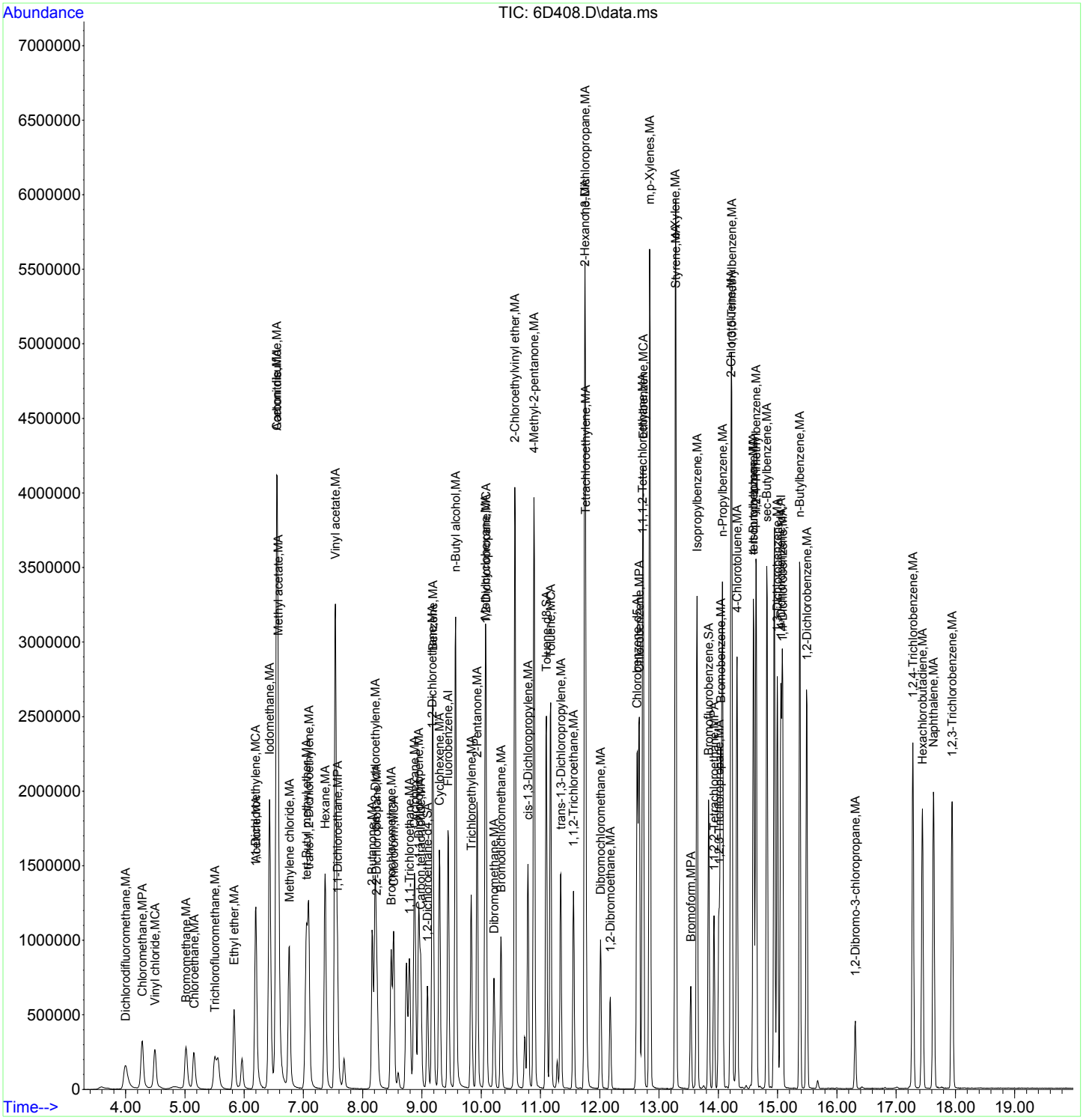
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.360	11.348	0.900	0m	N.D.	d
106) 1-Chlorohexane		12.513	12.543	0.831	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.641	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.787	13.793	0.916	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		14.000	13.976	0.930	0m	N.D.	d
110) Pentachloroethane		14.659	14.658	0.974	0m	N.D.	d
111) Benzyl chloride		0.000	15.201	0.000	0	N.D.	
112) bis(2-Chloroisopropyl)...		15.677	15.597	1.041	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D408.D
Acq On : 13 Oct 2016 20:03
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-07|ICAL50|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 14 08:48:56 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D409.D
Acq On : 13 Oct 2016 20:32
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-08|ICAL080|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 14 08:48:58 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	9.440	9.446	1.000	1603503	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.635	12.635	1.000	1254717	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	663677	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.635	12.634	1.000	0m	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	539031	41.79	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.878	1667838	44.55	ug/L	0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	675693	49.34	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	3.993	3.993	0.423	705402	49.99	ug/L	100
3) Chloromethane	50	4.282	4.282	0.454	928789	87.29	ug/L	100
4) Vinyl chloride	62	4.498	4.506	0.477	741286	75.83	ug/L	96
5) Bromomethane	94	5.020	5.020	0.532	507376	67.39	ug/L	99
6) Chloroethane	64	5.156	5.156	0.546	561015	72.68	ug/L	99
7) Trichlorofluoromethane	101	5.557	5.509	0.589	917546	51.94	ug/L	100
8) Ethyl ether	59	5.830	5.830	0.618	789569	80.06	ug/L	89
9) Acetone	43	6.197	6.197	0.656	1683048	483.91	ug/L	92
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	1337641	77.55	ug/L	97
11) Iodomethane	142	6.428	6.429	0.681	5593574	372.06	ug/L	95
12) Acetonitrile	41	6.544	6.550	0.693	3001567	2558.25	ug/L	97 A
13) Methyl acetate	43	6.575	6.575	0.696	3466169	461.45	ug/L	95
14) Carbon disulfide	76	6.550	6.550	0.694	9756817	362.94	ug/L	99
15) Methylene chloride	84	6.758	6.758	0.716	871061	82.23	ug/L	82
16) tert-Butyl methyl ether	73	7.050	7.056	0.747	2592888	76.69	ug/L	89
17) trans-1,2-Dichloroethy...	61	7.087	7.087	0.751	1373174	80.26	ug/L	100
18) Hexane	57	7.367	7.367	0.780	1452111	93.99	ug/L	97
19) Vinyl acetate	43	7.538	7.538	0.799	8814127	458.83	ug/L	99
20) 1,1-Dichloroethane	63	7.568	7.569	0.802	1631297	79.31	ug/L	97
21) 2-Butanone	43	8.160	8.160	0.864	2844895	555.28	ug/L	94 A
22) cis-1,2-Dichloroethylene	61	8.209	8.209	0.870	1619679	79.61	ug/L	98
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	1224542	65.75	ug/L	84
24) Bromochloromethane	128	8.483	8.477	0.899	439647	87.97	ug/L	89
25) Chloroform	83	8.519	8.520	0.902	1474200	70.35	ug/L	96
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	1292898	67.49	ug/L	98
27) Cyclohexane	56	8.873	8.879	0.940	1876869	95.14	ug/L	84
28) 1,1-Dichloropropene	75	8.946	8.946	0.948	1032611	72.88	ug/L	89
29) Carbon tetrachloride	117	8.977	8.977	0.951	1158659	72.14	ug/L	99
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	1444400	74.54	ug/L	97
32) Benzene	78	9.184	9.184	0.973	3035206	78.69	ug/L	96
33) Cyclohexene	67	9.294	9.294	0.985	1587079	79.63	ug/L	82
34) n-Butyl alcohol	56	9.568	9.568	1.014	3623562	11162.75	ug/L	98 A
35) Trichloroethylene	95	9.830	9.830	1.041	806508	77.53	ug/L	96
36) 2-Pentanone	43	9.928	9.934	1.052	3832478	532.40	ug/L	96 A
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	947084	88.59	ug/L	94
38) Methylcyclohexane	83	10.068	10.074	1.067	1401590	77.71	ug/L	87
39) Dibromomethane	93	10.214	10.214	1.082	510736	80.28	ug/L	99
40) Bromodichloromethane	83	10.330	10.336	1.094	1228909	80.17	ug/L	97
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	2770774	411.79	ug/L	98
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	1435500	84.15	ug/L	95

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D409.D
Acq On : 13 Oct 2016 20:32
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-08|ICAL080|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 14 08:48:58 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	10.891	10.891	0.862	2040537	509.87	ug/L		89 A
46)	Toluene	91	11.171	11.172	0.884	3294480	70.66	ug/L		99
47)	trans-1,3-Dichloroprop...	75	11.336	11.342	0.897	1366609	75.39	ug/L		93
48)	1,1,2-Trichloroethane	83	11.555	11.556	0.915	611348	78.49	ug/L		96
49)	2-Hexanone	43	11.744	11.751	0.930	4098257	456.77	ug/L		96
50)	1,3-Dichloropropane	76	11.751	11.751	0.930	1196753	69.00	ug/L		81
51)	Tetrachloroethylene	164	11.763	11.763	0.931	607023	63.65	ug/L		96
52)	Dibromochloromethane	129	12.013	12.013	0.951	937549	88.38	ug/L		100
53)	1,2-Dibromoethane	107	12.177	12.177	0.964	784032	86.24	ug/L		99
54)	Chlorobenzene	112	12.665	12.665	1.002	2290917	74.57	ug/L		96
55)	1,1,1,2-Tetrachloroethane	131	12.720	12.726	1.007	879132	73.74	ug/L		96
56)	Ethylbenzene	91	12.732	12.732	1.008	3784827	70.19	ug/L		95
57)	m,p-Xylenes	106	12.842	12.842	1.016	2952272	149.50	ug/L		88
58)	o-Xylene	91	13.275	13.275	1.051	3194999	69.75	ug/L		95
59)	Styrene	104	13.281	13.281	1.051	2580161	84.27	ug/L		89
61)	Bromoform	173	13.537	13.537	0.899	601250	87.46	ug/L		96
62)	Isopropylbenzene	105	13.640	13.641	0.906	3984173	81.78	ug/L		96
64)	1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	1001210	94.70	ug/L		96
65)	1,2,3-Trichloropropane	110	14.006	14.012	0.930	321433	84.54	ug/L	#	90
66)	Bromobenzene	156	14.043	14.043	0.933	1068783	88.33	ug/L		91
67)	n-Propylbenzene	91	14.067	14.067	0.934	4541948	78.67	ug/L		95
68)	1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	3497404	78.94	ug/L		95
69)	2-Chlorotoluene	126	14.213	14.214	0.944	945336	83.22	ug/L		90
70)	4-Chlorotoluene	91	14.317	14.317	0.951	3061234	79.91	ug/L		95
71)	tert-Butylbenzene	134	14.598	14.598	0.970	727846	85.90	ug/L		94
72)	1,2,4-Trimethylbenzene	105	14.634	14.640	0.972	3676825	81.50	ug/L		95
73)	sec-Butylbenzene	105	14.817	14.823	0.984	4452999	81.58	ug/L		100
74)	4-Isopropyltoluene	119	14.591	14.598	0.969	3100508	82.69	ug/L		96
75)	1,3-Dichlorobenzene	146	14.994	15.000	0.996	1940719	80.14	ug/L		100
76)	1,4-Dichlorobenzene	146	15.079	15.085	1.002	1949502	80.08	ug/L		99
77)	n-Butylbenzene	91	15.378	15.378	1.021	3572501	79.41	ug/L		98
78)	1,2-Dichlorobenzene	146	15.488	15.494	1.029	1930924	83.00	ug/L		100
79)	1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	230606	100.44	ug/L		90 A
80)	1,2,4-Trichlorobenzene	180	17.280	17.286	1.148	1470905	83.07	ug/L		99
81)	Hexachlorobutadiene	225	17.445	17.445	1.159	890094	74.42	ug/L		99
82)	Naphthalene	128	17.634	17.634	1.171	3330003	100.71	ug/L		99 A
83)	1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	1346658	84.20	ug/L		98
85)	Acrolein		6.105	6.032	0.647	0m	N.D.	d		
86)	Trichlorotrifluoroethane		6.185	6.184	0.655	0m	N.D.	d		
87)	Isopropyl Alcohol		6.428	6.288	0.681	0m	N.D.	d		
88)	Allyl chloride		6.544	6.611	0.693	0m	N.D.	d		
89)	tert-Butyl Alcohol		6.873	6.776	0.728	0m	N.D.	d		
90)	Acrylonitrile		7.050	7.014	0.747	0m	N.D.	d		
91)	Isopropyl ether		7.532	7.556	0.798	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		7.684	7.678	0.814	0m	N.D.	d		
93)	Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.			
94)	Ethyl acetate		8.160	8.178	0.864	0m	N.D.	d		
95)	Propionitrile		8.245	8.239	0.873	0m	N.D.	d		
96)	Methacrylonitrile		0.000	8.416	0.000	0	N.D.			
97)	Tetrahydrofuran		8.513	8.525	0.902	0m	N.D.	d		
98)	Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d		
99)	Methyl tert-amyl ether		9.190	9.214	0.974	0m	N.D.	d		
100)	Methyl methacrylate		10.068	10.068	1.067	0m	N.D.	d		
101)	1,4-Dioxane		10.184	10.178	1.079	0m	N.D.	d		
102)	2-Nitropropane		10.568	10.549	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D409.D
Acq On : 13 Oct 2016 20:32
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-08|ICAL080|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 14 08:48:58 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

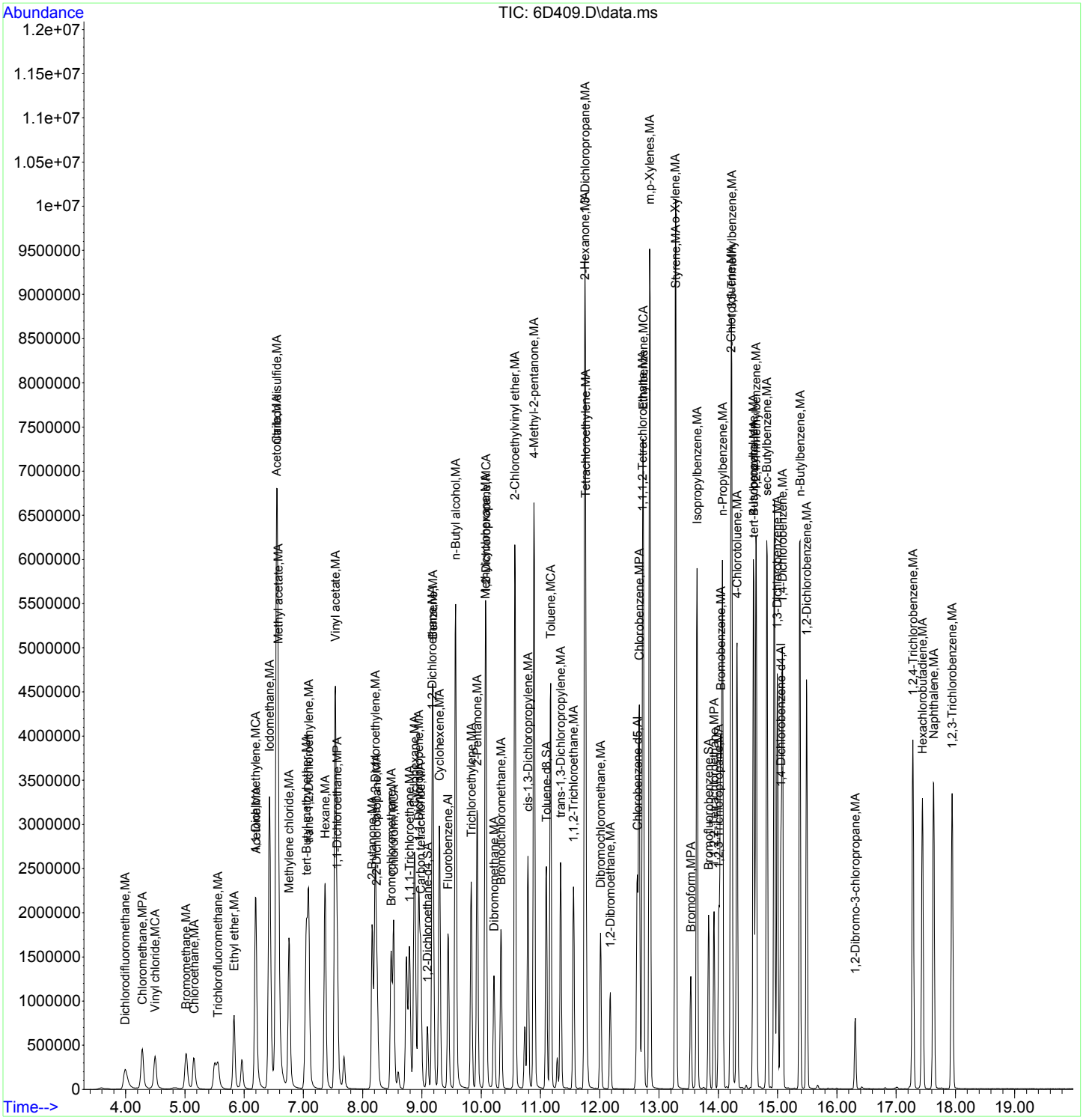
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.360	11.348	0.899	0m	N.D.	d
106) 1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107) cis-1,4-Dichloro-2-butene		13.708	13.689	0.911	0m	N.D.	d
108) Cyclohexanone		13.805	13.793	0.917	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		13.988	13.976	0.929	0m	N.D.	d
110) Pentachloroethane		14.665	14.658	0.974	0m	N.D.	d
111) Benzyl chloride		15.201	15.201	1.010	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.677	15.597	1.041	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D409.D
Acq On : 13 Oct 2016 20:32
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-08|ICAL080|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 14 08:48:58 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D410.D
Acq On : 13 Oct 2016 21:01
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-09|ICAL100|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 14 08:49:00 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		Dev(Min)
Internal Standards									
1) Fluorobenzene	96	9.440	9.446	1.000	1578465	50.00	ug/L		0.00
43) Chlorobenzene-d5	117	12.634	12.635	1.000	1229267	50.00	ug/L		0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	654255	50.00	ug/L		0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L		0.00
103) B Chlorobenzene-d5	117	12.634	12.634	1.000	0m	50.00	ug/L		0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L		0.00
System Monitoring Compounds									Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	529671	41.71	ug/L		0.00
45) Toluene-d8	98	11.098	11.098	0.878	1657473	45.19	ug/L		0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	681744	50.50	ug/L		0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		QValue
2) Dichlorodifluoromethane	85	3.993	3.993	0.423	1010674	72.76	ug/L		99
3) Chloromethane	50	4.282	4.282	0.454	1317759	125.82	ug/L		100 A
4) Vinyl chloride	62	4.506	4.506	0.477	1062629	110.42	ug/L		96 A
5) Bromomethane	94	5.020	5.020	0.532	702889	94.83	ug/L		98
6) Chloroethane	64	5.148	5.156	0.545	785491	103.38	ug/L		99 A
7) Trichlorofluoromethane	101	5.557	5.509	0.589	1321497	75.99	ug/L		100
8) Ethyl ether	59	5.822	5.830	0.617	1022782	105.36	ug/L		87 A
9) Acetone	43	6.191	6.197	0.656	2041566	596.30	ug/L		92 A
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	1709196	100.67	ug/L		97 A
11) Iodomethane	142	6.422	6.429	0.680	7103519	479.98	ug/L		95
12) Acetonitrile	41	6.544	6.550	0.693	3569775	3090.80	ug/L		98 A
13) Methyl acetate	43	6.575	6.575	0.696	4219319	570.63	ug/L		95 A
14) Carbon disulfide	76	6.550	6.550	0.694	12134936	458.57	ug/L		98
15) Methylene chloride	84	6.758	6.758	0.716	1106263	106.40	ug/L	#	82 A
16) tert-Butyl methyl ether	73	7.050	7.056	0.747	3306287	99.34	ug/L		89
17) trans-1,2-Dichloroethy...	61	7.087	7.087	0.751	1746580	103.70	ug/L		99 A
18) Hexane	57	7.361	7.367	0.780	1534523	100.90	ug/L		97 A
19) Vinyl acetate	43	7.532	7.538	0.798	10680292	564.79	ug/L		100 A
20) 1,1-Dichloroethane	63	7.568	7.569	0.802	2087202	103.09	ug/L		97 A
21) 2-Butanone	43	8.160	8.160	0.864	3435208	681.14	ug/L		94 A
22) cis-1,2-Dichloroethylene	61	8.202	8.209	0.869	2068272	103.27	ug/L		98 A
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	1604149	87.50	ug/L		86
24) Bromochloromethane	128	8.483	8.477	0.899	558166	113.45	ug/L		89 A
25) Chloroform	83	8.519	8.520	0.902	1886985	91.48	ug/L		97
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	1676815	88.92	ug/L		98
27) Cyclohexane	56	8.873	8.879	0.940	2416344	124.43	ug/L		85 A
28) 1,1-Dichloropropene	75	8.940	8.946	0.947	1321365	94.74	ug/L		90
29) Carbon tetrachloride	117	8.977	8.977	0.951	1495277	94.57	ug/L		100
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	1808659	94.81	ug/L		98
32) Benzene	78	9.184	9.184	0.973	3861178	101.69	ug/L		96 A
33) Cyclohexene	67	9.294	9.294	0.985	2038289	103.89	ug/L		83 A
34) n-Butyl alcohol	56	9.568	9.568	1.014	4422824	13833.62	ug/L		98 A
35) Trichloroethylene	95	9.830	9.830	1.041	1039252	101.48	ug/L		96 A
36) 2-Pentanone	43	9.928	9.934	1.052	4601105	649.31	ug/L		96 A
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	1201155	114.14	ug/L		95 A
38) Methylcyclohexane	83	10.068	10.074	1.067	1785166	100.54	ug/L		87 A
39) Dibromomethane	93	10.214	10.214	1.082	642625	102.61	ug/L		98 A
40) Bromodichloromethane	83	10.330	10.336	1.094	1569264	103.99	ug/L		97 A
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	3484631	526.09	ug/L		98 A
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	1822344	108.53	ug/L		96 A

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D410.D
Acq On : 13 Oct 2016 21:01
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-09|ICAL100|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 14 08:49:00 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone	58	10.891	10.891	0.862	2514626	641.34	ug/L		88 A
46) Toluene	91	11.171	11.172	0.884	4164245	91.16	ug/L		98
47) trans-1,3-Dichloroprop...	75	11.336	11.342	0.897	1743137	98.16	ug/L		94
48) 1,1,2-Trichloroethane	83	11.555	11.556	0.915	768570	100.71	ug/L		95 A
49) 2-Hexanone	43	11.744	11.751	0.930	4893474	556.69	ug/L		96 A
50) 1,3-Dichloropropane	76	11.750	11.751	0.930	1497106	88.11	ug/L		84
51) Tetrachloroethylene	164	11.763	11.763	0.931	764858	81.85	ug/L		96
52) Dibromochloromethane	129	12.013	12.013	0.951	1201953	115.65	ug/L		100 A
53) 1,2-Dibromoethane	107	12.177	12.177	0.964	994327	111.63	ug/L		99 A
54) Chlorobenzene	112	12.665	12.665	1.002	2934622	97.51	ug/L		96
55) 1,1,1,2-Tetrachloroethane	131	12.720	12.726	1.007	1119591	95.85	ug/L		96
56) Ethylbenzene	91	12.732	12.732	1.008	4765841	90.22	ug/L		95
57) m,p-Xylenes	106	12.842	12.842	1.016	3698467	191.17	ug/L		86
58) o-Xylene	91	13.275	13.275	1.051	4032684	89.86	ug/L		95
59) Styrene	104	13.281	13.281	1.051	3232252	107.75	ug/L		91 A
61) Bromoform	173	13.537	13.537	0.899	773617	113.93	ug/L		97 A
62) Isopropylbenzene	105	13.640	13.641	0.906	5071725	105.61	ug/L		95 A
64) 1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	1258681	120.76	ug/L		95 A
65) 1,2,3-Trichloropropane	110	14.012	14.012	0.931	409230	109.18	ug/L	#	91 A
66) Bromobenzene	156	14.043	14.043	0.933	1381373	115.80	ug/L		90 A
67) n-Propylbenzene	91	14.067	14.067	0.934	5740400	100.86	ug/L		94 A
68) 1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	4458312	102.07	ug/L		95 A
69) 2-Chlorotoluene	126	14.213	14.214	0.944	1196181	106.82	ug/L		90 A
70) 4-Chlorotoluene	91	14.317	14.317	0.951	3939504	104.32	ug/L		95 A
71) tert-Butylbenzene	134	14.591	14.598	0.969	939157	112.44	ug/L		93 A
72) 1,2,4-Trimethylbenzene	105	14.640	14.640	0.972	4721501	106.16	ug/L		95 A
73) sec-Butylbenzene	105	14.817	14.823	0.984	5659448	105.18	ug/L		100 A
74) 4-Isopropyltoluene	119	14.591	14.598	0.969	3956619	107.04	ug/L		96 A
75) 1,3-Dichlorobenzene	146	14.994	15.000	0.996	2509379	105.12	ug/L		100 A
76) 1,4-Dichlorobenzene	146	15.079	15.085	1.002	2510105	104.59	ug/L		99 A
77) n-Butylbenzene	91	15.372	15.378	1.021	4554196	102.69	ug/L		98 A
78) 1,2-Dichlorobenzene	146	15.488	15.494	1.029	2460952	107.31	ug/L		100 A
79) 1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	303722	133.95	ug/L		90 A
80) 1,2,4-Trichlorobenzene	180	17.280	17.286	1.148	1914762	109.69	ug/L		99 A
81) Hexachlorobutadiene	225	17.445	17.445	1.159	1130657	95.89	ug/L		99
82) Naphthalene	128	17.633	17.634	1.171	4252554	130.46	ug/L		99 A
83) 1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	1751711	111.11	ug/L		98 A
85) Acrolein		6.075	6.032	0.644	0m	N.D.	d		
86) Trichlorotrifluoroethane		6.172	6.184	0.654	0m	N.D.	d		
87) Isopropyl Alcohol		6.392	6.288	0.677	0m	N.D.	d		
88) Allyl chloride		6.544	6.611	0.693	0m	N.D.	d		
89) tert-Butyl Alcohol		6.910	6.776	0.732	0m	N.D.	d		
90) Acrylonitrile		7.044	7.014	0.746	0m	N.D.	d		
91) Isopropyl ether		7.532	7.556	0.798	0m	N.D.	d		
92) 2-Chloro-1,3-butadiene		7.684	7.678	0.814	0m	N.D.	d		
93) Ethyl tert-butyl ether		7.977	7.965	0.845	0m	N.D.	d		
94) Ethyl acetate		8.160	8.178	0.864	0m	N.D.	d		
95) Propionitrile		8.288	8.239	0.878	0m	N.D.	d		
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.			
97) Tetrahydrofuran		8.519	8.525	0.902	0m	N.D.	d		
98) Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d		
99) Methyl tert-amyl ether		9.184	9.214	0.973	0m	N.D.	d		
100) Methyl methacrylate		10.068	10.068	1.067	0m	N.D.	d		
101) 1,4-Dioxane		10.214	10.178	1.082	0m	N.D.	d		
102) 2-Nitropropane		10.568	10.549	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D410.D
Acq On : 13 Oct 2016 21:01
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-09|ICAL100|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 14 08:49:00 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

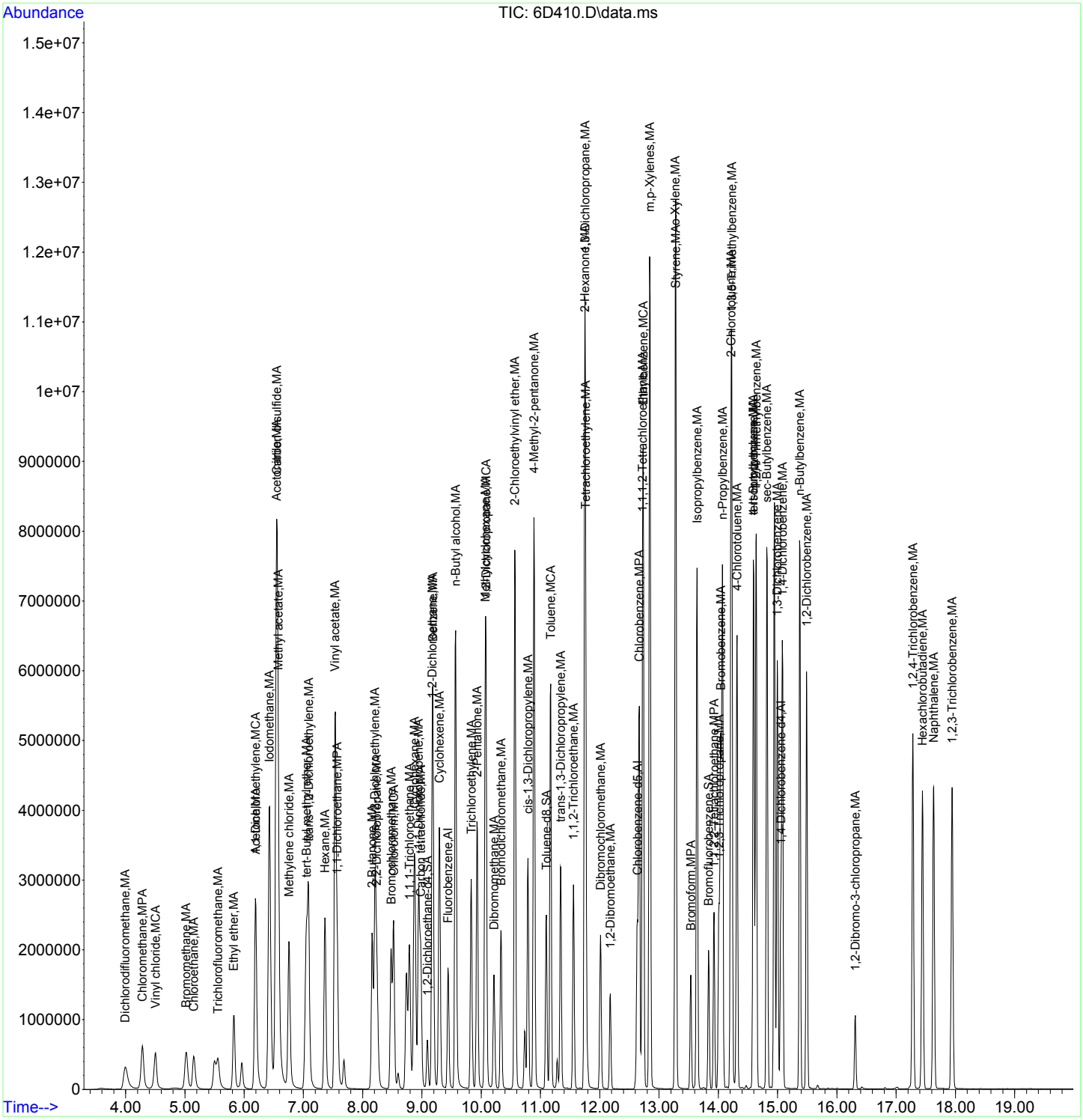
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.403	11.348	0.903	0m	N.D.	d
106) 1-Chlorohexane		0.000	12.543	0.000	0	N.D.	
107) cis-1,4-Dichloro-2-butene		13.640	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.872	13.793	0.921	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		0.000	13.976	0.000	0	N.D.	
110) Pentachloroethane		14.658	14.658	0.974	0m	N.D.	d
111) Benzyl chloride		15.256	15.201	1.013	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.670	15.597	1.041	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D410.D
Acq On : 13 Oct 2016 21:01
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-09|ICAL100|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 14 08:49:00 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D413.D
Acq On : 13 Oct 2016 22:27
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-12|ICAL005|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 14 08:49:06 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.446	9.446	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.635	12.635	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.446	9.446	1.000	1592547	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.635	12.634	1.000	1245803	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	667884	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	0d	0.00	ug/L	
45) Toluene-d8	98	11.098	11.098	0.878	0d	0.00	ug/L	
63) Bromofluorobenzene	95	13.836	13.836	0.919	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		3.985	3.993	0.422	0m	N.D.	d	
3) Chloromethane		4.234	4.282	0.448	0m	N.D.	d	
4) Vinyl chloride		4.466	4.506	0.473	0m	N.D.	d	
5) Bromomethane		5.012	5.020	0.531	0m	N.D.	d	
6) Chloroethane		5.148	5.156	0.545	0m	N.D.	d	
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		0.000	5.830	0.000	0	N.D.		
9) Acetone		6.197	6.197	0.656	0m	N.D.	d	
10) 1,1-Dichloroethylene		6.191	6.191	0.655	0m	N.D.	d	
11) Iodomethane		6.429	6.429	0.681	0m	N.D.	d	
12) Acetonitrile		6.496	6.550	0.688	0m	N.D.	d	
13) Methyl acetate		6.587	6.575	0.697	0m	N.D.	d	
14) Carbon disulfide		6.544	6.550	0.693	0m	N.D.	d	
15) Methylene chloride		6.758	6.758	0.715	0m	N.D.	d	
16) tert-Butyl methyl ether		0.000	7.056	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		7.093	7.087	0.751	0m	N.D.	d	
18) Hexane		7.367	7.367	0.780	0m	N.D.	d	
19) Vinyl acetate		7.556	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.581	7.569	0.803	0m	N.D.	d	
21) 2-Butanone		8.184	8.160	0.866	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.190	8.209	0.867	0m	N.D.	d	
23) 2,2-Dichloropropane		8.245	8.233	0.873	0m	N.D.	d	
24) Bromochloromethane		8.483	8.477	0.898	0m	N.D.	d	
25) Chloroform		8.513	8.520	0.901	0m	N.D.	d	
26) 1,1,1-Trichloroethane		8.788	8.788	0.930	0m	N.D.	d	
27) Cyclohexane		8.873	8.879	0.939	0m	N.D.	d	
28) 1,1-Dichloropropene		8.952	8.946	0.948	0m	N.D.	d	
29) Carbon tetrachloride		8.965	8.977	0.949	0m	N.D.	d	
31) 1,2-Dichloroethane		9.172	9.172	0.971	0m	N.D.	d	
32) Benzene		9.184	9.184	0.972	0m	N.D.	d	
33) Cyclohexene		9.300	9.294	0.985	0m	N.D.	d	
34) n-Butyl alcohol		9.586	9.568	1.015	0m	N.D.	d	
35) Trichloroethylene		9.836	9.830	1.041	0m	N.D.	d	
36) 2-Pentanone		9.940	9.934	1.052	0m	N.D.	d	
37) 1,2-Dichloropropane		10.080	10.080	1.067	0m	N.D.	d	
38) Methylcyclohexane		10.074	10.074	1.066	0m	N.D.	d	
39) Dibromomethane		10.220	10.214	1.082	0m	N.D.	d	
40) Bromodichloromethane		10.336	10.336	1.094	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		10.580	10.568	1.120	0m	N.D.	d	
42) cis-1,3-Dichloropropylene		10.787	10.787	1.142	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D413.D
Acq On : 13 Oct 2016 22:27
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-12|ICAL005|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 14 08:49:06 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone		10.891	10.891	0.862	0m	N.D.	d		
46) Toluene		11.165	11.172	0.884	0m	N.D.	d		
47) trans-1,3-Dichloroprop...		11.354	11.342	0.899	0m	N.D.	d		
48) 1,1,2-Trichloroethane		11.562	11.556	0.915	0m	N.D.	d		
49) 2-Hexanone		11.751	11.751	0.930	0m	N.D.	d		
50) 1,3-Dichloropropane		11.757	11.751	0.931	0m	N.D.	d		
51) Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d		
52) Dibromochloromethane		12.019	12.013	0.951	0m	N.D.	d		
53) 1,2-Dibromoethane		12.177	12.177	0.964	0m	N.D.	d		
54) Chlorobenzene		12.665	12.665	1.002	0m	N.D.	d		
55) 1,1,1,2-Tetrachloroethane		12.720	12.726	1.007	0m	N.D.	d		
56) Ethylbenzene		12.732	12.732	1.008	0m	N.D.	d		
57) m,p-Xylenes		12.842	12.842	1.016	0m	N.D.	d		
58) o-Xylene		13.275	13.275	1.051	0m	N.D.	d		
59) Styrene		13.281	13.281	1.051	0m	N.D.	d		
61) Bromoform		13.531	13.537	0.899	0m	N.D.	d		
62) Isopropylbenzene		13.641	13.641	0.906	0m	N.D.	d		
64) 1,1,2,2-Tetrachloroethane		13.939	13.927	0.926	0m	N.D.	d		
65) 1,2,3-Trichloropropane		14.012	14.012	0.931	0m	N.D.	d		
66) Bromobenzene		14.037	14.043	0.932	0m	N.D.	d		
67) n-Propylbenzene		14.073	14.067	0.935	0m	N.D.	d		
68) 1,3,5-Trimethylbenzene		14.226	14.226	0.945	0m	N.D.	d		
69) 2-Chlorotoluene		14.214	14.214	0.944	0m	N.D.	d		
70) 4-Chlorotoluene		14.317	14.317	0.951	0m	N.D.	d		
71) tert-Butylbenzene		14.592	14.598	0.969	0m	N.D.	d		
72) 1,2,4-Trimethylbenzene		14.640	14.640	0.972	0m	N.D.	d		
73) sec-Butylbenzene		14.817	14.823	0.984	0m	N.D.	d		
74) 4-Isopropyltoluene		14.592	14.598	0.969	0m	N.D.	d		
75) 1,3-Dichlorobenzene		14.994	15.000	0.996	0m	N.D.	d		
76) 1,4-Dichlorobenzene		15.085	15.085	1.002	0m	N.D.	d		
77) n-Butylbenzene		15.378	15.378	1.021	0m	N.D.	d		
78) 1,2-Dichlorobenzene		15.488	15.494	1.029	0m	N.D.	d		
79) 1,2-Dibromo-3-chloropr...		16.317	16.311	1.084	0m	N.D.	d		
80) 1,2,4-Trichlorobenzene		17.280	17.286	1.148	0m	N.D.	d		
81) Hexachlorobutadiene		17.439	17.445	1.158	0m	N.D.	d		
82) Naphthalene		17.634	17.634	1.171	0m	N.D.	d		
83) 1,2,3-Trichlorobenzene		17.945	17.945	1.192	0m	N.D.	d		
85) Acrolein	56	6.038	6.032	0.639	10929	7.03	ug/L		98
86) Trichlorotrifluoroethane	85	6.185	6.184	0.655	18523	4.02	ug/L	#	82
87) Isopropyl Alcohol	45	6.288	6.288	0.666	44576	65.79	ug/L	#	56
88) Allyl chloride	41	6.611	6.611	0.700	114023	6.59	ug/L	#	67
89) tert-Butyl Alcohol	59	6.776	6.776	0.717	67120	53.89	ug/L		92
90) Acrylonitrile	53	7.020	7.014	0.743	21643	6.55	ug/L		100
91) Isopropyl ether	45	7.556	7.556	0.800	47760	1.25	ug/L		82
92) 2-Chloro-1,3-butadiene	53	7.678	7.678	0.813	18595	1.02	ug/L		98
93) Ethyl tert-butyl ether	59	7.959	7.965	0.843	43893	1.12	ug/L		93
94) Ethyl acetate	43	8.184	8.178	0.866	62195	6.80	ug/L		98
95) Propionitrile	54	8.251	8.239	0.874	9035	7.06	ug/L		100
96) Methacrylonitrile	41	8.422	8.416	0.892	34832	6.31	ug/L		98
97) Tetrahydrofuran	42	8.526	8.525	0.903	21706	7.83	ug/L		85
98) Isobutyl alcohol	41	8.879	8.873	0.940	25799	74.86	ug/L		83
99) Methyl tert-amyl ether	73	9.215	9.214	0.975	30383	0.94	ug/L		80
100) Methyl methacrylate	69	10.074	10.068	1.066	33266	5.46	ug/L	#	75
101) 1,4-Dioxane	88	10.184	10.178	1.078	5763	62.45	ug/L		87
102) 2-Nitropropane	43	10.550	10.549	1.117	15735	5.20	ug/L		90

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D413.D
Acq On : 13 Oct 2016 22:27
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-12|ICAL005|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 14 08:49:06 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

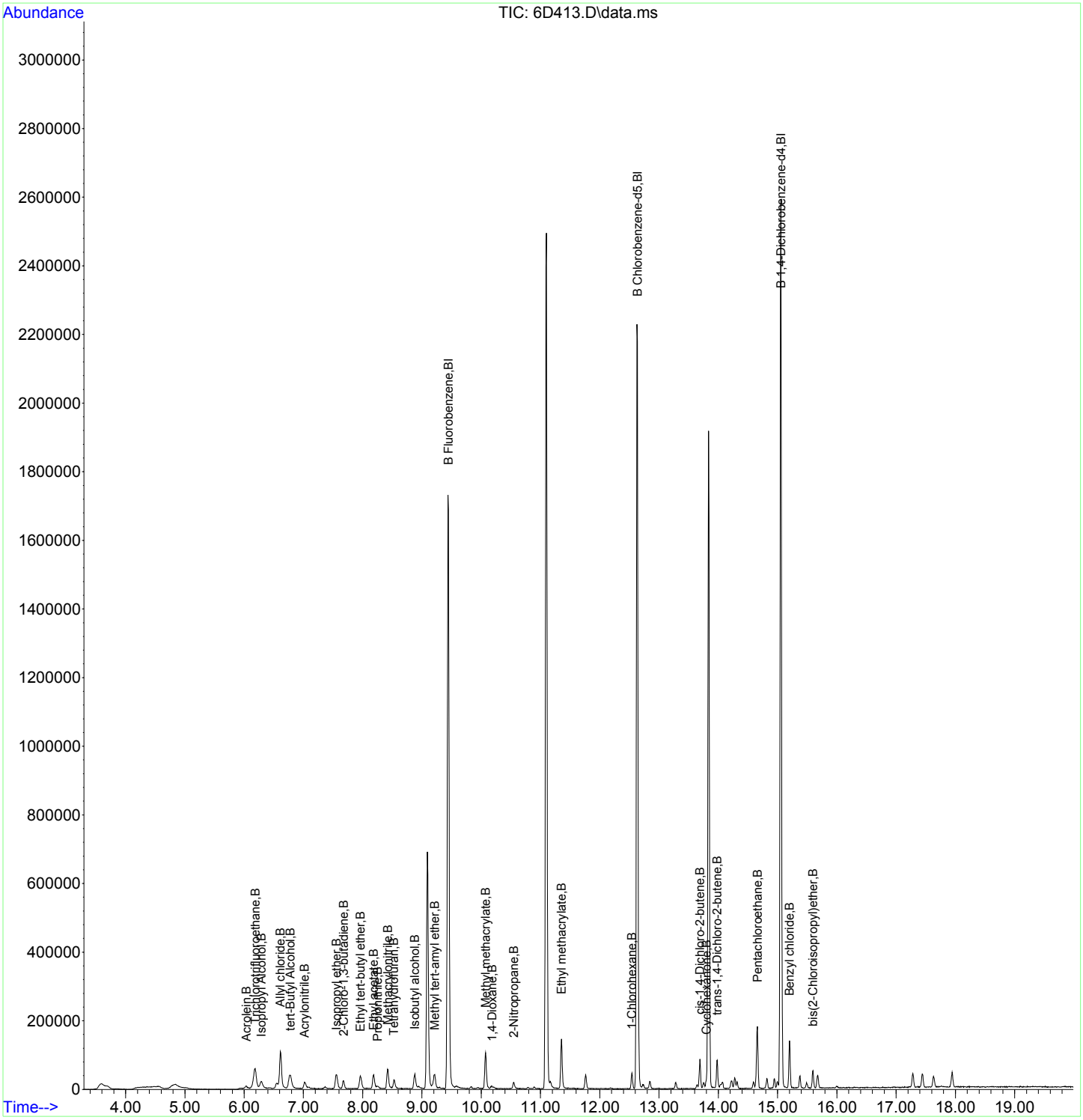
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	11.354	11.348	0.899	61712	4.76	ug/L	91
106) 1-Chlorohexane	55	12.537	12.543	0.833	11284	0.97	ug/L	92
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	23443	5.17	ug/L #	67
108) Cyclohexanone	42	13.799	13.793	0.917	8240	32.34	ug/L	90
109) trans-1,4-Dichloro-2-b...	53	13.982	13.976	0.929	21509	5.02	ug/L	82
110) Pentachloroethane	167	14.659	14.658	0.974	32483	3.86	ug/L	81
111) Benzyl chloride	91	15.201	15.201	1.010	99526	4.05	ug/L	98
112) bis(2-Chloroisopropyl)...	45	15.597	15.597	1.036	34918	7.52	ug/L	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D413.D
Acq On : 13 Oct 2016 22:27
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-12|ICAL005|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 14 08:49:06 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D414.D
Acq On : 13 Oct 2016 22:56
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-13|ICAL010|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 14 08:49:08 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
Internal Standards								Dev(Min)
1) Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.634	12.635	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	1600714	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.634	12.634	1.000	1246381	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	659405	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	0d	0.00	ug/L	
45) Toluene-d8	98	11.098	11.098	0.878	0d	0.00	ug/L	
63) Bromofluorobenzene	95	13.835	13.836	0.919	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	3.993	0.000	0	N.D.		
3) Chloromethane		4.249	4.282	0.450	0m	N.D.	d	
4) Vinyl chloride		0.000	4.506	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		0.000	5.830	0.000	0	N.D.		
9) Acetone		0.000	6.197	0.000	0	N.D.		
10) 1,1-Dichloroethylene		0.000	6.191	0.000	0	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile		6.611	6.550	0.700	0m	N.D.	d	
13) Methyl acetate		6.599	6.575	0.699	0m	N.D.	d	
14) Carbon disulfide		6.617	6.550	0.701	0m	N.D.	d	
15) Methylene chloride		6.770	6.758	0.717	0m	N.D.	d	
16) tert-Butyl methyl ether		0.000	7.056	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		7.093	7.087	0.751	0m	N.D.	d	
18) Hexane		7.324	7.367	0.776	0m	N.D.	d	
19) Vinyl acetate		7.556	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.672	7.569	0.813	0m	N.D.	d	
21) 2-Butanone		8.184	8.160	0.867	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.184	8.209	0.867	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.477	0.000	0	N.D.		
25) Chloroform		8.519	8.520	0.902	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		8.873	8.879	0.940	0m	N.D.	d	
28) 1,1-Dichloropropene		8.934	8.946	0.946	0m	N.D.	d	
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane		9.184	9.172	0.973	0m	N.D.	d	
32) Benzene		9.178	9.184	0.972	0m	N.D.	d	
33) Cyclohexene		9.342	9.294	0.990	0m	N.D.	d	
34) n-Butyl alcohol		9.586	9.568	1.015	0m	N.D.	d	
35) Trichloroethylene		9.830	9.830	1.041	0m	N.D.	d	
36) 2-Pentanone		10.086	9.934	1.068	0m	N.D.	d	
37) 1,2-Dichloropropane		10.098	10.080	1.070	0m	N.D.	d	
38) Methylcyclohexane		10.074	10.074	1.067	0m	N.D.	d	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		10.336	10.336	1.095	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		10.793	10.787	1.143	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D414.D
Acq On : 13 Oct 2016 22:56
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-13|ICAL010|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 14 08:49:08 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone		10.897	10.891	0.862	0m	N.D.	d		
46) Toluene		11.165	11.172	0.884	0m	N.D.	d		
47) trans-1,3-Dichloroprop...		11.342	11.342	0.898	0m	N.D.	d		
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.			
49) 2-Hexanone		11.757	11.751	0.931	0m	N.D.	d		
50) 1,3-Dichloropropane		11.750	11.751	0.930	0m	N.D.	d		
51) Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d		
52) Dibromochloromethane		12.007	12.013	0.950	0m	N.D.	d		
53) 1,2-Dibromoethane		12.183	12.177	0.964	0m	N.D.	d		
54) Chlorobenzene		12.665	12.665	1.002	0m	N.D.	d		
55) 1,1,1,2-Tetrachloroethane		0.000	12.726	0.000	0	N.D.			
56) Ethylbenzene		12.738	12.732	1.008	0m	N.D.	d		
57) m,p-Xylenes		12.848	12.842	1.017	0m	N.D.	d		
58) o-Xylene		13.275	13.275	1.051	0m	N.D.	d		
59) Styrene		13.293	13.281	1.052	0m	N.D.	d		
61) Bromoform		0.000	13.537	0.000	0	N.D.			
62) Isopropylbenzene		13.634	13.641	0.906	0m	N.D.	d		
64) 1,1,2,2-Tetrachloroethane		13.970	13.927	0.928	0m	N.D.	d		
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.			
66) Bromobenzene		14.049	14.043	0.933	0m	N.D.	d		
67) n-Propylbenzene		14.073	14.067	0.935	0m	N.D.	d		
68) 1,3,5-Trimethylbenzene		14.232	14.226	0.945	0m	N.D.	d		
69) 2-Chlorotoluene		14.207	14.214	0.944	0m	N.D.	d		
70) 4-Chlorotoluene		14.323	14.317	0.951	0m	N.D.	d		
71) tert-Butylbenzene		14.597	14.598	0.970	0m	N.D.	d		
72) 1,2,4-Trimethylbenzene		14.640	14.640	0.972	0m	N.D.	d		
73) sec-Butylbenzene		14.817	14.823	0.984	0m	N.D.	d		
74) 4-Isopropyltoluene		14.591	14.598	0.969	0m	N.D.	d		
75) 1,3-Dichlorobenzene		15.000	15.000	0.996	0m	N.D.	d		
76) 1,4-Dichlorobenzene		15.079	15.085	1.002	0m	N.D.	d		
77) n-Butylbenzene		15.372	15.378	1.021	0m	N.D.	d		
78) 1,2-Dichlorobenzene		15.488	15.494	1.029	0m	N.D.	d		
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.			
80) 1,2,4-Trichlorobenzene		17.286	17.286	1.148	0m	N.D.	d		
81) Hexachlorobutadiene		17.444	17.445	1.159	0m	N.D.	d		
82) Naphthalene		17.633	17.634	1.171	0m	N.D.	d		
83) 1,2,3-Trichlorobenzene		17.950	17.945	1.192	0m	N.D.	d		
85) Acrolein	56	6.026	6.032	0.638	19660	12.58	ug/L		91
86) Trichlorotrifluoroethane	85	6.178	6.184	0.654	29089	6.28	ug/L	#	83
87) Isopropyl Alcohol	45	6.294	6.288	0.667	69763	102.43	ug/L	#	56
88) Allyl chloride	41	6.611	6.611	0.700	170891	9.82	ug/L		82
89) tert-Butyl Alcohol	59	6.770	6.776	0.717	101624	81.18	ug/L	#	56
90) Acrylonitrile	53	7.020	7.014	0.744	32343	9.73	ug/L		96
91) Isopropyl ether	45	7.550	7.556	0.800	76032	1.98	ug/L		94
92) 2-Chloro-1,3-butadiene	53	7.672	7.678	0.813	29415	1.61	ug/L		95
93) Ethyl tert-butyl ether	59	7.965	7.965	0.844	64825	1.65	ug/L		94
94) Ethyl acetate	43	8.184	8.178	0.867	86244	9.39	ug/L		98
95) Propionitrile	54	8.251	8.239	0.874	12593	9.79	ug/L		100
96) Methacrylonitrile	41	8.422	8.416	0.892	52987	9.55	ug/L		92
97) Tetrahydrofuran	42	8.525	8.525	0.903	30015	10.77	ug/L		86
98) Isobutyl alcohol	41	8.873	8.873	0.940	31579	91.16	ug/L		88
99) Methyl tert-amyl ether	73	9.214	9.214	0.976	47776	1.46	ug/L		86
100) Methyl methacrylate	69	10.074	10.068	1.067	50219	8.20	ug/L		85
101) 1,4-Dioxane	88	10.178	10.178	1.078	9183	99.01	ug/L		89
102) 2-Nitropropane	43	10.549	10.549	1.118	20476	6.73	ug/L		85

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D414.D
Acq On : 13 Oct 2016 22:56
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-13|ICAL010|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 14 08:49:08 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

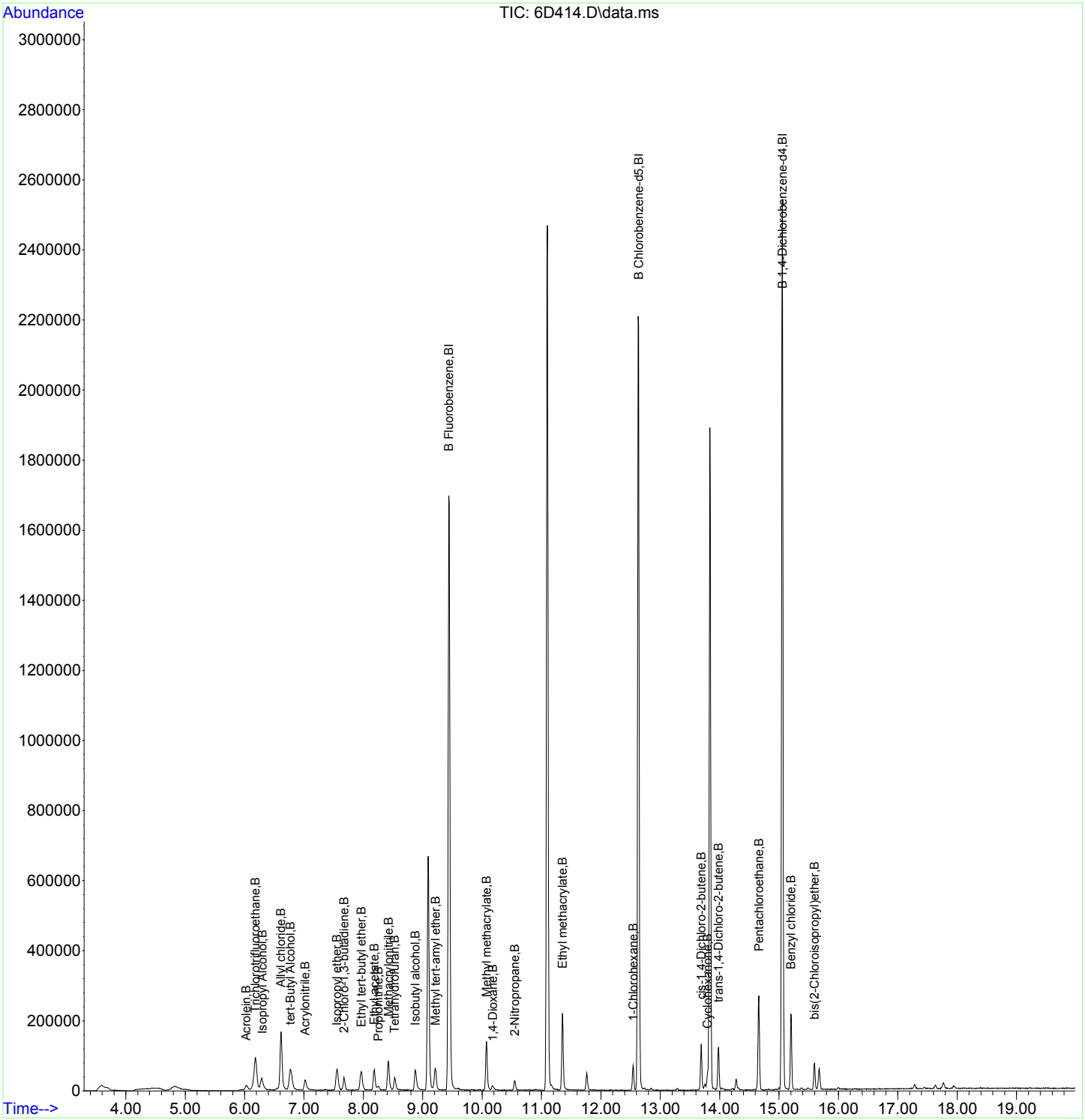
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	11.354	11.348	0.899	97371	7.50	ug/L	89
106) 1-Chlorohexane	55	12.543	12.543	0.833	20450	1.77	ug/L	90
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	35600	7.95	ug/L #	71
108) Cyclohexanone	42	13.793	13.793	0.916	16723	66.47	ug/L	86
109) trans-1,4-Dichloro-2-b...	53	13.982	13.976	0.929	32322	7.65	ug/L	83
110) Pentachloroethane	167	14.658	14.658	0.974	49377	5.94	ug/L	83
111) Benzyl chloride	91	15.201	15.201	1.010	152922	6.30	ug/L	99
112) bis(2-Chloroisopropyl)...	45	15.591	15.597	1.036	52188	11.38	ug/L	89

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D414.D
Acq On : 13 Oct 2016 22:56
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-13|ICAL010|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 14 08:49:08 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D415.D
Acq On : 13 Oct 2016 23:25
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-14|ICAL025|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 14 08:49:10 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.446	9.446	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.635	12.635	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.446	9.446	1.000	1587213	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.635	12.634	1.000	1245705	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	653489	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	0d	0.00	ug/L	
45) Toluene-d8	98	11.098	11.098	0.878	0d	0.00	ug/L	
63) Bromofluorobenzene	95	13.836	13.836	0.919	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	3.993	0.000	0	N.D.		
3) Chloromethane		4.250	4.282	0.450	0m	N.D.	d	
4) Vinyl chloride		0.000	4.506	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		0.000	5.830	0.000	0	N.D.		
9) Acetone		6.203	6.197	0.657	0m	N.D.	d	
10) 1,1-Dichloroethylene		6.191	6.191	0.655	0m	N.D.	d	
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile		6.611	6.550	0.700	0m	N.D.	d	
13) Methyl acetate		6.575	6.575	0.696	0m	N.D.	d	
14) Carbon disulfide		6.617	6.550	0.701	0m	N.D.	d	
15) Methylene chloride		6.758	6.758	0.715	0m	N.D.	d	
16) tert-Butyl methyl ether		7.038	7.056	0.745	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		7.099	7.087	0.752	0m	N.D.	d	
18) Hexane		7.349	7.367	0.778	0m	N.D.	d	
19) Vinyl acetate		7.556	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.678	7.569	0.813	0m	N.D.	d	
21) 2-Butanone		8.178	8.160	0.866	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.184	8.209	0.866	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.477	0.000	0	N.D.		
25) Chloroform		8.513	8.520	0.901	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		8.879	8.879	0.940	0m	N.D.	d	
28) 1,1-Dichloropropene		8.879	8.946	0.940	0m	N.D.	d	
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane		9.160	9.172	0.970	0m	N.D.	d	
32) Benzene		9.184	9.184	0.972	0m	N.D.	d	
33) Cyclohexene		9.330	9.294	0.988	0m	N.D.	d	
34) n-Butyl alcohol		9.684	9.568	1.025	0m	N.D.	d	
35) Trichloroethylene		9.836	9.830	1.041	0m	N.D.	d	
36) 2-Pentanone		10.074	9.934	1.066	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		10.062	10.074	1.065	0m	N.D.	d	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		10.330	10.336	1.094	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		10.775	10.787	1.141	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D415.D
Acq On : 13 Oct 2016 23:25
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-14|ICAL025|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 14 08:49:10 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone		10.897	10.891	0.862	0m	N.D.	d	
46) Toluene		11.165	11.172	0.884	0m	N.D.	d	
47) trans-1,3-Dichloroprop...		11.342	11.342	0.898	0m	N.D.	d	
48) 1,1,2-Trichloroethane		11.549	11.556	0.914	0m	N.D.	d	
49) 2-Hexanone		11.763	11.751	0.931	0m	N.D.	d	
50) 1,3-Dichloropropane		11.738	11.751	0.929	0m	N.D.	d	
51) Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d	
52) Dibromochloromethane		12.013	12.013	0.951	0m	N.D.	d	
53) 1,2-Dibromoethane		12.190	12.177	0.965	0m	N.D.	d	
54) Chlorobenzene		12.659	12.665	1.002	0m	N.D.	d	
55) 1,1,1,2-Tetrachloroethane		0.000	12.726	0.000	0	N.D.		
56) Ethylbenzene		12.732	12.732	1.008	0m	N.D.	d	
57) m,p-Xylenes		12.854	12.842	1.017	0m	N.D.	d	
58) o-Xylene		13.281	13.275	1.051	0m	N.D.	d	
59) Styrene		13.293	13.281	1.052	0m	N.D.	d	
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene		13.640	13.641	0.906	0m	N.D.	d	
64) 1,1,2,2-Tetrachloroethane		13.994	13.927	0.930	0m	N.D.	d	
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene		14.037	14.043	0.932	0m	N.D.	d	
67) n-Propylbenzene		14.067	14.067	0.934	0m	N.D.	d	
68) 1,3,5-Trimethylbenzene		14.226	14.226	0.945	0m	N.D.	d	
69) 2-Chlorotoluene		14.214	14.214	0.944	0m	N.D.	d	
70) 4-Chlorotoluene		14.317	14.317	0.951	0m	N.D.	d	
71) tert-Butylbenzene		14.659	14.598	0.974	0m	N.D.	d	
72) 1,2,4-Trimethylbenzene		14.634	14.640	0.972	0m	N.D.	d	
73) sec-Butylbenzene		14.817	14.823	0.984	0m	N.D.	d	
74) 4-Isopropyltoluene		14.579	14.598	0.968	0m	N.D.	d	
75) 1,3-Dichlorobenzene		15.000	15.000	0.996	0m	N.D.	d	
76) 1,4-Dichlorobenzene		15.091	15.085	1.002	0m	N.D.	d	
77) n-Butylbenzene		15.378	15.378	1.021	0m	N.D.	d	
78) 1,2-Dichlorobenzene		15.488	15.494	1.029	0m	N.D.	d	
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene		17.280	17.286	1.148	0m	N.D.	d	
81) Hexachlorobutadiene		17.445	17.445	1.159	0m	N.D.	d	
82) Naphthalene		17.634	17.634	1.171	0m	N.D.	d	
83) 1,2,3-Trichlorobenzene		17.938	17.945	1.192	0m	N.D.	d	
85) Acrolein	56	6.026	6.032	0.638	51402	33.17	ug/L	99
86) Trichlorotrifluoroethane	85	6.185	6.184	0.655	100826	21.95	ug/L	87
87) Isopropyl Alcohol	45	6.288	6.288	0.666	245893	364.11	ug/L	99
88) Allyl chloride	41	6.611	6.611	0.700	547379	31.73	ug/L	86
89) tert-Butyl Alcohol	59	6.782	6.776	0.718	359676	289.77	ug/L	92
90) Acrylonitrile	53	7.020	7.014	0.743	109939	33.37	ug/L	98
91) Isopropyl ether	45	7.556	7.556	0.800	253031	6.66	ug/L	95
92) 2-Chloro-1,3-butadiene	53	7.672	7.678	0.812	98347	5.43	ug/L	98
93) Ethyl tert-butyl ether	59	7.965	7.965	0.843	220434	5.67	ug/L	95
94) Ethyl acetate	43	8.178	8.178	0.866	302489	33.20	ug/L	97
95) Propionitrile	54	8.245	8.239	0.873	44924	35.22	ug/L	100
96) Methacrylonitrile	41	8.422	8.416	0.892	184326	33.50	ug/L	95
97) Tetrahydrofuran	42	8.532	8.525	0.903	101192	36.62	ug/L	86
98) Isobutyl alcohol	41	8.873	8.873	0.939	114840	334.34	ug/L	90
99) Methyl tert-amyl ether	73	9.208	9.214	0.975	157959	4.88	ug/L	91
100) Methyl methacrylate	69	10.074	10.068	1.066	175071	28.83	ug/L	80
101) 1,4-Dioxane	88	10.178	10.178	1.077	29034	315.70	ug/L	77
102) 2-Nitropropane	43	10.550	10.549	1.117	84265	27.94	ug/L	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D415.D
Acq On : 13 Oct 2016 23:25
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-14|ICAL025|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 14 08:49:10 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

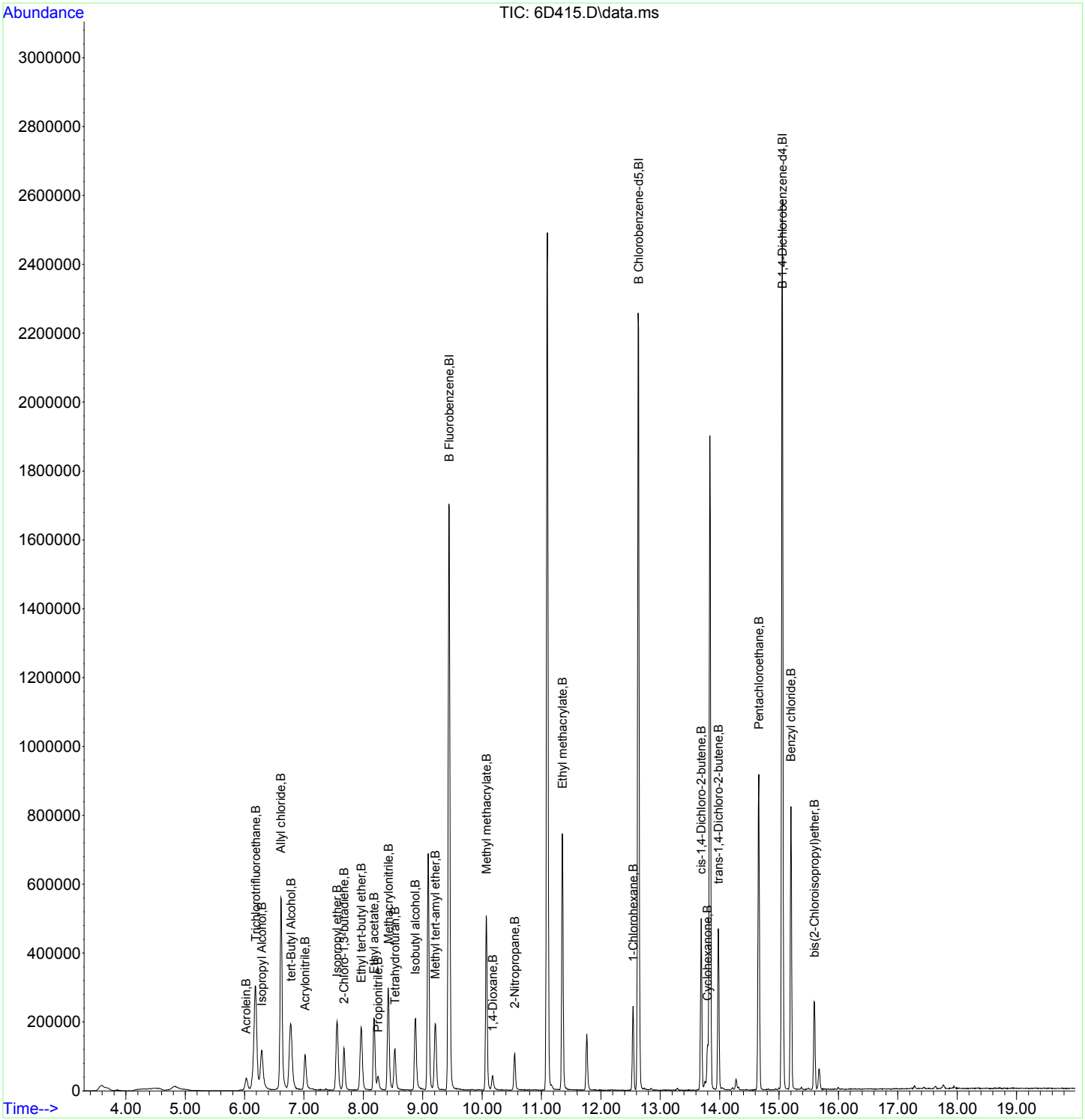
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
104) Ethyl methacrylate	69	11.348	11.348	0.898	341078	26.30	ug/L		85
106) 1-Chlorohexane	55	12.543	12.543	0.833	66218	5.80	ug/L		92
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	130342	29.36	ug/L	#	74
108) Cyclohexanone	42	13.793	13.793	0.916	44491	178.44	ug/L		93
109) trans-1,4-Dichloro-2-b...	53	13.976	13.976	0.928	122234	29.18	ug/L		85
110) Pentachloroethane	167	14.659	14.658	0.974	176189	21.39	ug/L		93
111) Benzyl chloride	91	15.201	15.201	1.010	583947	24.28	ug/L		97
112) bis(2-Chloroisopropyl)...	45	15.591	15.597	1.036	188558	41.49	ug/L		88

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D415.D
Acq On : 13 Oct 2016 23:25
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-14|ICAL025|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 14 08:49:10 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D416.D
Acq On : 13 Oct 2016 23:54
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-15|ICAL050|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 14 08:49:12 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
Internal Standards								Dev(Min)
1) Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.634	12.635	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	1539686	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.634	12.634	1.000	1198157	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	639453	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	0d	0.00	ug/L	
45) Toluene-d8	98	11.098	11.098	0.878	0d	0.00	ug/L	
63) Bromofluorobenzene	95	13.835	13.836	0.919	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	3.993	0.000	0	N.D.		
3) Chloromethane		4.249	4.282	0.450	0m	N.D.	d	
4) Vinyl chloride		0.000	4.506	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		0.000	5.830	0.000	0	N.D.		
9) Acetone		6.288	6.197	0.666	0m	N.D.	d	
10) 1,1-Dichloroethylene		6.172	6.191	0.654	0m	N.D.	d	
11) Iodomethane		6.422	6.429	0.680	0m	N.D.	d	
12) Acetonitrile		6.611	6.550	0.700	0m	N.D.	d	
13) Methyl acetate		6.593	6.575	0.698	0m	N.D.	d	
14) Carbon disulfide		6.611	6.550	0.700	0m	N.D.	d	
15) Methylene chloride		6.758	6.758	0.716	0m	N.D.	d	
16) tert-Butyl methyl ether		0.000	7.056	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		7.093	7.087	0.751	0m	N.D.	d	
18) Hexane		7.361	7.367	0.780	0m	N.D.	d	
19) Vinyl acetate		7.556	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.581	7.569	0.803	0m	N.D.	d	
21) 2-Butanone		8.178	8.160	0.866	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.178	8.209	0.866	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.477	0.000	0	N.D.		
25) Chloroform		8.519	8.520	0.902	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		8.873	8.879	0.940	0m	N.D.	d	
28) 1,1-Dichloropropene		8.861	8.946	0.939	0m	N.D.	d	
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane		9.178	9.172	0.972	0m	N.D.	d	
32) Benzene		9.196	9.184	0.974	0m	N.D.	d	
33) Cyclohexene		9.287	9.294	0.984	0m	N.D.	d	
34) n-Butyl alcohol		9.562	9.568	1.013	0m	N.D.	d	
35) Trichloroethylene		9.830	9.830	1.041	0m	N.D.	d	
36) 2-Pentanone		10.068	9.934	1.067	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		10.068	10.074	1.067	0m	N.D.	d	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		10.336	10.336	1.095	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		10.793	10.787	1.143	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D416.D
Acq On : 13 Oct 2016 23:54
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-15|ICAL050|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 14 08:49:12 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.		
46) Toluene		11.171	11.172	0.884	0m	N.D.	d	
47) trans-1,3-Dichloroprop...		11.348	11.342	0.898	0m	N.D.	d	
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.		
49) 2-Hexanone		11.757	11.751	0.931	0m	N.D.	d	
50) 1,3-Dichloropropane		11.744	11.751	0.930	0m	N.D.	d	
51) Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d	
52) Dibromochloromethane		12.019	12.013	0.951	0m	N.D.	d	
53) 1,2-Dibromoethane		12.183	12.177	0.964	0m	N.D.	d	
54) Chlorobenzene		12.659	12.665	1.002	0m	N.D.	d	
55) 1,1,1,2-Tetrachloroethane		12.714	12.726	1.006	0m	N.D.	d	
56) Ethylbenzene		12.744	12.732	1.009	0m	N.D.	d	
57) m,p-Xylenes		12.842	12.842	1.016	0m	N.D.	d	
58) o-Xylene		13.275	13.275	1.051	0m	N.D.	d	
59) Styrene		13.287	13.281	1.052	0m	N.D.	d	
61) Bromoform		13.537	13.537	0.899	0m	N.D.	d	
62) Isopropylbenzene		13.628	13.641	0.905	0m	N.D.	d	
64) 1,1,2,2-Tetrachloroethane		13.933	13.927	0.925	0m	N.D.	d	
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene		14.043	14.043	0.933	0m	N.D.	d	
67) n-Propylbenzene		14.061	14.067	0.934	0m	N.D.	d	
68) 1,3,5-Trimethylbenzene		14.232	14.226	0.945	0m	N.D.	d	
69) 2-Chlorotoluene		14.207	14.214	0.944	0m	N.D.	d	
70) 4-Chlorotoluene		14.317	14.317	0.951	0m	N.D.	d	
71) tert-Butylbenzene		14.658	14.598	0.974	0m	N.D.	d	
72) 1,2,4-Trimethylbenzene		14.640	14.640	0.972	0m	N.D.	d	
73) sec-Butylbenzene		14.829	14.823	0.985	0m	N.D.	d	
74) 4-Isopropyltoluene		14.604	14.598	0.970	0m	N.D.	d	
75) 1,3-Dichlorobenzene		15.000	15.000	0.996	0m	N.D.	d	
76) 1,4-Dichlorobenzene		15.079	15.085	1.002	0m	N.D.	d	
77) n-Butylbenzene		0.000	15.378	0.000	0	N.D.		
78) 1,2-Dichlorobenzene		15.494	15.494	1.029	0m	N.D.	d	
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene		17.286	17.286	1.148	0m	N.D.	d	
81) Hexachlorobutadiene		17.438	17.445	1.158	0m	N.D.	d	
82) Naphthalene		17.633	17.634	1.171	0m	N.D.	d	
83) 1,2,3-Trichlorobenzene		17.950	17.945	1.192	0m	N.D.	d	
85) Acrolein	56	6.026	6.032	0.638	95652	63.62	ug/L	92
86) Trichlorotrifluoroethane	85	6.178	6.184	0.654	197775	44.39	ug/L	89
87) Isopropyl Alcohol	45	6.288	6.288	0.666	457403	698.21	ug/L	96
88) Allyl chloride	41	6.611	6.611	0.700	1066635	63.75	ug/L	86
89) tert-Butyl Alcohol	59	6.770	6.776	0.717	676163	561.57	ug/L	91
90) Acrylonitrile	53	7.020	7.014	0.744	206881	64.74	ug/L	99
91) Isopropyl ether	45	7.556	7.556	0.800	490967	13.32	ug/L	95
92) 2-Chloro-1,3-butadiene	53	7.672	7.678	0.813	192348	10.95	ug/L	98
93) Ethyl tert-butyl ether	59	7.965	7.965	0.844	428127	11.34	ug/L	95
94) Ethyl acetate	43	8.178	8.178	0.866	550629	62.31	ug/L	97
95) Propionitrile	54	8.239	8.239	0.873	83750	67.69	ug/L	100
96) Methacrylonitrile	41	8.416	8.416	0.892	346851	64.98	ug/L	96
97) Tetrahydrofuran	42	8.525	8.525	0.903	180072	67.17	ug/L	87
98) Isobutyl alcohol	41	8.873	8.873	0.940	219186	657.83	ug/L	88
99) Methyl tert-amyl ether	73	9.214	9.214	0.976	305418	9.73	ug/L	90
100) Methyl methacrylate	69	10.068	10.068	1.067	331102	56.20	ug/L	82
101) 1,4-Dioxane	88	10.171	10.178	1.077	56577	634.18	ug/L	86
102) 2-Nitropropane	43	10.549	10.549	1.118	170964	58.44	ug/L	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D416.D
Acq On : 13 Oct 2016 23:54
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-15|ICAL050|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 14 08:49:12 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

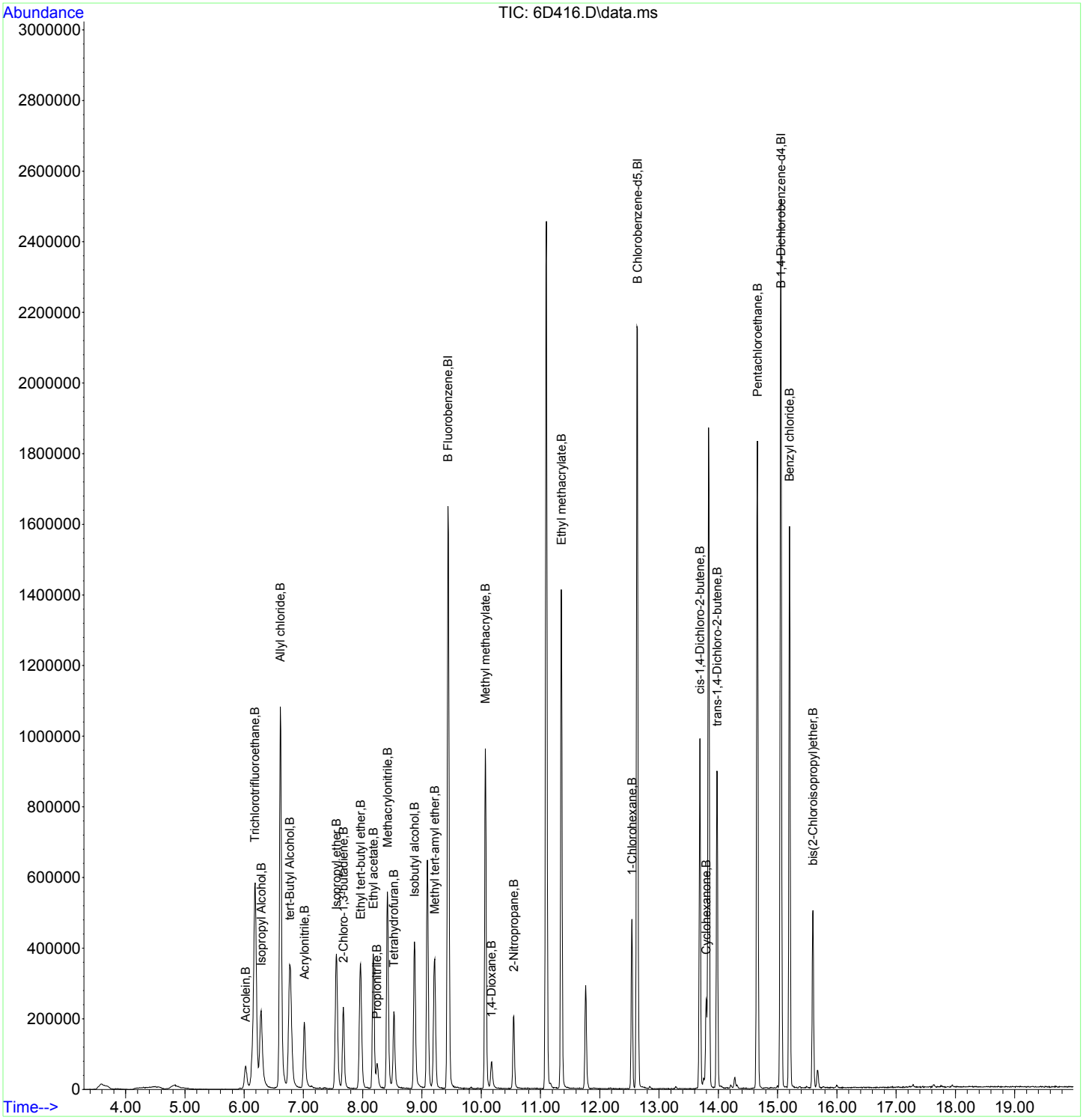
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	11.348	11.348	0.898	652812	52.34	ug/L	87
106) 1-Chlorohexane	55	12.543	12.543	0.833	127744	11.42	ug/L	94
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	256548	59.07	ug/L	78
108) Cyclohexanone	42	13.793	13.793	0.916	83230	341.15	ug/L	95
109) trans-1,4-Dichloro-2-b...	53	13.976	13.976	0.928	235258	57.39	ug/L	87
110) Pentachloroethane	167	14.658	14.658	0.974	372931	46.26	ug/L	98
111) Benzyl chloride	91	15.201	15.201	1.010	1138069	48.37	ug/L	98
112) bis(2-Chloroisopropyl)...	45	15.597	15.597	1.036	351575	79.06	ug/L	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D416.D
Acq On : 13 Oct 2016 23:54
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-15|ICAL050|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 14 08:49:12 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D417.D
Acq On : 14 Oct 2016 00:22
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-16|ICAL100|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 14 08:49:14 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.635	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	1579799	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.634	1.000	1207024	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	654735	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	0d	0.00	ug/L	
45) Toluene-d8	98	11.098	11.098	0.879	0d	0.00	ug/L	
63) Bromofluorobenzene	95	13.835	13.836	0.919	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	3.993	0.000	0	N.D.		
3) Chloromethane		4.241	4.282	0.449	0m	N.D.	d	
4) Vinyl chloride		4.474	4.506	0.474	0m	N.D.	d	
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		5.830	5.830	0.618	0m	N.D.	d	
9) Acetone		6.191	6.197	0.656	0m	N.D.	d	
10) 1,1-Dichloroethylene		6.148	6.191	0.651	0m	N.D.	d	
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile		6.611	6.550	0.700	0m	N.D.	d	
13) Methyl acetate		0.000	6.575	0.000	0	N.D.		
14) Carbon disulfide		6.611	6.550	0.700	0m	N.D.	d	
15) Methylene chloride		6.764	6.758	0.716	0m	N.D.	d	
16) tert-Butyl methyl ether		7.050	7.056	0.747	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		0.000	7.087	0.000	0	N.D.		
18) Hexane		7.367	7.367	0.780	0m	N.D.	d	
19) Vinyl acetate		7.556	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.672	7.569	0.813	0m	N.D.	d	
21) 2-Butanone		8.178	8.160	0.866	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.178	8.209	0.866	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.477	0.000	0	N.D.		
25) Chloroform		8.513	8.520	0.902	0m	N.D.	d	
26) 1,1,1-Trichloroethane		0.000	8.788	0.000	0	N.D.		
27) Cyclohexane		8.873	8.879	0.940	0m	N.D.	d	
28) 1,1-Dichloropropene		8.940	8.946	0.947	0m	N.D.	d	
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane		9.178	9.172	0.972	0m	N.D.	d	
32) Benzene		9.184	9.184	0.973	0m	N.D.	d	
33) Cyclohexene		0.000	9.294	0.000	0	N.D.		
34) n-Butyl alcohol		9.580	9.568	1.015	0m	N.D.	d	
35) Trichloroethylene		9.830	9.830	1.041	0m	N.D.	d	
36) 2-Pentanone		10.068	9.934	1.067	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		10.068	10.074	1.067	0m	N.D.	d	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		0.000	10.336	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D417.D
Acq On : 14 Oct 2016 00:22
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-16|ICAL100|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 14 08:49:14 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone		10.903	10.891	0.863	0m	N.D.	d		
46)	Toluene		11.165	11.172	0.884	0m	N.D.	d		
47)	trans-1,3-Dichloroprop...		11.342	11.342	0.898	0m	N.D.	d		
48)	1,1,2-Trichloroethane		11.555	11.556	0.915	0m	N.D.	d		
49)	2-Hexanone		11.757	11.751	0.931	0m	N.D.	d		
50)	1,3-Dichloropropane		11.750	11.751	0.930	0m	N.D.	d		
51)	Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d		
52)	Dibromochloromethane		0.000	12.013	0.000	0	N.D.			
53)	1,2-Dibromoethane		12.171	12.177	0.964	0m	N.D.	d		
54)	Chlorobenzene		12.665	12.665	1.003	0m	N.D.	d		
55)	1,1,1,2-Tetrachloroethane		12.732	12.726	1.008	0m	N.D.	d		
56)	Ethylbenzene		12.738	12.732	1.009	0m	N.D.	d		
57)	m,p-Xylenes		12.848	12.842	1.017	0m	N.D.	d		
58)	o-Xylene		13.281	13.275	1.052	0m	N.D.	d		
59)	Styrene		13.287	13.281	1.052	0m	N.D.	d		
61)	Bromoform		0.000	13.537	0.000	0	N.D.			
62)	Isopropylbenzene		13.640	13.641	0.906	0m	N.D.	d		
64)	1,1,2,2-Tetrachloroethane		13.927	13.927	0.925	0m	N.D.	d		
65)	1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.			
66)	Bromobenzene		14.043	14.043	0.933	0m	N.D.	d		
67)	n-Propylbenzene		14.073	14.067	0.935	0m	N.D.	d		
68)	1,3,5-Trimethylbenzene		14.238	14.226	0.946	0m	N.D.	d		
69)	2-Chlorotoluene		14.207	14.214	0.944	0m	N.D.	d		
70)	4-Chlorotoluene		14.317	14.317	0.951	0m	N.D.	d		
71)	tert-Butylbenzene		14.597	14.598	0.970	0m	N.D.	d		
72)	1,2,4-Trimethylbenzene		14.634	14.640	0.972	0m	N.D.	d		
73)	sec-Butylbenzene		14.823	14.823	0.985	0m	N.D.	d		
74)	4-Isopropyltoluene		14.597	14.598	0.970	0m	N.D.	d		
75)	1,3-Dichlorobenzene		14.994	15.000	0.996	0m	N.D.	d		
76)	1,4-Dichlorobenzene		15.085	15.085	1.002	0m	N.D.	d		
77)	n-Butylbenzene		0.000	15.378	0.000	0	N.D.			
78)	1,2-Dichlorobenzene		15.488	15.494	1.029	0m	N.D.	d		
79)	1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.			
80)	1,2,4-Trichlorobenzene		17.280	17.286	1.148	0m	N.D.	d		
81)	Hexachlorobutadiene		17.432	17.445	1.158	0m	N.D.	d		
82)	Naphthalene		17.633	17.634	1.171	0m	N.D.	d		
83)	1,2,3-Trichlorobenzene		17.938	17.945	1.192	0m	N.D.	d		
85)	Acrolein	56	6.026	6.032	0.638	201644	130.72	ug/L		99
86)	Trichlorotrifluoroethane	85	6.184	6.184	0.655	383778	83.94	ug/L		87
87)	Isopropyl Alcohol	45	6.288	6.288	0.666	933914	1389.39	ug/L		96
88)	Allyl chloride	41	6.611	6.611	0.700	2111859	123.01	ug/L		87
89)	tert-Butyl Alcohol	59	6.776	6.776	0.718	1434698	1161.30	ug/L	#	56
90)	Acrylonitrile	53	7.020	7.014	0.744	437656	133.47	ug/L		99
91)	Isopropyl ether	45	7.556	7.556	0.800	986335	26.08	ug/L		95
92)	2-Chloro-1,3-butadiene	53	7.672	7.678	0.813	392544	21.78	ug/L		98
93)	Ethyl tert-butyl ether	59	7.965	7.965	0.844	878320	22.68	ug/L		95
94)	Ethyl acetate	43	8.178	8.178	0.866	1159885	127.92	ug/L		98
95)	Propionitrile	54	8.245	8.239	0.873	180529	142.20	ug/L		100
96)	Methacrylonitrile	41	8.416	8.416	0.892	726033	132.57	ug/L		96
97)	Tetrahydrofuran	42	8.525	8.525	0.903	382796	139.17	ug/L		87
98)	Isobutyl alcohol	41	8.873	8.873	0.940	470285	1375.60	ug/L		93
99)	Methyl tert-amyl ether	73	9.214	9.214	0.976	623871	19.37	ug/L		90
100)	Methyl methacrylate	69	10.068	10.068	1.067	681630	112.76	ug/L		81
101)	1,4-Dioxane	88	10.171	10.178	1.077	106926	1168.12	ug/L		84
102)	2-Nitropropane	43	10.549	10.549	1.118	374020	124.60	ug/L		100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D417.D
Acq On : 14 Oct 2016 00:22
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-16|ICAL100|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 14 08:49:14 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

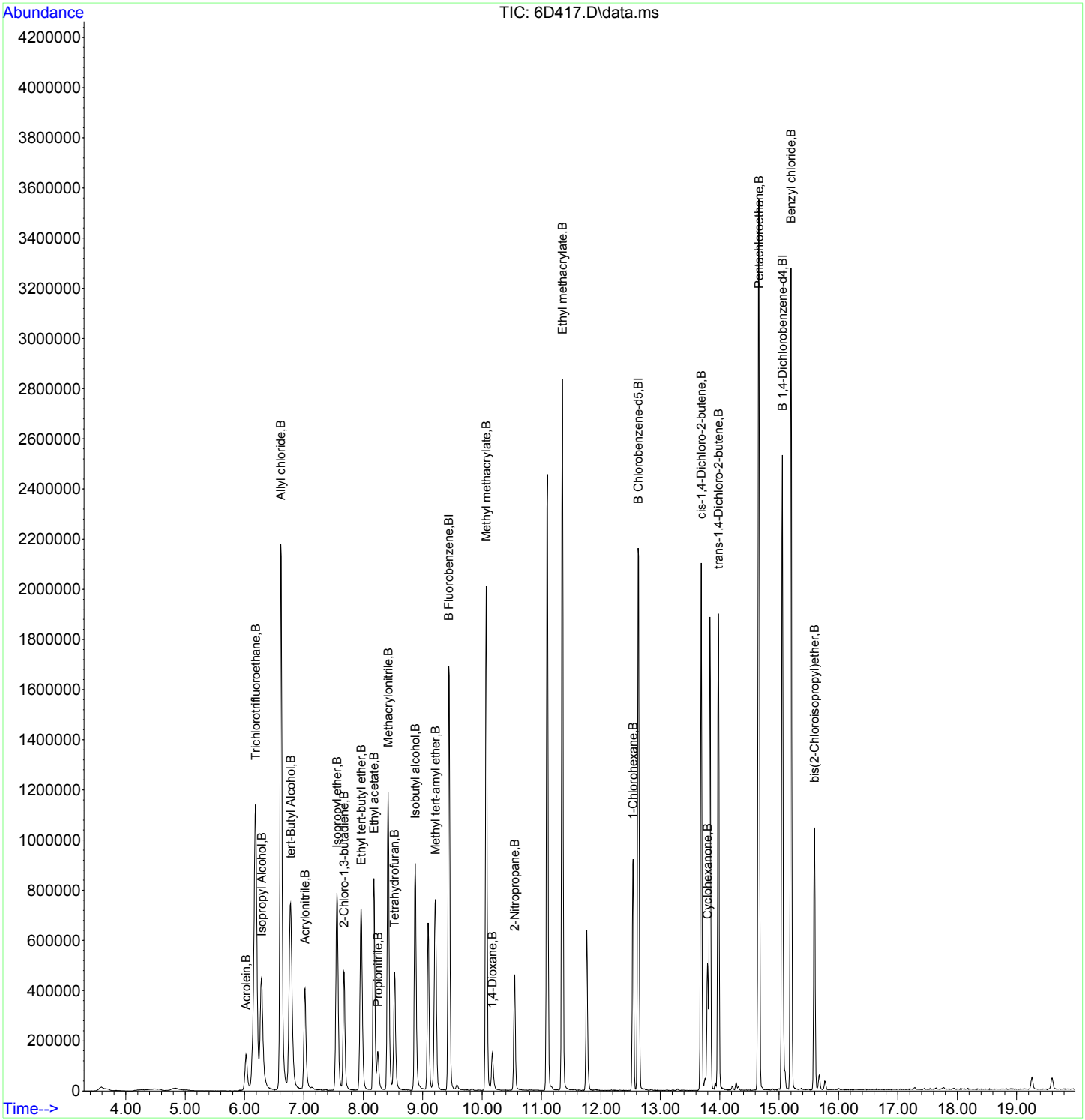
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	11.348	11.348	0.899	1317191	104.82	ug/L	87
106) 1-Chlorohexane	55	12.537	12.543	0.833	258706	22.60	ug/L	93
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	541655	121.80	ug/L	80
108) Cyclohexanone	42	13.793	13.793	0.916	172095	688.93	ug/L	96
109) trans-1,4-Dichloro-2-b...	53	13.976	13.976	0.928	491892	117.19	ug/L	89
110) Pentachloroethane	167	14.658	14.658	0.974	738517	89.47	ug/L	99
111) Benzyl chloride	91	15.201	15.201	1.010	2353307	97.68	ug/L	98
112) bis(2-Chloroisopropyl)...	45	15.591	15.597	1.036	743033	163.19	ug/L	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D417.D
Acq On : 14 Oct 2016 00:22
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-16|ICAL100|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 14 08:49:14 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D418.D
Acq On : 14 Oct 2016 00:52
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-17|ICAL250|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Oct 14 08:49:16 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
Internal Standards								Dev(Min)
1) Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.635	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	1535534	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.634	1.000	1196986	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	636698	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	0d	0.00	ug/L	
45) Toluene-d8	98	11.098	11.098	0.879	0d	0.00	ug/L	
63) Bromofluorobenzene	95	13.835	13.836	0.919	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	3.993	0.000	0	N.D.		
3) Chloromethane		4.394	4.282	0.465	0m	N.D.	d	
4) Vinyl chloride		0.000	4.506	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		5.830	5.830	0.618	0m	N.D.	d	
9) Acetone		6.197	6.197	0.656	0m	N.D.	d	
10) 1,1-Dichloroethylene		6.185	6.191	0.655	0m	N.D.	d	
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile		6.611	6.550	0.700	0m	N.D.	d	
13) Methyl acetate		6.581	6.575	0.697	0m	N.D.	d	
14) Carbon disulfide		6.611	6.550	0.700	0m	N.D.	d	
15) Methylene chloride		6.745	6.758	0.715	0m	N.D.	d	
16) tert-Butyl methyl ether		7.056	7.056	0.747	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		0.000	7.087	0.000	0	N.D.		
18) Hexane		7.343	7.367	0.778	0m	N.D.	d	
19) Vinyl acetate		7.556	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.672	7.569	0.813	0m	N.D.	d	
21) 2-Butanone		8.178	8.160	0.866	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.178	8.209	0.866	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.477	0.000	0	N.D.		
25) Chloroform		8.519	8.520	0.902	0m	N.D.	d	
26) 1,1,1-Trichloroethane		8.904	8.788	0.943	0m	N.D.	d	
27) Cyclohexane		8.867	8.879	0.939	0m	N.D.	d	
28) 1,1-Dichloropropene		8.873	8.946	0.940	0m	N.D.	d	
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane		9.178	9.172	0.972	0m	N.D.	d	
32) Benzene		9.190	9.184	0.974	0m	N.D.	d	
33) Cyclohexene		9.318	9.294	0.987	0m	N.D.	d	
34) n-Butyl alcohol		9.720	9.568	1.030	0m	N.D.	d	
35) Trichloroethylene		9.830	9.830	1.041	0m	N.D.	d	
36) 2-Pentanone		10.068	9.934	1.067	0m	N.D.	d	
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		10.074	10.074	1.067	0m	N.D.	d	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		0.000	10.336	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		10.793	10.787	1.143	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D418.D
Acq On : 14 Oct 2016 00:52
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-17|ICAL250|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Oct 14 08:49:16 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone		10.891	10.891	0.862	0m	N.D.	d	
46) Toluene		11.165	11.172	0.884	0m	N.D.	d	
47) trans-1,3-Dichloroprop...		11.336	11.342	0.898	0m	N.D.	d	
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.		
49) 2-Hexanone		0.000	11.751	0.000	0	N.D.		
50) 1,3-Dichloropropane		11.757	11.751	0.931	0m	N.D.	d	
51) Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d	
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.		
53) 1,2-Dibromoethane		12.177	12.177	0.964	0m	N.D.	d	
54) Chlorobenzene		12.665	12.665	1.003	0m	N.D.	d	
55) 1,1,1,2-Tetrachloroethane		12.720	12.726	1.007	0m	N.D.	d	
56) Ethylbenzene		12.738	12.732	1.009	0m	N.D.	d	
57) m,p-Xylenes		12.848	12.842	1.017	0m	N.D.	d	
58) o-Xylene		13.281	13.275	1.052	0m	N.D.	d	
59) Styrene		13.287	13.281	1.052	0m	N.D.	d	
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene		13.634	13.641	0.906	0m	N.D.	d	
64) 1,1,2,2-Tetrachloroethane		13.933	13.927	0.925	0m	N.D.	d	
65) 1,2,3-Trichloropropane		13.964	14.012	0.928	0m	N.D.	d	
66) Bromobenzene		14.037	14.043	0.932	0m	N.D.	d	
67) n-Propylbenzene		14.079	14.067	0.935	0m	N.D.	d	
68) 1,3,5-Trimethylbenzene		14.226	14.226	0.945	0m	N.D.	d	
69) 2-Chlorotoluene		14.213	14.214	0.944	0m	N.D.	d	
70) 4-Chlorotoluene		14.317	14.317	0.951	0m	N.D.	d	
71) tert-Butylbenzene		14.604	14.598	0.970	0m	N.D.	d	
72) 1,2,4-Trimethylbenzene		14.634	14.640	0.972	0m	N.D.	d	
73) sec-Butylbenzene		14.823	14.823	0.985	0m	N.D.	d	
74) 4-Isopropyltoluene		14.658	14.598	0.974	0m	N.D.	d	
75) 1,3-Dichlorobenzene		15.000	15.000	0.996	0m	N.D.	d	
76) 1,4-Dichlorobenzene		15.085	15.085	1.002	0m	N.D.	d	
77) n-Butylbenzene		0.000	15.378	0.000	0	N.D.		
78) 1,2-Dichlorobenzene		15.488	15.494	1.029	0m	N.D.	d	
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene		17.292	17.286	1.149	0m	N.D.	d	
81) Hexachlorobutadiene		17.445	17.445	1.159	0m	N.D.	d	
82) Naphthalene		17.634	17.634	1.171	0m	N.D.	d	
83) 1,2,3-Trichlorobenzene		17.938	17.945	1.192	0m	N.D.	d	
85) Acrolein	56	6.026	6.032	0.638	493073	328.85	ug/L	99
86) Trichlorotrifluoroethane	85	6.185	6.184	0.655	971027	218.52	ug/L	89
87) Isopropyl Alcohol	45	6.282	6.288	0.665	2240745	3429.68	ug/L	96
88) Allyl chloride	41	6.611	6.611	0.700	5019482	300.80	ug/L	87
89) tert-Butyl Alcohol	59	6.770	6.776	0.717	3377084	2812.33	ug/L	95
90) Acrylonitrile	53	7.014	7.014	0.743	1033559	324.29	ug/L	99
91) Isopropyl ether	45	7.556	7.556	0.800	2369312	64.46	ug/L	94
92) 2-Chloro-1,3-butadiene	53	7.672	7.678	0.813	982227	56.07	ug/L	98
93) Ethyl tert-butyl ether	59	7.965	7.965	0.844	2109100	56.04	ug/L	96
94) Ethyl acetate	43	8.178	8.178	0.866	2698924	306.24	ug/L	98
95) Propionitrile	54	8.245	8.239	0.873	417324	338.18	ug/L	100
96) Methacrylonitrile	41	8.416	8.416	0.892	1695772	318.56	ug/L	95
97) Tetrahydrofuran	42	8.526	8.525	0.903	880225	329.24	ug/L	88
98) Isobutyl alcohol	41	8.873	8.873	0.940	1060997	3192.91	ug/L	90
99) Methyl tert-amyl ether	73	9.214	9.214	0.976	1510096	48.24	ug/L	93
100) Methyl methacrylate	69	10.068	10.068	1.067	1577506	268.47	ug/L	82
101) 1,4-Dioxane	88	10.172	10.178	1.077	263879	2965.86	ug/L	86
102) 2-Nitropropane	43	10.543	10.549	1.117	931861	319.39	ug/L	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D418.D
Acq On : 14 Oct 2016 00:52
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-17|ICAL250|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Oct 14 08:49:16 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

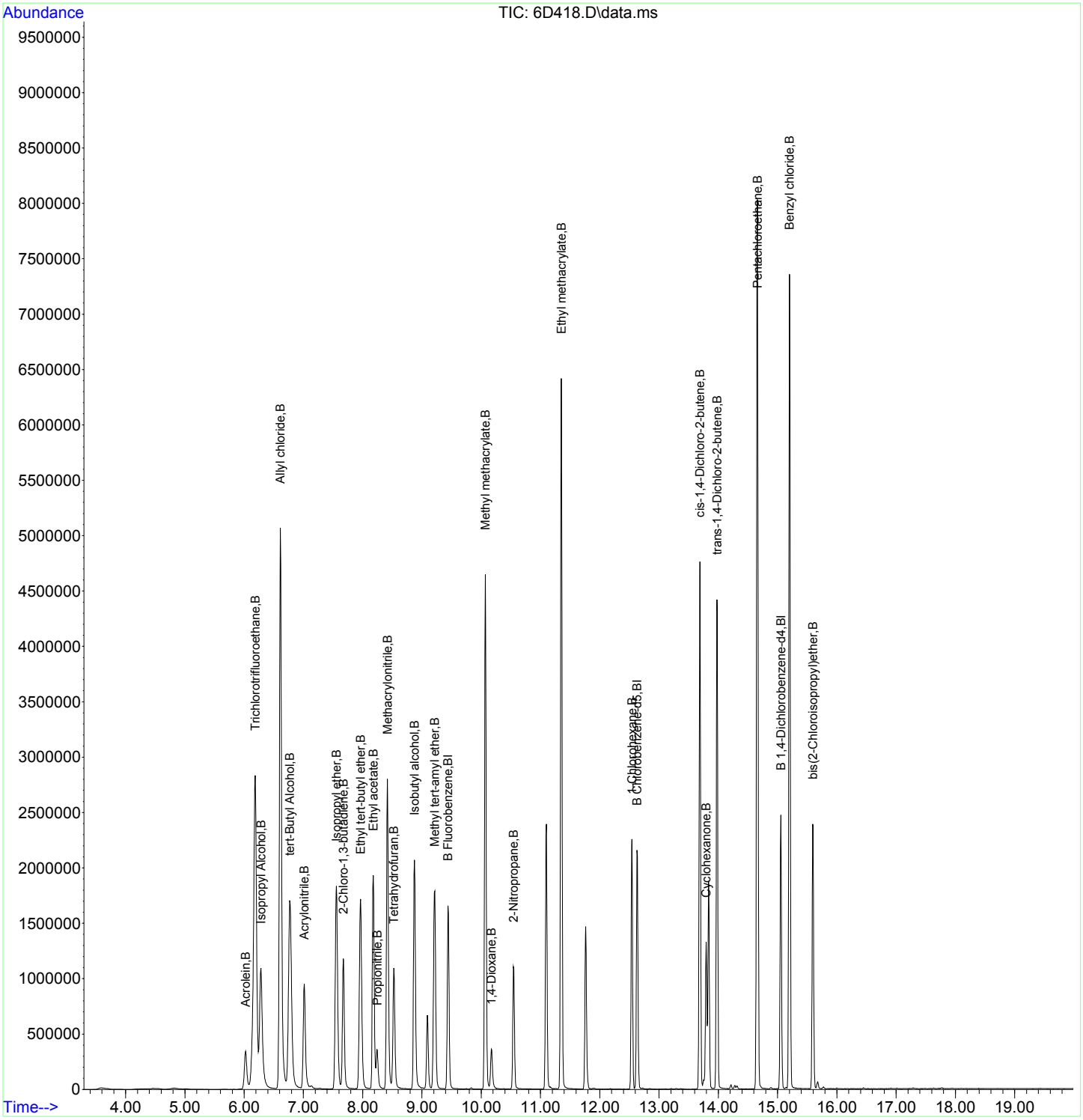
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	11.348	11.348	0.899	2980184	239.15	ug/L	87
106) 1-Chlorohexane	55	12.543	12.543	0.833	620482	55.73	ug/L	94
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	1256543	290.55	ug/L	83
108) Cyclohexanone	42	13.793	13.793	0.916	421439	1734.88	ug/L	95
109) trans-1,4-Dichloro-2-b...	53	13.976	13.976	0.928	1142516	279.91	ug/L	90
110) Pentachloroethane	167	14.658	14.658	0.974	1697914	211.53	ug/L	99
111) Benzyl chloride	91	15.201	15.201	1.010	5274087	225.12	ug/L	98
112) bis(2-Chloroisopropyl)...	45	15.591	15.597	1.036	1706721	385.46	ug/L	89

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D418.D
Acq On : 14 Oct 2016 00:52
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-17|ICAL250|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Oct 14 08:49:16 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D419.D
Acq On : 14 Oct 2016 01:20
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-18|ICAL500|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Oct 14 08:49:18 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
Internal Standards								Dev(Min)
1) Fluorobenzene	96	9.440	9.446	1.000	0m	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.635	12.635	1.000	0m	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	0m	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.446	1.000	1555197	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.635	12.634	1.000	1212223	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	646804	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	0d	0.00	ug/L	
45) Toluene-d8	98	11.098	11.098	0.878	0d	0.00	ug/L	
63) Bromofluorobenzene	95	13.836	13.836	0.919	0d	0.00	ug/L	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	3.993	0.000	0	N.D.		
3) Chloromethane		4.161	4.282	0.441	0m	N.D.	d	
4) Vinyl chloride		0.000	4.506	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		5.830	5.830	0.618	0m	N.D.	d	
9) Acetone		6.179	6.197	0.655	0m	N.D.	d	
10) 1,1-Dichloroethylene		6.179	6.191	0.655	0m	N.D.	d	
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile		6.611	6.550	0.700	0m	N.D.	d	
13) Methyl acetate		6.575	6.575	0.696	0m	N.D.	d	
14) Carbon disulfide		6.611	6.550	0.700	0m	N.D.	d	
15) Methylene chloride		6.758	6.758	0.716	0m	N.D.	d	
16) tert-Butyl methyl ether		7.050	7.056	0.747	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		0.000	7.087	0.000	0	N.D.		
18) Hexane		7.361	7.367	0.780	0m	N.D.	d	
19) Vinyl acetate		7.556	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.678	7.569	0.813	0m	N.D.	d	
21) 2-Butanone		8.178	8.160	0.866	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.178	8.209	0.866	0m	N.D.	d	
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.477	0.000	0	N.D.		
25) Chloroform		8.520	8.520	0.902	0m	N.D.	d	
26) 1,1,1-Trichloroethane		8.788	8.788	0.931	0m	N.D.	d	
27) Cyclohexane		8.873	8.879	0.940	0m	N.D.	d	
28) 1,1-Dichloropropene		8.873	8.946	0.940	0m	N.D.	d	
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane		9.172	9.172	0.972	0m	N.D.	d	
32) Benzene		9.184	9.184	0.973	0m	N.D.	d	
33) Cyclohexene		9.355	9.294	0.991	0m	N.D.	d	
34) n-Butyl alcohol		9.568	9.568	1.014	0m	N.D.	d	
35) Trichloroethylene		9.836	9.830	1.042	0m	N.D.	d	
36) 2-Pentanone		10.068	9.934	1.067	0m	N.D.	d	
37) 1,2-Dichloropropane		10.080	10.080	1.068	0m	N.D.	d	
38) Methylcyclohexane		10.068	10.074	1.067	0m	N.D.	d	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		10.330	10.336	1.094	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene		10.781	10.787	1.142	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D419.D
Acq On : 14 Oct 2016 01:20
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-18|ICAL500|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Oct 14 08:49:18 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44) 4-Methyl-2-pentanone		10.903	10.891	0.863	0m	N.D.	d		
46) Toluene		11.178	11.172	0.885	0m	N.D.	d		
47) trans-1,3-Dichloroprop...		11.342	11.342	0.898	0m	N.D.	d		
48) 1,1,2-Trichloroethane		11.562	11.556	0.915	0m	N.D.	d		
49) 2-Hexanone		11.757	11.751	0.931	0m	N.D.	d		
50) 1,3-Dichloropropane		11.745	11.751	0.930	0m	N.D.	d		
51) Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d		
52) Dibromochloromethane		11.982	12.013	0.948	0m	N.D.	d		
53) 1,2-Dibromoethane		12.177	12.177	0.964	0m	N.D.	d		
54) Chlorobenzene		12.653	12.665	1.001	0m	N.D.	d		
55) 1,1,1,2-Tetrachloroethane		12.720	12.726	1.007	0m	N.D.	d		
56) Ethylbenzene		0.000	12.732	0.000	0	N.D.			
57) m,p-Xylenes		12.854	12.842	1.017	0m	N.D.	d		
58) o-Xylene		13.275	13.275	1.051	0m	N.D.	d		
59) Styrene		13.281	13.281	1.051	0m	N.D.	d		
61) Bromoform		0.000	13.537	0.000	0	N.D.			
62) Isopropylbenzene		13.647	13.641	0.906	0m	N.D.	d		
64) 1,1,2,2-Tetrachloroethane		13.927	13.927	0.925	0m	N.D.	d		
65) 1,2,3-Trichloropropane		14.000	14.012	0.930	0m	N.D.	d		
66) Bromobenzene		14.037	14.043	0.932	0m	N.D.	d		
67) n-Propylbenzene		0.000	14.067	0.000	0	N.D.			
68) 1,3,5-Trimethylbenzene		14.226	14.226	0.945	0m	N.D.	d		
69) 2-Chlorotoluene		14.214	14.214	0.944	0m	N.D.	d		
70) 4-Chlorotoluene		14.317	14.317	0.951	0m	N.D.	d		
71) tert-Butylbenzene		14.659	14.598	0.974	0m	N.D.	d		
72) 1,2,4-Trimethylbenzene		14.646	14.640	0.973	0m	N.D.	d		
73) sec-Butylbenzene		14.817	14.823	0.984	0m	N.D.	d		
74) 4-Isopropyltoluene		14.659	14.598	0.974	0m	N.D.	d		
75) 1,3-Dichlorobenzene		15.006	15.000	0.997	0m	N.D.	d		
76) 1,4-Dichlorobenzene		15.085	15.085	1.002	0m	N.D.	d		
77) n-Butylbenzene		0.000	15.378	0.000	0	N.D.			
78) 1,2-Dichlorobenzene		15.488	15.494	1.029	0m	N.D.	d		
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.			
80) 1,2,4-Trichlorobenzene		17.280	17.286	1.148	0m	N.D.	d		
81) Hexachlorobutadiene		17.445	17.445	1.159	0m	N.D.	d		
82) Naphthalene		17.634	17.634	1.171	0m	N.D.	d		
83) 1,2,3-Trichlorobenzene		17.951	17.945	1.192	0m	N.D.	d		
85) Acrolein	56	6.026	6.032	0.638	1037567	683.24	ug/L		100 A
86) Trichlorotrifluoroethane	85	6.185	6.184	0.655	1870122	415.53	ug/L		91
87) Isopropyl Alcohol	45	6.282	6.288	0.665	4745590	7171.74	ug/L		96 A
88) Allyl chloride	41	6.611	6.611	0.700	9152856	541.57	ug/L		91 A
89) tert-Butyl Alcohol	59	6.776	6.776	0.718	7223084	5939.12	ug/L	#	56 A
90) Acrylonitrile	53	7.014	7.014	0.743	2170663	672.47	ug/L		99 A
91) Isopropyl ether	45	7.556	7.556	0.800	4691834	126.03	ug/L		95 A
92) 2-Chloro-1,3-butadiene	53	7.672	7.678	0.813	1942225	109.47	ug/L		98 A
93) Ethyl tert-butyl ether	59	7.965	7.965	0.844	4343806	113.96	ug/L		96 A
94) Ethyl acetate	43	8.178	8.178	0.866	5454417	611.07	ug/L		99 A
95) Propionitrile	54	8.239	8.239	0.873	899477	719.69	ug/L		100 A
96) Methacrylonitrile	41	8.416	8.416	0.892	3457786	641.35	ug/L		96 A
97) Tetrahydrofuran	42	8.526	8.525	0.903	1852483	684.13	ug/L		89 A
98) Isobutyl alcohol	41	8.873	8.873	0.940	2234185	6638.43	ug/L		91 A
99) Methyl tert-amyl ether	73	9.215	9.214	0.976	3130957	98.76	ug/L		93
100) Methyl methacrylate	69	10.068	10.068	1.067	3158460	530.74	ug/L		85 A
101) 1,4-Dioxane	88	10.172	10.178	1.077	549140	6094.00	ug/L		87 A
102) 2-Nitropropane	43	10.544	10.549	1.117	2014108	681.60	ug/L		99 A

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D419.D
Acq On : 14 Oct 2016 01:20
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-18|ICAL500|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Oct 14 08:49:18 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE

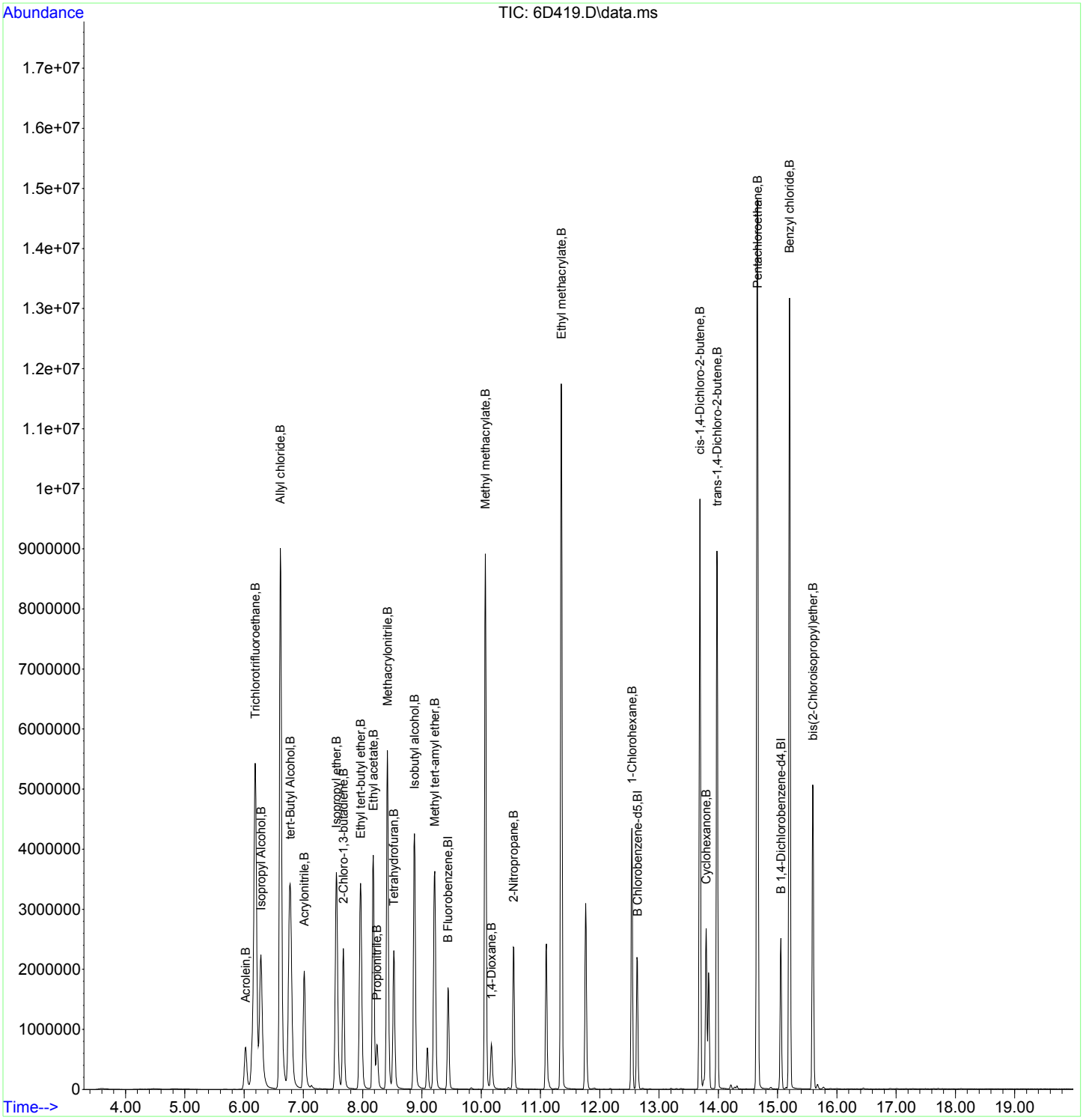
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
104) Ethyl methacrylate	69	11.348	11.348	0.898	5762219	456.59	ug/L	88	
106) 1-Chlorohexane	55	12.543	12.543	0.833	1212883	107.24	ug/L	93	A
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	2608634	593.77	ug/L	84	A
108) Cyclohexanone	42	13.793	13.793	0.916	871494	3531.52	ug/L	95	A
109) trans-1,4-Dichloro-2-b...	53	13.976	13.976	0.928	2353867	567.68	ug/L	89	A
110) Pentachloroethane	167	14.659	14.658	0.974	3191674	391.42	ug/L	98	
111) Benzyl chloride	91	15.201	15.201	1.010	9341659	392.51	ug/L	94	
112) bis(2-Chloroisopropyl)...	45	15.591	15.597	1.036	3598036	799.91	ug/L	90	A

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D419.D
Acq On : 14 Oct 2016 01:20
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-18|ICAL500|1|VOAF|1|VOA8260BL|
Misc : ICAL 5ML - MIX[B]
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Oct 14 08:49:18 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Sep 13 12:44:43 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA6.I

Injection Date: 14-OCT-16 02:18

Data File: 101316V6\6D421.D

Init. Cal. Date(s) 13-OCT-16 17:11 - 14-OCT-16 01:2

Lab Sample ID W6VM161013-19

Method: 101316V6\VOA6-8260-101316.M

Quant Type ISTD

Method Update: 14-OCT-16 08:57

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	1,2-Dichloroethane-d4	0.3288	0.3265		.01		-0.69951	60		Averaged
S	Toluene-d8	1.3333	1.33784		.01		0.34051	60		Averaged
S	Bromofluorobenzene	1.0112	1.01522		.01		0.39755	60		Averaged
	Trichlorotrifluoroethane	0.1187	0.10618		.01		-10.5476	60		Averaged
	1,4-Dioxane	0.0035	0.00329		.01		-6	60		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D421.D
Acq On : 14 Oct 2016 02:18
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-19|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5ML - MIX[B]
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 14 11:34:35 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1525507	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.635	12.629	1.000	1175915	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	624287	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1525507	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.635	12.628	1.000	1175915	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	624287	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	498073	49.64	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.878	1573191	50.17	ug/L	0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	633786	50.20	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		3.993	4.001	0.423	0m	N.D.	d	
3) Chloromethane		4.242	4.282	0.449	0m	N.D.	d	
4) Vinyl chloride		4.482	4.498	0.475	0m	N.D.	d	
5) Bromomethane		5.012	5.020	0.531	0m	N.D.	d	
6) Chloroethane		5.148	5.156	0.545	0m	N.D.	d	
7) Trichlorofluoromethane		5.509	5.509	0.584	0m	N.D.	d	
8) Ethyl ether		5.830	5.830	0.618	0m	N.D.	d	
9) Acetone		6.276	6.197	0.665	0m	N.D.	d	
10) 1,1-Dichloroethylene		6.191	6.191	0.656	0m	N.D.	d	
11) Iodomethane		6.416	6.429	0.680	0m	N.D.	d	
12) Acetonitrile		6.611	6.550	0.700	0m	N.D.	d	
13) Methyl acetate		6.575	6.575	0.696	0m	N.D.	d	
14) Carbon disulfide		6.611	6.550	0.700	0m	N.D.	d	
15) Methylene chloride		6.770	6.764	0.717	0m	N.D.	d	
16) tert-Butyl methyl ether		7.056	7.050	0.747	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		7.099	7.093	0.752	0m	N.D.	d	
18) Hexane		7.367	7.367	0.780	0m	N.D.	d	
19) Vinyl acetate		7.556	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.562	7.575	0.801	0m	N.D.	d	
21) 2-Butanone		8.178	8.160	0.866	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.178	8.209	0.866	0m	N.D.	d	
23) 2,2-Dichloropropane		8.215	8.233	0.870	0m	N.D.	d	
24) Bromochloromethane		8.465	8.483	0.897	0m	N.D.	d	
25) Chloroform		8.532	8.520	0.904	0m	N.D.	d	
26) 1,1,1-Trichloroethane		8.788	8.788	0.931	0m	N.D.	d	
27) Cyclohexane		8.873	8.873	0.940	0m	N.D.	d	
28) 1,1-Dichloropropene		8.867	8.946	0.939	0m	N.D.	d	
29) Carbon tetrachloride		8.977	8.977	0.951	0m	N.D.	d	
31) 1,2-Dichloroethane		9.215	9.172	0.976	0m	N.D.	d	
32) Benzene		9.190	9.184	0.974	0m	N.D.	d	
33) Cyclohexene		9.336	9.294	0.989	0m	N.D.	d	
34) n-Butyl alcohol		9.593	9.568	1.016	0m	N.D.	d	
35) Trichloroethylene		9.830	9.830	1.041	0m	N.D.	d	
36) 2-Pentanone		9.940	9.928	1.053	0m	N.D.	d	
37) 1,2-Dichloropropane		10.074	10.080	1.067	0m	N.D.	d	
38) Methylcyclohexane		10.074	10.068	1.067	0m	N.D.	d	
39) Dibromomethane		0.000	10.214	0.000	0	N.D.		
40) Bromodichloromethane		10.342	10.330	1.096	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		10.574	10.568	1.120	0m	N.D.	d	
42) cis-1,3-Dichloropropylene		10.787	10.787	1.143	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D421.D
Acq On : 14 Oct 2016 02:18
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-19|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5ML - MIX[B]
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 14 11:34:35 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone		10.891	10.891	0.862	0m	N.D.	d	
46) Toluene		11.165	11.172	0.884	0m	N.D.	d	
47) trans-1,3-Dichloroprop...		11.348	11.342	0.898	0m	N.D.	d	
48) 1,1,2-Trichloroethane		11.562	11.556	0.915	0m	N.D.	d	
49) 2-Hexanone		11.757	11.745	0.931	0m	N.D.	d	
50) 1,3-Dichloropropane		11.745	11.751	0.930	0m	N.D.	d	
51) Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d	
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.		
53) 1,2-Dibromoethane		12.177	12.177	0.964	0m	N.D.	d	
54) Chlorobenzene		12.659	12.665	1.002	0m	N.D.	d	
55) 1,1,1,2-Tetrachloroethane		12.720	12.720	1.007	0m	N.D.	d	
56) Ethylbenzene		12.732	12.732	1.008	0m	N.D.	d	
57) m,p-Xylenes		12.848	12.842	1.017	0m	N.D.	d	
58) o-Xylene		13.281	13.275	1.051	0m	N.D.	d	
59) Styrene		13.281	13.281	1.051	0m	N.D.	d	
61) Bromoform		0.000	13.537	0.000	0	N.D.		
62) Isopropylbenzene		13.641	13.641	0.906	0m	N.D.	d	
64) 1,1,2,2-Tetrachloroethane		13.909	13.927	0.924	0m	N.D.	d	
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.		
66) Bromobenzene		14.031	14.043	0.932	0m	N.D.	d	
67) n-Propylbenzene		14.067	14.067	0.934	0m	N.D.	d	
68) 1,3,5-Trimethylbenzene		14.226	14.226	0.945	0m	N.D.	d	
69) 2-Chlorotoluene		14.208	14.214	0.944	0m	N.D.	d	
70) 4-Chlorotoluene		14.317	14.317	0.951	0m	N.D.	d	
71) tert-Butylbenzene		14.659	14.592	0.974	0m	N.D.	d	
72) 1,2,4-Trimethylbenzene		14.634	14.634	0.972	0m	N.D.	d	
73) sec-Butylbenzene		14.823	14.817	0.985	0m	N.D.	d	
74) 4-Isopropyltoluene		14.585	14.592	0.969	0m	N.D.	d	
75) 1,3-Dichlorobenzene		14.988	14.994	0.996	0m	N.D.	d	
76) 1,4-Dichlorobenzene		15.085	15.085	1.002	0m	N.D.	d	
77) n-Butylbenzene		0.000	15.372	0.000	0	N.D.		
78) 1,2-Dichlorobenzene		15.494	15.494	1.029	0m	N.D.	d	
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene		17.286	17.280	1.148	0m	N.D.	d	
81) Hexachlorobutadiene		17.445	17.445	1.159	0m	N.D.	d	
82) Naphthalene		17.634	17.628	1.171	0m	N.D.	d	
83) 1,2,3-Trichlorobenzene		17.951	17.945	1.192	0m	N.D.	d	
85) Acrolein	56	6.026	6.026	0.638	467534	237.48	ug/L	99
86) Trichlorotrifluoroethane	85	6.185	6.185	0.655	809854	223.63	ug/L	98
87) Isopropyl Alcohol	45	6.282	6.282	0.665	2001353	2298.96	ug/L	100
88) Allyl chloride	41	6.611	6.611	0.700	3974585	200.73	ug/L	100
89) tert-Butyl Alcohol	59	6.770	6.770	0.717	2991896	2296.04	ug/L	99
90) Acrylonitrile	53	7.014	7.014	0.743	928523	230.92	ug/L	100
91) Isopropyl ether	45	7.556	7.556	0.800	1787634	39.11	ug/L	99
92) 2-Chloro-1,3-butadiene	53	7.672	7.672	0.813	889594	48.91	ug/L	99
93) Ethyl tert-butyl ether	59	7.965	7.965	0.844	1666178	40.97	ug/L	99
94) Ethyl acetate	43	8.178	8.178	0.866	2397741	222.89	ug/L	100
95) Propionitrile	54	8.245	8.245	0.873	370485	225.83	ug/L	100
96) Methacrylonitrile	41	8.416	8.416	0.892	1475928	223.55	ug/L	100
97) Tetrahydrofuran	42	8.526	8.526	0.903	790172	218.57	ug/L	99
98) Isobutyl alcohol	41	8.873	8.873	0.940	986868	2314.18	ug/L	98
99) Methyl tert-amyl ether	73	9.208	9.214	0.975	1230369	42.36	ug/L	99
100) Methyl methacrylate	69	10.068	10.068	1.067	1362932	219.33	ug/L	99
101) 1,4-Dioxane	88	10.172	10.172	1.077	250851	2380.95	ug/L	99
102) 2-Nitropropane	43	10.544	10.543	1.117	815938	212.39	ug/L	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D421.D
Acq On : 14 Oct 2016 02:18
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-19|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5ML - MIX[B]
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 14 11:34:35 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

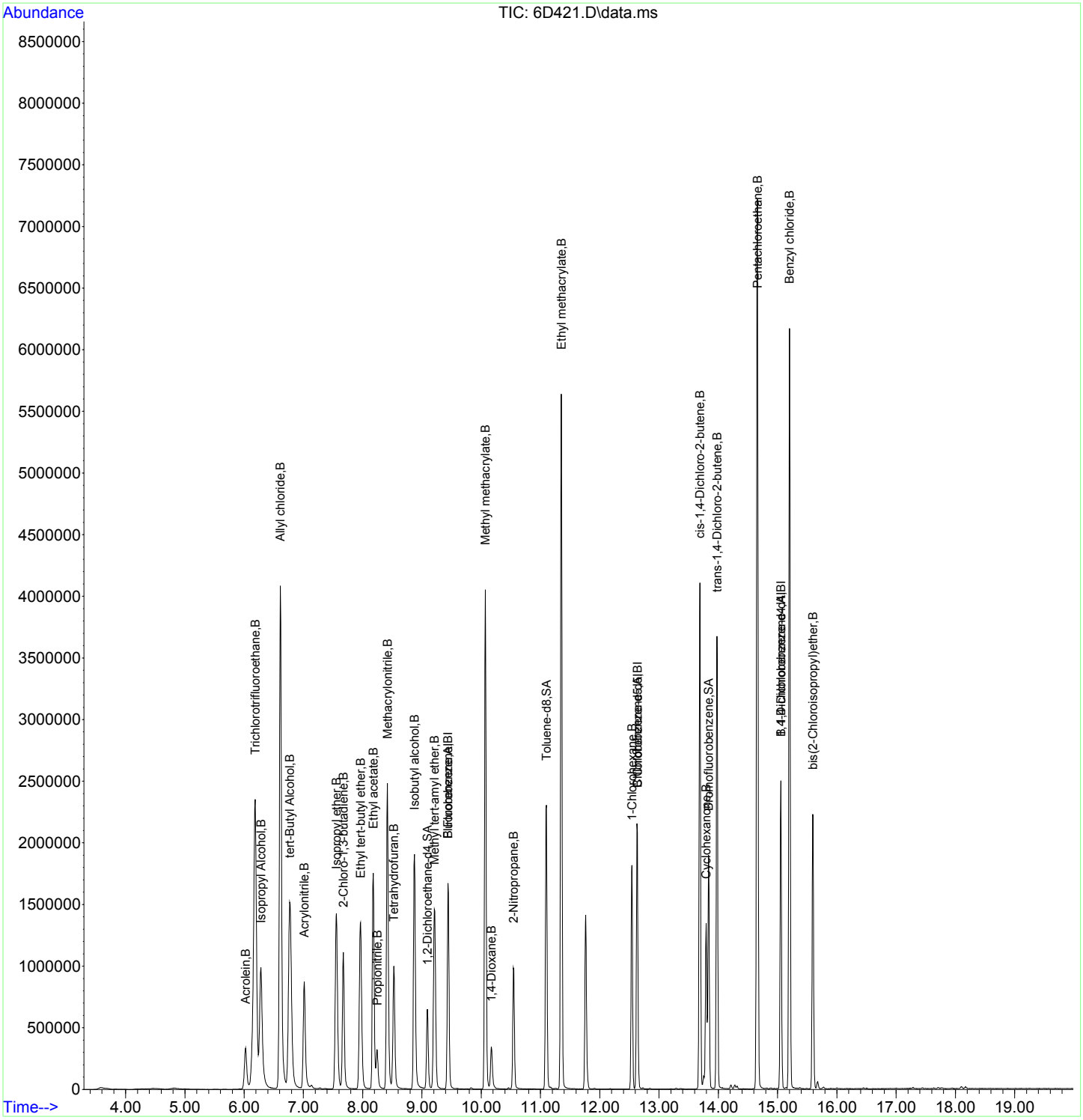
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	11.348	11.348	0.898	2622747	223.21	ug/L	99
106) 1-Chlorohexane	55	12.543	12.543	0.833	501606	43.05	ug/L	100
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	1101688	234.61	ug/L	99
108) Cyclohexanone	42	13.793	13.793	0.916	429159	1314.71	ug/L	98
109) trans-1,4-Dichloro-2-b...	53	13.976	13.976	0.928	934157	217.53	ug/L	99
110) Pentachloroethane	167	14.659	14.658	0.974	1507139	236.42	ug/L	100
111) Benzyl chloride	91	15.201	15.201	1.010	4402086	232.14	ug/L	100
112) bis(2-Chloroisopropyl)...	45	15.591	15.591	1.036	1565320	236.85	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D421.D
Acq On : 14 Oct 2016 02:18
Operator : VXY1
InstName : VOA6
Sample : |W6VM161013-19|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5ML - MIX[B]
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 14 11:34:35 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA6.I **Injection Date:** 14-OCT-16 09:59

Data File: 101416V6\6D502.D **Init. Cal. Date(s)** 13-OCT-16 17:11 - 14-OCT-16 01:2

Lab Sample ID W6VM161014-01 **Method:** 101316V6\VOA6-8260-101316.M

Quant Type ISTD **Method Update:** 14-OCT-16 08:57

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
S	1,2-Dichloroethane-d4	0.3288	0.33872		.01		3.01703	60		Averaged	
S	Toluene-d8	1.3333	1.31924		.01		-1.05453	60		Averaged	
S	Bromofluorobenzene	1.0112	1.01427		.01		0.3036	60		Averaged	
	Dichlorodifluoromethane	50	68.11	50			36.22	60		Linear	
	Chloromethane	0.4302	0.47093		.1		9.46769	60		Averaged	SPCC
	Vinyl chloride	0.3479	0.394		.01		13.25093	20		Averaged	CCC
	Bromomethane	0.2196	0.20994		.01		-4.39891	60		Averaged	
	Chloroethane	0.2558	0.26628		.01		4.09695	60		Averaged	
	Trichlorofluoromethane	0.428	0.48878		.01		14.20093	60		Averaged	
	1,1-Dichloroethylene	0.5339	0.49128		.01		-7.98277	20		Averaged	CCC
	Acetone	0.1384	0.13414		.01		-3.07803	60		Averaged	
	Carbon disulfide	0.84	0.82601		.01		-1.66548	60		Averaged	
	Methyl acetate	0.2717	0.26903		.01		-0.9827	60		Averaged	
	Methylene chloride	0.3505	0.31905		.01		-8.9729	60		Averaged	
	tert-Butyl methyl ether	0.987	0.9986		.01		1.17528	60		Averaged	
	trans-1,2-Dichloroethylene	0.5501	0.5159		.01		-6.21705	60		Averaged	
	1,1-Dichloroethane	0.6607	0.62449		.1		-5.48055	60		Averaged	SPCC
	2-Butanone	0.2177	0.24156		.01		10.96004	60		Averaged	
	cis-1,2-Dichloroethylene	0.6564	0.63768		.01		-2.85192	60		Averaged	
	Bromochloromethane	0.1702	0.16349		.01		-3.94242	60		Averaged	
	Chloroform	0.5896	0.57092		.01		-3.16825	20		Averaged	CCC
	1,1,1-Trichloroethane	0.5131	0.52918		.01		3.13389	60		Averaged	
	Cyclohexane	0.7743	0.78458		.01		1.32765	60		Averaged	
	Carbon tetrachloride	0.4428	0.47389		.01		7.02123	60		Averaged	
	1,2-Dichloroethane	0.5693	0.55179		.01		-3.07571	60		Averaged	
	Benzene	1.2673	1.20666		.01		-4.78498	60		Averaged	
	Trichloroethylene	0.3302	0.33021		.01		0.00303	60		Averaged	
	Methylcyclohexane	0.5758	0.59136		.01		2.70233	60		Averaged	
	1,2-Dichloropropane	0.3885	0.37881		.01		-2.49421	20		Averaged	CCC
	Bromodichloromethane	0.4587	0.47017		.01		2.50055	60		Averaged	
	cis-1,3-Dichloropropylene	0.5461	0.56643		.01		3.72276	60		Averaged	
	4-Methyl-2-pentanone	0.2004	0.21443		.01		7.001	60		Averaged	
	Toluene	1.8015	1.71125		.01		-5.00971	20		Averaged	CCC
	trans-1,3-Dichloropropylene	0.6505	0.69023		.01		6.10761	60		Averaged	
	1,1,2-Trichloroethane	0.3092	0.3		.01		-2.97542	60		Averaged	
	2-Hexanone	0.4363	0.5186		.01		18.86317	60		Averaged	
	Tetrachloroethylene	0.3404	0.33907		.01		-0.39072	60		Averaged	

Continuing Calibration Summary

Instrument ID: VOA6.I **Injection Date:** 14-OCT-16 09:59

Data File: 101416V6\6D502.D **Init. Cal. Date(s)** 13-OCT-16 17:11 14-OCT-16 01:2

Lab Sample ID W6VM161014-01 **Method:** 101316V6\VOA6-8260-101316.M

Quant Type ISTD

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
Dibromochloromethane	0.4252	0.46112		.01		8.44779	60		Averaged	
1,2-Dibromoethane	0.3757	0.38168		.01		1.5917	60		Averaged	
Chlorobenzene	1.2252	1.19745		.3		-2.26494	60		Averaged	SPCC
Ethylbenzene	2.0375	2.0418		.01		0.21104	20		Averaged	CCC
m,p-Xylenes	0.8067	0.78279		.01		-2.96393	60		Averaged	
Styrene	1.3691	1.33913		.01		-2.18903	60		Averaged	
o-Xylene	1.7534	1.68716		.01		-3.7778	60		Averaged	
Bromoform	0.4858	0.55043		.1		13.30383	60		Averaged	SPCC
Isopropylbenzene	4.0447	4.0695		.01		0.61315	60		Averaged	
1,1,2,2-Tetrachloroethane	0.9171	0.9409		.3		2.59514	60		Averaged	SPCC
1,3-Dichlorobenzene	1.9789	1.93068		.01		-2.43671	60		Averaged	
1,4-Dichlorobenzene	1.9669	1.92966		.01		-1.89333	60		Averaged	
1,2-Dichlorobenzene	1.9234	1.88376		.01		-2.06093	60		Averaged	
1,2-Dibromo-3-chloropropane	0.1888	0.2259		.01		19.65042	60		Averaged	
1,2,4-Trichlorobenzene	1.486	1.52591		.01		2.68573	60		Averaged	
1,2,3-Trichlorobenzene	1.3288	1.35976		.01		2.32992	60		Averaged	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101416V6\
Data File : 6D502.D
Acq On : 14 Oct 2016 09:59
Operator : VXY1
InstName : VOA6
Sample : |W6VM161014-01|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5ML - MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 14 10:21:15 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) Fluorobenzene	96	9.446	9.440	1.000	1559765	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.634	12.629	1.000	1223939	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	650180	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.446	9.440	1.000	1559765	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.634	12.628	1.000	1223939	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	650180	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	528323	51.50	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.878	1614666	49.47	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	659460	50.15	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	3.993	4.001	0.423	651995	68.11	ug/L	100
3) Chloromethane	50	4.273	4.282	0.452	734536	54.74	ug/L	100
4) Vinyl chloride	62	4.498	4.498	0.476	614541	56.63	ug/L	99
5) Bromomethane	94	5.020	5.020	0.531	327460	47.80	ug/L	99
6) Chloroethane	64	5.148	5.156	0.545	415336	52.05	ug/L	99
7) Trichlorofluoromethane	101	5.501	5.509	0.582	762382	57.10	ug/L	100
8) Ethyl ether	59	5.830	5.830	0.617	496655	46.82	ug/L	92
9) Acetone	43	6.197	6.197	0.656	1046173	242.32	ug/L	100
10) 1,1-Dichloroethylene	61	6.191	6.191	0.655	766280	46.01	ug/L	99
11) Iodomethane	142	6.428	6.429	0.681	3435401	238.12	ug/L	100
12) Acetonitrile	41	6.544	6.550	0.693	1813781	1208.40	ug/L	99
13) Methyl acetate	43	6.575	6.575	0.696	2098131	247.56	ug/L	100
14) Carbon disulfide	76	6.550	6.550	0.693	6441934	245.83	ug/L	100
15) Methylene chloride	84	6.758	6.764	0.715	497640	45.51	ug/L	98
16) tert-Butyl methyl ether	73	7.050	7.050	0.746	1557582	50.59	ug/L	100
17) trans-1,2-Dichloroethy...	61	7.087	7.093	0.750	804685	46.89	ug/L	99
18) Hexane	57	7.361	7.367	0.779	964292	55.29	ug/L	100
19) Vinyl acetate	43	7.538	7.538	0.798	6498563	273.77	ug/L	99
20) 1,1-Dichloroethane	63	7.568	7.575	0.801	974050	47.26	ug/L	100
21) 2-Butanone	43	8.160	8.160	0.864	1883870	277.38	ug/L	100
22) cis-1,2-Dichloroethylene	61	8.208	8.209	0.869	994629	48.58	ug/L	98
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	831744	54.99	ug/L	98
24) Bromochloromethane	128	8.483	8.483	0.898	255010	48.04	ug/L	99
25) Chloroform	83	8.519	8.520	0.902	890505	48.41	ug/L	100
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.930	825397	51.57	ug/L	99
27) Cyclohexane	56	8.873	8.873	0.939	1223753	50.66	ug/L	100
28) 1,1-Dichloropropene	75	8.946	8.946	0.947	652008	50.53	ug/L	99
29) Carbon tetrachloride	117	8.977	8.977	0.950	739155	53.51	ug/L	99
31) 1,2-Dichloroethane	62	9.172	9.172	0.971	860664	48.46	ug/L	100
32) Benzene	78	9.184	9.184	0.972	1882105	47.61	ug/L	100
33) Cyclohexene	67	9.294	9.294	0.984	1018044	50.47	ug/L	99
34) n-Butyl alcohol	56	9.568	9.568	1.013	2281139	5697.61	ug/L	99
35) Trichloroethylene	95	9.830	9.830	1.041	515055	50.00	ug/L	98
36) 2-Pentanone	43	9.928	9.928	1.051	2693937	300.41	ug/L	100
37) 1,2-Dichloropropane	63	10.080	10.080	1.067	590849	48.75	ug/L	99
38) Methylcyclohexane	83	10.068	10.068	1.066	922378	51.35	ug/L	98
39) Dibromomethane	93	10.214	10.214	1.081	304853	49.55	ug/L	99
40) Bromodichloromethane	83	10.336	10.330	1.094	733356	51.25	ug/L	100
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	1648313	226.24	ug/L	100
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.142	883496	51.87	ug/L	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101416V6\
Data File : 6D502.D
Acq On : 14 Oct 2016 09:59
Operator : VXY1
InstName : VOA6
Sample : |W6VM161014-01|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5ML - MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 14 10:21:15 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	10.891	10.891	0.862	1312223	267.56	ug/L		100
46)	Toluene	91	11.171	11.172	0.884	2094462	47.49	ug/L		99
47)	trans-1,3-Dichloroprop...	75	11.342	11.342	0.898	844802	53.06	ug/L		99
48)	1,1,2-Trichloroethane	83	11.555	11.556	0.915	367181	48.52	ug/L		98
49)	2-Hexanone	43	11.750	11.745	0.930	3173664	297.15	ug/L		100
50)	1,3-Dichloropropane	76	11.750	11.751	0.930	753358	48.98	ug/L		89
51)	Tetrachloroethylene	164	11.763	11.763	0.931	415007	49.80	ug/L		100
52)	Dibromochloromethane	129	12.013	12.013	0.951	564384	54.22	ug/L		100
53)	1,2-Dibromoethane	107	12.177	12.177	0.964	467157	50.80	ug/L		100
54)	Chlorobenzene	112	12.665	12.665	1.002	1465607	48.87	ug/L		99
55)	1,1,1,2-Tetrachloroethane	131	12.720	12.720	1.007	552595	51.27	ug/L		100
56)	Ethylbenzene	91	12.732	12.732	1.008	2499038	50.11	ug/L		100
57)	m,p-Xylenes	106	12.842	12.842	1.016	1916184	97.04	ug/L		100
58)	o-Xylene	91	13.275	13.275	1.051	2064983	48.11	ug/L		100
59)	Styrene	104	13.281	13.281	1.051	1639009	48.90	ug/L		100
61)	Bromoform	173	13.537	13.537	0.899	357880	56.66	ug/L		100
62)	Isopropylbenzene	105	13.640	13.641	0.906	2645909	50.31	ug/L		99
64)	1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	611757	51.30	ug/L		99
65)	1,2,3-Trichloropropane	110	14.012	14.012	0.931	197971	52.03	ug/L		97
66)	Bromobenzene	156	14.043	14.043	0.933	682536	49.32	ug/L		99
67)	n-Propylbenzene	91	14.067	14.067	0.934	3002513	49.50	ug/L		100
68)	1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	2298774	49.16	ug/L		100
69)	2-Chlorotoluene	126	14.213	14.214	0.944	622224	50.18	ug/L		100
70)	4-Chlorotoluene	91	14.317	14.317	0.951	1982812	49.52	ug/L		100
71)	tert-Butylbenzene	134	14.597	14.592	0.970	482117	50.78	ug/L	#	88
72)	1,2,4-Trimethylbenzene	105	14.640	14.634	0.972	2389069	49.29	ug/L		100
73)	sec-Butylbenzene	105	14.817	14.817	0.984	2980691	50.63	ug/L		99
74)	4-Isopropyltoluene	119	14.591	14.592	0.969	2030470	49.61	ug/L		92
75)	1,3-Dichlorobenzene	146	14.994	14.994	0.996	1255290	48.78	ug/L		99
76)	1,4-Dichlorobenzene	146	15.079	15.085	1.002	1254625	49.05	ug/L		99
77)	n-Butylbenzene	91	15.378	15.372	1.021	2444642	51.54	ug/L		100
78)	1,2-Dichlorobenzene	146	15.488	15.494	1.029	1224782	48.97	ug/L		99
79)	1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	146874	59.82	ug/L		97
80)	1,2,4-Trichlorobenzene	180	17.280	17.280	1.148	992117	51.34	ug/L		98
81)	Hexachlorobutadiene	225	17.444	17.445	1.159	598271	52.41	ug/L		99
82)	Naphthalene	128	17.633	17.628	1.171	2104769	52.57	ug/L		100
83)	1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	884092	51.17	ug/L		99
85)	Acrolein		5.953	6.026	0.630	0m	N.D.	d		
86)	Trichlorotrifluoroethane		6.178	6.185	0.654	0m	N.D.	d		
87)	Isopropyl Alcohol		0.000	6.282	0.000	0	N.D.			
88)	Allyl chloride		6.544	6.611	0.693	0m	N.D.	d		
89)	tert-Butyl Alcohol		0.000	6.770	0.000	0	N.D.			
90)	Acrylonitrile		7.056	7.014	0.747	0m	N.D.	d		
91)	Isopropyl ether		7.538	7.556	0.798	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		7.690	7.672	0.814	0m	N.D.	d		
93)	Ethyl tert-butyl ether		7.971	7.965	0.844	0m	N.D.	d		
94)	Ethyl acetate		8.160	8.178	0.864	0m	N.D.	d		
95)	Propionitrile		8.239	8.245	0.872	0m	N.D.	d		
96)	Methacrylonitrile		0.000	8.416	0.000	0	N.D.			
97)	Tetrahydrofuran		8.519	8.526	0.902	0m	N.D.	d		
98)	Isobutyl alcohol		8.873	8.873	0.939	0m	N.D.	d		
99)	Methyl tert-amyl ether		9.184	9.214	0.972	0m	N.D.	d		
100)	Methyl methacrylate		10.074	10.068	1.066	0m	N.D.	d		
101)	1,4-Dioxane		10.178	10.172	1.077	0m	N.D.	d		
102)	2-Nitropropane		10.568	10.543	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101416V6\
Data File : 6D502.D
Acq On : 14 Oct 2016 09:59
Operator : VXY1
InstName : VOA6
Sample : |W6VM161014-01|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5ML - MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 14 10:21:15 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

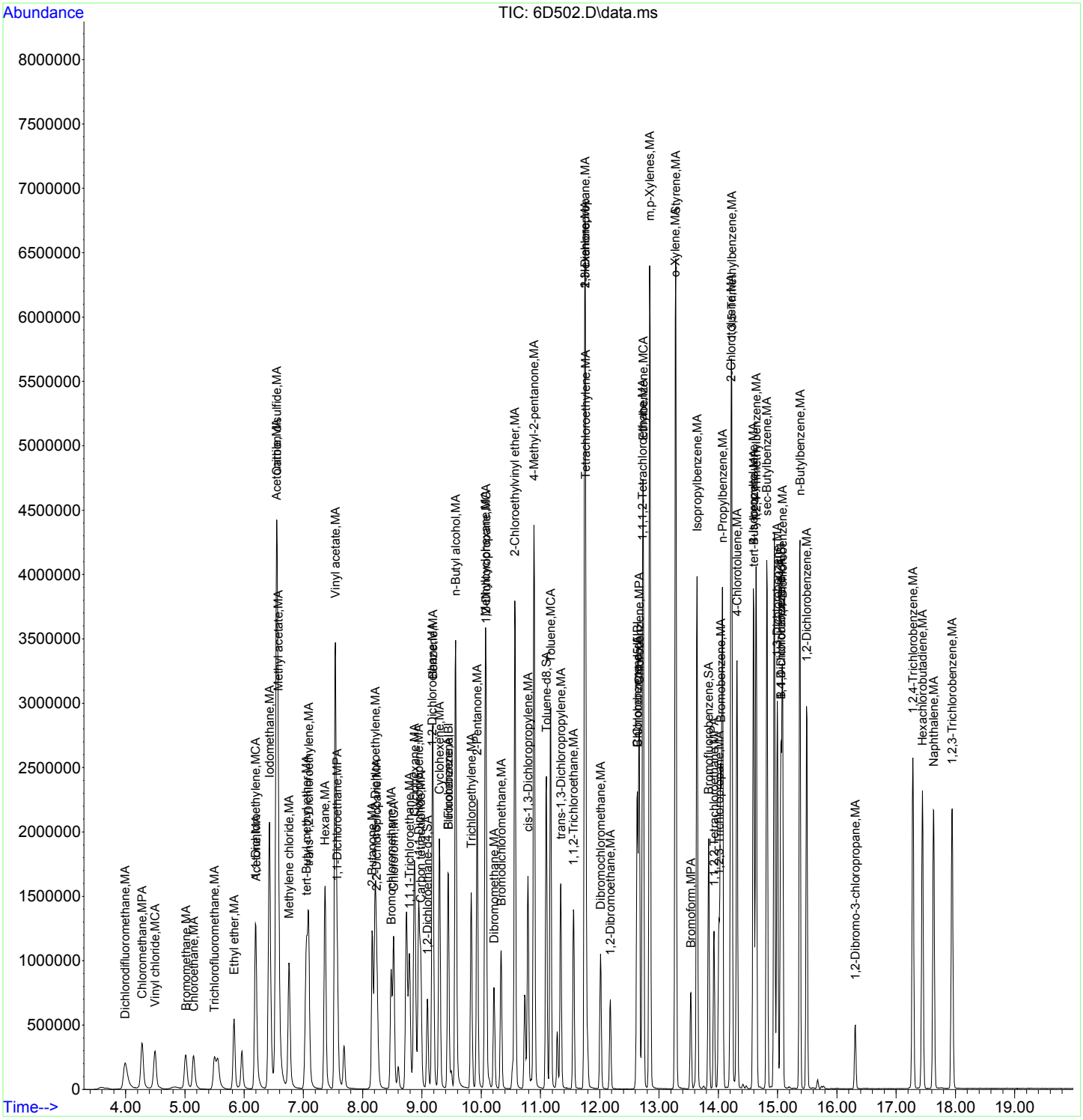
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.348	11.348	0.898	0m	N.D.	d
106) 1-Chlorohexane		12.537	12.543	0.833	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.640	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.793	13.793	0.916	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		13.982	13.976	0.929	0m	N.D.	d
110) Pentachloroethane		14.658	14.658	0.974	0m	N.D.	d
111) Benzyl chloride		15.201	15.201	1.010	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.597	15.591	1.036	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101416V6\
Data File : 6D502.D
Acq On : 14 Oct 2016 09:59
Operator : VXY1
InstName : VOA6
Sample : |W6VM161014-01|ICV|1|VOAF|1|VOA8260BL|
Misc : ICV 5ML - MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 14 10:21:15 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA6.I **Injection Date:** 01-NOV-16 09:37

Data File: 110116V6\6G202.D **Init. Cal. Date(s)** 13-OCT-16 17:11 - 14-OCT-16 01:2

Lab Sample ID W6VM161101-01 **Method:** 101316V6\VOA6-8260-101316.M

Quant Type ISTD **Method Update:** 14-OCT-16 08:57

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
S	1,2-Dichloroethane-d4	0.3288	0.33859		.01		2.97749	60		Averaged	
S	Toluene-d8	1.3333	1.37853		.01		3.39233	60		Averaged	
S	Bromofluorobenzene	1.0112	1.04844		.01		3.68275	60		Averaged	
	Dichlorodifluoromethane	50	63.3	50			26.6	60		Linear	
	Chloromethane	0.4302	0.4513		.1		4.9047	60		Averaged	SPCC
	Vinyl chloride	0.3479	0.39562		.01		13.71659	20		Averaged	CCC
	Bromomethane	0.2196	0.27475		.01		25.11384	60		Averaged	
	Chloroethane	0.2558	0.30205		.01		18.08053	60		Averaged	
	Trichlorofluoromethane	0.428	0.52707		.01		23.1472	60		Averaged	
	1,1-Dichloroethylene	0.5339	0.5562		.01		4.17681	20		Averaged	CCC
	Acetone	0.1384	0.11836		.01		-14.47977	60		Averaged	
	Carbon disulfide	0.84	0.88898		.01		5.83095	60		Averaged	
	Methyl acetate	0.2717	0.23094		.01		-15.00184	60		Averaged	
	Methylene chloride	0.3505	0.34576		.01		-1.35235	60		Averaged	
	tert-Butyl methyl ether	0.987	0.90256		.01		-8.55522	60		Averaged	
	trans-1,2-Dichloroethylene	0.5501	0.54047		.01		-1.75059	60		Averaged	
	1,1-Dichloroethane	0.6607	0.63136		.1		-4.44074	60		Averaged	SPCC
	2-Butanone	0.2177	0.20578		.01		-5.47542	60		Averaged	
	cis-1,2-Dichloroethylene	0.6564	0.61582		.01		-6.18221	60		Averaged	
	Bromochloromethane	0.1702	0.15542		.01		-8.6839	60		Averaged	
	Chloroform	0.5896	0.54522		.01		-7.52714	20		Averaged	CCC
	1,1,1-Trichloroethane	0.5131	0.52069		.01		1.47924	60		Averaged	
	Cyclohexane	0.7743	0.77175		.01		-0.32933	60		Averaged	
	Carbon tetrachloride	0.4428	0.46276		.01		4.50768	60		Averaged	
	1,2-Dichloroethane	0.5693	0.48733		.01		-14.39838	60		Averaged	
	Benzene	1.2673	1.18235		.01		-6.70323	60		Averaged	
	Trichloroethylene	0.3302	0.31752		.01		-3.8401	60		Averaged	
	Methylcyclohexane	0.5758	0.58105		.01		0.91177	60		Averaged	
	1,2-Dichloropropane	0.3885	0.34499		.01		-11.19949	20		Averaged	CCC
	Bromodichloromethane	0.4587	0.41677		.01		-9.14105	60		Averaged	
	cis-1,3-Dichloropropylene	0.5461	0.49801		.01		-8.80608	60		Averaged	
	4-Methyl-2-pentanone	0.2004	0.1913		.01		-4.54092	60		Averaged	
	Toluene	1.8015	1.66885		.01		-7.36331	20		Averaged	CCC
	trans-1,3-Dichloropropylene	0.6505	0.59954		.01		-7.83397	60		Averaged	
	1,1,2-Trichloroethane	0.3092	0.26998		.01		-12.68435	60		Averaged	
	2-Hexanone	0.4363	0.45637		.01		4.60005	60		Averaged	
	Tetrachloroethylene	0.3404	0.33113		.01		-2.72327	60		Averaged	

Continuing Calibration Summary

Instrument ID: VOA6.I **Injection Date:** 01-NOV-16 09:37

Data File: 110116V6\6G202.D **Init. Cal. Date(s)** 13-OCT-16 17:11 14-OCT-16 01:2

Lab Sample ID W6VM161101-01 **Method:** 101316V6\VOA6-8260-101316.M

Quant Type ISTD

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type	
Dibromochloromethane	0.4252	0.39309		.01		-7.55174	60		Averaged	
1,2-Dibromoethane	0.3757	0.34345		.01		-8.58398	60		Averaged	
Chlorobenzene	1.2252	1.12744		.3		-7.97911	60		Averaged	SPCC
Ethylbenzene	2.0375	1.94108		.01		-4.73227	20		Averaged	CCC
m,p-Xylenes	0.8067	0.75941		.01		-5.86215	60		Averaged	
Styrene	1.3691	1.24085		.01		-9.36747	60		Averaged	
o-Xylene	1.7534	1.61046		.01		-8.15216	60		Averaged	
Bromoform	0.4858	0.45109		.1		-7.14492	60		Averaged	SPCC
Isopropylbenzene	4.0447	3.9225		.01		-3.02124	60		Averaged	
1,1,2,2-Tetrachloroethane	0.9171	0.82146		.3		-10.42852	60		Averaged	SPCC
1,3-Dichlorobenzene	1.9789	1.81755		.01		-8.15352	60		Averaged	
1,4-Dichlorobenzene	1.9669	1.80349		.01		-8.308	60		Averaged	
1,2-Dichlorobenzene	1.9234	1.7183		.01		-10.66341	60		Averaged	
1,2-Dibromo-3-chloropropane	0.1888	0.16844		.01		-10.7839	60		Averaged	
1,2,4-Trichlorobenzene	1.486	1.38683		.01		-6.67362	60		Averaged	
1,2,3-Trichlorobenzene	1.3288	1.21337		.01		-8.68679	60		Averaged	

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G202.D
Acq On : 01 Nov 2016 09:37
Operator : ACJ
InstName : VOA6
Sample : |W6VM161101-01|CCV|1|VOAF|1|VOA8260BL|
Misc : CCV 5ML - MIX[A] 0621-06G/1024-07E
ALS Vial : 2 Sample Multiplier: 1

11/09/2016

Quant Time: Nov 01 10:00:58 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
Internal Standards								Dev(Min)
1) Fluorobenzene	96	9.440	9.440	1.000	1822715	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.629	1.000	1412183	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	745710	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1822715	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.628	1.000	1412183	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	745710	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	617157	51.48	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.879	1946733	51.69	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	781835	51.84	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.001	4.001	0.424	708597	63.30	ug/L	100
3) Chloromethane	50	4.282	4.282	0.454	822595	52.46	ug/L	100
4) Vinyl chloride	62	4.506	4.498	0.477	721102	56.86	ug/L	100
5) Bromomethane	94	5.020	5.020	0.532	500799	62.55	ug/L	100
6) Chloroethane	64	5.148	5.156	0.545	550548	59.04	ug/L	100
7) Trichlorofluoromethane	101	5.501	5.509	0.583	960694	61.57	ug/L	99
8) Ethyl ether	59	5.830	5.830	0.618	583572	47.08	ug/L	99
9) Acetone	43	6.197	6.197	0.656	1078647	213.80	ug/L	97
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	1013794	52.09	ug/L	99
11) Iodomethane	142	6.422	6.429	0.680	4157593	246.60	ug/L	99
12) Acetonitrile	41	6.544	6.550	0.693	1789650	1020.31	ug/L	99
13) Methyl acetate	43	6.575	6.575	0.696	2104717	212.51	ug/L	98
14) Carbon disulfide	76	6.550	6.550	0.694	8101785	264.56	ug/L	100
15) Methylene chloride	84	6.758	6.764	0.716	630225	49.32	ug/L	93
16) tert-Butyl methyl ether	73	7.050	7.050	0.747	1645101	45.72	ug/L	99
17) trans-1,2-Dichloroethy...	61	7.087	7.093	0.751	985129	49.13	ug/L	99
18) Hexane	57	7.361	7.367	0.780	3104	N.D.		
19) Vinyl acetate	43	7.532	7.538	0.798	6698627	241.49	ug/L	97
20) 1,1-Dichloroethane	63	7.568	7.575	0.802	1150784	47.78	ug/L	100
21) 2-Butanone	43	8.160	8.160	0.864	1875419	236.30	ug/L	97
22) cis-1,2-Dichloroethylene	61	8.209	8.209	0.870	1122467	46.91	ug/L	100
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	931685	52.71	ug/L	95
24) Bromochloromethane	128	8.477	8.483	0.898	283288	45.67	ug/L	95
25) Chloroform	83	8.519	8.520	0.902	993774	46.23	ug/L	97
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	949067	50.74	ug/L	99
27) Cyclohexane	56	8.873	8.873	0.940	1406684	49.83	ug/L	97
28) 1,1-Dichloropropene	75	8.946	8.946	0.948	765279	50.75	ug/L	95
29) Carbon tetrachloride	117	8.977	8.977	0.951	843485	52.26	ug/L	98
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	888267	42.80	ug/L	99
32) Benzene	78	9.184	9.184	0.973	2155096	46.65	ug/L	99
33) Cyclohexene	67	9.294	9.294	0.985	1195743	50.72	ug/L	97
34) n-Butyl alcohol	56	9.568	9.568	1.014	2083758	4453.78	ug/L	98
35) Trichloroethylene	95	9.830	9.830	1.041	578744	48.08	ug/L	99
36) 2-Pentanone	43	10.068	9.928	1.067	77472	7.39	ug/L	68
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	628813	44.40	ug/L	100
38) Methylcyclohexane	83	10.068	10.068	1.067	1059081	50.46	ug/L	97
39) Dibromomethane	93	10.214	10.214	1.082	322260	44.83	ug/L	99
40) Bromodichloromethane	83	10.330	10.330	1.094	759659	45.43	ug/L	99
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	2014029	236.56	ug/L	99
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	907736	45.60	ug/L	97

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G202.D
Acq On : 01 Nov 2016 09:37
Operator : ACJ
InstName : VOA6
Sample : |W6VM161101-01|CCV|1|VOAF|1|VOA8260BL|
Misc : CCV 5ML - MIX[A] 0621-06G/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 10:00:58 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
44)	4-Methyl-2-pentanone	58	10.891	10.891	0.862	1350724	238.70	ug/L		96
46)	Toluene	91	11.171	11.172	0.885	2356721	46.32	ug/L		100
47)	trans-1,3-Dichloroprop...	75	11.342	11.342	0.898	846663	46.09	ug/L		96
48)	1,1,2-Trichloroethane	83	11.555	11.556	0.915	381255	43.66	ug/L		98
49)	2-Hexanone	43	11.744	11.745	0.930	3222411	261.49	ug/L		98
50)	1,3-Dichloropropane	76	11.751	11.751	0.930	767232	43.23	ug/L		94
51)	Tetrachloroethylene	164	11.763	11.763	0.931	467616	48.64	ug/L		99
52)	Dibromochloromethane	129	12.013	12.013	0.951	555117	46.22	ug/L		99
53)	1,2-Dibromoethane	107	12.177	12.177	0.964	485017	45.71	ug/L		98
54)	Chlorobenzene	112	12.665	12.665	1.003	1592147	46.01	ug/L		98
55)	1,1,1,2-Tetrachloroethane	131	12.720	12.720	1.007	584723	47.02	ug/L		99
56)	Ethylbenzene	91	12.732	12.732	1.008	2741164	47.63	ug/L		100
57)	m,p-Xylenes	106	12.842	12.842	1.017	2144862	94.14	ug/L		98
58)	o-Xylene	91	13.275	13.275	1.051	2274265	45.92	ug/L		99
59)	Styrene	104	13.281	13.281	1.052	1752310	45.31	ug/L		99
61)	Bromoform	173	13.537	13.537	0.899	336383	46.43	ug/L		100
62)	Isopropylbenzene	105	13.640	13.641	0.906	2925046	48.49	ug/L		99
64)	1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	612572	44.79	ug/L		99
65)	1,2,3-Trichloropropane	110	14.012	14.012	0.931	199936	45.81	ug/L	#	90
66)	Bromobenzene	156	14.037	14.043	0.932	729875	45.98	ug/L		97
67)	n-Propylbenzene	91	14.067	14.067	0.934	3359815	48.29	ug/L		100
68)	1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	2533374	47.24	ug/L		100
69)	2-Chlorotoluene	126	14.213	14.214	0.944	677414	47.63	ug/L		99
70)	4-Chlorotoluene	91	14.311	14.317	0.951	2132410	46.43	ug/L		100
71)	tert-Butylbenzene	134	14.591	14.592	0.969	525431	48.25	ug/L	#	87
72)	1,2,4-Trimethylbenzene	105	14.634	14.634	0.972	2593928	46.66	ug/L		99
73)	sec-Butylbenzene	105	14.817	14.817	0.984	3268643	48.41	ug/L		100
74)	4-Isopropyltoluene	119	14.591	14.592	0.969	2210929	47.10	ug/L		93
75)	1,3-Dichlorobenzene	146	14.994	14.994	0.996	1355365	45.92	ug/L		99
76)	1,4-Dichlorobenzene	146	15.079	15.085	1.002	1344883	45.85	ug/L		99
77)	n-Butylbenzene	91	15.378	15.372	1.021	2601948	47.83	ug/L		99
78)	1,2-Dichlorobenzene	146	15.488	15.494	1.029	1281353	44.67	ug/L		99
79)	1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	125605	44.61	ug/L		98
80)	1,2,4-Trichlorobenzene	180	17.280	17.280	1.148	1034172	46.66	ug/L		98
81)	Hexachlorobutadiene	225	17.445	17.445	1.159	644081	49.19	ug/L		100
82)	Naphthalene	128	17.627	17.628	1.171	2092035	45.55	ug/L		100
83)	1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	904825	45.66	ug/L		99
85)	Acrolein		6.026	6.026	0.638	0m	N.D.	d		
86)	Trichlorotrifluoroethane		6.185	6.185	0.655	0m	N.D.	d		
87)	Isopropyl Alcohol		6.276	6.282	0.665	0m	N.D.	d		
88)	Allyl chloride		6.544	6.611	0.693	0m	N.D.	d		
89)	tert-Butyl Alcohol		6.886	6.770	0.729	0m	N.D.	d		
90)	Acrylonitrile		7.050	7.014	0.747	0m	N.D.	d		
91)	Isopropyl ether		7.532	7.556	0.798	0m	N.D.	d		
92)	2-Chloro-1,3-butadiene		7.690	7.672	0.815	0m	N.D.	d		
93)	Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.			
94)	Ethyl acetate		8.160	8.178	0.864	0m	N.D.	d		
95)	Propionitrile		8.257	8.245	0.875	0m	N.D.	d		
96)	Methacrylonitrile		0.000	8.416	0.000	0	N.D.			
97)	Tetrahydrofuran		8.519	8.526	0.902	0m	N.D.	d		
98)	Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d		
99)	Methyl tert-amyl ether		9.184	9.214	0.973	0m	N.D.	d		
100)	Methyl methacrylate		10.068	10.068	1.067	0m	N.D.	d		
101)	1,4-Dioxane		10.208	10.172	1.081	0m	N.D.	d		
102)	2-Nitropropane		10.568	10.543	1.119	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G202.D
Acq On : 01 Nov 2016 09:37
Operator : ACJ
InstName : VOA6
Sample : |W6VM161101-01|CCV|1|VOAF|1|VOA8260BL|
Misc : CCV 5ML - MIX[A] 0621-06G/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 10:00:58 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

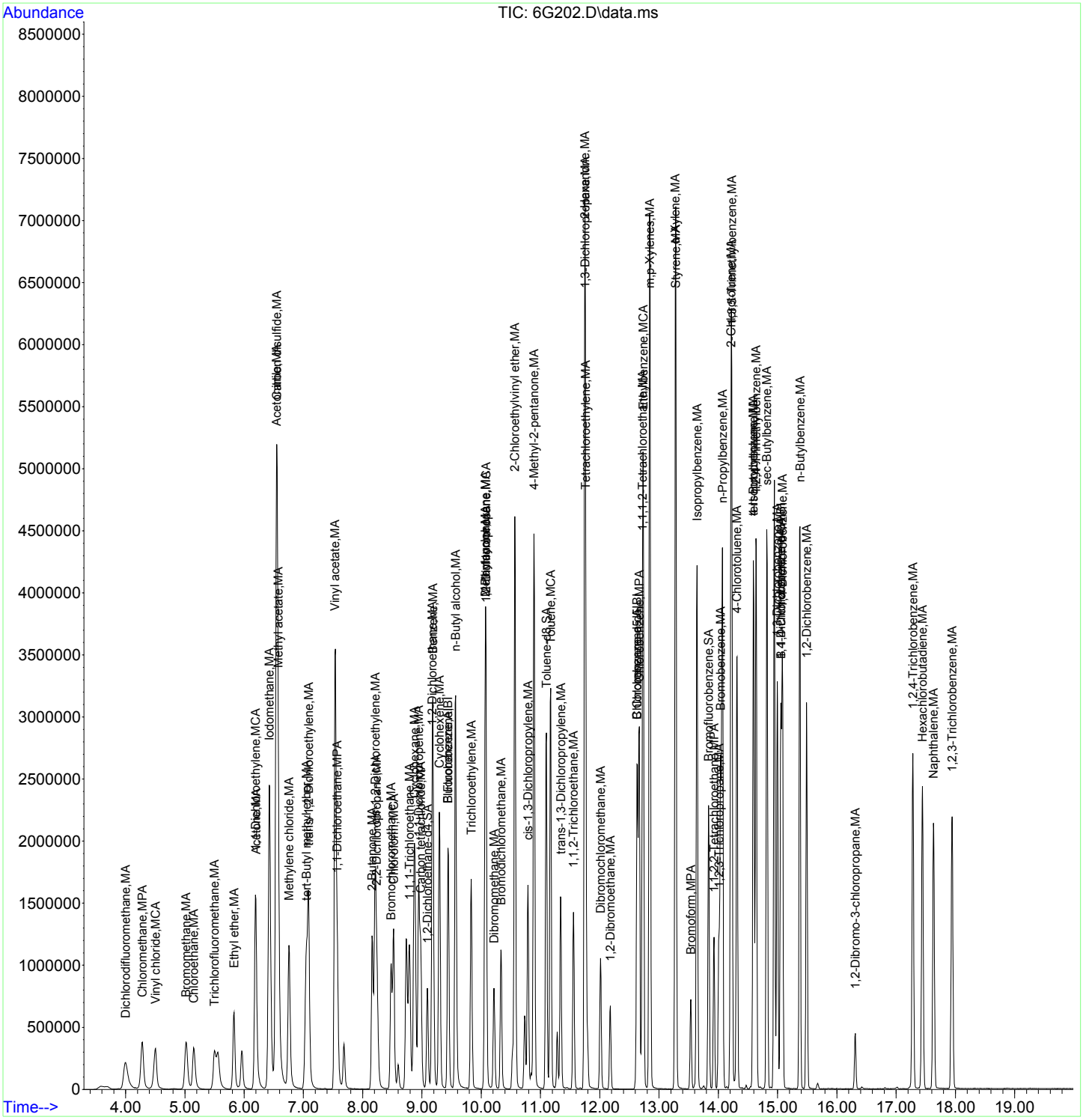
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
104) Ethyl methacrylate		11.360	11.348	0.900	0m	N.D.	d
106) 1-Chlorohexane		12.537	12.543	0.833	0m	N.D.	d
107) cis-1,4-Dichloro-2-butene		13.634	13.689	0.906	0m	N.D.	d
108) Cyclohexanone		13.775	13.793	0.915	0m	N.D.	d
109) trans-1,4-Dichloro-2-b...		13.994	13.976	0.930	0m	N.D.	d
110) Pentachloroethane		14.659	14.658	0.974	0m	N.D.	d
111) Benzyl chloride		15.201	15.201	1.010	0m	N.D.	d
112) bis(2-Chloroisopropyl)...		15.579	15.591	1.035	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G202.D
Acq On : 01 Nov 2016 09:37
Operator : ACJ
InstName : VOA6
Sample : |W6VM161101-01|CCV|1|VOAF|1|VOA8260BL|
Misc : CCV 5ML - MIX[A] 0621-06G/1024-07E
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 01 10:00:58 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: VOA6.I **Injection Date:** 01-NOV-16 11:33

Data File: 110116V6\6G206.D **Init. Cal. Date(s)** 13-OCT-16 17:11 - 14-OCT-16 01:2

Lab Sample ID W6VM161101-05 **Method:** 101316V6\VOA6-8260-101316.M

Quant Type ISTD **Method Update:** 14-OCT-16 08:57

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	1,2-Dichloroethane-d4	0.3288	0.32452		.01		-1.3017	60		Averaged
S	Toluene-d8	1.3333	1.3312		.01		-0.1575	60		Averaged
S	Bromofluorobenzene	1.0112	1.00808		.01		-0.30854	60		Averaged
	Trichlorotrifluoroethane	0.1187	0.13645		.01		14.95366	60		Averaged
	1,4-Dioxane	0.0035	0.00412		.01		17.71429	60		Averaged

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G206.D
Acq On : 01 Nov 2016 11:33
Operator : ACJ
InstName : VOA6
Sample : |W6VM161101-05|CCV|1|VOAF|1|VOA8260BL|
Misc : CCV 5ML - MIX[B] 0913-06F/1025-08A
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 01 12:24:13 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1851832	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.629	12.629	1.000	1431352	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	773270	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1851832	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.629	12.628	1.000	1431352	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	773270	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	600957	49.34	ug/L	0.00
45) Toluene-d8	98	11.092	11.098	0.878	1905421	49.92	ug/L	0.00
63) Bromofluorobenzene	95	13.836	13.836	0.919	779518	49.84	ug/L	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		4.001	4.001	0.424	0m	N.D.	d	
3) Chloromethane		4.250	4.282	0.450	0m	N.D.	d	
4) Vinyl chloride		4.466	4.498	0.473	0m	N.D.	d	
5) Bromomethane		5.020	5.020	0.532	0m	N.D.	d	
6) Chloroethane		5.148	5.156	0.545	0m	N.D.	d	
7) Trichlorofluoromethane		5.493	5.509	0.582	0m	N.D.	d	
8) Ethyl ether		5.822	5.830	0.617	0m	N.D.	d	
9) Acetone		6.185	6.197	0.655	0m	N.D.	d	
10) 1,1-Dichloroethylene		6.191	6.191	0.656	0m	N.D.	d	
11) Iodomethane		6.428	6.429	0.681	0m	N.D.	d	
12) Acetonitrile		6.611	6.550	0.700	0m	N.D.	d	
13) Methyl acetate		0.000	6.575	0.000	0	N.D.		
14) Carbon disulfide		6.611	6.550	0.700	0m	N.D.	d	
15) Methylene chloride		6.764	6.764	0.716	0m	N.D.	d	
16) tert-Butyl methyl ether		7.063	7.050	0.748	0m	N.D.	d	
17) trans-1,2-Dichloroethy...		7.087	7.093	0.751	0m	N.D.	d	
18) Hexane		7.367	7.367	0.780	0m	N.D.	d	
19) Vinyl acetate		7.550	7.538	0.800	0m	N.D.	d	
20) 1,1-Dichloroethane		7.562	7.575	0.801	0m	N.D.	d	
21) 2-Butanone		8.178	8.160	0.866	0m	N.D.	d	
22) cis-1,2-Dichloroethylene		8.178	8.209	0.866	0m	N.D.	d	
23) 2,2-Dichloropropane		8.215	8.233	0.870	0m	N.D.	d	
24) Bromochloromethane		8.471	8.483	0.897	0m	N.D.	d	
25) Chloroform		8.513	8.520	0.902	0m	N.D.	d	
26) 1,1,1-Trichloroethane		8.782	8.788	0.930	0m	N.D.	d	
27) Cyclohexane		8.873	8.873	0.940	0m	N.D.	d	
28) 1,1-Dichloropropene		8.940	8.946	0.947	0m	N.D.	d	
29) Carbon tetrachloride		8.965	8.977	0.950	0m	N.D.	d	
31) 1,2-Dichloroethane		9.166	9.172	0.971	0m	N.D.	d	
32) Benzene		9.184	9.184	0.973	0m	N.D.	d	
33) Cyclohexene		9.300	9.294	0.985	0m	N.D.	d	
34) n-Butyl alcohol		9.586	9.568	1.015	0m	N.D.	d	
35) Trichloroethylene		9.836	9.830	1.042	0m	N.D.	d	
36) 2-Pentanone		10.068	9.928	1.067	0m	N.D.	d	
37) 1,2-Dichloropropane		10.080	10.080	1.068	0m	N.D.	d	
38) Methylcyclohexane		10.068	10.068	1.067	0m	N.D.	d	
39) Dibromomethane		10.214	10.214	1.082	0m	N.D.	d	
40) Bromodichloromethane		10.348	10.330	1.096	0m	N.D.	d	
41) 2-Chloroethylvinyl ether		10.568	10.568	1.119	0m	N.D.	d	
42) cis-1,3-Dichloropropylene		10.787	10.787	1.143	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G206.D
Acq On : 01 Nov 2016 11:33
Operator : ACJ
InstName : VOA6
Sample : |W6VM161101-05|CCV|1|VOAF|1|VOA8260BL|
Misc : CCV 5ML - MIX[B] 0913-06F/1025-08A
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 01 12:24:13 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
44) 4-Methyl-2-pentanone		10.891	10.891	0.862	0m	N.D.	d	
46) Toluene		11.165	11.172	0.884	0m	N.D.	d	
47) trans-1,3-Dichloroprop...		11.342	11.342	0.898	0m	N.D.	d	
48) 1,1,2-Trichloroethane		11.556	11.556	0.915	0m	N.D.	d	
49) 2-Hexanone		11.751	11.745	0.930	0m	N.D.	d	
50) 1,3-Dichloropropane		11.745	11.751	0.930	0m	N.D.	d	
51) Tetrachloroethylene		11.763	11.763	0.931	0m	N.D.	d	
52) Dibromochloromethane		12.013	12.013	0.951	0m	N.D.	d	
53) 1,2-Dibromoethane		12.177	12.177	0.964	0m	N.D.	d	
54) Chlorobenzene		12.665	12.665	1.003	0m	N.D.	d	
55) 1,1,1,2-Tetrachloroethane		12.720	12.720	1.007	0m	N.D.	d	
56) Ethylbenzene		12.738	12.732	1.009	0m	N.D.	d	
57) m,p-Xylenes		12.848	12.842	1.017	0m	N.D.	d	
58) o-Xylene		13.275	13.275	1.051	0m	N.D.	d	
59) Styrene		13.281	13.281	1.052	0m	N.D.	d	
61) Bromoform		13.531	13.537	0.899	0m	N.D.	d	
62) Isopropylbenzene		13.647	13.641	0.906	0m	N.D.	d	
64) 1,1,2,2-Tetrachloroethane		13.921	13.927	0.925	0m	N.D.	d	
65) 1,2,3-Trichloropropane		13.994	14.012	0.930	0m	N.D.	d	
66) Bromobenzene		14.037	14.043	0.932	0m	N.D.	d	
67) n-Propylbenzene		14.067	14.067	0.934	0m	N.D.	d	
68) 1,3,5-Trimethylbenzene		14.226	14.226	0.945	0m	N.D.	d	
69) 2-Chlorotoluene		14.214	14.214	0.944	0m	N.D.	d	
70) 4-Chlorotoluene		14.317	14.317	0.951	0m	N.D.	d	
71) tert-Butylbenzene		14.598	14.592	0.970	0m	N.D.	d	
72) 1,2,4-Trimethylbenzene		14.634	14.634	0.972	0m	N.D.	d	
73) sec-Butylbenzene		14.823	14.817	0.985	0m	N.D.	d	
74) 4-Isopropyltoluene		14.592	14.592	0.969	0m	N.D.	d	
75) 1,3-Dichlorobenzene		14.994	14.994	0.996	0m	N.D.	d	
76) 1,4-Dichlorobenzene		15.085	15.085	1.002	0m	N.D.	d	
77) n-Butylbenzene		15.378	15.372	1.021	0m	N.D.	d	
78) 1,2-Dichlorobenzene		15.494	15.494	1.029	0m	N.D.	d	
79) 1,2-Dibromo-3-chloropr...		16.317	16.311	1.084	0m	N.D.	d	
80) 1,2,4-Trichlorobenzene		17.286	17.280	1.148	0m	N.D.	d	
81) Hexachlorobutadiene		17.445	17.445	1.159	0m	N.D.	d	
82) Naphthalene		17.628	17.628	1.171	0m	N.D.	d	
83) 1,2,3-Trichlorobenzene		17.945	17.945	1.192	0m	N.D.	d	
85) Acrolein	56	6.026	6.026	0.638	583406	244.12	ug/L	98
86) Trichlorotrifluoroethane	85	6.179	6.185	0.654	1263454	287.41	ug/L	99
87) Isopropyl Alcohol	45	6.282	6.282	0.665	3044605	2881.06	ug/L	100
88) Allyl chloride	41	6.611	6.611	0.700	5800530	241.32	ug/L	98
89) tert-Butyl Alcohol	59	6.776	6.770	0.718	4766884	3013.56	ug/L	97
90) Acrylonitrile	53	7.014	7.014	0.743	1312493	268.89	ug/L	99
91) Isopropyl ether	45	7.556	7.556	0.800	2645269	47.67	ug/L	98
92) 2-Chloro-1,3-butadiene	53	7.672	7.672	0.813	1181498	53.52	ug/L	98
93) Ethyl tert-butyl ether	59	7.959	7.965	0.843	2487978	50.40	ug/L	99
94) Ethyl acetate	43	8.178	8.178	0.866	3361455	257.42	ug/L	98
95) Propionitrile	54	8.239	8.245	0.873	544255	273.29	ug/L	100
96) Methacrylonitrile	41	8.416	8.416	0.892	2077385	259.20	ug/L	99
97) Tetrahydrofuran	42	8.526	8.526	0.903	1135301	258.70	ug/L	97
98) Isobutyl alcohol	41	8.873	8.873	0.940	1434867	2771.80	ug/L	100
99) Methyl tert-amyl ether	73	9.208	9.214	0.975	1829146	51.87	ug/L	98
100) Methyl methacrylate	69	10.068	10.068	1.067	2002288	265.44	ug/L	95
101) 1,4-Dioxane	88	10.172	10.172	1.077	381150	2980.19	ug/L	96
102) 2-Nitropropane	43	10.544	10.543	1.117	1167113	249.15	ug/L	98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G206.D
Acq On : 01 Nov 2016 11:33
Operator : ACJ
InstName : VOA6
Sample : |W6VM161101-05|CCV|1|VOAF|1|VOA8260BL|
Misc : CCV 5ML - MIX[B] 0913-06F/1025-08A
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 01 12:24:13 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

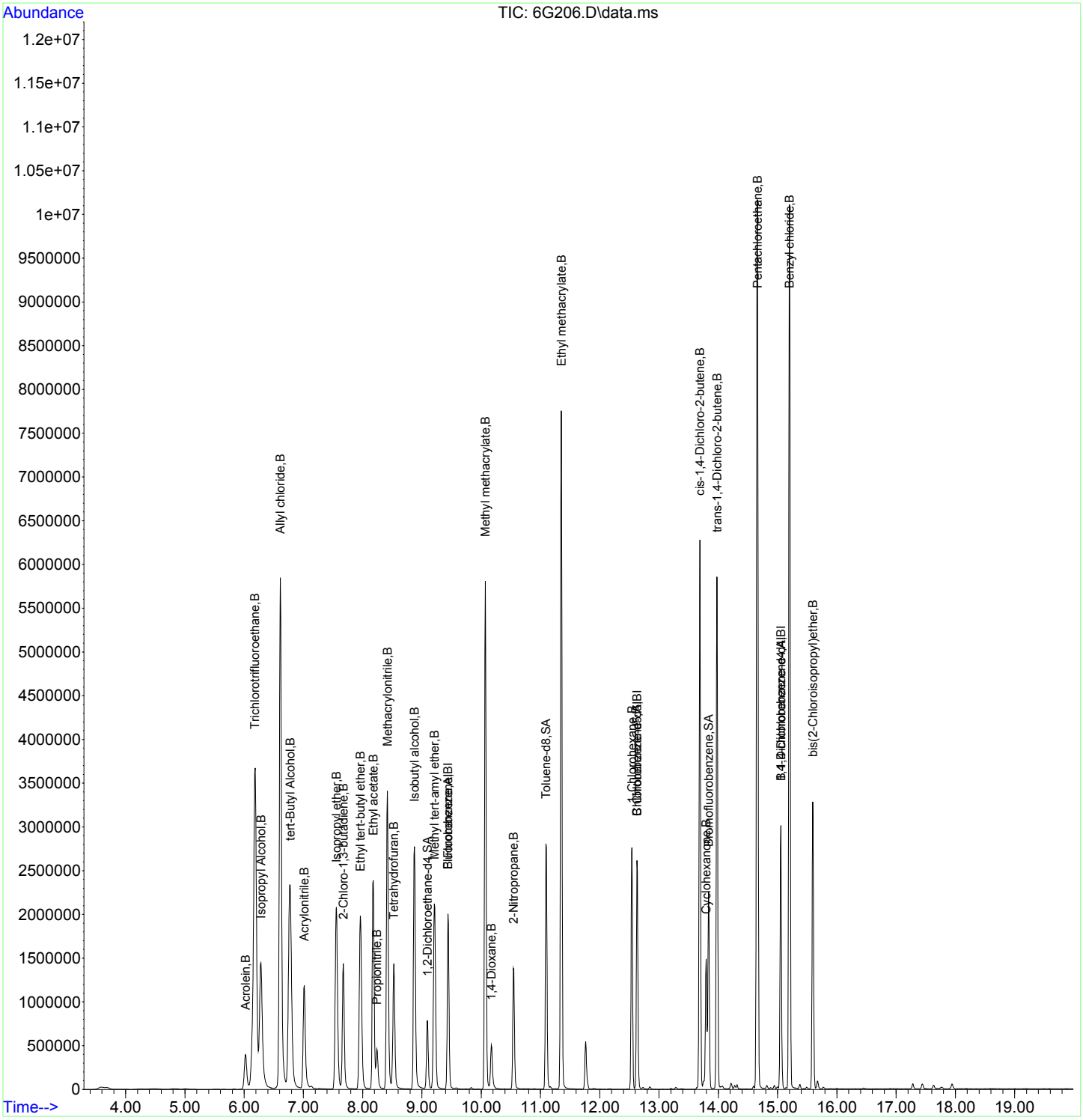
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
104) Ethyl methacrylate	69	11.348	11.348	0.899	3723746	260.35	ug/L	96
106) 1-Chlorohexane	55	12.543	12.543	0.833	767910	53.21	ug/L	98
107) cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	1611416	277.04	ug/L	99
108) Cyclohexanone	42	13.793	13.793	0.916	476958	1179.63	ug/L	96
109) trans-1,4-Dichloro-2-b...	53	13.976	13.976	0.928	1476838	277.64	ug/L	98
110) Pentachloroethane	167	14.659	14.658	0.974	2245588	284.39	ug/L	100
111) Benzyl chloride	91	15.201	15.201	1.010	7439805	320.21	ug/L	99
112) bis(2-Chloroisopropyl)...	45	15.591	15.591	1.036	2265967	276.80	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G206.D
Acq On : 01 Nov 2016 11:33
Operator : ACJ
InstName : VOA6
Sample : |W6VM161101-05|CCV|1|VOAF|1|VOA8260BL|
Misc : CCV 5ML - MIX[B] 0913-06F/1025-08A
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 01 12:24:13 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE



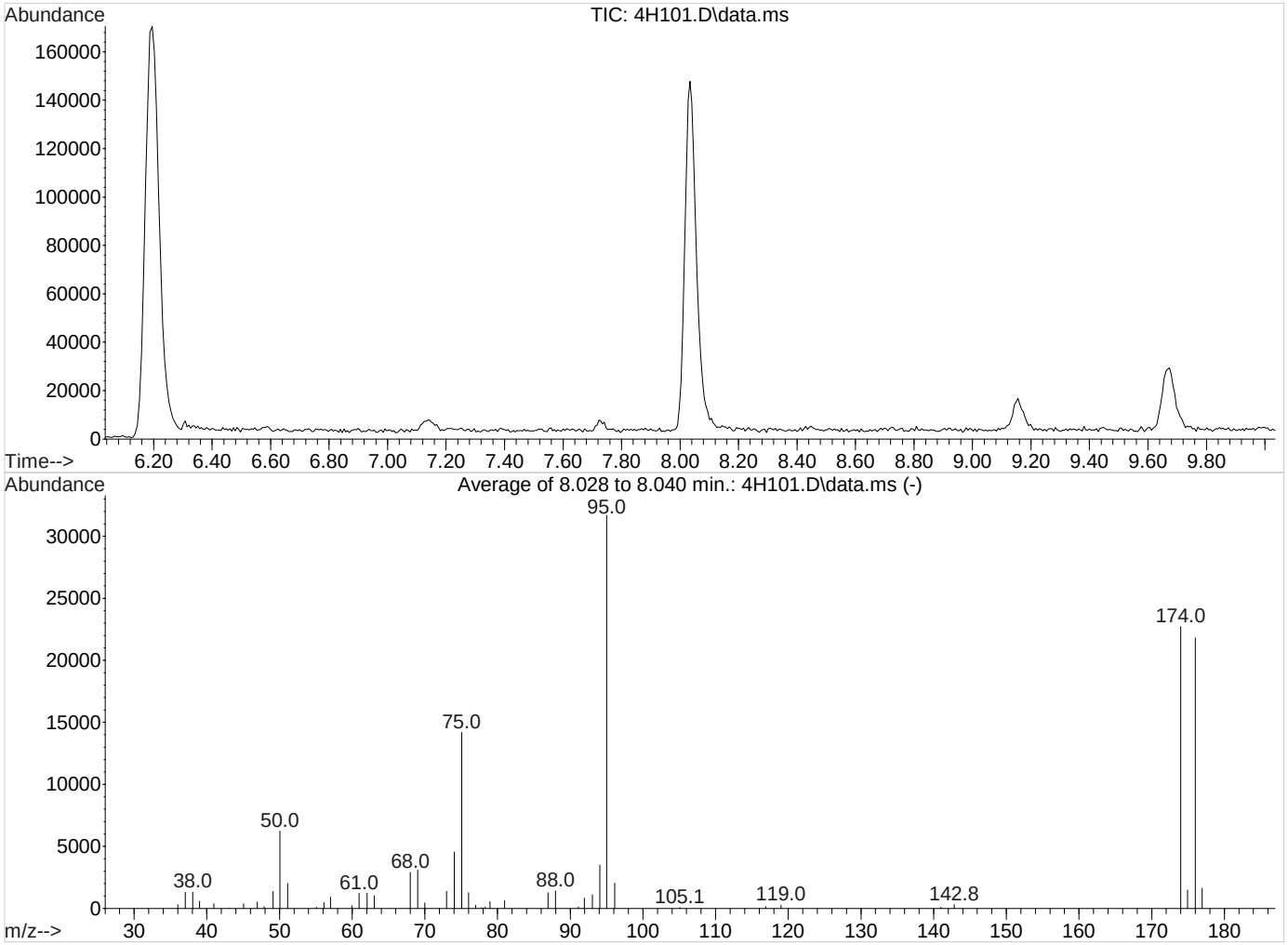
Quality Control Data

Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\103116V4\
Data File : 4H101.D
Acq On : 31 Oct 2016 16:24
Operator : ACJ
Sample : |IVM161026-01|BFB2|1|VOAF|1|VOA8260BL|
Misc : GEL 1UL N/A
ALS Vial : 1 Sample Multiplier: 1

Integration File:

Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Title : Volatile Organics 8260B SubList :
Last Update : Tue Nov 01 08:22:19 2016



Spectrum Information: Average of 8.028 to 8.040 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.6	6224	PASS
75	95	30	60	44.8	14196	PASS
95	95	100	100	100.0	31701	PASS
96	95	5	9	6.4	2018	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	71.6	22709	PASS
175	174	5	9	6.5	1485	PASS
176	174	95	101	96.0	21792	PASS
177	176	5	9	7.5	1628	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

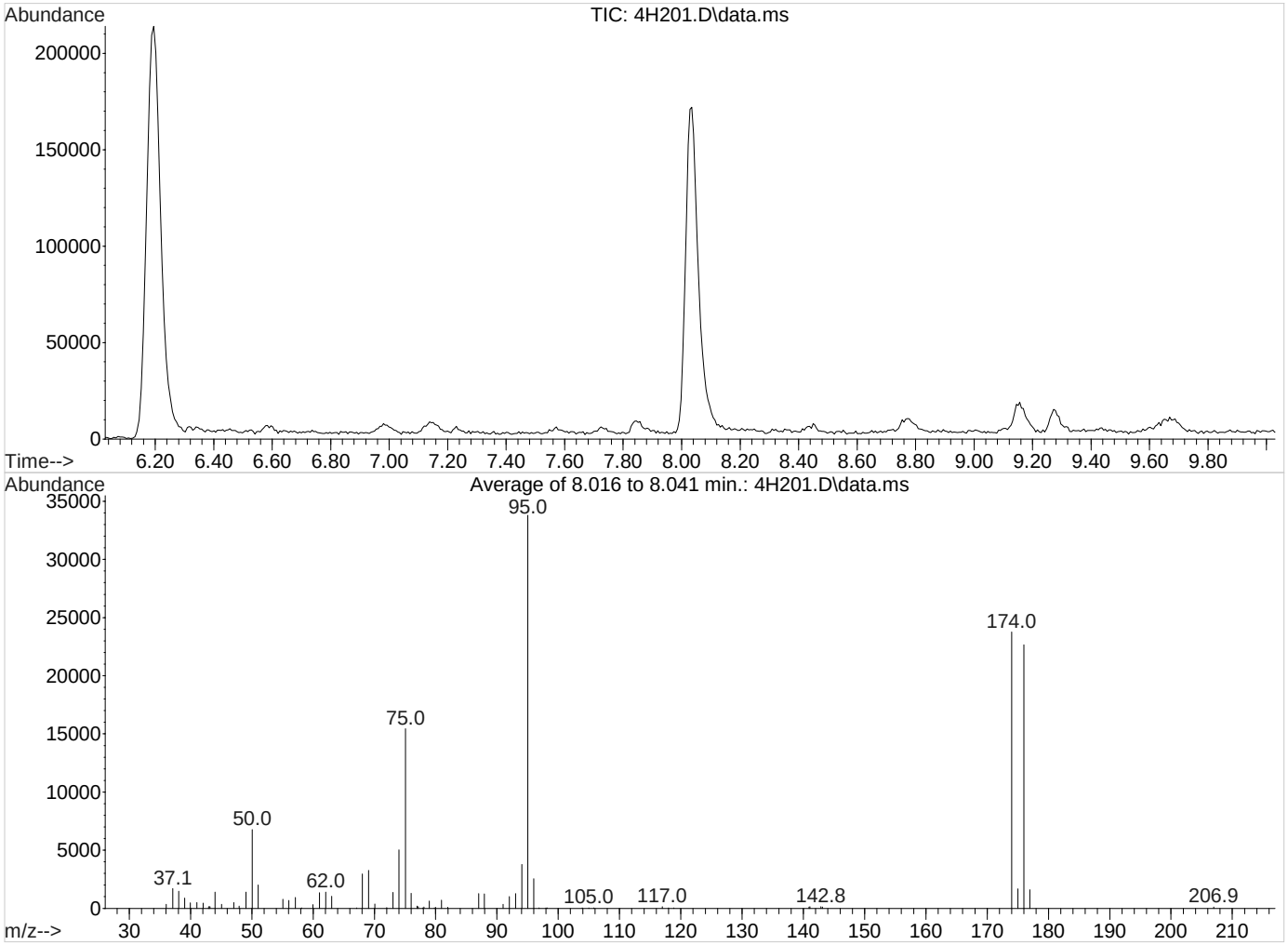
Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V4\
Data File : 4H201.D
Acq On : 01 Nov 2016 08:50
Operator : ACJ
Sample : |IVM161026-01|BFB|1|VOAF|1|VOA8260BL|
Misc : GEL 1UL N/A
ALS Vial : 1 Sample Multiplier: 1

11/08/2016

Integration File:

Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Title : Volatile Organics 8260B SubList :
Last Update : Tue Nov 01 08:22:19 2016



Spectrum Information: Average of 8.016 to 8.041 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.0	6765	PASS
75	95	30	60	45.7	15453	PASS
95	95	100	100	100.0	33808	PASS
96	95	5	9	7.5	2549	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	70.3	23777	PASS
175	174	5	9	7.1	1683	PASS
176	174	95	101	95.3	22658	PASS
177	176	5	9	7.0	1589	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Tune Report
GEL Laboratories, LLC

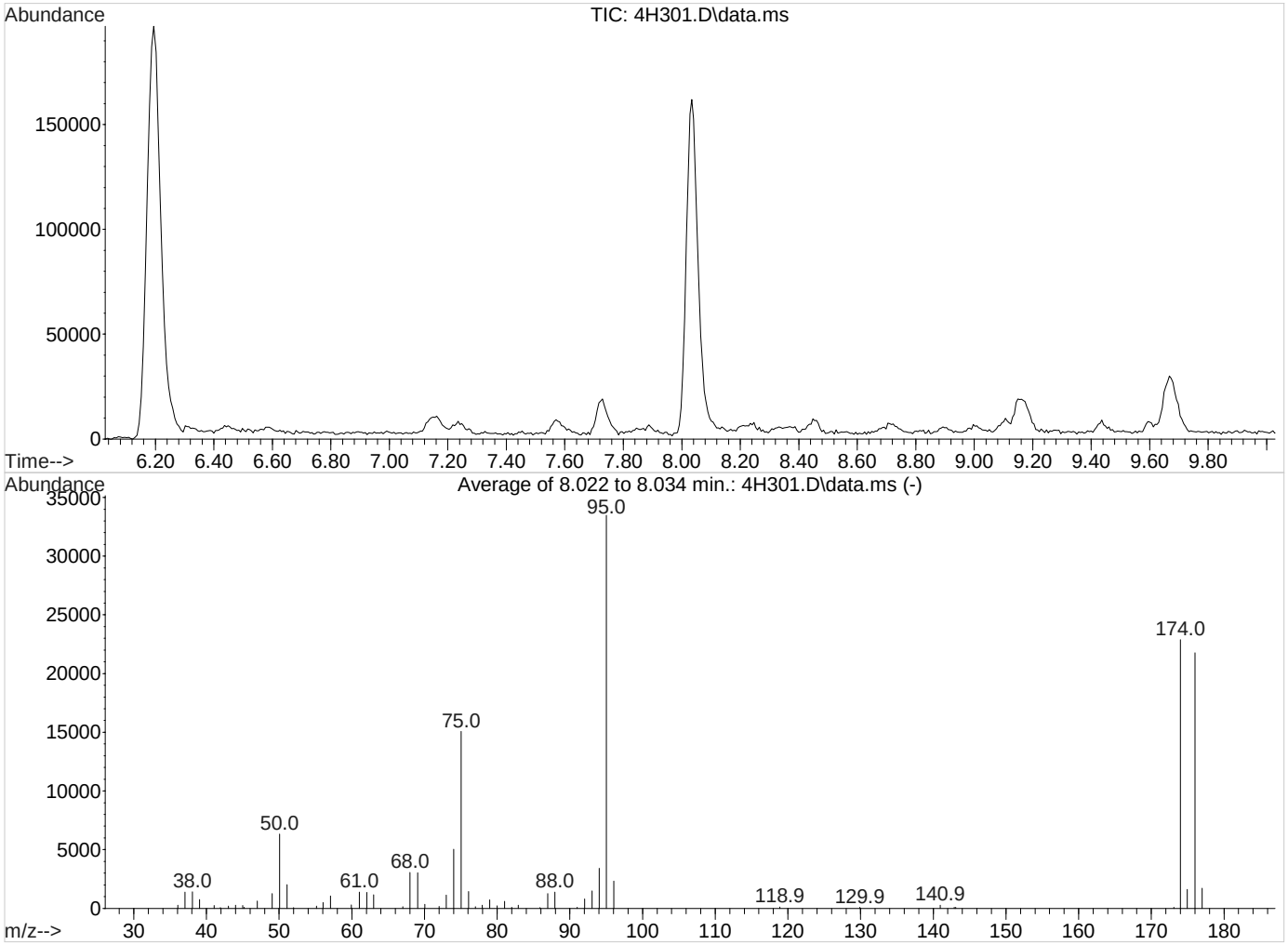
11/02/2016

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H301.D
Acq On : 02 Nov 2016 09:58
Operator : ACJ
Sample : |IVM161026-01|BFB|1|VOAF|1|VOA8260BL|
Misc : GEL 1UL N/A
ALS Vial : 1 Sample Multiplier: 1

11/03/2016

Integration File:

Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Title : Volatile Organics 8260B SubList :
Last Update : Tue Nov 01 08:22:19 2016



AutoFind: Scans 871, 872, 873; Background Corrected with Scan 862

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.9	6337	PASS
75	95	30	60	45.0	15084	PASS
95	95	100	100	100.0	33491	PASS
96	95	5	9	6.9	2319	PASS
173	174	0.00	2	0.4	102	PASS
174	95	50	100	68.4	22893	PASS
175	174	5	9	7.1	1622	PASS
176	174	95	101	95.1	21771	PASS
177	176	5	9	7.9	1715	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Tune Report
GEL Laboratories, LLC

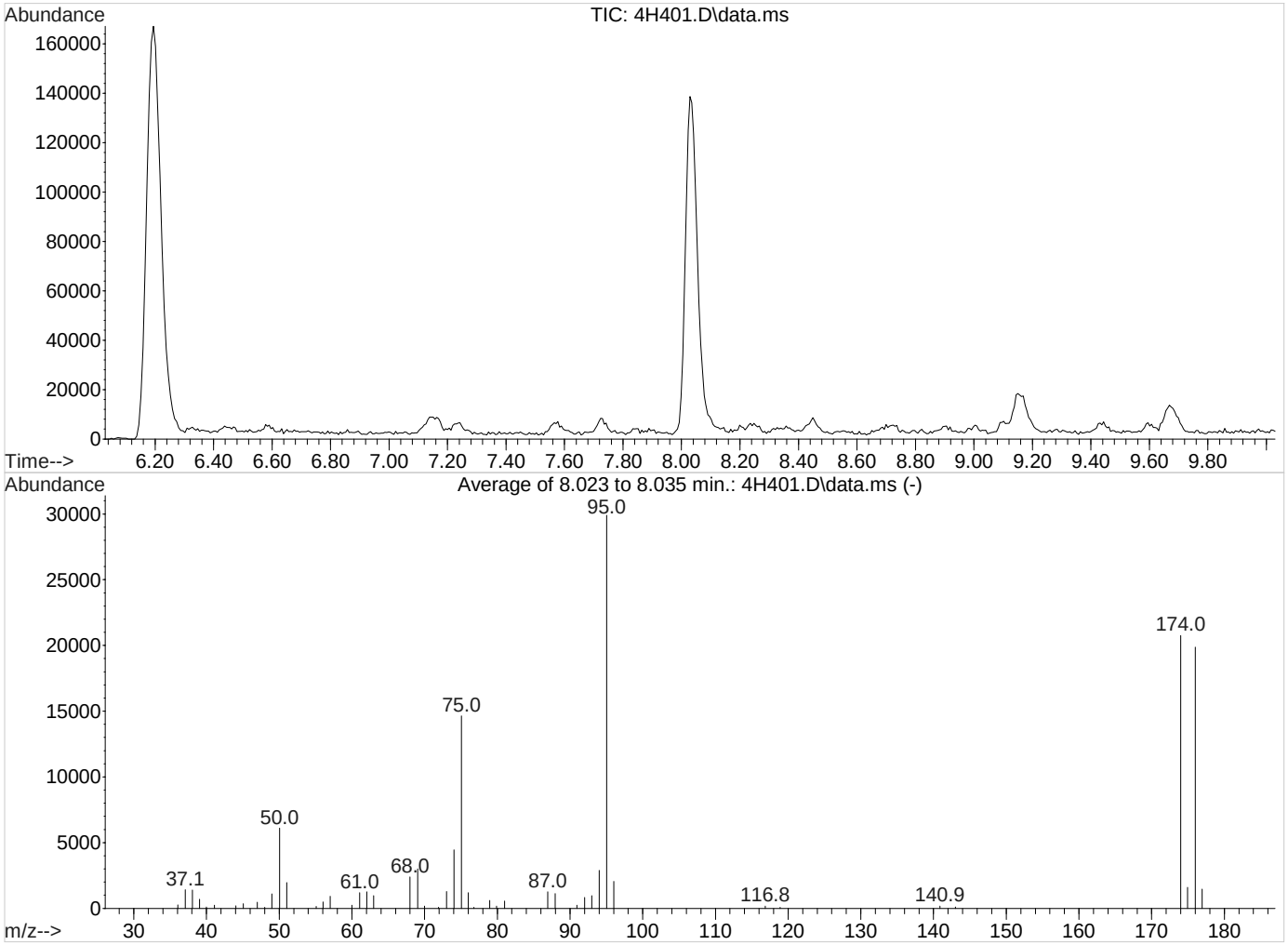
11/09/2016

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H401.D
Acq On : 03 Nov 2016 10:17
Operator : ACJ
Sample : |IVM161026-01|BFB|1|VOAF|1|VOA8260BL|
Misc : GEL 1UL N/A
ALS Vial : 1 Sample Multiplier: 1

11/09/2016

Integration File:

Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Title : Volatile Organics 8260B SubList :
Last Update : Tue Nov 01 08:22:19 2016



AutoFind: Scans 871, 872, 873; Background Corrected with Scan 862

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.4	6108	PASS
75	95	30	60	48.9	14636	PASS
95	95	100	100	100.0	29909	PASS
96	95	5	9	6.8	2046	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	69.4	20763	PASS
175	174	5	9	7.7	1599	PASS
176	174	95	101	95.7	19869	PASS
177	176	5	9	7.4	1469	PASS

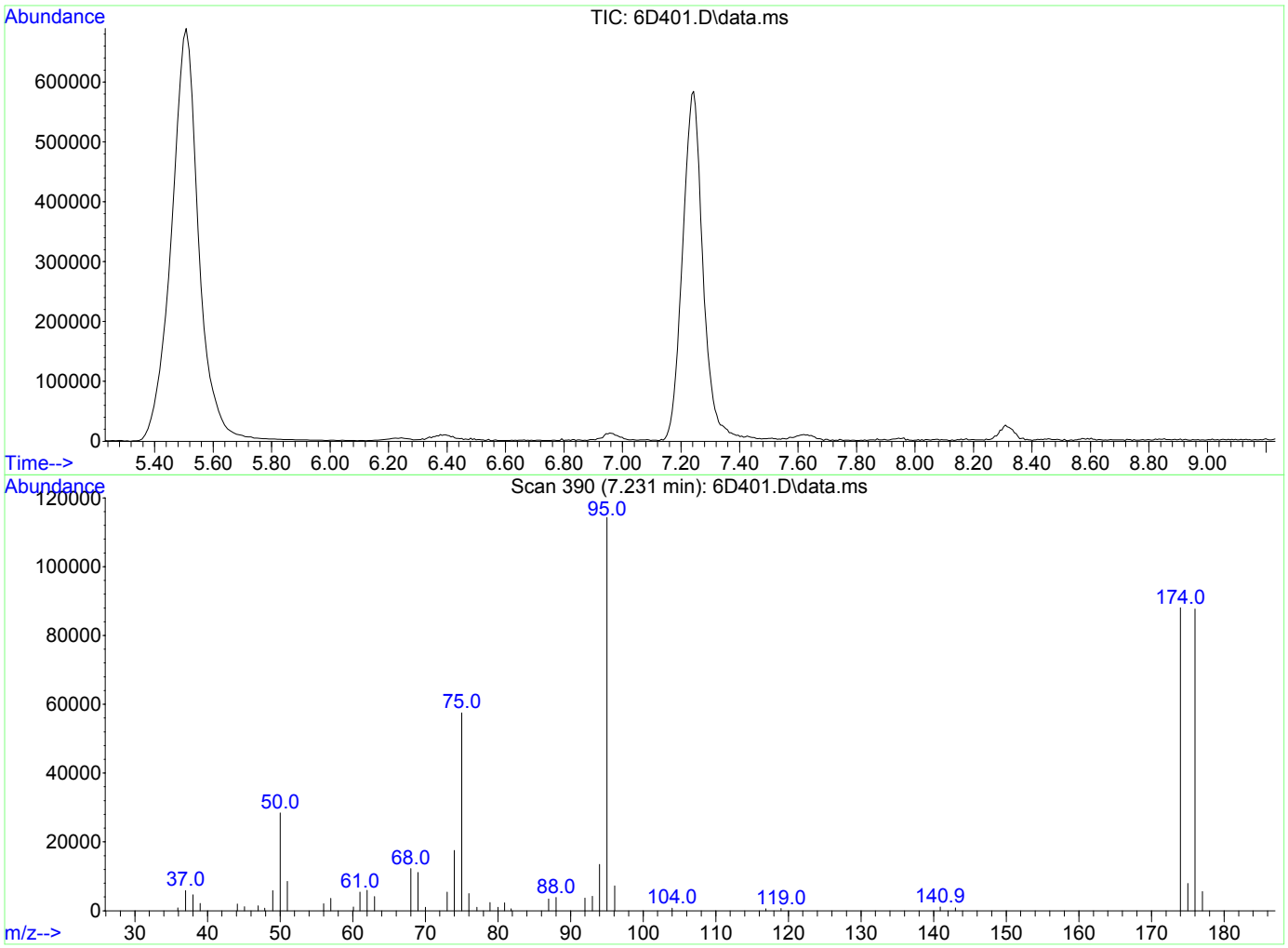
This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101316V6\
Data File : 6D401.D
Acq On : 13 Oct 2016 16:42
Operator : VXY1
Sample : |IVM161013-03|BFB|1|VOAF|1|VOA8260BL|
Misc : BFB 1uL N/A
ALS Vial : 1 Sample Multiplier: 1

Integration File:

Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Title : Volatile Organics 8260B SubList :
Last Update : Fri Oct 14 08:57:39 2016



Spectrum Information: Scan 390

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.9	28440	PASS
75	95	30	60	50.3	57520	PASS
95	95	100	100	100.0	114304	PASS
96	95	5	9	6.3	7248	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	77.0	88048	PASS
175	174	5	9	9.0	7881	PASS
176	174	95	101	99.6	87720	PASS
177	176	5	9	6.3	5560	PASS

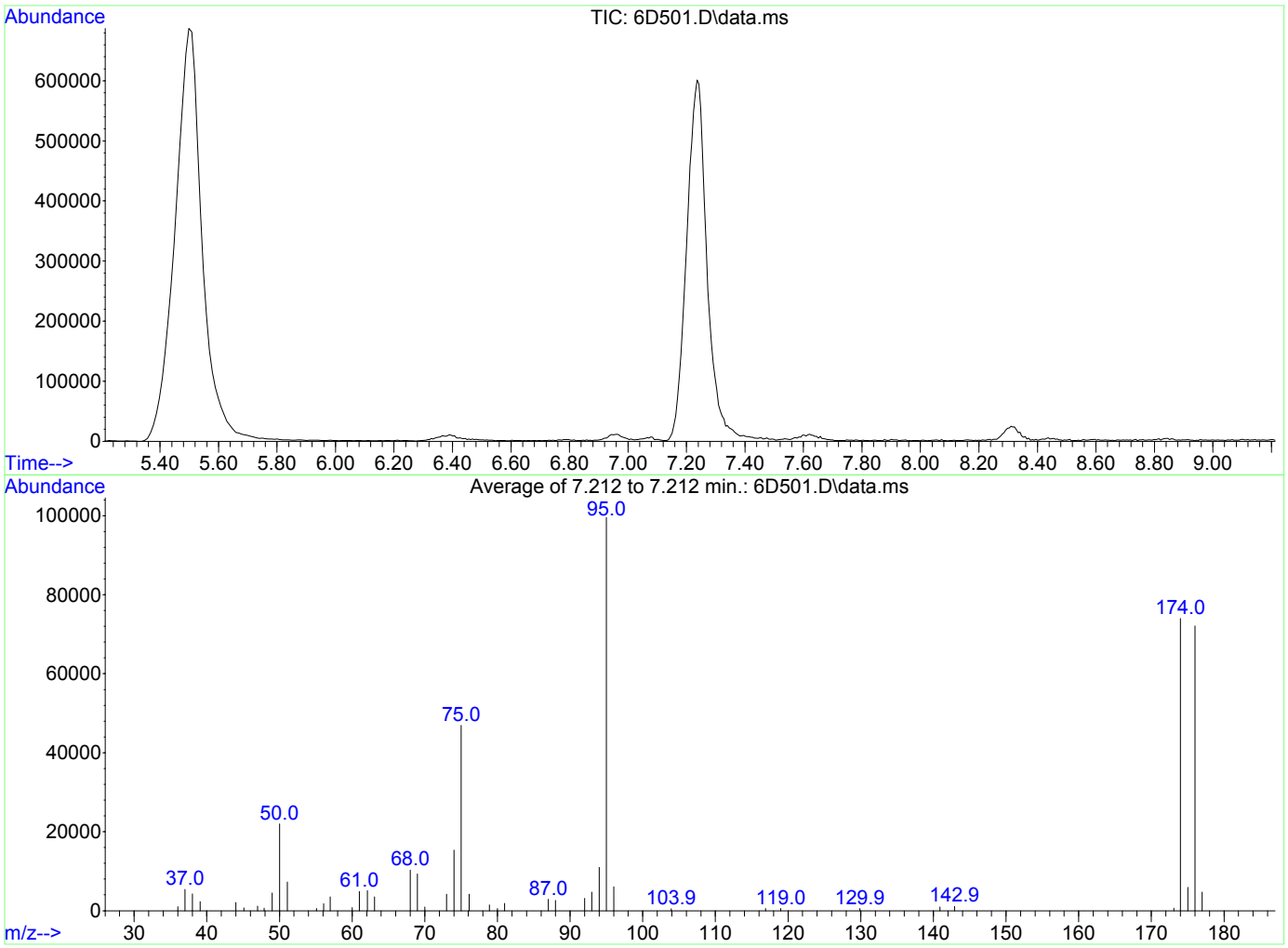
This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\101416V6\
Data File : 6D501.D
Acq On : 14 Oct 2016 09:30
Operator : VXY1
Sample : |IVM161013-03|BFB|1|VOAF|1|VOA8260BL|
Misc : BFB 1uL N/A
ALS Vial : 1 Sample Multiplier: 1

Integration File:

Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Title : Volatile Organics 8260B SubList :
Last Update : Fri Oct 14 08:57:39 2016



Spectrum Information: Average of 7.212 to 7.212 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.0	21936	PASS
75	95	30	60	47.2	46952	PASS
95	95	100	100	100.0	99560	PASS
96	95	5	9	6.1	6093	PASS
173	174	0.00	2	0.9	648	PASS
174	95	50	100	74.3	73960	PASS
175	174	5	9	8.0	5915	PASS
176	174	95	101	97.5	72088	PASS
177	176	5	9	6.5	4689	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Tune Report
GEL Laboratories, LLC

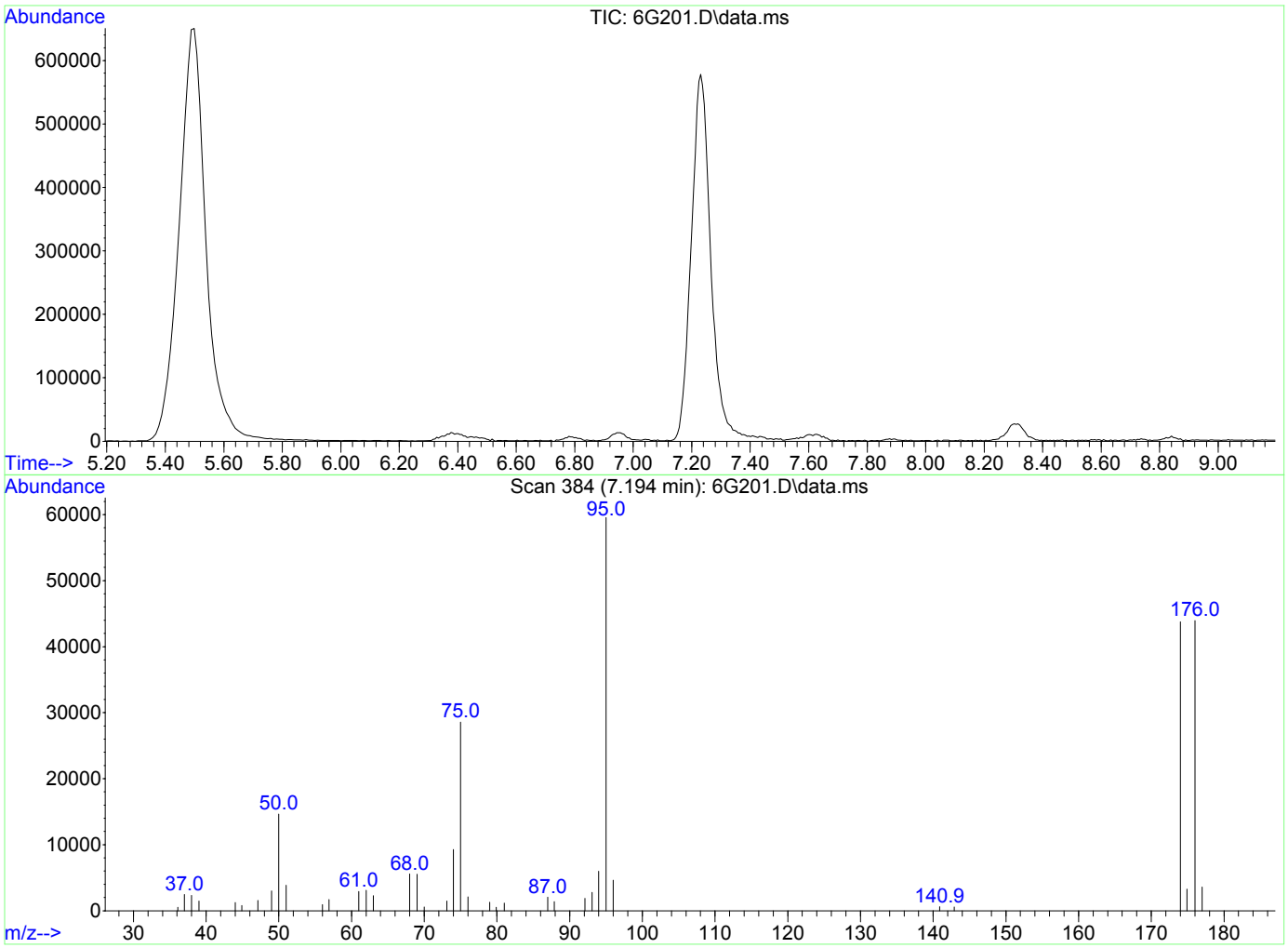
11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G201.D
Acq On : 01 Nov 2016 09:08
Operator : ACJ
Sample : |IVM161026-01|BFB|1|VOAF|1|VOA8260BL|
Misc : BFB 1uL N/A
ALS Vial : 1 Sample Multiplier: 1

11/09/2016

Integration File:

Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Title : Volatile Organics 8260B SubList :
Last Update : Fri Oct 14 08:57:39 2016



Spectrum Information: Scan 384

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.6	14632	PASS
75	95	30	60	48.0	28568	PASS
95	95	100	100	100.0	59568	PASS
96	95	5	9	7.7	4613	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	73.4	43752	PASS
175	174	5	9	7.5	3271	PASS
176	174	95	101	100.5	43960	PASS
177	176	5	9	8.2	3592	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203666128**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 13:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/02/2016 08:30**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H308BH.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone	U	5.00	ug/kg	1.67	5.00
591-78-6	2-Hexanone	U	5.00	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/kg	1.67	5.00
67-64-1	Acetone	U	5.00	ug/kg	1.67	5.00
71-43-2	Benzene	U	1.00	ug/kg	0.333	1.00
74-97-5	Bromochloromethane	U	1.00	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/kg	0.333	1.00
75-25-2	Bromoform	U	1.00	ug/kg	0.333	1.00
74-83-9	Bromomethane	U	1.00	ug/kg	0.333	1.00
75-15-0	Carbon disulfide	U	5.00	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/kg	0.333	1.00
108-90-7	Chlorobenzene	U	1.00	ug/kg	0.333	1.00
75-00-3	Chloroethane	U	1.00	ug/kg	0.333	1.00
67-66-3	Chloroform	U	1.00	ug/kg	0.333	1.00
74-87-3	Chloromethane	U	1.00	ug/kg	0.333	1.00
110-82-7	Cyclohexane	U	1.00	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/kg	0.333	1.00
100-41-4	Ethylbenzene	U	1.00	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/kg	0.333	1.00
79-20-9	Methyl acetate	U	5.00	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane	U	1.00	ug/kg	0.333	1.00
75-09-2	Methylene chloride	U	5.00	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203666128**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 13:22**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/02/2016 08:30**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H308BH.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.00	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/kg	0.333	1.00
108-88-3	Toluene	U	1.00	ug/kg	0.333	1.00
79-01-6	Trichloroethylene	U	1.00	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride	U	1.00	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/kg	0.667	2.00
95-47-6	o-Xylene	U	1.00	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H308BH.D
Acq On : 02 Nov 2016 13:22
Operator : ACJ
InstName : VOA4
Sample : |1203666128|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A SOIL
ALS Vial : 8 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 02 13:50:09 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1143362	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	823292	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.905	1.000	423115	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1143362	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	823292	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	423115	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	280895	45.20	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1093242	46.56	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	428060	46.63	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	90%
45) Toluene-d8	50.000	81 - 120	93%
63) Bromofluorobenzene	50.000	70 - 130	93%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		0.000	5.094	0.000	0	N.D.		
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.370	0.000	0	N.D.		
8) Ethyl ether		0.000	6.706	0.000	0	N.D.		
9) Acetone	43	7.066	7.059	0.684	3178	N.D.		
10) 1,1-Dichloroethylene		0.000	7.090	0.000	0	N.D.		
11) Iodomethane	142	7.315	7.327	0.708	201	N.D.		
12) Acetonitrile	41	7.407	7.407	0.717	3227	N.D.		
13) Methyl acetate	43	7.456	7.456	0.722	1314	N.D.		
14) Carbon disulfide	76	7.462	7.468	0.723	5348	N.D.		
15) Methylene chloride	84	7.651	7.645	0.741	2618	N.D.		
16) tert-Butyl methyl ether		0.000	7.955	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	180	N.D.		
18) Hexane	57	8.285	8.285	0.802	559	N.D.		
19) Vinyl acetate	43	8.419	8.413	0.815	3162	N.D.		
20) 1,1-Dichloroethane		0.000	8.461	0.000	0	N.D.		
21) 2-Butanone	43	9.004	9.028	0.872	173	N.D.		
22) cis-1,2-Dichloroethylene		0.000	9.095	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		0.000	9.400	0.000	0	N.D.		
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane	56	9.791	9.790	0.948	308	N.D.		
28) 1,1-Dichloropropene	75	9.839	9.839	0.953	106	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane		0.000	10.046	0.000	0	N.D.		
32) Benzene	78	10.077	10.077	0.976	1566	N.D.		
33) Cyclohexene	67	10.193	10.199	0.987	166	N.D.		
34) n-Butyl alcohol	56	10.406	10.400	1.008	924	N.D.		
35) Trichloroethylene		0.000	10.717	0.000	0	N.D.		
36) 2-Pentanone	43	10.790	10.778	1.045	278	N.D.		
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane	83	10.979	10.973	1.063	196	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H308BH.D
Acq On : 02 Nov 2016 13:22
Operator : ACJ
InstName : VOA4
Sample : |1203666128|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A SOIL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 02 13:50:09 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane	83	11.193	11.193	1.084	107	N.D.		
41) 2-Chloroethylvinyl ether		0.000	11.412	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene	75	11.638	11.644	1.127	491	N.D.		
44) 4-Methyl-2-pentanone	58	11.735	11.735	0.870	194	N.D.		
46) Toluene	91	12.040	12.040	0.892	3675	N.D.		
47) trans-1,3-Dichloroprop...	75	12.174	12.180	0.902	944	N.D.		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.		
49) 2-Hexanone	43	12.589	12.583	0.933	2810	N.D.		
50) 1,3-Dichloropropane		0.000	12.595	0.000	0	N.D.		
51) Tetrachloroethylene	164	12.632	12.637	0.936	1034	N.D.		
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.		
53) 1,2-Dibromoethane	107	13.034	13.034	0.966	123	N.D.		
54) Chlorobenzene	112	13.528	13.521	1.003	1878	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	13.576	0.000	0	N.D.		
56) Ethylbenzene	91	13.595	13.588	1.008	2166	N.D.		
57) m,p-Xylenes	106	13.698	13.698	1.015	1411	N.D.		
58) o-Xylene	91	14.131	14.131	1.047	1843	N.D.		
59) Styrene	104	14.137	14.131	1.048	2630	N.D.		
61) Bromoform		0.000	14.381	0.000	0	N.D.		
62) Isopropylbenzene	105	14.485	14.491	0.911	1452	N.D.		
64) 1,1,2,2-Tetrachloroethane		0.000	14.747	0.000	0	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.		
66) Bromobenzene	156	14.893	14.893	0.937	982	N.D.		
67) n-Propylbenzene	91	14.918	14.917	0.938	3062	N.D.		
68) 1,3,5-Trimethylbenzene	105	15.070	15.070	0.948	1785	N.D.		
69) 2-Chlorotoluene	126	15.070	15.064	0.948	478	N.D.		
70) 4-Chlorotoluene	91	15.162	15.161	0.954	4620	N.D.		
71) tert-Butylbenzene	134	15.448	15.442	0.972	184	N.D.		
72) 1,2,4-Trimethylbenzene	105	15.485	15.478	0.974	2424	N.D.		
73) sec-Butylbenzene	105	15.661	15.661	0.985	2196	N.D.		
74) 4-Isopropyltoluene	119	15.783	15.783	0.993	2140	N.D.		
75) 1,3-Dichlorobenzene	146	15.850	15.844	0.997	2501	N.D.		
76) 1,4-Dichlorobenzene	146	15.930	15.929	1.002	3935	N.D.		
77) n-Butylbenzene	91	16.234	16.228	1.021	3398	N.D.		
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.029	1896	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	2106	N.D.		
81) Hexachlorobutadiene		0.000	18.490	0.000	0	N.D.		
82) Naphthalene	128	18.685	18.685	1.175	7195	0.33	ug/L	90
83) 1,2,3-Trichlorobenzene	180	19.027	19.033	1.197	1595	N.D.		
85) Acrolein	56	6.895	6.895	0.668	278	N.D.		
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol	45	7.157	7.139	0.693	1185	Below Cal	#	58
88) Allyl chloride	41	7.407	7.511	0.717	3227	N.D.		
89) tert-Butyl Alcohol	59	7.632	7.639	0.739	189	Below Cal	#	100
90) Acrylonitrile	53	7.913	7.882	0.766	1662	Below Cal		98
91) Isopropyl ether		0.000	8.455	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene	53	8.571	8.577	0.830	191	N.D.		
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate	43	9.053	9.047	0.877	3662	Below Cal	#	77
95) Propionitrile	54	9.089	9.096	0.880	503	Below Cal	#	60
96) Methacrylonitrile	41	9.278	9.278	0.898	2785	Below Cal		80
97) Tetrahydrofuran	42	9.425	9.419	0.913	1487	Below Cal		57
98) Isobutyl alcohol	41	9.724	9.717	0.942	1478	Below Cal		81

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H308BH.D
Acq On : 02 Nov 2016 13:22
Operator : ACJ
InstName : VOA4
Sample : |1203666128|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A SOIL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 02 13:50:09 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

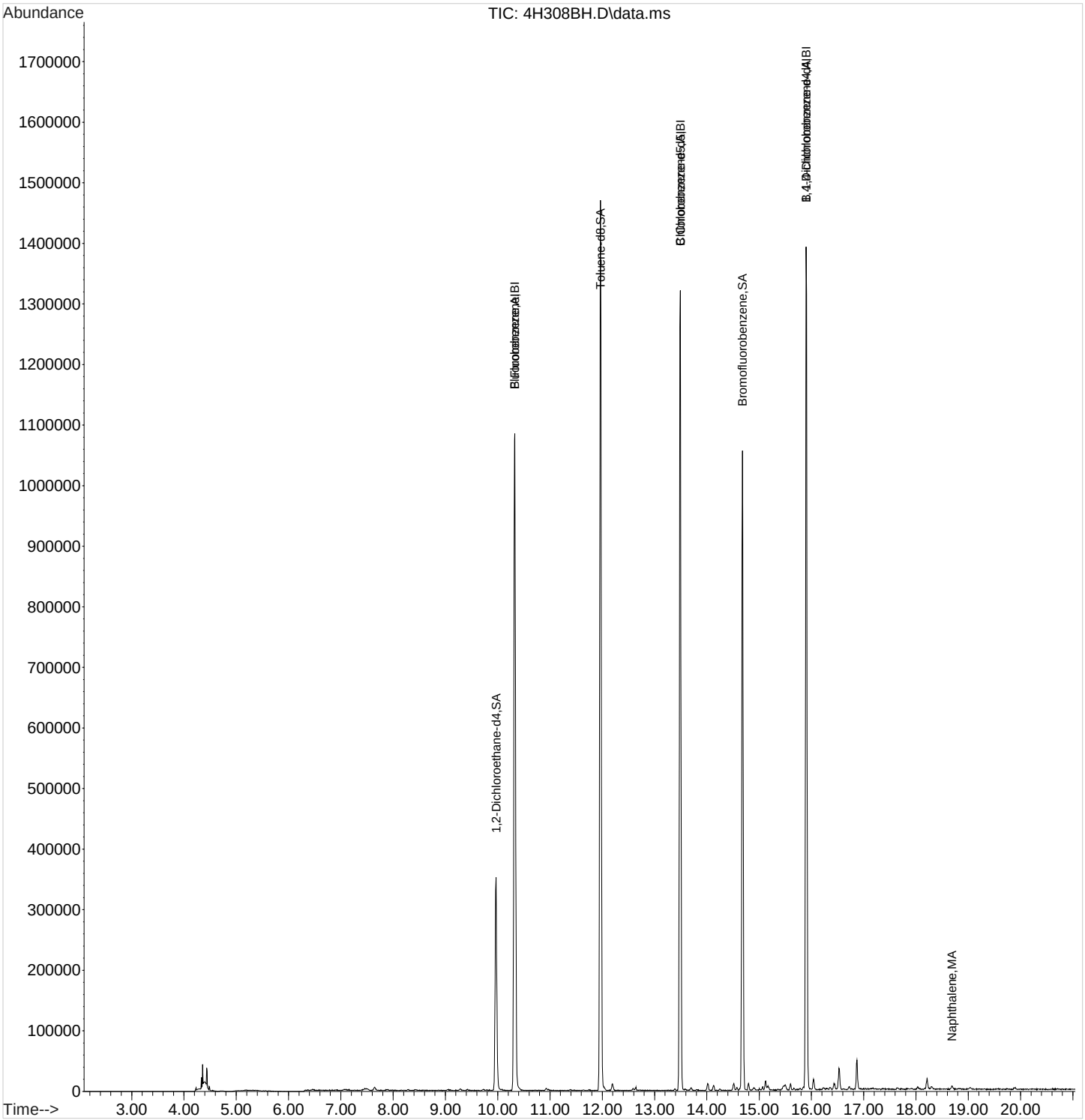
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
99)	Methyl tert-amyl ether		0.000	10.101	0.000	0	N.D.			
100)	Methyl methacrylate	69	10.925	10.925	1.058	1873	Below Cal	#		62
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.			
102)	2-Nitropropane	43	11.382	11.388	1.102	1278	Below Cal	#		55
104)	Ethyl methacrylate	69	12.199	12.186	0.904	3113	Below Cal			91
106)	1-Chlorohexane	55	13.387	13.387	0.842	628	Below Cal			85
107)	cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	2607	Below Cal	#		71
108)	Cyclohexanone	42	14.625	14.631	0.920	1151	N.D.			
109)	trans-1,4-Dichloro-2-b...	53	14.802	14.796	0.931	2907	Below Cal			83
110)	Pentachloroethane	167	15.509	15.503	0.975	1746	Below Cal			91
111)	Benzyl chloride	91	16.039	16.039	1.009	15969	Below Cal			96
112)	bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	4027	Below Cal			96

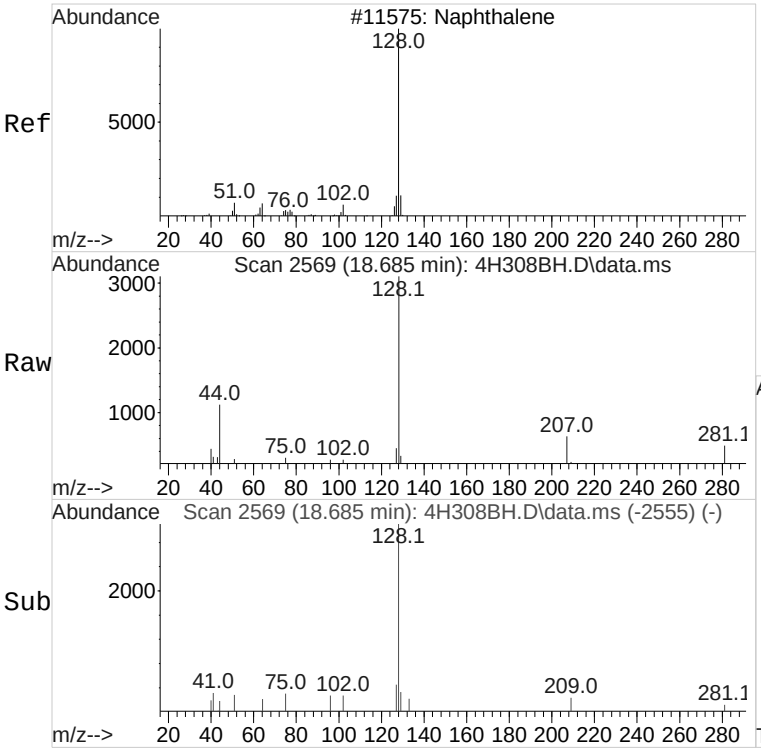
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H308BH.D
Acq On : 02 Nov 2016 13:22
Operator : ACJ
InstName : VOA4
Sample : |1203666128|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A SOIL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 02 13:50:09 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

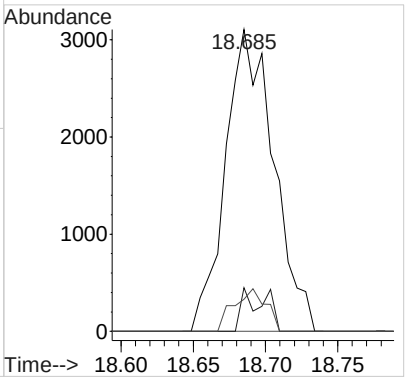




#82
Naphthalene
Concen: 0.33 ug/L
RT: 18.685 min Scan# 2569
Delta R.T. 0.000 min
Lab File: 4H308BH.D
Acq: 02 Nov 2016 13:22

Tgt Ion:128 Resp: 7195

Ion	Ratio	Lower	Upper
128	100		
127	6.9	0.0	42.5
129	9.4	0.0	41.0



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203666129**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/03/2016 13:13**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/03/2016 08:30**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110316V4\4H407BH.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone	U	5.00	ug/kg	1.67	5.00
591-78-6	2-Hexanone	U	5.00	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/kg	1.67	5.00
67-64-1	Acetone	U	5.00	ug/kg	1.67	5.00
71-43-2	Benzene	U	1.00	ug/kg	0.333	1.00
74-97-5	Bromochloromethane	U	1.00	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/kg	0.333	1.00
75-25-2	Bromoform	U	1.00	ug/kg	0.333	1.00
74-83-9	Bromomethane	U	1.00	ug/kg	0.333	1.00
75-15-0	Carbon disulfide	U	5.00	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/kg	0.333	1.00
108-90-7	Chlorobenzene	U	1.00	ug/kg	0.333	1.00
75-00-3	Chloroethane	U	1.00	ug/kg	0.333	1.00
67-66-3	Chloroform	U	1.00	ug/kg	0.333	1.00
74-87-3	Chloromethane	U	1.00	ug/kg	0.333	1.00
110-82-7	Cyclohexane	U	1.00	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/kg	0.333	1.00
100-41-4	Ethylbenzene	U	1.00	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/kg	0.333	1.00
79-20-9	Methyl acetate	U	5.00	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane	U	1.00	ug/kg	0.333	1.00
75-09-2	Methylene chloride	U	5.00	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203666129**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/03/2016 13:13**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/03/2016 08:30**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110316V4\4H407BH.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.00	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/kg	0.333	1.00
108-88-3	Toluene	U	1.00	ug/kg	0.333	1.00
79-01-6	Trichloroethylene	U	1.00	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride	U	1.00	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/kg	0.667	2.00
95-47-6	o-Xylene	U	1.00	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H407BH.D
Acq On : 03 Nov 2016 13:13
Operator : ACJ
InstName : VOA4
Sample : |1203666129|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A SOIL
ALS Vial : 7 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 03 13:37:45 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1162222	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	844132	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.905	1.000	437477	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1162222	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	844132	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	437477	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	284961	45.11	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1100568	45.72	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	434248	45.75	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	90%
45) Toluene-d8	50.000	81 - 120	91%
63) Bromofluorobenzene	50.000	70 - 130	92%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.749	0.000	0	N.D.		
3) Chloromethane		0.000	5.094	0.000	0	N.D.		
4) Vinyl chloride		0.000	5.322	0.000	0	N.D.		
5) Bromomethane		0.000	5.887	0.000	0	N.D.		
6) Chloroethane		0.000	6.005	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	6.370	0.000	0	N.D.		
8) Ethyl ether		0.000	6.706	0.000	0	N.D.		
9) Acetone	43	7.065	7.059	0.684	3959	N.D.		
10) 1,1-Dichloroethylene		0.000	7.090	0.000	0	N.D.		
11) Iodomethane		0.000	7.327	0.000	0	N.D.		
12) Acetonitrile	41	7.425	7.407	0.719	2257	N.D.		
13) Methyl acetate	43	7.456	7.456	0.722	603	N.D.		
14) Carbon disulfide	76	7.474	7.468	0.724	4233	N.D.		
15) Methylene chloride	84	7.645	7.645	0.740	2053	N.D.		
16) tert-Butyl methyl ether		0.000	7.955	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.992	0.000	0	N.D.		
18) Hexane	57	8.279	8.285	0.802	398	N.D.		
19) Vinyl acetate	43	8.425	8.413	0.816	2431	N.D.		
20) 1,1-Dichloroethane		0.000	8.461	0.000	0	N.D.		
21) 2-Butanone	43	9.053	9.028	0.877	3881	N.D.		
22) cis-1,2-Dichloroethylene		0.000	9.095	0.000	0	N.D.		
23) 2,2-Dichloropropane		0.000	9.132	0.000	0	N.D.		
24) Bromochloromethane		0.000	9.364	0.000	0	N.D.		
25) Chloroform		0.000	9.400	0.000	0	N.D.		
26) 1,1,1-Trichloroethane		0.000	9.687	0.000	0	N.D.		
27) Cyclohexane	56	9.967	9.790	0.965	105	N.D.		
28) 1,1-Dichloropropene		0.000	9.839	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	9.882	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	10.040	10.046	0.972	182	N.D.		
32) Benzene	78	10.077	10.077	0.976	1469	N.D.		
33) Cyclohexene	67	10.333	10.199	1.001	117	N.D.		
34) n-Butyl alcohol	56	10.406	10.400	1.008	385	N.D.		
35) Trichloroethylene	95	10.711	10.717	1.037	237	N.D.		
36) 2-Pentanone	43	10.839	10.778	1.050	108	N.D.		
37) 1,2-Dichloropropane		0.000	10.955	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.973	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H407BH.D
Acq On : 03 Nov 2016 13:13
Operator : ACJ
InstName : VOA4
Sample : |1203666129|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A SOIL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 03 13:37:45 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane		0.000	11.083	0.000	0	N.D.		
40) Bromodichloromethane		0.000	11.193	0.000	0	N.D.		
41) 2-Chloroethylvinyl ether		0.000	11.412	0.000	0	N.D.		
42) cis-1,3-Dichloropropylene	75	11.650	11.644	1.128	269	N.D.		
44) 4-Methyl-2-pentanone		0.000	11.735	0.000	0	N.D.		
46) Toluene	91	12.040	12.040	0.892	3262	N.D.		
47) trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	450	N.D.		
48) 1,1,2-Trichloroethane		0.000	12.400	0.000	0	N.D.		
49) 2-Hexanone	43	12.595	12.583	0.934	2174	N.D.		
50) 1,3-Dichloropropane		0.000	12.595	0.000	0	N.D.		
51) Tetrachloroethylene	164	12.637	12.637	0.937	1158	N.D.		
52) Dibromochloromethane		0.000	12.863	0.000	0	N.D.		
53) 1,2-Dibromoethane	107	13.028	13.034	0.966	159	N.D.		
54) Chlorobenzene	112	13.521	13.521	1.002	1548	N.D.		
55) 1,1,1,2-Tetrachloroethane		0.000	13.576	0.000	0	N.D.		
56) Ethylbenzene	91	13.595	13.588	1.008	1817	N.D.		
57) m,p-Xylenes	106	13.692	13.698	1.015	1362	N.D.		
58) o-Xylene	91	14.137	14.131	1.048	1494	N.D.		
59) Styrene	104	14.131	14.131	1.047	1651	N.D.		
61) Bromoform		0.000	14.381	0.000	0	N.D.		
62) Isopropylbenzene	105	14.491	14.491	0.911	1155	N.D.		
64) 1,1,2,2-Tetrachloroethane		0.000	14.747	0.000	0	N.D.		
65) 1,2,3-Trichloropropane		0.000	14.838	0.000	0	N.D.		
66) Bromobenzene	156	14.893	14.893	0.937	912	N.D.		
67) n-Propylbenzene	91	14.911	14.917	0.938	2177	N.D.		
68) 1,3,5-Trimethylbenzene	105	15.058	15.070	0.947	1104	N.D.		
69) 2-Chlorotoluene	126	15.058	15.064	0.947	310	N.D.		
70) 4-Chlorotoluene	91	15.161	15.161	0.954	2938	N.D.		
71) tert-Butylbenzene	134	15.503	15.442	0.975	101	N.D.		
72) 1,2,4-Trimethylbenzene	105	15.472	15.478	0.973	1628	N.D.		
73) sec-Butylbenzene	105	15.667	15.661	0.985	1384	N.D.		
74) 4-Isopropyltoluene	119	15.783	15.783	0.993	1535	N.D.		
75) 1,3-Dichlorobenzene	146	15.844	15.844	0.997	2313	N.D.		
76) 1,4-Dichlorobenzene	146	15.936	15.929	1.002	2857	N.D.		
77) n-Butylbenzene	91	16.228	16.228	1.021	2238	N.D.		
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.029	1884	N.D.		
79) 1,2-Dibromo-3-chloropr...		0.000	17.228	0.000	0	N.D.		
80) 1,2,4-Trichlorobenzene	180	18.313	18.301	1.152	2122	N.D.		
81) Hexachlorobutadiene	225	18.502	18.490	1.164	151	N.D.		
82) Naphthalene	128	18.685	18.685	1.175	5864	N.D.		
83) 1,2,3-Trichlorobenzene	180	19.039	19.033	1.197	1447	N.D.		
85) Acrolein	56	6.907	6.895	0.669	415	N.D.		
86) Trichlorotrifluoroethane		0.000	7.096	0.000	0	N.D.		
87) Isopropyl Alcohol	45	7.120	7.139	0.689	138	Below Cal	#	58
88) Allyl chloride	41	7.425	7.511	0.719	2257	N.D.		
89) tert-Butyl Alcohol	59	7.638	7.639	0.740	532	Below Cal	#	100
90) Acrylonitrile	53	7.901	7.882	0.765	1675	Below Cal		78
91) Isopropyl ether		0.000	8.455	0.000	0	N.D.		
92) 2-Chloro-1,3-butadiene	53	8.571	8.577	0.830	497	N.D.		
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate	43	9.053	9.047	0.877	3881	Below Cal	#	69
95) Propionitrile	54	9.108	9.096	0.882	555	Below Cal	#	60
96) Methacrylonitrile	41	9.278	9.278	0.898	2896	Below Cal		92
97) Tetrahydrofuran	42	9.425	9.419	0.913	1416	Below Cal	#	50
98) Isobutyl alcohol	41	9.711	9.717	0.940	787	Below Cal		93

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H407BH.D
Acq On : 03 Nov 2016 13:13
Operator : ACJ
InstName : VOA4
Sample : |1203666129|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A SOIL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 03 13:37:45 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

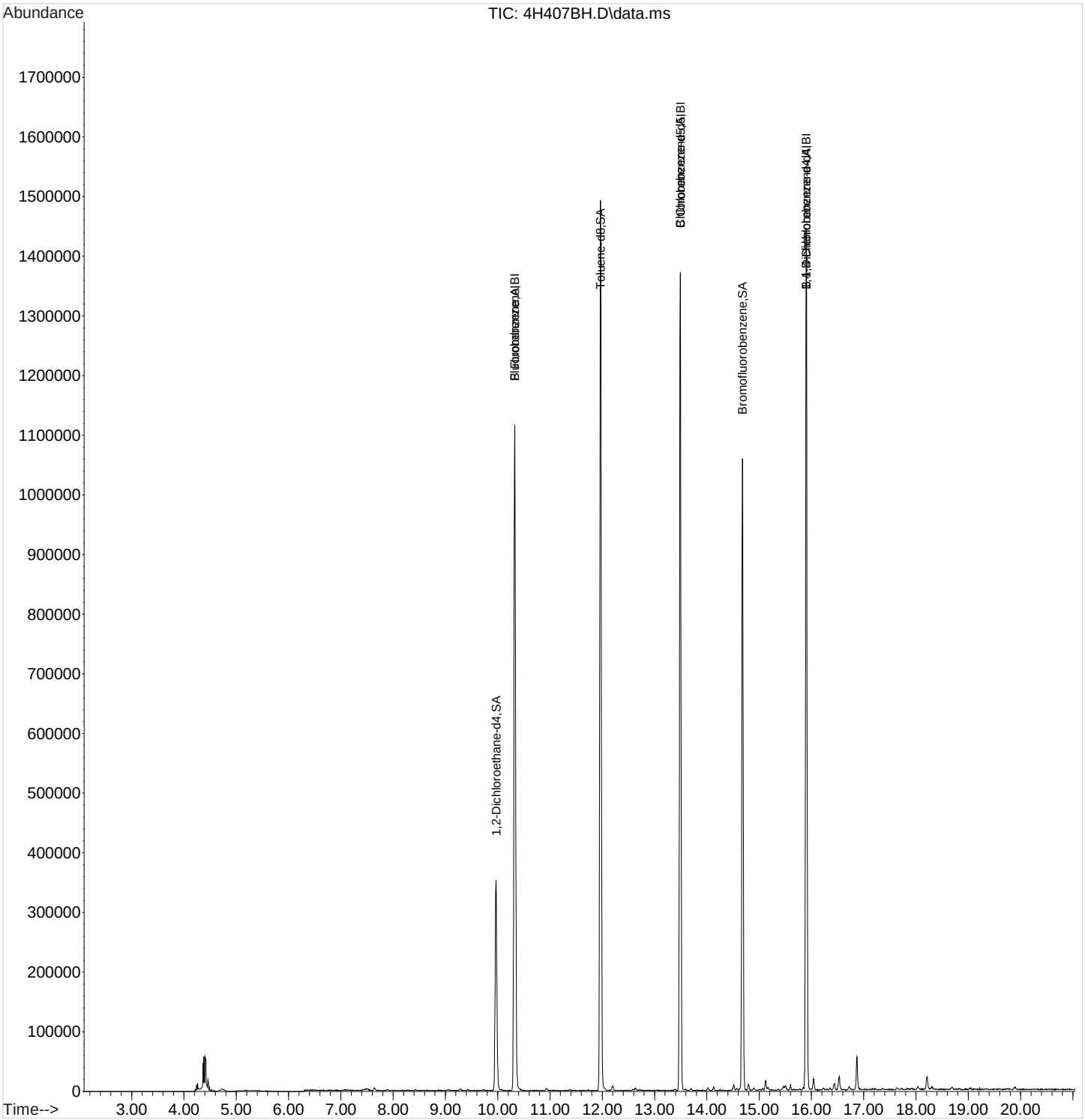
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
99)	Methyl tert-amyl ether		0.000	10.101	0.000	0	N.D.			
100)	Methyl methacrylate	69	10.924	10.925	1.058	1475	Below Cal	#		16
101)	1,4-Dioxane		0.000	11.034	0.000	0	N.D.			
102)	2-Nitropropane	43	11.388	11.388	1.103	1230	Below Cal			79
104)	Ethyl methacrylate	69	12.192	12.186	0.904	2575	Below Cal			70
106)	1-Chlorohexane	55	13.387	13.387	0.842	762	Below Cal	#		72
107)	cis-1,4-Dichloro-2-butene	53	14.515	14.509	0.913	2281	Below Cal			81
108)	Cyclohexanone	42	14.631	14.631	0.920	1318	N.D.			
109)	trans-1,4-Dichloro-2-b...	53	14.796	14.796	0.931	2269	Below Cal			92
110)	Pentachloroethane	167	15.503	15.503	0.975	1360	Below Cal			77
111)	Benzyl chloride	91	16.039	16.039	1.009	15908	Below Cal			96
112)	bis(2-Chloroisopropyl)...	45	16.442	16.442	1.034	4315	Below Cal			93

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H407BH.D
Acq On : 03 Nov 2016 13:13
Operator : ACJ
InstName : VOA4
Sample : |1203666129|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A SOIL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 03 13:37:45 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203660807**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 13:00**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/01/2016 08:30**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G209B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone	U	5.00	ug/kg	1.67	5.00
591-78-6	2-Hexanone	U	5.00	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/kg	1.67	5.00
67-64-1	Acetone	U	5.00	ug/kg	1.67	5.00
71-43-2	Benzene	U	1.00	ug/kg	0.333	1.00
74-97-5	Bromochloromethane	U	1.00	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/kg	0.333	1.00
75-25-2	Bromoform	U	1.00	ug/kg	0.333	1.00
74-83-9	Bromomethane	U	1.00	ug/kg	0.333	1.00
75-15-0	Carbon disulfide	U	5.00	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride	U	1.00	ug/kg	0.333	1.00
108-90-7	Chlorobenzene	U	1.00	ug/kg	0.333	1.00
75-00-3	Chloroethane	U	1.00	ug/kg	0.333	1.00
67-66-3	Chloroform	U	1.00	ug/kg	0.333	1.00
74-87-3	Chloromethane	U	1.00	ug/kg	0.333	1.00
110-82-7	Cyclohexane	U	1.00	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane	U	1.00	ug/kg	0.333	1.00
100-41-4	Ethylbenzene	U	1.00	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/kg	0.333	1.00
79-20-9	Methyl acetate	U	5.00	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane	U	1.00	ug/kg	0.333	1.00
75-09-2	Methylene chloride	J	2.14	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203660807**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 13:00**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/01/2016 08:30**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G209B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene	U	1.00	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/kg	0.333	1.00
108-88-3	Toluene	U	1.00	ug/kg	0.333	1.00
79-01-6	Trichloroethylene	U	1.00	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride	U	1.00	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/kg	0.667	2.00
95-47-6	o-Xylene	U	1.00	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/kg	0.333	1.00

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G209B.D
Acq On : 01 Nov 2016 13:00
Operator : ACJ
InstName : VOA6
Sample : |1203660807|1612391|1|VOAF|1|VOA8260BS|
Misc : BLANK 5G N/A SOIL
ALS Vial : 9 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 01 14:37:20 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1796311	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.629	1.000	1361879	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	704101	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1796311	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.628	1.000	1361879	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	704101	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	580778	49.16	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.879	1833595	50.49	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	712597	50.04	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	98%
45) Toluene-d8	50.000	81 - 120	101%
63) Bromofluorobenzene	50.000	70 - 130	100%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane		0.000	4.001	0.000	0	N.D.		
3) Chloromethane	50	4.241	4.282	0.449	270	N.D.		
4) Vinyl chloride		0.000	4.498	0.000	0	N.D.		
5) Bromomethane		0.000	5.020	0.000	0	N.D.		
6) Chloroethane		0.000	5.156	0.000	0	N.D.		
7) Trichlorofluoromethane		0.000	5.509	0.000	0	N.D.		
8) Ethyl ether		0.000	5.830	0.000	0	N.D.		
9) Acetone	43	6.203	6.197	0.657	2176	N.D.		
10) 1,1-Dichloroethylene		0.000	6.191	0.000	0	N.D.		
11) Iodomethane		0.000	6.429	0.000	0	N.D.		
12) Acetonitrile	41	6.556	6.550	0.695	879	N.D.		
13) Methyl acetate	43	6.581	6.575	0.697	636	N.D.		
14) Carbon disulfide	76	6.556	6.550	0.695	2996	N.D.		
15) Methylene chloride	84	6.758	6.764	0.716	26891	2.14	ug/L	93
16) tert-Butyl methyl ether		0.000	7.050	0.000	0	N.D.		
17) trans-1,2-Dichloroethy...		0.000	7.093	0.000	0	N.D.		
18) Hexane	57	7.355	7.367	0.779	1114	N.D.		
19) Vinyl acetate	43	7.556	7.538	0.800	1875	N.D.		
20) 1,1-Dichloroethane		0.000	7.575	0.000	0	N.D.		
21) 2-Butanone	43	8.178	8.160	0.866	2515	N.D.		
22) cis-1,2-Dichloroethylene	61	8.202	8.209	0.869	500	N.D.		
23) 2,2-Dichloropropane		0.000	8.233	0.000	0	N.D.		
24) Bromochloromethane		0.000	8.483	0.000	0	N.D.		
25) Chloroform		0.000	8.520	0.000	0	N.D.		
26) 1,1,1-Trichloroethane	97	8.800	8.788	0.932	200	N.D.		
27) Cyclohexane	56	8.861	8.873	0.939	106	N.D.		
28) 1,1-Dichloropropene		0.000	8.946	0.000	0	N.D.		
29) Carbon tetrachloride		0.000	8.977	0.000	0	N.D.		
31) 1,2-Dichloroethane	62	9.184	9.172	0.973	400	N.D.		
32) Benzene	78	9.190	9.184	0.974	1377	N.D.		
33) Cyclohexene		0.000	9.294	0.000	0	N.D.		
34) n-Butyl alcohol	56	9.580	9.568	1.015	137	N.D.		
35) Trichloroethylene	95	9.842	9.830	1.043	247	N.D.		
36) 2-Pentanone		0.000	9.928	0.000	0	N.D.		
37) 1,2-Dichloropropane		0.000	10.080	0.000	0	N.D.		
38) Methylcyclohexane		0.000	10.068	0.000	0	N.D.		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G209B.D
Acq On : 01 Nov 2016 13:00
Operator : ACJ
InstName : VOA6
Sample : |1203660807|1612391|1|VOAF|1|VOA8260BS|
Misc : BLANK 5G N/A SOIL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 01 14:37:20 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
39) Dibromomethane		0.000	10.214	0.000	0	N.D.	
40) Bromodichloromethane		0.000	10.330	0.000	0	N.D.	
41) 2-Chloroethylvinyl ether		0.000	10.568	0.000	0	N.D.	
42) cis-1,3-Dichloropropylene		0.000	10.787	0.000	0	N.D.	
44) 4-Methyl-2-pentanone		0.000	10.891	0.000	0	N.D.	
46) Toluene	91	11.165	11.172	0.884	5783	N.D.	
47) trans-1,3-Dichloroprop...	75	11.348	11.342	0.899	513	N.D.	
48) 1,1,2-Trichloroethane		0.000	11.556	0.000	0	N.D.	
49) 2-Hexanone	43	11.757	11.745	0.931	1283	N.D.	
50) 1,3-Dichloropropane	76	11.750	11.751	0.930	271	N.D.	
51) Tetrachloroethylene		0.000	11.763	0.000	0	N.D.	
52) Dibromochloromethane		0.000	12.013	0.000	0	N.D.	
53) 1,2-Dibromoethane		0.000	12.177	0.000	0	N.D.	
54) Chlorobenzene	112	12.671	12.665	1.003	1623	N.D.	
55) 1,1,1,2-Tetrachloroethane		0.000	12.720	0.000	0	N.D.	
56) Ethylbenzene	91	12.738	12.732	1.009	1513	N.D.	
57) m,p-Xylenes	106	12.848	12.842	1.017	1169	N.D.	
58) o-Xylene	91	13.281	13.275	1.052	713	N.D.	
59) Styrene	104	13.293	13.281	1.053	1333	N.D.	
61) Bromoform		0.000	13.537	0.000	0	N.D.	
62) Isopropylbenzene	105	13.646	13.641	0.906	777	N.D.	
64) 1,1,2,2-Tetrachloroethane	83	13.835	13.927	0.919	196	N.D.	
65) 1,2,3-Trichloropropane		0.000	14.012	0.000	0	N.D.	
66) Bromobenzene	156	14.037	14.043	0.932	768	N.D.	
67) n-Propylbenzene	91	14.067	14.067	0.934	1051	N.D.	
68) 1,3,5-Trimethylbenzene	105	14.219	14.226	0.945	944	N.D.	
69) 2-Chlorotoluene		0.000	14.214	0.000	0	N.D.	
70) 4-Chlorotoluene	91	14.317	14.317	0.951	2130	N.D.	
71) tert-Butylbenzene		0.000	14.592	0.000	0	N.D.	
72) 1,2,4-Trimethylbenzene	105	14.640	14.634	0.972	1175	N.D.	
73) sec-Butylbenzene	105	14.817	14.817	0.984	457	N.D.	
74) 4-Isopropyltoluene	119	14.585	14.592	0.969	367	N.D.	
75) 1,3-Dichlorobenzene	146	14.994	14.994	0.996	1831	N.D.	
76) 1,4-Dichlorobenzene	146	15.085	15.085	1.002	3556	N.D.	
77) n-Butylbenzene	91	15.372	15.372	1.021	1084	N.D.	
78) 1,2-Dichlorobenzene	146	15.494	15.494	1.029	1312	N.D.	
79) 1,2-Dibromo-3-chloropr...		0.000	16.311	0.000	0	N.D.	
80) 1,2,4-Trichlorobenzene	180	17.286	17.280	1.148	2249	N.D.	
81) Hexachlorobutadiene		0.000	17.445	0.000	0	N.D.	
82) Naphthalene	128	17.633	17.628	1.171	5034	N.D.	
83) 1,2,3-Trichlorobenzene	180	17.938	17.945	1.192	1351	N.D.	
85) Acrolein	56	6.056	6.026	0.642	102	N.D.	
86) Trichlorotrifluoroethane		0.000	6.185	0.000	0	N.D.	
87) Isopropyl Alcohol	45	6.276	6.282	0.665	342	N.D.	
88) Allyl chloride	41	6.556	6.611	0.695	879	N.D.	
89) tert-Butyl Alcohol		0.000	6.770	0.000	0	N.D.	
90) Acrylonitrile	53	7.014	7.014	0.743	448	N.D.	
91) Isopropyl ether		0.000	7.556	0.000	0	N.D.	
92) 2-Chloro-1,3-butadiene	53	7.672	7.672	0.813	136	N.D.	
93) Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.	
94) Ethyl acetate	43	8.178	8.178	0.866	2515	N.D.	
95) Propionitrile	54	8.282	8.245	0.877	141	N.D.	
96) Methacrylonitrile	41	8.434	8.416	0.893	1283	N.D.	
97) Tetrahydrofuran	42	8.525	8.526	0.903	3951	N.D.	
98) Isobutyl alcohol	41	8.836	8.873	0.936	144	N.D.	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G209B.D
Acq On : 01 Nov 2016 13:00
Operator : ACJ
InstName : VOA6
Sample : |1203660807|1612391|1|VOAF|1|VOA8260BS|
Misc : BLANK 5G N/A SOIL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 01 14:37:20 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

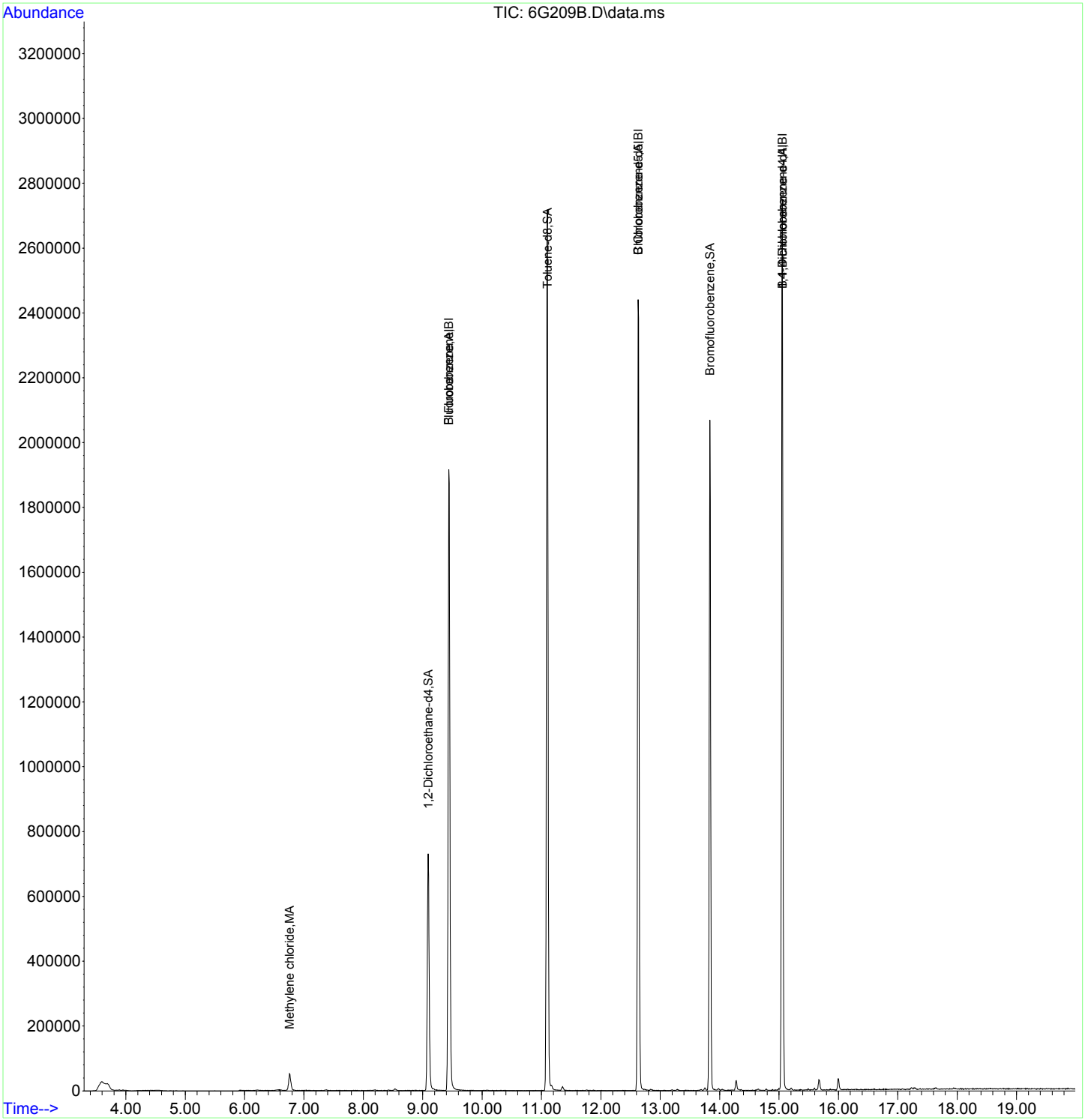
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
99)	Methyl tert-amyl ether		0.000	9.214	0.000	0	N.D.		
100)	Methyl methacrylate	69	10.080	10.068	1.068	492	N.D.		
101)	1,4-Dioxane		0.000	10.172	0.000	0	N.D.		
102)	2-Nitropropane		0.000	10.543	0.000	0	N.D.		
104)	Ethyl methacrylate	69	11.366	11.348	0.900	862	N.D.		
106)	1-Chlorohexane		0.000	12.543	0.000	0	N.D.		
107)	cis-1,4-Dichloro-2-butene	53	13.689	13.689	0.909	979	N.D.		
108)	Cyclohexanone	42	13.781	13.793	0.915	166	N.D.		
109)	trans-1,4-Dichloro-2-b...	53	13.982	13.976	0.929	1268	N.D.		
110)	Pentachloroethane		0.000	14.658	0.000	0	N.D.		
111)	Benzyl chloride	91	15.201	15.201	1.010	3969	Below Cal		97
112)	bis(2-Chloroisopropyl)...	45	15.597	15.591	1.036	1029	N.D.		

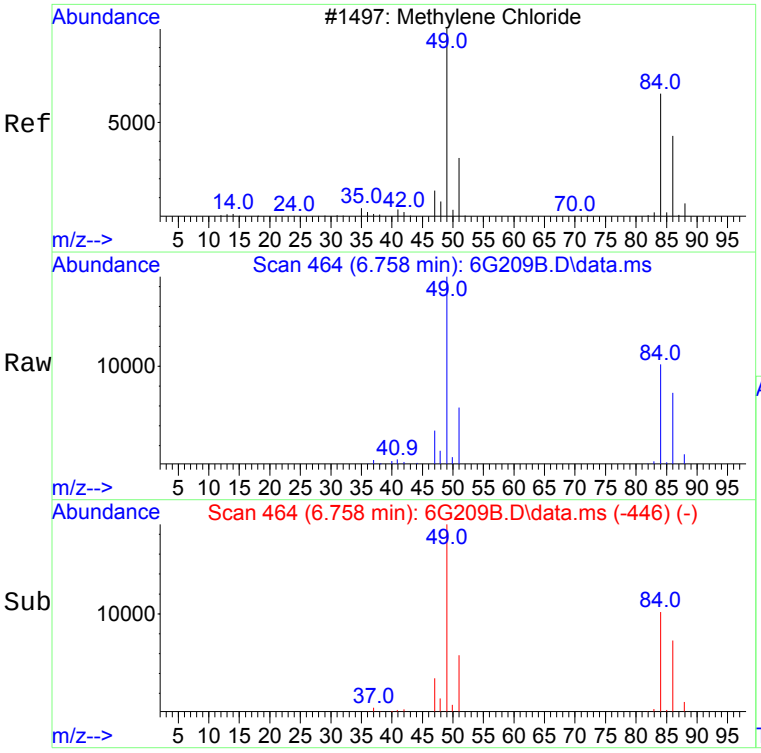
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G209B.D
Acq On : 01 Nov 2016 13:00
Operator : ACJ
InstName : VOA6
Sample : |1203660807|1612391|1|VOAF|1|VOA8260BS|
Misc : BLANK 5G N/A SOIL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 01 14:37:20 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

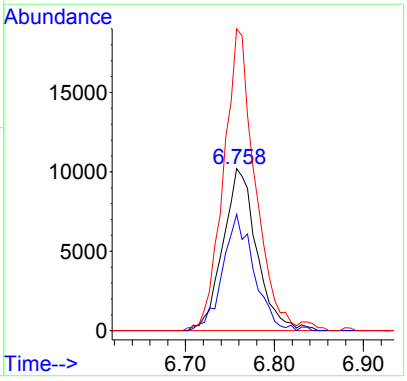




#15
Methylene chloride
Concen: 2.14 ug/L
RT: 6.758 min Scan# 464
Delta R.T. -0.006 min
Lab File: 6G209B.D
Acq: 01 Nov 2016 13:00

Tgt Ion: 84 Resp: 26891

Ion	Ratio	Lower	Upper
84	100		
86	66.2	34.0	94.0
49	172.8	155.6	215.6



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203666130**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 11:25**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/02/2016 08:00**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H304LH.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		44.3	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane		45.6	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane		46.3	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane		45.9	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene		42.1	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene		46.3	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene		45.0	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.0	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane		48.4	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene		44.8	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane		46.8	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane		47.2	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene		44.0	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene		44.1	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone		240	ug/kg	1.67	5.00
591-78-6	2-Hexanone		244	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone		222	ug/kg	1.67	5.00
67-64-1	Acetone		236	ug/kg	1.67	5.00
71-43-2	Benzene		44.7	ug/kg	0.333	1.00
74-97-5	Bromochloromethane		47.9	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane		48.7	ug/kg	0.333	1.00
75-25-2	Bromoform		50.9	ug/kg	0.333	1.00
74-83-9	Bromomethane		48.0	ug/kg	0.333	1.00
75-15-0	Carbon disulfide		212	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride		46.0	ug/kg	0.333	1.00
108-90-7	Chlorobenzene		44.8	ug/kg	0.333	1.00
75-00-3	Chloroethane		47.1	ug/kg	0.333	1.00
67-66-3	Chloroform		46.3	ug/kg	0.333	1.00
74-87-3	Chloromethane		41.9	ug/kg	0.333	1.00
110-82-7	Cyclohexane		44.9	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane		50.1	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane		45.6	ug/kg	0.333	1.00
100-41-4	Ethylbenzene		43.6	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene		44.2	ug/kg	0.333	1.00
79-20-9	Methyl acetate		221	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane		44.5	ug/kg	0.333	1.00
75-09-2	Methylene chloride		41.7	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203666130**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/02/2016 11:25**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/02/2016 08:00**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110216V4\4H304LH.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene		44.8	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene		43.8	ug/kg	0.333	1.00
108-88-3	Toluene		44.6	ug/kg	0.333	1.00
79-01-6	Trichloroethylene		45.9	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane		47.6	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride		48.8	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene		47.0	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene		47.1	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes		87.9	ug/kg	0.667	2.00
95-47-6	o-Xylene		42.7	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether		47.3	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene		45.3	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.4	ug/kg	0.333	1.00

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H304LH.D
Acq On : 02 Nov 2016 11:25
Operator : ACJ
InstName : VOA4
Sample : |1203666130|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A MIX[A] SOIL 1023-01A/0926-01B/1102-01
ALS Vial : 4 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 02 11:47:20 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1165495	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	851584	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.905	1.000	448758	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1165495	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	851584	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	448758	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	315139	49.75	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1195684	49.23	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	485356	49.85	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	100%
45) Toluene-d8	50.000	81 - 120	98%
63) Bromofluorobenzene	50.000	70 - 130	100%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.749	4.749	0.460	319851	45.56	ug/L	100
3) Chloromethane	50	5.102	5.094	0.494	325170	41.94	ug/L	99
4) Vinyl chloride	62	5.330	5.322	0.516	305381	48.77	ug/L	99
5) Bromomethane	94	5.887	5.887	0.570	308639	48.01	ug/L	100
6) Chloroethane	64	6.005	6.005	0.581	294628	47.13	ug/L	100
7) Trichlorofluoromethane	101	6.370	6.370	0.617	498229	47.60	ug/L	99
8) Ethyl ether	59	6.712	6.706	0.650	288897	48.93	ug/L	99
9) Acetone	43	7.065	7.059	0.684	879841	236.33	ug/L	98
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	497025	42.12	ug/L	99
11) Iodomethane	142	7.334	7.327	0.710	2529038	220.48	ug/L	100
12) Acetonitrile	41	7.407	7.407	0.717	927583	1111.33	ug/L	100
13) Methyl acetate	43	7.456	7.456	0.722	1023768	221.41	ug/L	100
14) Carbon disulfide	76	7.474	7.468	0.724	4916467	211.79	ug/L	100
15) Methylene chloride	84	7.644	7.645	0.740	337616	41.72	ug/L	99
16) tert-Butyl methyl ether	73	7.955	7.955	0.770	883832	47.25	ug/L	100
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	504737	45.31	ug/L	99
18) Hexane	57	8.279	8.285	0.802	1288	N.D.		
19) Vinyl acetate	43	8.413	8.413	0.815	3159820	245.86	ug/L	100
20) 1,1-Dichloroethane	63	8.461	8.461	0.819	618893	45.93	ug/L	100
21) 2-Butanone	43	9.028	9.028	0.874	1120882	240.11	ug/L	100
22) cis-1,2-Dichloroethylene	96	9.089	9.095	0.880	365782	46.95	ug/L	99
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	537667	46.43	ug/L	100
24) Bromochloromethane	128	9.364	9.364	0.907	155704	47.93	ug/L	98
25) Chloroform	83	9.400	9.400	0.910	569511	46.28	ug/L	100
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	523556	44.32	ug/L	99
27) Cyclohexane	56	9.790	9.790	0.948	717547	44.92	ug/L	99
28) 1,1-Dichloropropene	75	9.839	9.839	0.953	444503	44.34	ug/L	98
29) Carbon tetrachloride	117	9.882	9.882	0.957	464505	45.96	ug/L	100
31) 1,2-Dichloroethane	62	10.046	10.046	0.973	414263	46.76	ug/L	99
32) Benzene	78	10.077	10.077	0.976	1294471	44.69	ug/L	100
33) Cyclohexene	67	10.199	10.199	0.988	696955	49.11	ug/L	100
34) n-Butyl alcohol	56	10.400	10.400	1.007	968008	4950.07	ug/L	99
35) Trichloroethylene	95	10.711	10.717	1.037	344816	45.91	ug/L	99
36) 2-Pentanone	43	10.894	10.778	1.055	582	N.D.		
37) 1,2-Dichloropropane	63	10.955	10.955	1.061	359440	47.22	ug/L	99
38) Methylcyclohexane	83	10.973	10.973	1.063	634821	44.47	ug/L	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H304LH.D
Acq On : 02 Nov 2016 11:25
Operator : ACJ
InstName : VOA4
Sample : |1203666130|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A MIX[A] SOIL 1023-01A/0926-01B/1102-01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 02 11:47:20 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane	93	11.083	11.083	1.073	181489	46.59	ug/L	99
40) Bromodichloromethane	83	11.193	11.193	1.084	446699	48.73	ug/L	100
41) 2-Chloroethylvinyl ether	63	11.412	11.412	1.105	736372	212.61	ug/L	100
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	533633	47.10	ug/L	100
44) 4-Methyl-2-pentanone	58	11.735	11.735	0.870	594058	221.83	ug/L	99
46) Toluene	91	12.040	12.040	0.892	1360270	44.59	ug/L	100
47) trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	474965	49.36	ug/L	99
48) 1,1,2-Trichloroethane	83	12.400	12.400	0.919	222704	46.29	ug/L	99
49) 2-Hexanone	43	12.583	12.583	0.933	1622470	243.65	ug/L	99
50) 1,3-Dichloropropane	76	12.595	12.595	0.934	430464	45.86	ug/L	95
51) Tetrachloroethylene	164	12.637	12.637	0.937	261469	43.75	ug/L	99
52) Dibromochloromethane	129	12.863	12.863	0.953	314609	50.09	ug/L	99
53) 1,2-Dibromoethane	107	13.034	13.034	0.966	268085	48.43	ug/L	99
54) Chlorobenzene	112	13.521	13.521	1.002	889005	44.84	ug/L	100
55) 1,1,1,2-Tetrachloroethane	131	13.576	13.576	1.006	328815	46.76	ug/L	99
56) Ethylbenzene	91	13.588	13.588	1.007	1543851	43.57	ug/L	100
57) m,p-Xylenes	106	13.698	13.698	1.015	1192347	87.87	ug/L	99
58) o-Xylene	91	14.131	14.131	1.047	1236999	42.67	ug/L	99
59) Styrene	104	14.131	14.131	1.047	974688	44.76	ug/L	100
61) Bromoform	173	14.381	14.381	0.905	188964	50.85	ug/L	99
62) Isopropylbenzene	105	14.491	14.491	0.911	1611546	44.22	ug/L	100
64) 1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.928	360653	45.58	ug/L	99
65) 1,2,3-Trichloropropane	110	14.838	14.838	0.933	95563	45.56	ug/L	98
66) Bromobenzene	156	14.893	14.893	0.937	376606	45.46	ug/L	99
67) n-Propylbenzene	91	14.911	14.917	0.938	1846604	42.05	ug/L	99
68) 1,3,5-Trimethylbenzene	105	15.064	15.070	0.947	1332227	43.67	ug/L	99
69) 2-Chlorotoluene	126	15.064	15.064	0.947	365627	44.25	ug/L	99
70) 4-Chlorotoluene	91	15.161	15.161	0.954	1181245	43.51	ug/L	100
71) tert-Butylbenzene	134	15.442	15.442	0.971	293178	45.63	ug/L	98
72) 1,2,4-Trimethylbenzene	105	15.478	15.478	0.974	1368066	43.68	ug/L	86
73) sec-Butylbenzene	105	15.661	15.661	0.985	1799214	44.36	ug/L	100
74) 4-Isopropyltoluene	119	15.783	15.783	0.993	1461341	43.39	ug/L	99
75) 1,3-Dichlorobenzene	146	15.844	15.844	0.997	762259	43.97	ug/L	99
76) 1,4-Dichlorobenzene	146	15.929	15.929	1.002	748417	44.07	ug/L	100
77) n-Butylbenzene	91	16.228	16.228	1.021	1469841	43.01	ug/L	100
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.029	720758	44.78	ug/L	99
79) 1,2-Dibromo-3-chloropr...	157	17.222	17.228	1.083	67922	47.96	ug/L	97
80) 1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	473580	44.97	ug/L	99
81) Hexachlorobutadiene	225	18.490	18.490	1.163	269050	44.30	ug/L	100
82) Naphthalene	128	18.685	18.685	1.175	1057830	46.21	ug/L	100
83) 1,2,3-Trichlorobenzene	180	19.033	19.033	1.197	420766	46.32	ug/L	99
85) Acrolein		6.889	6.895	0.667	0m	N.D.	d	
86) Trichlorotrifluoroethane		7.102	7.096	0.688	0m	N.D.	d	
87) Isopropyl Alcohol		7.132	7.139	0.691	0m	N.D.	d	
88) Allyl chloride		7.407	7.511	0.717	0m	N.D.	d	
89) tert-Butyl Alcohol		0.000	7.639	0.000	0	N.D.		
90) Acrylonitrile		7.949	7.882	0.770	0m	N.D.	d	
91) Isopropyl ether		8.419	8.455	0.815	0m	N.D.	d	
92) 2-Chloro-1,3-butadiene		8.583	8.577	0.831	0m	N.D.	d	
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate		9.028	9.047	0.874	0m	N.D.	d	
95) Propionitrile		9.041	9.096	0.875	0m	N.D.	d	
96) Methacrylonitrile		0.000	9.278	0.000	0	N.D.		
97) Tetrahydrofuran		9.419	9.419	0.912	0m	N.D.	d	
98) Isobutyl alcohol		9.790	9.717	0.948	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H304LH.D
Acq On : 02 Nov 2016 11:25
Operator : ACJ
InstName : VOA4
Sample : |1203666130|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A MIX[A] SOIL 1023-01A/0926-01B/1102-01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 02 11:47:20 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

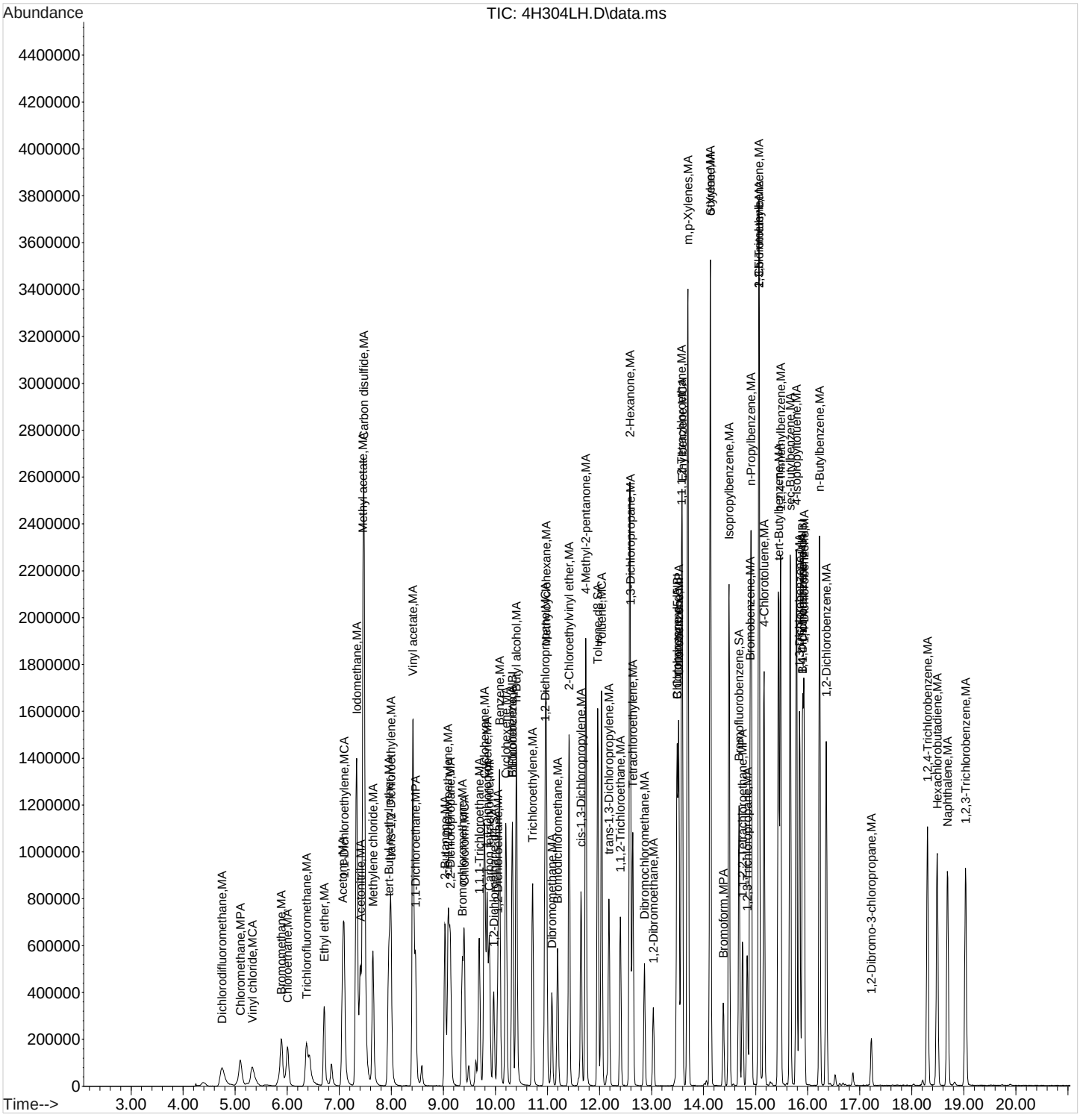
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		10.077	10.101	0.976	0m	N.D.	d
100)	Methyl methacrylate		10.973	10.925	1.063	0m	N.D.	d
101)	1,4-Dioxane		11.083	11.034	1.073	0m	N.D.	d
102)	2-Nitropropane		11.412	11.388	1.105	0m	N.D.	d
104)	Ethyl methacrylate		12.180	12.186	0.903	0m	N.D.	d
106)	1-Chlorohexane		13.387	13.387	0.842	0m	N.D.	d
107)	cis-1,4-Dichloro-2-butene		14.485	14.509	0.911	0m	N.D.	d
108)	Cyclohexanone		14.625	14.631	0.920	0m	N.D.	d
109)	trans-1,4-Dichloro-2-b...		14.796	14.796	0.931	0m	N.D.	d
110)	Pentachloroethane		15.509	15.503	0.975	0m	N.D.	d
111)	Benzyl chloride		16.039	16.039	1.009	0m	N.D.	d
112)	bis(2-Chloroisopropyl)...		16.448	16.442	1.035	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110216V4\
Data File : 4H304LH.D
Acq On : 02 Nov 2016 11:25
Operator : ACJ
InstName : VOA4
Sample : |1203666130|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A MIX[A] SOIL 1023-01A/0926-01B/1102-01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 02 11:47:20 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203666131**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/03/2016 11:45**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/03/2016 08:00**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110316V4\4H404LH.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		44.0	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane		43.8	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane		45.2	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane		45.3	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene		42.0	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene		43.3	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene		42.0	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane		45.4	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane		46.5	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene		43.2	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane		44.4	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane		46.5	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene		43.2	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene		43.4	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone		221	ug/kg	1.67	5.00
591-78-6	2-Hexanone		235	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone		215	ug/kg	1.67	5.00
67-64-1	Acetone		215	ug/kg	1.67	5.00
71-43-2	Benzene		44.0	ug/kg	0.333	1.00
74-97-5	Bromochloromethane		45.3	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane		46.9	ug/kg	0.333	1.00
75-25-2	Bromoform		47.5	ug/kg	0.333	1.00
74-83-9	Bromomethane		47.8	ug/kg	0.333	1.00
75-15-0	Carbon disulfide		211	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride		45.5	ug/kg	0.333	1.00
108-90-7	Chlorobenzene		44.3	ug/kg	0.333	1.00
75-00-3	Chloroethane		47.2	ug/kg	0.333	1.00
67-66-3	Chloroform		45.6	ug/kg	0.333	1.00
74-87-3	Chloromethane		42.9	ug/kg	0.333	1.00
110-82-7	Cyclohexane		44.3	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane		48.2	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane		41.9	ug/kg	0.333	1.00
100-41-4	Ethylbenzene		44.5	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene		44.0	ug/kg	0.333	1.00
79-20-9	Methyl acetate		209	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane		44.1	ug/kg	0.333	1.00
75-09-2	Methylene chloride		40.5	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203666131**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**11/03/2016 11:45**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/03/2016 08:00**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110316V4\4H404LH.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene		44.4	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene		44.3	ug/kg	0.333	1.00
108-88-3	Toluene		45.2	ug/kg	0.333	1.00
79-01-6	Trichloroethylene		45.5	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane		47.8	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride		48.5	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene		46.0	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene		45.6	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes		88.0	ug/kg	0.667	2.00
95-47-6	o-Xylene		43.0	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether		45.2	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene		45.2	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene		47.9	ug/kg	0.333	1.00

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H404LH.D
Acq On : 03 Nov 2016 11:45
Operator : ACJ
InstName : VOA4
Sample : |1203666131|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A MIX[A] SOIL 1023-01A/0926-01B/1102-01
ALS Vial : 4 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 03 13:36:54 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	10.327	10.327	1.000	1125183	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	13.491	13.491	1.000	805821	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.899	15.905	1.000	427840	50.00	ug/L	0.00
84) B Fluorobenzene	96	10.327	10.327	1.000	1125183	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	13.491	13.491	1.000	805821	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.899	15.899	1.000	427840	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.967	9.967	0.965	278496	45.54	ug/L	0.00
45) Toluene-d8	98	11.967	11.967	0.887	1085303	47.23	ug/L	0.00
63) Bromofluorobenzene	95	14.680	14.680	0.923	424343	45.71	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	91%
45) Toluene-d8	50.000	81 - 120	94%
63) Bromofluorobenzene	50.000	70 - 130	91%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.756	4.749	0.461	284123	41.92	ug/L	100
3) Chloromethane	50	5.094	5.094	0.493	320748	42.85	ug/L	99
4) Vinyl chloride	62	5.322	5.322	0.515	293109	48.49	ug/L	100
5) Bromomethane	94	5.887	5.887	0.570	296693	47.81	ug/L	100
6) Chloroethane	64	6.005	6.005	0.581	284798	47.19	ug/L	100
7) Trichlorofluoromethane	101	6.370	6.370	0.617	482861	47.78	ug/L	99
8) Ethyl ether	59	6.712	6.706	0.650	261330	45.84	ug/L	97
9) Acetone	43	7.059	7.059	0.684	774411	215.46	ug/L	98
10) 1,1-Dichloroethylene	61	7.090	7.090	0.687	478244	41.99	ug/L	100
11) Iodomethane	142	7.334	7.327	0.710	2394273	216.21	ug/L	100
12) Acetonitrile	41	7.407	7.407	0.717	811142	1006.64	ug/L	100
13) Methyl acetate	43	7.455	7.456	0.722	932507	208.90	ug/L	100
14) Carbon disulfide	76	7.468	7.468	0.723	4725782	210.87	ug/L	100
15) Methylene chloride	84	7.644	7.645	0.740	316160	40.47	ug/L	99
16) tert-Butyl methyl ether	73	7.955	7.955	0.770	816329	45.20	ug/L	99
17) trans-1,2-Dichloroethy...	61	7.992	7.992	0.774	486536	45.24	ug/L	100
18) Hexane	57	8.279	8.285	0.802	1067	N.D.		
19) Vinyl acetate	43	8.413	8.413	0.815	2958819	238.47	ug/L	100
20) 1,1-Dichloroethane	63	8.461	8.461	0.819	589829	45.34	ug/L	99
21) 2-Butanone	43	9.034	9.028	0.875	994393	220.65	ug/L	99
22) cis-1,2-Dichloroethylene	96	9.095	9.095	0.881	346250	46.04	ug/L	99
23) 2,2-Dichloropropane	77	9.132	9.132	0.884	511947	45.79	ug/L	100
24) Bromochloromethane	128	9.364	9.364	0.907	142220	45.34	ug/L	100
25) Chloroform	83	9.400	9.400	0.910	541493	45.58	ug/L	99
26) 1,1,1-Trichloroethane	97	9.687	9.687	0.938	501408	43.97	ug/L	100
27) Cyclohexane	56	9.790	9.790	0.948	683596	44.33	ug/L	99
28) 1,1-Dichloropropene	75	9.839	9.839	0.953	429693	44.40	ug/L	99
29) Carbon tetrachloride	117	9.882	9.882	0.957	443852	45.49	ug/L	99
31) 1,2-Dichloroethane	62	10.046	10.046	0.973	379620	44.38	ug/L	100
32) Benzene	78	10.077	10.077	0.976	1230919	44.01	ug/L	100
33) Cyclohexene	67	10.199	10.199	0.988	668673	48.80	ug/L	99
34) n-Butyl alcohol	56	10.400	10.400	1.007	805661	4267.48	ug/L	99
35) Trichloroethylene	95	10.711	10.717	1.037	330084	45.52	ug/L	100
36) 2-Pentanone		0.000	10.778	0.000	0	N.D.		
37) 1,2-Dichloropropane	63	10.949	10.955	1.060	341595	46.48	ug/L	99
38) Methylcyclohexane	83	10.973	10.973	1.063	608004	44.12	ug/L	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H404LH.D
Acq On : 03 Nov 2016 11:45
Operator : ACJ
InstName : VOA4
Sample : |1203666131|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A MIX[A] SOIL 1023-01A/0926-01B/1102-01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 03 13:36:54 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane	93	11.083	11.083	1.073	166892	44.38	ug/L	99
40) Bromodichloromethane	83	11.193	11.193	1.084	414928	46.88	ug/L	100
41) 2-Chloroethylvinyl ether	63	11.418	11.412	1.106	771675	230.78	ug/L	100
42) cis-1,3-Dichloropropylene	75	11.644	11.644	1.128	499157	45.64	ug/L	99
44) 4-Methyl-2-pentanone	58	11.735	11.735	0.870	545152	215.13	ug/L	100
46) Toluene	91	12.040	12.040	0.892	1305478	45.23	ug/L	100
47) trans-1,3-Dichloroprop...	75	12.180	12.180	0.903	436246	47.91	ug/L	99
48) 1,1,2-Trichloroethane	83	12.400	12.400	0.919	205667	45.18	ug/L	100
49) 2-Hexanone	43	12.583	12.583	0.933	1482466	235.27	ug/L	100
50) 1,3-Dichloropropane	76	12.595	12.595	0.934	400355	45.08	ug/L	96
51) Tetrachloroethylene	164	12.637	12.637	0.937	250252	44.25	ug/L	100
52) Dibromochloromethane	129	12.863	12.863	0.953	286659	48.23	ug/L	100
53) 1,2-Dibromoethane	107	13.034	13.034	0.966	243719	46.53	ug/L	100
54) Chlorobenzene	112	13.521	13.521	1.002	830328	44.26	ug/L	99
55) 1,1,1,2-Tetrachloroethane	131	13.576	13.576	1.006	306901	46.12	ug/L	99
56) Ethylbenzene	91	13.588	13.588	1.007	1491526	44.48	ug/L	100
57) m,p-Xylenes	106	13.698	13.698	1.015	1129506	87.96	ug/L	100
58) o-Xylene	91	14.131	14.131	1.047	1178459	42.96	ug/L	100
59) Styrene	104	14.131	14.131	1.047	915545	44.43	ug/L	100
61) Bromoform	173	14.381	14.381	0.905	168159	47.46	ug/L	99
62) Isopropylbenzene	105	14.491	14.491	0.911	1527845	43.97	ug/L	100
64) 1,1,2,2-Tetrachloroethane	83	14.747	14.747	0.928	330471	43.81	ug/L	100
65) 1,2,3-Trichloropropane	110	14.838	14.838	0.933	86096	43.06	ug/L	97
66) Bromobenzene	156	14.893	14.893	0.937	349627	44.27	ug/L	99
67) n-Propylbenzene	91	14.917	14.917	0.938	1764131	42.14	ug/L	100
68) 1,3,5-Trimethylbenzene	105	15.064	15.070	0.947	1257866	43.25	ug/L	100
69) 2-Chlorotoluene	126	15.064	15.064	0.947	342699	43.50	ug/L	97
70) 4-Chlorotoluene	91	15.161	15.161	0.954	1115812	43.11	ug/L	99
71) tert-Butylbenzene	134	15.442	15.442	0.971	274027	44.74	ug/L	99
72) 1,2,4-Trimethylbenzene	105	15.478	15.478	0.974	1299274	43.51	ug/L	88
73) sec-Butylbenzene	105	15.661	15.661	0.985	1707105	44.15	ug/L	100
74) 4-Isopropyltoluene	119	15.783	15.783	0.993	1376482	42.87	ug/L	100
75) 1,3-Dichlorobenzene	146	15.844	15.844	0.997	713811	43.19	ug/L	100
76) 1,4-Dichlorobenzene	146	15.929	15.929	1.002	702486	43.38	ug/L	99
77) n-Butylbenzene	91	16.228	16.228	1.021	1391942	42.72	ug/L	100
78) 1,2-Dichlorobenzene	146	16.356	16.356	1.029	663538	43.24	ug/L	99
79) 1,2-Dibromo-3-chloropr...	157	17.222	17.228	1.083	61251	45.36	ug/L	99
80) 1,2,4-Trichlorobenzene	180	18.301	18.301	1.151	421424	41.98	ug/L	100
81) Hexachlorobutadiene	225	18.490	18.490	1.163	243071	41.98	ug/L	98
82) Naphthalene	128	18.685	18.685	1.175	940271	43.08	ug/L	100
83) 1,2,3-Trichlorobenzene	180	19.033	19.033	1.197	374691	43.27	ug/L	99
85) Acrolein		6.852	6.895	0.664	0m	N.D.	d	
86) Trichlorotrifluoroethane		7.071	7.096	0.685	0m	N.D.	d	
87) Isopropyl Alcohol		7.059	7.139	0.684	0m	N.D.	d	
88) Allyl chloride		7.407	7.511	0.717	0m	N.D.	d	
89) tert-Butyl Alcohol		7.626	7.639	0.738	0m	N.D.	d	
90) Acrylonitrile		7.949	7.882	0.770	0m	N.D.	d	
91) Isopropyl ether		8.413	8.455	0.815	0m	N.D.	d	
92) 2-Chloro-1,3-butadiene		8.583	8.577	0.831	0m	N.D.	d	
93) Ethyl tert-butyl ether		0.000	8.858	0.000	0	N.D.		
94) Ethyl acetate		9.034	9.047	0.875	0m	N.D.	d	
95) Propionitrile		9.034	9.096	0.875	0m	N.D.	d	
96) Methacrylonitrile		0.000	9.278	0.000	0	N.D.		
97) Tetrahydrofuran		9.406	9.419	0.911	0m	N.D.	d	
98) Isobutyl alcohol		9.790	9.717	0.948	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H404LH.D
Acq On : 03 Nov 2016 11:45
Operator : ACJ
InstName : VOA4
Sample : |1203666131|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A MIX[A] SOIL 1023-01A/0926-01B/1102-01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 03 13:36:54 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE

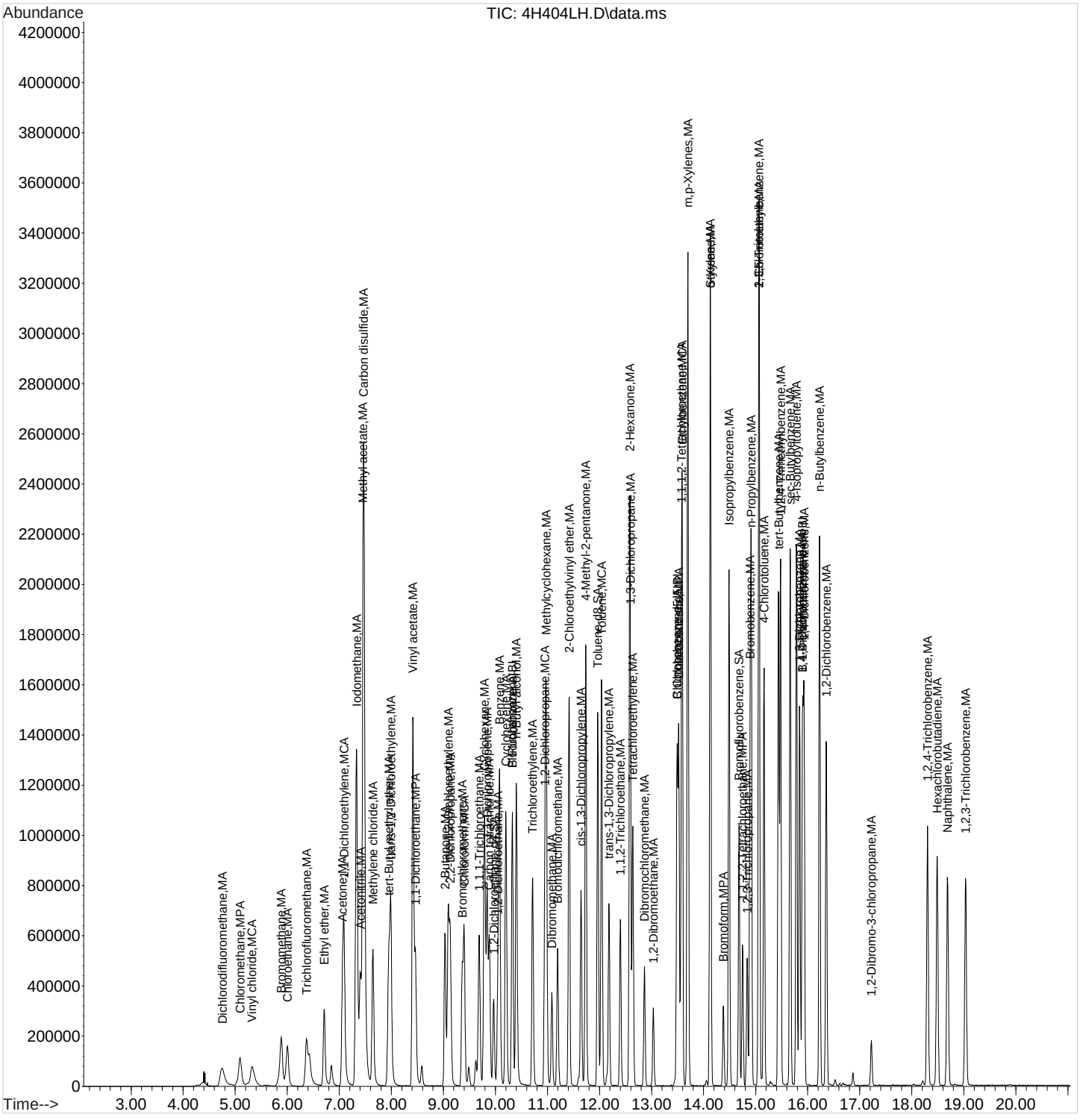
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
99)	Methyl tert-amyl ether		10.071	10.101	0.975	0m	N.D.		d
100)	Methyl methacrylate		10.973	10.925	1.063	0m	N.D.		d
101)	1,4-Dioxane		11.089	11.034	1.074	0m	N.D.		d
102)	2-Nitropropane		11.412	11.388	1.105	0m	N.D.		d
104)	Ethyl methacrylate		12.192	12.186	0.904	0m	N.D.		d
106)	1-Chlorohexane		13.381	13.387	0.842	0m	N.D.		d
107)	cis-1,4-Dichloro-2-butene		14.485	14.509	0.911	0m	N.D.		d
108)	Cyclohexanone		14.485	14.631	0.911	0m	N.D.		d
109)	trans-1,4-Dichloro-2-b...		14.917	14.796	0.938	0m	N.D.		d
110)	Pentachloroethane		15.503	15.503	0.975	0m	N.D.		d
111)	Benzyl chloride		16.033	16.039	1.008	0m	N.D.		d
112)	bis(2-Chloroisopropyl)...		16.435	16.442	1.034	0m	N.D.		d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110316V4\
Data File : 4H404LH.D
Acq On : 03 Nov 2016 11:45
Operator : ACJ
InstName : VOA4
Sample : |1203666131|1612391|1|VOAF|1|VOA8260BS|
Misc : GEL 5G N/A MIX[A] SOIL 1023-01A/0926-01B/1102-01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 03 13:36:54 2016
Quant Method : C:\msdchem\1\data\103116V4\VOA4-8260-103116.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Tue Nov 01 08:22:19 2016
Response via : Initial Calibration
Integrator: RTE



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203660808**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 10:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/01/2016 08:00**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G204L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		50.7	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.9	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane		45.8	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane		47.1	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene		48.0	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene		48.9	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene		48.7	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.8	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane		48.4	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene		46.8	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane		44.8	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane		46.8	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene		47.7	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene		47.0	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone		226	ug/kg	1.67	5.00
591-78-6	2-Hexanone		238	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone		226	ug/kg	1.67	5.00
67-64-1	Acetone		206	ug/kg	1.67	5.00
71-43-2	Benzene		47.2	ug/kg	0.333	1.00
74-97-5	Bromochloromethane		47.0	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane		47.5	ug/kg	0.333	1.00
75-25-2	Bromoform		50.5	ug/kg	0.333	1.00
74-83-9	Bromomethane		55.9	ug/kg	0.333	1.00
75-15-0	Carbon disulfide		267	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride		51.6	ug/kg	0.333	1.00
108-90-7	Chlorobenzene		47.1	ug/kg	0.333	1.00
75-00-3	Chloroethane		55.2	ug/kg	0.333	1.00
67-66-3	Chloroform		47.3	ug/kg	0.333	1.00
74-87-3	Chloromethane		52.3	ug/kg	0.333	1.00
110-82-7	Cyclohexane		51.0	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane		48.3	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane		60.4	ug/kg	0.333	1.00
100-41-4	Ethylbenzene		48.7	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene		50.2	ug/kg	0.333	1.00
79-20-9	Methyl acetate		223	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane		52.0	ug/kg	0.333	1.00
75-09-2	Methylene chloride	B	48.3	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203660808**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 10:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/01/2016 08:00**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G204L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene		46.5	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene		49.1	ug/kg	0.333	1.00
108-88-3	Toluene		47.1	ug/kg	0.333	1.00
79-01-6	Trichloroethylene		48.3	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane		57.5	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride		54.8	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene		47.3	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene		48.9	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes		95.0	ug/kg	0.667	2.00
95-47-6	o-Xylene		46.6	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether		48.1	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene		48.0	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.1	ug/kg	0.333	1.00

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G204L.D
Acq On : 01 Nov 2016 10:35
Operator : ACJ
InstName : VOA6
Sample : |1203660808|1612391|1|VOAF|1|VOA8260BS|
Misc : LCS 5G - MIX[A] SOIL 1023-01A/0926-01B/1025-03
ALS Vial : 4 Sample Multiplier: 1

11/09/2016

11/09/2016

Quant Time: Nov 01 11:22:28 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1820995	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.629	1.000	1415124	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	732505	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1820995	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.628	1.000	1415124	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	732505	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.093	9.093	0.963	586792	49.00	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.879	1901283	50.38	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	763493	51.54	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	98%
45) Toluene-d8	50.000	81 - 120	101%
63) Bromofluorobenzene	50.000	70 - 130	103%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	3.993	4.001	0.423	675576	60.38	ug/L	100
3) Chloromethane	50	4.282	4.282	0.454	819070	52.28	ug/L	100
4) Vinyl chloride	62	4.506	4.498	0.477	694418	54.81	ug/L	99
5) Bromomethane	94	5.020	5.020	0.532	447206	55.91	ug/L	98
6) Chloroethane	64	5.148	5.156	0.545	514461	55.22	ug/L	100
7) Trichlorofluoromethane	101	5.501	5.509	0.583	896324	57.50	ug/L	100
8) Ethyl ether	59	5.830	5.830	0.618	569748	46.00	ug/L	90
9) Acetone	43	6.191	6.197	0.656	1036099	205.56	ug/L	96
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	933485	48.01	ug/L	99
11) Iodomethane	142	6.428	6.429	0.681	4244588	252.00	ug/L	99
12) Acetonitrile	41	6.544	6.550	0.693	1893304	1080.43	ug/L	100
13) Methyl acetate	43	6.575	6.575	0.696	2209453	223.30	ug/L	98
14) Carbon disulfide	76	6.550	6.550	0.694	8168642	267.00	ug/L	100
15) Methylene chloride	84	6.758	6.764	0.716	616086	48.26	ug/L	94
16) tert-Butyl methyl ether	73	7.050	7.050	0.747	1728965	48.10	ug/L	99
17) trans-1,2-Dichloroethy...	61	7.087	7.093	0.751	961083	47.97	ug/L	98
18) Hexane	57	7.361	7.367	0.780	2569	N.D.		
19) Vinyl acetate	43	7.532	7.538	0.798	7002800	252.69	ug/L	98
20) 1,1-Dichloroethane	63	7.568	7.575	0.802	1133627	47.11	ug/L	100
21) 2-Butanone	43	8.160	8.160	0.864	1789579	225.70	ug/L	97
22) cis-1,2-Dichloroethylene	61	8.202	8.209	0.869	1129425	47.25	ug/L	99
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	944145	53.46	ug/L	95
24) Bromochloromethane	128	8.483	8.483	0.899	291527	47.04	ug/L	95
25) Chloroform	83	8.519	8.520	0.902	1016342	47.33	ug/L	96
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	947570	50.71	ug/L	99
27) Cyclohexane	56	8.873	8.873	0.940	1437872	50.99	ug/L	97
28) 1,1-Dichloropropene	75	8.940	8.946	0.947	749726	49.77	ug/L	96
29) Carbon tetrachloride	117	8.977	8.977	0.951	832800	51.64	ug/L	100
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	928233	44.77	ug/L	99
32) Benzene	78	9.184	9.184	0.973	2176952	47.17	ug/L	98
33) Cyclohexene	67	9.294	9.294	0.985	1193952	50.70	ug/L	98
34) n-Butyl alcohol	56	9.568	9.568	1.014	2268994	4854.28	ug/L	98
35) Trichloroethylene	95	9.830	9.830	1.041	580655	48.28	ug/L	98
36) 2-Pentanone	43	10.068	9.928	1.067	77678	7.42	ug/L	70
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	661531	46.75	ug/L	100
38) Methylcyclohexane	83	10.068	10.068	1.067	1090411	52.00	ug/L	97

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G204L.D
Acq On : 01 Nov 2016 10:35
Operator : ACJ
InstName : VOA6
Sample : |1203660808|1612391|1|VOAF|1|VOA8260BS|
Misc : LCS 5G - MIX[A] SOIL 1023-01A/0926-01B/1025-03
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 01 11:22:28 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
39) Dibromomethane	93	10.214	10.214	1.082	339222	47.23	ug/L		98
40) Bromodichloromethane	83	10.330	10.330	1.094	793663	47.51	ug/L		100
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	1600209	188.13	ug/L		99
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	973220	48.94	ug/L		97
44) 4-Methyl-2-pentanone	58	10.891	10.891	0.862	1280251	225.77	ug/L		96
46) Toluene	91	11.171	11.172	0.885	2400146	47.07	ug/L		99
47) trans-1,3-Dichloroprop...	75	11.336	11.342	0.898	903407	49.07	ug/L		96
48) 1,1,2-Trichloroethane	83	11.555	11.556	0.915	400742	45.80	ug/L		98
49) 2-Hexanone	43	11.744	11.745	0.930	2935415	237.71	ug/L		98
50) 1,3-Dichloropropane	76	11.744	11.751	0.930	822580	46.25	ug/L		98
51) Tetrachloroethylene	164	11.763	11.763	0.931	472968	49.09	ug/L		99
52) Dibromochloromethane	129	12.013	12.013	0.951	580910	48.27	ug/L		100
53) 1,2-Dibromoethane	107	12.177	12.177	0.964	514183	48.36	ug/L		100
54) Chlorobenzene	112	12.665	12.665	1.003	1634260	47.13	ug/L		99
55) 1,1,1,2-Tetrachloroethane	131	12.720	12.720	1.007	606778	48.69	ug/L		100
56) Ethylbenzene	91	12.732	12.732	1.008	2807502	48.69	ug/L		100
57) m,p-Xylenes	106	12.842	12.842	1.017	2167952	94.95	ug/L		98
58) o-Xylene	91	13.275	13.275	1.051	2314583	46.64	ug/L		100
59) Styrene	104	13.281	13.281	1.052	1801025	46.48	ug/L		99
61) Bromoform	173	13.537	13.537	0.899	359026	50.45	ug/L		100
62) Isopropylbenzene	105	13.640	13.641	0.906	2973814	50.19	ug/L		99
64) 1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	643414	47.89	ug/L		99
65) 1,2,3-Trichloropropane	110	14.012	14.012	0.931	210468	49.09	ug/L	#	93
66) Bromobenzene	156	14.043	14.043	0.933	749236	48.05	ug/L		98
67) n-Propylbenzene	91	14.067	14.067	0.934	3348263	49.00	ug/L		99
68) 1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	2558118	48.56	ug/L		100
69) 2-Chlorotoluene	126	14.213	14.214	0.944	687527	49.22	ug/L		100
70) 4-Chlorotoluene	91	14.311	14.317	0.951	2154597	47.76	ug/L		100
71) tert-Butylbenzene	134	14.591	14.592	0.969	543752	50.84	ug/L		95
72) 1,2,4-Trimethylbenzene	105	14.634	14.634	0.972	2626400	48.09	ug/L		100
73) sec-Butylbenzene	105	14.817	14.817	0.984	3357494	50.62	ug/L		100
74) 4-Isopropyltoluene	119	14.591	14.592	0.969	2488703	53.97	ug/L		99
75) 1,3-Dichlorobenzene	146	14.994	14.994	0.996	1381708	47.66	ug/L		99
76) 1,4-Dichlorobenzene	146	15.079	15.085	1.002	1355011	47.02	ug/L		99
77) n-Butylbenzene	91	15.378	15.372	1.021	2671916	50.00	ug/L		100
78) 1,2-Dichlorobenzene	146	15.488	15.494	1.029	1318422	46.79	ug/L		99
79) 1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	135067	48.83	ug/L		99
80) 1,2,4-Trichlorobenzene	180	17.280	17.280	1.148	1060745	48.73	ug/L		98
81) Hexachlorobutadiene	225	17.445	17.445	1.159	677883	52.71	ug/L		99
82) Naphthalene	128	17.627	17.628	1.171	2194802	48.65	ug/L		100
83) 1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	951102	48.86	ug/L		99
85) Acrolein		6.044	6.026	0.640	0m	N.D.	d		
86) Trichlorotrifluoroethane		6.166	6.185	0.653	0m	N.D.	d		
87) Isopropyl Alcohol		6.191	6.282	0.656	0m	N.D.	d		
88) Allyl chloride		6.544	6.611	0.693	0m	N.D.	d		
89) tert-Butyl Alcohol		0.000	6.770	0.000	0	N.D.			
90) Acrylonitrile		7.050	7.014	0.747	0m	N.D.	d		
91) Isopropyl ether		7.532	7.556	0.798	0m	N.D.	d		
92) 2-Chloro-1,3-butadiene		7.684	7.672	0.814	0m	N.D.	d		
93) Ethyl tert-butyl ether		7.940	7.965	0.841	0m	N.D.	d		
94) Ethyl acetate		8.160	8.178	0.864	0m	N.D.	d		
95) Propionitrile		8.239	8.245	0.873	0m	N.D.	d		
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.			
97) Tetrahydrofuran		8.526	8.526	0.903	0m	N.D.	d		
98) Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d		

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G204L.D
Acq On : 01 Nov 2016 10:35
Operator : ACJ
InstName : VOA6
Sample : |1203660808|1612391|1|VOAF|1|VOA8260BS|
Misc : LCS 5G - MIX[A] SOIL 1023-01A/0926-01B/1025-03
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 01 11:22:28 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

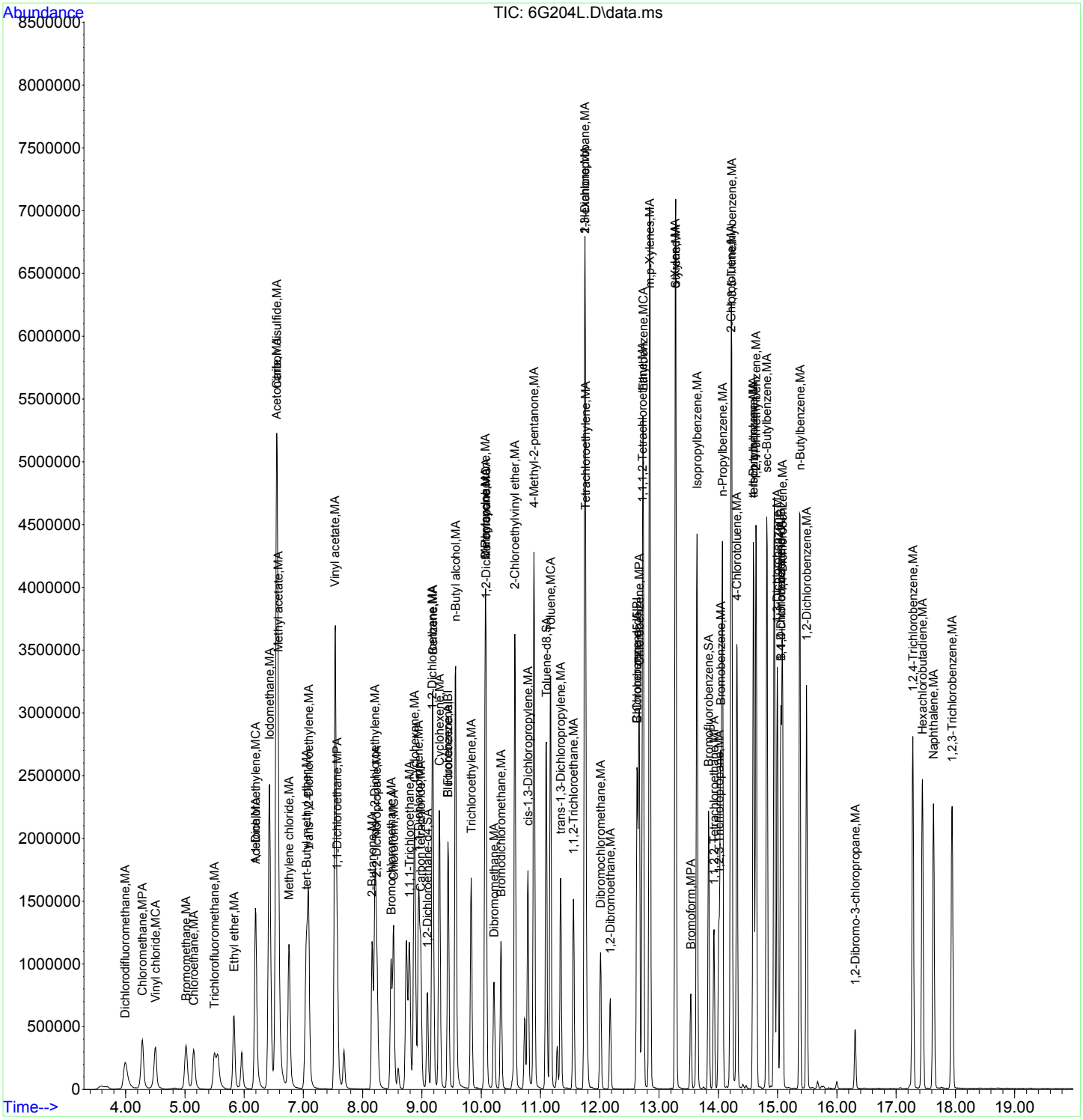
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		9.184	9.214	0.973	0m	N.D.	d
100)	Methyl methacrylate		10.068	10.068	1.067	0m	N.D.	d
101)	1,4-Dioxane		10.178	10.172	1.078	0m	N.D.	d
102)	2-Nitropropane		10.568	10.543	1.119	0m	N.D.	d
104)	Ethyl methacrylate		11.348	11.348	0.899	0m	N.D.	d
106)	1-Chlorohexane		12.543	12.543	0.833	0m	N.D.	d
107)	cis-1,4-Dichloro-2-butene		13.640	13.689	0.906	0m	N.D.	d
108)	Cyclohexanone		13.793	13.793	0.916	0m	N.D.	d
109)	trans-1,4-Dichloro-2-b...		13.970	13.976	0.928	0m	N.D.	d
110)	Pentachloroethane		14.659	14.658	0.974	0m	N.D.	d
111)	Benzyl chloride		15.195	15.201	1.009	0m	N.D.	d
112)	bis(2-Chloroisopropyl)...		15.603	15.591	1.036	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G204L.D
Acq On : 01 Nov 2016 10:35
Operator : ACJ
InstName : VOA6
Sample : |1203660808|1612391|1|VOAF|1|VOA8260BS|
Misc : LCS 5G - MIX[A] SOIL 1023-01A/0926-01B/1025-03
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 01 11:22:28 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE



Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203660809**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCSD for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 11:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/01/2016 08:15**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G205D.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		48.6	ug/kg	0.333	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.6	ug/kg	0.333	1.00
79-00-5	1,1,2-Trichloroethane		45.7	ug/kg	0.333	1.00
75-34-3	1,1-Dichloroethane		46.0	ug/kg	0.333	1.00
75-35-4	1,1-Dichloroethylene		46.1	ug/kg	0.333	1.00
87-61-6	1,2,3-Trichlorobenzene		45.9	ug/kg	0.333	1.00
120-82-1	1,2,4-Trichlorobenzene		45.1	ug/kg	0.333	1.00
96-12-8	1,2-Dibromo-3-chloropropane		47.9	ug/kg	0.500	1.00
106-93-4	1,2-Dibromoethane		47.8	ug/kg	0.333	1.00
95-50-1	1,2-Dichlorobenzene		44.9	ug/kg	0.333	1.00
107-06-2	1,2-Dichloroethane		44.1	ug/kg	0.333	1.00
78-87-5	1,2-Dichloropropane		45.4	ug/kg	0.333	1.00
541-73-1	1,3-Dichlorobenzene		44.8	ug/kg	0.333	1.00
106-46-7	1,4-Dichlorobenzene		44.6	ug/kg	0.333	1.00
123-91-1	1,4-Dioxane	U	50.0	ug/kg	16.7	50.0
78-93-3	2-Butanone		225	ug/kg	1.67	5.00
591-78-6	2-Hexanone		240	ug/kg	1.67	5.00
108-10-1	4-Methyl-2-pentanone		228	ug/kg	1.67	5.00
67-64-1	Acetone		204	ug/kg	1.67	5.00
71-43-2	Benzene		45.4	ug/kg	0.333	1.00
74-97-5	Bromochloromethane		46.4	ug/kg	0.333	1.00
75-27-4	Bromodichloromethane		46.1	ug/kg	0.333	1.00
75-25-2	Bromoform		49.2	ug/kg	0.333	1.00
74-83-9	Bromomethane		53.7	ug/kg	0.333	1.00
75-15-0	Carbon disulfide		258	ug/kg	1.67	5.00
56-23-5	Carbon tetrachloride		49.4	ug/kg	0.333	1.00
108-90-7	Chlorobenzene		45.8	ug/kg	0.333	1.00
75-00-3	Chloroethane		52.5	ug/kg	0.333	1.00
67-66-3	Chloroform		45.3	ug/kg	0.333	1.00
74-87-3	Chloromethane		50.5	ug/kg	0.333	1.00
110-82-7	Cyclohexane		48.6	ug/kg	0.333	1.00
124-48-1	Dibromochloromethane		47.2	ug/kg	0.333	1.00
75-71-8	Dichlorodifluoromethane		56.0	ug/kg	0.333	1.00
100-41-4	Ethylbenzene		47.0	ug/kg	0.333	1.00
98-82-8	Isopropylbenzene		47.1	ug/kg	0.333	1.00
79-20-9	Methyl acetate		223	ug/kg	1.67	5.00
108-87-2	Methylcyclohexane		49.2	ug/kg	0.333	1.00
75-09-2	Methylene chloride	B	47.5	ug/kg	1.67	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203660809**				
Client Sample:	**QC for batch 1612389**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCSD for batch 1612389**	**Method:**	**SW846 8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1612391**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/01/2016 11:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/01/2016 08:15**	**Aliquot:**	**5 g**	**Final Volume:**	**5 mL**
Data File:	**110116V6\6G205D.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
100-42-5	Styrene		46.1	ug/kg	0.333	1.00
127-18-4	Tetrachloroethylene		47.3	ug/kg	0.333	1.00
108-88-3	Toluene		45.5	ug/kg	0.333	1.00
79-01-6	Trichloroethylene		47.1	ug/kg	0.333	1.00
75-69-4	Trichlorofluoromethane		53.9	ug/kg	0.333	1.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/kg	1.67	5.00
75-01-4	Vinyl chloride		52.4	ug/kg	0.333	1.00
156-59-2	cis-1,2-Dichloroethylene		45.7	ug/kg	0.333	1.00
10061-01-5	cis-1,3-Dichloropropylene		47.2	ug/kg	0.333	1.00
179601-23-1	m,p-Xylenes		92.2	ug/kg	0.667	2.00
95-47-6	o-Xylene		45.4	ug/kg	0.333	1.00
1634-04-4	tert-Butyl methyl ether		47.3	ug/kg	0.333	1.00
156-60-5	trans-1,2-Dichloroethylene		46.0	ug/kg	0.333	1.00
10061-02-6	trans-1,3-Dichloropropylene		48.2	ug/kg	0.333	1.00

Quantitation Report
GEL Laboratories, LLC

11/09/2016

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G205D.D
Acq On : 01 Nov 2016 11:04
Operator : ACJ
InstName : VOA6
Sample : |1203660809|1612391|1|VOAF|1|VOA8260BS|
Misc : LCSD 5G - MIX[A] SOIL 1023-01A/0926-01B/1025-03
ALS Vial : 5 Sample Multiplier: 1

11/09/2016

Quant Time: Nov 01 11:41:35 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) Fluorobenzene	96	9.440	9.440	1.000	1800284	50.00	ug/L	0.00
43) Chlorobenzene-d5	117	12.628	12.629	1.000	1390236	50.00	ug/L	0.00
60) 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	747102	50.00	ug/L	0.00
84) B Fluorobenzene	96	9.440	9.440	1.000	1800284	50.00	ug/L	0.00
103) B Chlorobenzene-d5	117	12.628	12.628	1.000	1390236	50.00	ug/L	0.00
105) B 1,4-Dichlorobenzene-d4	152	15.055	15.055	1.000	747102	50.00	ug/L	0.00
System Monitoring Compounds								Dev(Min)
30) 1,2-Dichloroethane-d4	65	9.092	9.093	0.963	586179	49.51	ug/L	0.00
45) Toluene-d8	98	11.098	11.098	0.879	1851843	49.95	ug/L	0.00
63) Bromofluorobenzene	95	13.835	13.836	0.919	750255	49.65	ug/L	0.00

Compound	Amount	Range	Recovery
30) 1,2-Dichloroethane-d4	50.000	81 - 124	99%
45) Toluene-d8	50.000	81 - 120	100%
63) Bromofluorobenzene	50.000	70 - 130	99%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) Dichlorodifluoromethane	85	4.001	4.001	0.424	619700	55.97	ug/L	99
3) Chloromethane	50	4.282	4.282	0.454	781520	50.46	ug/L	100
4) Vinyl chloride	62	4.506	4.498	0.477	656283	52.39	ug/L	100
5) Bromomethane	94	5.020	5.020	0.532	424570	53.69	ug/L	100
6) Chloroethane	64	5.148	5.156	0.545	483783	52.53	ug/L	99
7) Trichlorofluoromethane	101	5.501	5.509	0.583	831097	53.93	ug/L	100
8) Ethyl ether	59	5.830	5.830	0.618	542883	44.34	ug/L	98
9) Acetone	43	6.197	6.197	0.656	1017500	204.19	ug/L	97
10) 1,1-Dichloroethylene	61	6.191	6.191	0.656	886752	46.13	ug/L	99
11) Iodomethane	142	6.428	6.429	0.681	4072721	244.58	ug/L	99
12) Acetonitrile	41	6.544	6.550	0.693	1895651	1094.21	ug/L	100
13) Methyl acetate	43	6.569	6.575	0.696	2178406	222.69	ug/L	98
14) Carbon disulfide	76	6.544	6.550	0.693	7811100	258.25	ug/L	100
15) Methylene chloride	84	6.758	6.764	0.716	599741	47.52	ug/L	94
16) tert-Butyl methyl ether	73	7.050	7.050	0.747	1679790	47.27	ug/L	98
17) trans-1,2-Dichloroethy...	61	7.087	7.093	0.751	910433	45.97	ug/L	98
18) Hexane	57	7.379	7.367	0.782	2771	N.D.		
19) Vinyl acetate	43	7.532	7.538	0.798	6706085	244.77	ug/L	98
20) 1,1-Dichloroethane	63	7.568	7.575	0.802	1095301	46.04	ug/L	99
21) 2-Butanone	43	8.160	8.160	0.864	1766603	225.36	ug/L	98
22) cis-1,2-Dichloroethylene	61	8.209	8.209	0.870	1080707	45.73	ug/L	100
23) 2,2-Dichloropropane	77	8.233	8.233	0.872	895010	51.26	ug/L	96
24) Bromochloromethane	128	8.477	8.483	0.898	284536	46.44	ug/L	94
25) Chloroform	83	8.519	8.520	0.902	961199	45.28	ug/L	98
26) 1,1,1-Trichloroethane	97	8.788	8.788	0.931	897142	48.56	ug/L	99
27) Cyclohexane	56	8.873	8.873	0.940	1355388	48.61	ug/L	97
28) 1,1-Dichloropropene	75	8.940	8.946	0.947	717826	48.20	ug/L	96
29) Carbon tetrachloride	117	8.977	8.977	0.951	786910	49.36	ug/L	99
31) 1,2-Dichloroethane	62	9.172	9.172	0.972	903226	44.06	ug/L	99
32) Benzene	78	9.184	9.184	0.973	2072206	45.41	ug/L	98
33) Cyclohexene	67	9.294	9.294	0.985	1147055	49.26	ug/L	97
34) n-Butyl alcohol	56	9.568	9.568	1.014	2249768	4868.52	ug/L	97
35) Trichloroethylene	95	9.830	9.830	1.041	560358	47.13	ug/L	99
36) 2-Pentanone	43	10.068	9.928	1.067	74303	7.18	ug/L	69
37) 1,2-Dichloropropane	63	10.080	10.080	1.068	635658	45.44	ug/L	99
38) Methylcyclohexane	83	10.068	10.068	1.067	1020191	49.21	ug/L	98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G205D.D
Acq On : 01 Nov 2016 11:04
Operator : ACJ
InstName : VOA6
Sample : |1203660809|1612391|1|VOAF|1|VOA8260BS|
Misc : LCSD 5G - MIX[A] SOIL 1023-01A/0926-01B/1025-03
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 01 11:41:35 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
39) Dibromomethane	93	10.214	10.214	1.082	322693	45.45	ug/L	99
40) Bromodichloromethane	83	10.330	10.330	1.094	761797	46.12	ug/L	99
41) 2-Chloroethylvinyl ether	63	10.568	10.568	1.119	1665256	198.03	ug/L	99
42) cis-1,3-Dichloropropylene	75	10.787	10.787	1.143	927671	47.18	ug/L	96
44) 4-Methyl-2-pentanone	58	10.891	10.891	0.862	1270026	227.98	ug/L	96
46) Toluene	91	11.171	11.172	0.885	2278637	45.49	ug/L	99
47) trans-1,3-Dichloroprop...	75	11.336	11.342	0.898	871766	48.20	ug/L	96
48) 1,1,2-Trichloroethane	83	11.555	11.556	0.915	393053	45.72	ug/L	99
49) 2-Hexanone	43	11.744	11.745	0.930	2910706	239.93	ug/L	98
50) 1,3-Dichloropropane	76	11.744	11.751	0.930	800723	45.83	ug/L	99
51) Tetrachloroethylene	164	11.763	11.763	0.931	447518	47.28	ug/L	98
52) Dibromochloromethane	129	12.013	12.013	0.951	557629	47.16	ug/L	99
53) 1,2-Dibromoethane	107	12.171	12.177	0.964	499611	47.83	ug/L	99
54) Chlorobenzene	112	12.665	12.665	1.003	1558816	45.76	ug/L	99
55) 1,1,1,2-Tetrachloroethane	131	12.720	12.720	1.007	582302	47.56	ug/L	99
56) Ethylbenzene	91	12.732	12.732	1.008	2659747	46.95	ug/L	99
57) m,p-Xylenes	106	12.842	12.842	1.017	2068451	92.22	ug/L	99
58) o-Xylene	91	13.275	13.275	1.051	2215391	45.44	ug/L	100
59) Styrene	104	13.281	13.281	1.052	1755218	46.11	ug/L	99
61) Bromoform	173	13.537	13.537	0.899	357240	49.22	ug/L	99
62) Isopropylbenzene	105	13.640	13.641	0.906	2844064	47.06	ug/L	99
64) 1,1,2,2-Tetrachloroethane	83	13.927	13.927	0.925	638951	46.63	ug/L	99
65) 1,2,3-Trichloropropane	110	14.006	14.012	0.930	206000	47.11	ug/L	94
66) Bromobenzene	156	14.037	14.043	0.932	723713	45.51	ug/L	99
67) n-Propylbenzene	91	14.067	14.067	0.934	3199116	45.90	ug/L	100
68) 1,3,5-Trimethylbenzene	105	14.226	14.226	0.945	2424365	45.12	ug/L	100
69) 2-Chlorotoluene	126	14.213	14.214	0.944	660052	46.33	ug/L	100
70) 4-Chlorotoluene	91	14.311	14.317	0.951	2088041	45.38	ug/L	100
71) tert-Butylbenzene	134	14.591	14.592	0.969	515313	47.24	ug/L	97
72) 1,2,4-Trimethylbenzene	105	14.634	14.634	0.972	2516585	45.18	ug/L	99
73) sec-Butylbenzene	105	14.817	14.817	0.984	3158208	46.68	ug/L	99
74) 4-Isopropyltoluene	119	14.591	14.592	0.969	2381247	50.63	ug/L	100
75) 1,3-Dichlorobenzene	146	14.994	14.994	0.996	1324489	44.79	ug/L	100
76) 1,4-Dichlorobenzene	146	15.079	15.085	1.002	1310108	44.58	ug/L	100
77) n-Butylbenzene	91	15.372	15.372	1.021	2518182	46.21	ug/L	99
78) 1,2-Dichlorobenzene	146	15.488	15.494	1.029	1290871	44.92	ug/L	99
79) 1,2-Dibromo-3-chloropr...	157	16.311	16.311	1.083	135014	47.86	ug/L	99
80) 1,2,4-Trichlorobenzene	180	17.280	17.280	1.148	1002033	45.13	ug/L	98
81) Hexachlorobutadiene	225	17.445	17.445	1.159	626267	47.74	ug/L	100
82) Naphthalene	128	17.627	17.628	1.171	2155319	46.84	ug/L	100
83) 1,2,3-Trichlorobenzene	180	17.944	17.945	1.192	910466	45.86	ug/L	99
85) Acrolein		6.038	6.026	0.640	0m	N.D.	d	
86) Trichlorotrifluoroethane		6.148	6.185	0.651	0m	N.D.	d	
87) Isopropyl Alcohol		6.276	6.282	0.665	0m	N.D.	d	
88) Allyl chloride		6.544	6.611	0.693	0m	N.D.	d	
89) tert-Butyl Alcohol		6.880	6.770	0.729	0m	N.D.	d	
90) Acrylonitrile		7.050	7.014	0.747	0m	N.D.	d	
91) Isopropyl ether		7.538	7.556	0.799	0m	N.D.	d	
92) 2-Chloro-1,3-butadiene		7.684	7.672	0.814	0m	N.D.	d	
93) Ethyl tert-butyl ether		0.000	7.965	0.000	0	N.D.		
94) Ethyl acetate		8.160	8.178	0.864	0m	N.D.	d	
95) Propionitrile		8.245	8.245	0.873	0m	N.D.	d	
96) Methacrylonitrile		0.000	8.416	0.000	0	N.D.		
97) Tetrahydrofuran		8.513	8.526	0.902	0m	N.D.	d	
98) Isobutyl alcohol		8.873	8.873	0.940	0m	N.D.	d	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G205D.D
Acq On : 01 Nov 2016 11:04
Operator : ACJ
InstName : VOA6
Sample : |1203660809|1612391|1|VOAF|1|VOA8260BS|
Misc : LCSD 5G - MIX[A] SOIL 1023-01A/0926-01B/1025-03
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 01 11:41:35 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE

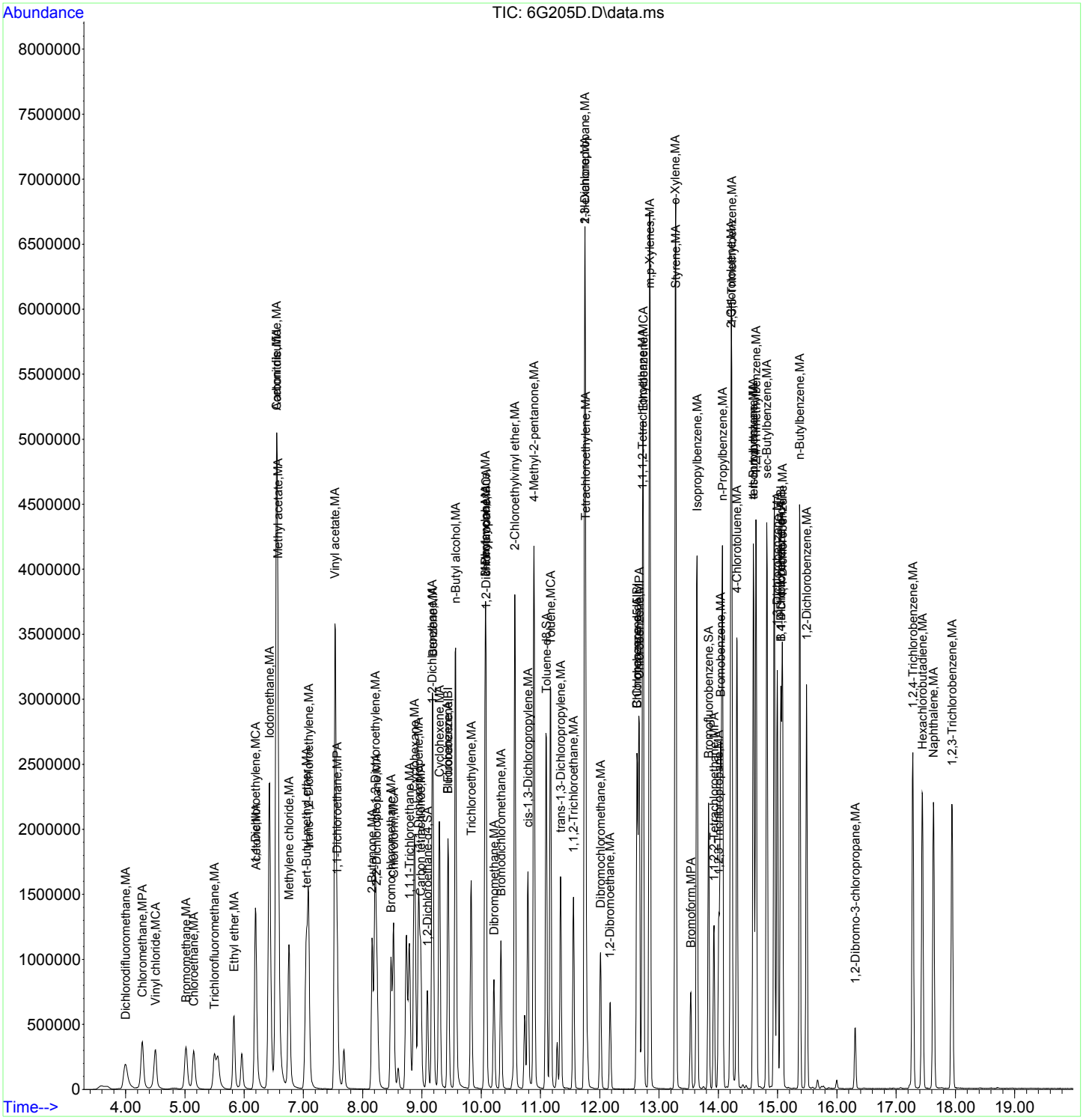
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units
99)	Methyl tert-amyl ether		9.184	9.214	0.973	0m	N.D.	d
100)	Methyl methacrylate		10.068	10.068	1.067	0m	N.D.	d
101)	1,4-Dioxane		10.172	10.172	1.077	0m	N.D.	d
102)	2-Nitropropane		10.568	10.543	1.119	0m	N.D.	d
104)	Ethyl methacrylate		11.354	11.348	0.899	0m	N.D.	d
106)	1-Chlorohexane		12.543	12.543	0.833	0m	N.D.	d
107)	cis-1,4-Dichloro-2-butene		13.640	13.689	0.906	0m	N.D.	d
108)	Cyclohexanone		13.787	13.793	0.916	0m	N.D.	d
109)	trans-1,4-Dichloro-2-b...		13.970	13.976	0.928	0m	N.D.	d
110)	Pentachloroethane		14.665	14.658	0.974	0m	N.D.	d
111)	Benzyl chloride		0.000	15.201	0.000	0	N.D.	
112)	bis(2-Chloroisopropyl)...		15.597	15.591	1.036	0m	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\data\110116V6\
Data File : 6G205D.D
Acq On : 01 Nov 2016 11:04
Operator : ACJ
InstName : VOA6
Sample : |1203660809|1612391|1|VOAF|1|VOA8260BS|
Misc : LCSD 5G - MIX[A] SOIL 1023-01A/0926-01B/1025-03
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 01 11:41:35 2016
Quant Method : C:\msdchem\1\data\101316V6\VOA6-8260-101316.M
Quant Title : Volatile Organics 8260B SubList :
QLast Update : Fri Oct 14 08:57:39 2016
Response via : Initial Calibration
Integrator: RTE



Miscellaneous

Prep Logbook

Closed-System Purge-and-Trap Collection and Extraction: Volatile Organics in Soil and Waste Samples

Batch ID: **1612389**
Analyst: Amy Jamison
Method: SW846 5035A
Lab SOP: GL-OA-E-039 REV# 11
Instrument: OH AUS Balance
Volatiles Manual Instrument

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units

Sample ID	Prep Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)
408699001 - 2	19-OCT-2016 09:00:00	Soil	7.2	10	1.38889
408829005 - 2	19-OCT-2016 12:05:00	Soil	7.3	10	1.36986
1203660808 LCS	01-NOV-2016 08:00:00	Soil	5	5	1
1203660809 LCSD	01-NOV-2016 08:15:00	Soil	5	5	1
1203660807 MB	01-NOV-2016 08:30:00	Soil	5	5	1
1203666130 LCS	02-NOV-2016 08:00:00	Soil	5	5	1
1203666128 MB	02-NOV-2016 08:30:00	Soil	5	5	1
1203666131 LCS	03-NOV-2016 08:00:00	Soil	5	5	1
1203666129 MB	03-NOV-2016 08:30:00	Soil	5	5	1
408699001	19-OCT-2016 09:00:00	Soil	7.1	5	0.70423
408829005	19-OCT-2016 12:05:00	Soil	7.2	5	0.69444
408829006	19-OCT-2016 16:40:00	Soil	7.1	5	0.70423
409254011	24-OCT-2016 10:04:00	Soil	5.6	5	0.89286
409254012	24-OCT-2016 10:54:00	Soil	6.7	5	0.74627
409254013	24-OCT-2016 11:43:00	Soil	4.8	5	1.04167
409254014	24-OCT-2016 11:58:00	Soil	4.7	5	1.06383
409254015	24-OCT-2016 12:35:00	Soil	5.5	5	0.90909
409254016	24-OCT-2016 12:35:00	Soil	4.6	5	1.08696
409254029	25-OCT-2016 13:25:00	Soil	6.6	5	0.75758
409254032	25-OCT-2016 14:00:00	Soil	7.1	5	0.70423
409254034	26-OCT-2016 09:46:00	Soil	6.4	5	0.78125
409254036	26-OCT-2016 09:53:00	Soil	4.8	5	1.04167
409254038	26-OCT-2016 10:54:00	Soil	5.3	5	0.9434
409254044	26-OCT-2016 12:40:00	Soil	5	5	1

Reagent/Solvent Lot ID	Description	Amount

Comments:

GEL Laboratories, LLC
Revision:11/22/04

ORGANIC RUN LOG - INSTRUMENT ID#VOA4

Date: 10/31/2016 Method 8260B/624 Operator: ACJ

HARDWARE CONFIGURATION & METHOD CONDITIONS SUMMARY No# 37 Daily Instrument Readings:

Multiplier Voltage: 1547

CALIBRATION & CC INFORMATION:

Initial Calibration Date: 10/31/2016

NaHSO4 lot # N/A

Cl test lot # 6021

Sequence Number: 103116V4

	Daily Standard Solution ID#	Volume Added for Purge (ul) Blk/ Smpl	CCV	MS/ LCS	BFB	Purge Amount	
CCV						5ML	Water Purge Vol:
IS	UVM160801-01	1	1	1		N/A	Soil Purge Wt.
SS	UVM160801-02	1	1	1		N/A	Mid level ext. MeOH Vol:
LCS/MS						N/A	ul
BFB	IVM1601026-01				1	N/A	Methanol Lot #
SHORT CCV						x	Heated Purge
SHORT LCS							

Analysis Date Time	Data File	Lab Sample ID	Client	Batch #	Wt.(g) or Vol(ml/ul)	Dil. Factor	pH	AS Slot #	Matrix w or s	Analyst	Cl test (Y/N)	Acceptable (O/X)	Comments
10/31/2016 16:24	4H101.D	IVM1601026-01	GEL	BFB2	1UL	1	N/A	1	W	ACJ	N/A	O	
10/31/2016 16:55	4H102.D	W4VM161031-01	VSTD0005	ICAL	5UL	1	N/A	2	w	ACJ	N/A	O	MIX[A] UVM161026-01/UVM161024-01A/UVM160701-01D
10/31/2016 17:24	4H103.D	W4VM161031-02	VSTD001	ICAL	5UL	1	N/A	3	w	ACJ	N/A	O	MIX[A] UVM161026-02/UVM161024-02A/UVM160701-02D
10/31/2016 17:53	4H104.D	W4VM161031-03	VSTD002	ICAL	5UL	1	N/A	4	w	ACJ	N/A	O	MIX[A] UVM161026-03/UVM161024-03A/UVM160701-03D
10/31/2016 18:22	4H105.D	W4VM161031-04	VSTD005	ICAL	5UL	1	N/A	5	w	ACJ	N/A	O	MIX[A] UVM161026-04/UVM161024-04A/UVM160701-04D
10/31/2016 18:52	4H106.D	W4VM161031-05	VSTD010	ICAL	5UL	1	N/A	6	w	ACJ	N/A	O	MIX[A] UVM161026-05/UVM161024-05A/UVM160701-05D
10/31/2016 19:21	4H107.D	W4VM161031-06	VSTD020	ICAL	5UL	1	N/A	7	w	ACJ	N/A	O	MIX[A] UVM161026-06/UVM161024-06A/UVM160701-06D
10/31/2016 19:49	4H108.D	W4VM161031-07	VSTD050	ICAL	5UL	1	N/A	8	w	ACJ	N/A	O	MIX[A] UVM161026-07/UVM161024-07A/UVM160701-07D
10/31/2016 20:19	4H109.D	W4VM161031-08	VSTD080	ICAL	4UL	1	N/A	9	w	ACJ	N/A	O	MIX[A] UVM161026-08/UVM161024-08A/UVM160701-08D
10/31/2016 20:48	4H110.D	W4VM161031-09	VSTD100	ICAL	5UL	1	N/A	10	w	ACJ	N/A	O	MIX[A] UVM161026-08/UVM161024-08A/UVM160701-08D
10/31/2016 21:17	4H111.D	12035---	GEL	BLANK	5ML	1	N/A	11	w	ACJ	N/A	X	
10/31/2016 21:46	4H112.D	W4VM161031-10	ICV	ICV	5UL	1	N/A	12	w	ACJ	N/A	O	MIX[A] UVM160926-01B/UVM161023-01A/IVM161025-03/UVM160701-09E
10/31/2016 22:15	4H113.D	W4VM161031-11	VSTD005S	ICAL	5UL	1	N/A	13	w	ACJ	N/A	O	MIX[B] UVM160913-01B/UVM161025-01
10/31/2016 22:45	4H114.D	W4VM161031-12	VSTD010S	ICAL	5UL	1	N/A	14	w	ACJ	N/A	O	MIX[B] UVM160913-02B/UVM161025-02
10/31/2016 23:14	4H115.D	W4VM161031-13	VSTD050S	ICAL	5UL	1	N/A	15	w	ACJ	N/A	O	MIX[B] UVM160913-04B/UVM161025-04
10/31/2016 23:43	4H116.D	W4VM161031-14	VSTD100S	ICAL	5UL	1	N/A	16	w	ACJ	N/A	O	MIX[B] UVM160913-05B/UVM161025-05
1 Nov 2016 00:12	4H117.D	W4VM161031-15	VSTD250S	ICAL	5UL	1	N/A	17	w	ACJ	N/A	O	MIX[B] UVM160913-06B/UVM161025-06
1 Nov 2016 00:41	4H118.D	W4VM161031-16	VSTD500S	ICAL	5UL	1	N/A	18	w	ACJ	N/A	O	MIX[B] UVM160913-07B/UVM161025-07
	4H119.D	No MS or GC data present											ARCHON STOPPED

GEL Laboratories, LLC
Revision:11/22/04

ORGANIC RUN LOG - INSTRUMENT ID#VOA4

11/08/2016

Date: 11/1/2016 Method 8260B/624 Operator: ACJ

HARDWARE CONFIGURATION & METHOD CONDITIONS SUMMARY No# 37 Daily Instrument Readings:

Multiplier Voltage: 1547

CALIBRATION & CC INFORMATION:

Initial Calibration Date: 10/31/2016

NaHSO4 lot # N/A

Cl test lot # 6021

Sequence Number: 110116V4 PARTIAL

	Daily Standard Solution ID#	Volume Added for Purge (ul) Blk/ Smpl	CCV	MS/ LCS	BFB
CCV					
IS	UVM160801-01	1	1	1	
SS	UVM160801-02	1	1	1	
LCS/MS					
BFB	IVM1601026-01				1
SHORT CCV					
SHORT LCS					

Purge Amount	
5ML	Water Purge Vol:
N/A	Soil Purge Wt.
N/A	Mid level ext. MeOH Vol:
N/A	ul
N/A	Methanol Lot #
x	Heated Purge

Analysis Date Time	Data File	Lab Sample ID	Client	Batch #	Wt.(g) or Vol(ml/ul)	Dil. Factor	pH	AS Slot #	Matrix w or s	Analyst	Cl test (Y/N)	Acceptable (O/X)	Comments
1 Nov 2016 08:50	4H201.D	IVM1601026-01	GEL	BFB	1UL	1	N/A	1	W	ACJ	N/A	O	
1 Nov 2016 09:21	4H202.D	W4VM161101-01	ICV	ICV	5UL	1	N/A	2	W	ACJ	N/A	O	MIX[B] UVM161025-08A/UVM160913-08C
	4H203.D	No MS or GC data present											

GEL Laboratories, LLC
Revision:11/22/04

ORGANIC RUN LOG - INSTRUMENT ID#VOA4

11/15/2016

11/15/2016

Date: 11/2/2016 Method 8260B/624 Operator: ACJ

HARDWARE CONFIGURATION & METHOD CONDITIONS SUMMARY No# 37 Daily Instrument Readings:

Multiplier Voltage: 1482

CALIBRATION & CC INFORMATION:

Initial Calibration Date: 10/31/2016

NaHSO4 lot # N/A

Cl test lot # 6021

Sequence Number: 110216V4

Daily Standard		Volume Added for Purge (ul)			
Solution ID#		Blk/ Smpl	CCV	MS/ LCS	BFB
CCV	W4VM161102-01		5UL EA		
IS	UVM160801-01	1	1	1	
SS	UVM160801-02	1	1	1	
LCS/MS	W4VM161102-02/03/04			5UL EA	
BFB	IVM161026-01				1
SHORT CCV	W4VM161102-05		5UL EA		
SHORT LCS	W4VM161102-06			5UL EA	

Purge Amount	
5ML	Water Purge Vol:
N/A	Soil Purge Wt.
N/A	Mid level ext. MeOH Vol:
N/A	ul
N/A	Methanol Lot #
x	Heated Purge

Analysis Date Time	Data File	Lab Sample ID	Client	Batch #	Wt.(g) or Vol(ml/ul)	Dil. Factor	pH	AS Slot #	Matrix w or s	Analyst	Cl test (Y/N)	Acceptable (O/X)	Comments
2 Nov 2016 09:58	4H301.D	IVM161026-01	GEL	BFB	1UL	1	N/A	1	W	ACJ	N/A	O	
2 Nov 2016 10:27	4H302.D	W4VM161102-01	GEL	CCV	5ML	1	N/A	2	W	ACJ	N/A	O	MIX[A] UVM161026-07E/UVM161024-07E
2 Nov 2016 10:56	4H303.D	W4VM161102-02	GEL	LCS	5ML	1	N/A	3	W	ACJ	N/A	O	MIX[A] UVM161023-01A/UVM160926-01B/IVM161102-01
2 Nov 2016 11:25	4H304.D	W4VM161102-03	GEL	LCS	5G	1	N/A	4	S	ACJ	N/A	O	MIX[A] SOIL UVM161023-01A/UVM160926-01B/IVM161102-01
2 Nov 2016 11:55	4H305.D	W4VM161102-04	GEL	LCSD	5G	1	N/A	5	S	ACJ	N/A	O	MIX[A] SOIL UVM161023-01A/UVM160926-01B/IVM161102-01
2 Nov 2016 12:24	4H306.D	W4VM161102-05	GEL	CCV	5ML	1	N/A	6	W	ACJ	N/A	O	MIX[B] UVM161025-06E/UVM160913-06F
2 Nov 2016 12:53	4H307.D	W4VM161102-06	GEL	LCS	5ML	1	N/A	7	W	ACJ	N/A	O	MIX[B] UVM161025-08A/UVM160913-08C
2 Nov 2016 13:22	4H308.D	12036----	GEL	BLANK	5G	1	N/A	8	S	ACJ	N/A	O	SOIL
2 Nov 2016 13:52	4H309.D	12036----	GEL	BLANK	5ML	1	N/A	9	W	ACJ	N/A	O	
2 Nov 2016 14:20	4H310.D	408890001	GEEL	1612854	7.5G	1	N/A	10	S	ACJ	N/A	O	SOIL
2 Nov 2016 14:50	4H311.D	408890002	GEEL	1612854	5.4G	1	N/A	11	S	ACJ	N/A	O	SOIL
2 Nov 2016 15:19	4H312.D	409251001	NREI	1612408	1ML	5	PH<2	12	W	ACJ	N	O	
2 Nov 2016 15:48	4H313.D	409254029	HAAL	1612391	6.6G	1	N/A	13	S	ACJ	N/A	O	SOIL
2 Nov 2016 16:18	4H314.D	409254036	HAAL	1612391	5.3G	1	N/A	14	S	ACJ	N/A	X	SOIL; SEE 4H415
2 Nov 2016 16:46	4H315.D	409254038	HAAL	1612391	5.3G	1	N/A	15	S	ACJ	N/A	O	SOIL
2 Nov 2016 17:15	4H316.D	409254044	HAAL	1612391	5.0G	1	N/A	16	S	ACJ	N/A	O	SOIL TB NO SOIL ADDED
2 Nov 2016 17:44	4H317.D	1203653245	GEL	1612897	500UL	10	N/A	17	W	ACJ	N/A	O	TB
2 Nov 2016 18:14	4H318.D	1203654039	GEL	1612897	500UL	10	N/A	18	W	ACJ	N/A	O	TB
2 Nov 2016 18:42	4H319.D	408733002	FBWP	1612897	500UL	10	N/A	19	W	ACJ	N/A	O	
2 Nov 2016 19:11	4H320.D	408733004	FBWP	1612897	500UL	10	N/A	20	W	ACJ	N/A	O	
2 Nov 2016 19:41	4H321.D	408733007	FBWP	1612897	500UL	10	N/A	21	W	ACJ	N/A	O	
2 Nov 2016 20:10	4H322.D	408813002	ATKG	1612897	500UL	10	N/A	22	W	ACJ	N/A	O	
2 Nov 2016 20:39	4H323.D	408819001	ATKG	1612897	500UL	10	N/A	23	W	ACJ	N/A	O	
2 Nov 2016 21:08	4H324.D	1203662031	FBWP	1612897	500UL	10	N/A	24	W	ACJ	N/A	O	MIX[A] MS 408733002
2 Nov 2016 21:37	4H325.D	1203662032	FBWP	1612897	500UL	10	N/A	25	W	ACJ	N/A	O	MIX[A] MSD 408733002

GEL Laboratories, LLC
Revision:11/22/04

ORGANIC RUN LOG - INSTRUMENT ID#VOA4

11/11/2016

11/14/2016

Date: 11/3/2016 Method 8260B/624 Operator: ACJ

HARDWARE CONFIGURATION & METHOD CONDITIONS SUMMARY No# 37 Daily Instrument Readings:

Multiplier Voltage: 1482

CALIBRATION & CC INFORMATION:

Initial Calibration Date: 10/31/2016

NaHSO4 lot # N/A

Cl test lot # 6021

Sequence Number: 110316v4

Daily Standard Solution ID#		Volume Added for Purge (ul) Blk/ Smpl	CCV	MS/ LCS	BFB	Purge Amount	
CCV	W4VM161103-01		5UL EA			5ML	Water Purge Vol:
IS	UVM160801-01	1	1	1		VAIRED	Soil Purge Wt.
SS	UVM160801-02	1	1	1		N/A	Mid level ext. MeOH Vol:
LCS/MS	W4VM161103-02/03			5UL EA		N/A	ul
BFB	IVM161026-01				1	N/A	Methanol Lot #
SHORT CCV	W4VM161103-04		5UL EA			x	Heated Purge
SHORT LCS	W4VM161103-05			5UL EA			

Analysis Date Time	Data File	Lab Sample ID	Client	Batch #	Wt.(g) or Vol(ml/ul)	Dil. Factor	pH	AS Slot #	Matrix w or s	Analyst	Cl test (Y/N)	Acceptable (O/X)	Comments
3 Nov 2016 10:17	4H401.D	IVM161026-01	GEL	BFB	1UL	1	N/A	1	W	ACJ	N/A	O	
3 Nov 2016 10:46	4H402.D	W4VM161103-01	GEL	CCV	5ML	1	N/A	2	W	ACJ	N/A	O	MIX[A] UVM161026-07E/UVM161024-07E
3 Nov 2016 11:16	4H403.D	W4VM161103-02	GEL	LCS	5ML	1	N/A	3	W	ACJ	N/A	O	MIX[A] UVM161023-01A/UVM160926-01B/IVM161102-01
3 Nov 2016 11:45	4H404.D	W4VM161103-03	GEL	LCS	5G	1	N/A	4	S	ACJ	N/A	O	MIX[A] SOIL UVM161023-01A/UVM160926-01B/IVM161102-01
3 Nov 2016 12:14	4H405.D	W4VM161103-04	GEL	CCV	5ML	1	N/A	5	W	ACJ	N/A	O	MIX[B] UVM161025-06E/UVM160913-06F
3 Nov 2016 12:43	4H406.D	W4VM161103-05	GEL	LCS	5ML	1	N/A	6	W	ACJ	N/A	O	MIX[B] UVM161025-08A/UVM160913-08C
3 Nov 2016 13:13	4H407.D	12036----	GEL	BLANK	5G	1	N/A	7	S	ACJ	N/A	O	SOIL
3 Nov 2016 13:41	4H408.D	12036----	GEL	BLANK	5ML	1	N/A	8	W	ACJ	N/A	O	
3 Nov 2016 14:11	4H409.D	409070009	LBNL	1613194	5ML	1	PH7	9	W	ACJ	N/A	O	
3 Nov 2016 14:40	4H410.D	409671001	KEIK	1613194	200UL	25	PH<2	10	W	ACJ	N/A	O	
3 Nov 2016 15:09	4H411.D	409671004	KEIK	1613194	200UL	25	PH7	11	W	ACJ	N/A	X	SEE 4H414; TIC C/O CONFIRMS SS LOW
3 Nov 2016 15:39	4H412.D	409070004	LBNL	1613194	2UL	2500000	N/A	12	W	ACJ	N/A	O	FROM 1000X
3 Nov 2016 16:08	4H413.D	409070008	LBNL	1613194	2UL	2500000	N/A	13	W	ACJ	N/A	O	FROM 1000X
3 Nov 2016 16:37	4H414.D	409671004	KEIK	1613194	200UL	25	PH7	14	W	ACJ	N/A	O	
3 Nov 2016 17:06	4H415.D	409254036	HAAL	1612391	4.8G	1	N/A	15	S	ACJ	N/A	O	SOIL
3 Nov 2016 17:35	4H416.D	409076001	SNLS	1613347	5ML	1	PH<2	16	W	ACJ	N	O	
3 Nov 2016 18:04	4H417.D	409076002	SNLS	1613347	5ML	1	PH<2	17	W	ACJ	N	O	
3 Nov 2016 18:33	4H418.D	409076007	SNLS	1613347	5ML	1	PH<2	18	W	ACJ	N	O	
3 Nov 2016 19:02	4H419.D	409076008	SNLS	1613347	5ML	1	PH<2	19	W	ACJ	N	O	
3 Nov 2016 19:31	4H420.D	409076009	SNLS	1613347	5ML	1	PH<2	20	W	ACJ	N	O	
3 Nov 2016 20:01	4H421.D	409076014	SNLS	1613347	5ML	1	PH<2	21	W	ACJ	N	O	
3 Nov 2016 20:30	4H422.D	1203662784	LBNL	1613194	2UL	2500000	N/A	22	W	ACJ	N	O	MIX[A] MS 409070004
3 Nov 2016 20:58	4H423.D	1203662785	LBNL	1613194	2UL	2500000	N/A	23	W	ACJ	N	O	MIX[A] MSD 409070004

GEL Laboratories, LLC
Revision:11/22/04

ORGANIC RUN LOG - INSTRUMENT ID#VOA6

Date: 10/13/2016 Method 8260B/624 Operator:

HARDWARE CONFIGURATION & METHOD CONDITIONS SUMMARY No# 4 Daily Instrument Readings:

Multiplier Voltage: 1694

CALIBRATION & CC INFORMATION:

Initial Calibration Date: 10/13/2016 & 10/14/2016

Cl test lot # N/A

Sequence Number: 101316V6

Daily Standard / Volume Added for Purge (ul)

Solution ID#		Blk/ Smpl	CCV	MS/ LCS	BFB
CCV			5uL ea.		
IS	UVM160921-01	1	1	1	
SS	UVM160801-02	1	1	1	
LCS/MS				5uL ea.	
BFB	IVM161013-03				1
SHORT			5uL ea.		
SHORT				5uL ea.	

Purge Amount

5ML	Water Purge Vol:ML
N/A	Soil Purge Wt.:G
N/A	Mid level ext. MeOH Vol:
N/A	ul
N/A	Methanol Lot #
x	Heated Purge

Analysis Date	Time	Data File	Lab Sample ID	Client	Batch #	Wt.(g) or Vol(ml/ul)	Dil. Factor	pH	AS Slot #	Matrix w or s	Analyst	Cl test (Y/N)	Acceptable (O/X)	Comments
10/13/2016	16:42	6D401.D	IVM161013-03	GEL	BFB	5mL	1	N/A	1	W	VXY1	N/A	O	
10/13/2016	17:11	6D402.D	W6VM161013-01	ICAL	ICAL005	5ML	1	N/A	2	W	VXY1	N/A	O	MIX[A] UVM160915-01/ UVM161003-01B/ UVM160701-01C
10/13/2016	17:39	6D403.D	W6VM161013-02	ICAL	ICAL01	5ML	1	N/A	3	W	VXY1	N/A	O	MIX[A] UVM160915-02/ UVM161003-02B/ UVM160701-02C
10/13/2016	18:08	6D404.D	W6VM161013-03	ICAL	ICAL02	5ML	1	N/A	4	W	VXY1	N/A	O	MIX[A] UVM160915-03/ UVM161003-03B/ UVM160701-03C
10/13/2016	18:37	6D405.D	W6VM161013-04	ICAL	ICAL05	5ML	1	N/A	5	W	VXY1	N/A	O	MIX[A] UVM160915-04/ UVM161003-04B/ UVM160701-04C
10/13/2016	19:06	6D406.D	W6VM161013-05	ICAL	ICAL010	5ML	1	N/A	6	W	VXY1	N/A	O	MIX[A] UVM160915-05/ UVM161003-05B/ UVM160701-05C
10/13/2016	19:35	6D407.D	W6VM161013-06	ICAL	ICAL020	5ML	1	N/A	7	W	VXY1	N/A	O	MIX[A] UVM160915-06/ UVM161003-06B/ UVM160701-06C
10/13/2016	20:03	6D408.D	W6VM161013-07	ICAL	ICAL50	5ML	1	N/A	8	W	VXY1	N/A	O	MIX[A] UVM160915-07/ UVM161003-07B/ UVM160701-07C
10/13/2016	20:32	6D409.D	W6VM161013-08	ICAL	ICAL080	5ML	1	N/A	9	W	VXY1	N/A	O	MIX[A] UVM160915-08/ UVM161003-08B/ UVM160701-08C
10/13/2016	21:01	6D410.D	W6VM161013-09	ICAL	ICAL100	5ML	1	N/A	10	W	VXY1	N/A	O	MIX[A] UVM160915-08/ UVM161003-08B/ UVM160701-08C
10/13/2016	21:30	6D411.D	120362--------	GEL	RINSE	5mL	1	N/A	11	W	VXY1	N/A	O	
10/13/2016	21:58	6D412.D	W6VM161013-10	ICV	ICV	5ML	1	N/A	12	W	VXY1	N/A	X	MIX[A] UVM160729-01D/ UVM160830-01F/ UVM160701-09D/ IVM161011-01 HEXANE LOW. SEE 6D502
10/13/2016	22:27	6D413.D	W6VM161013-12	ICAL	ICAL005	5ML	1	N/A	13	W	VXY1	N/A	O	MIX[B] UVM160913-01/ UVM160916-01
10/13/2016	22:56	6D414.D	W6VM161013-13	ICAL	ICAL010	5ML	1	N/A	14	W	VXY1	N/A	O	MIX[B] UVM160913-02/ UVM160916-02
10/13/2016	23:25	6D415.D	W6VM161013-14	ICAL	ICAL025	5ML	1	N/A	15	W	VXY1	N/A	O	MIX[B] UVM160913-03/ UVM160916-03
10/13/2016	23:54	6D416.D	W6VM161013-15	ICAL	ICAL050	5ML	1	N/A	16	W	VXY1	N/A	O	MIX[B] UVM160913-04/ UVM160916-04
10/14/2016	0:22	6D417.D	W6VM161013-16	ICAL	ICAL100	5ML	1	N/A	17	W	VXY1	N/A	O	MIX[B] UVM160913-05/ UVM160916-05
10/14/2016	0:52	6D418.D	W6VM161013-17	ICAL	ICAL250	5ML	1	N/A	18	W	VXY1	N/A	O	MIX[B] UVM160913-06/ UVM160916-06
10/14/2016	1:20	6D419.D	W6VM161013-18	ICAL	ICAL500	5ML	1	N/A	19	W	VXY1	N/A	O	MIX[B] UVM160913-07/ UVM160916-07
10/14/2016	1:49	6D420.D	120362--------	GEL	RINSE	5mL	1	N/A	20	W	VXY1	N/A	O	
10/14/2016	2:18	6D421.D	W6VM161013-19	ICV	ICV	5ML	1	N/A	21	W	VXY1	N/A	O	MIX[B] UVM160913-08A/ UVM160916-08A
10/14/2016	8:56	6D422.D	120362--------	GEL	RINSE	5mL	1	N/A	20	W	VXY1	N/A	X	

GEL Laboratories, LLC
Revision:11/22/04

ORGANIC RUN LOG - INSTRUMENT ID#VOA6

Date: 10/14/2016 Method 8260B/624 Operator:

HARDWARE CONFIGURATION & METHOD CONDITIONS SUMMARY No# 4

Daily Instrument Readings:
Multiplier Voltage: 1694

CALIBRATION & CC INFORMATION:

Initial Calibration Date: 10/13/2016 & 10/14/2016

Cl test lot # N/A
Sequence Number: 101416V6AM

	Daily Standard Solution ID#	Volume Added for Purge (ul) Blk/ Smpl	CCV	MS/ LCS	BFB
CCV			5uL ea.		
IS	UVM160921-01	1	1	1	
SS	UVM160801-02	1	1	1	
LCS/MS				5uL ea.	
BFB	IVM161013-03				1
SHORT			5uL ea.		
SHORT				5uL ea.	

Purge Amount	
5ML	Water Purge Vol:ML
N/A	Soil Purge Wt.:G
N/A	Mid level ext. MeOH Vol:
N/A	ul
N/A	Methanol Lot #
x	Heated Purge

Analysis Date	Time	Data File	Lab Sample ID	Client	Batch #	Wt.(g) or Vol(ml/ul)	Dil. Factor	pH	AS Slot #	Matrix w or s	Analyst	Cl test (Y/N)	Acceptable (O/X)	Comments
10/14/2016	9:30	6D501.D	IVM161013-03	GEL	BFB	5mL	1	N/A	1	W	VXY1	N/A	O	
10/14/2016	9:59	6D502.D	W6VM161014-01	GEL	ICV	5ML	1	N/A	2	W	VXY1	N/A	O	MIX[A] UVM160729-01D/ UVM160830-01F/ UVM160701-09E/ IVM161011-01

GEL Laboratories, LLC
Revision:11/22/04

ORGANIC RUN LOG - INSTRUMENT ID#VOA6

AJ 11/10/2016

KD 11/16/2016

Date: 11/1/2016 Method 8260B/624 Operator: ACJ

HARDWARE CONFIGURATION & METHOD CONDITIONS SUMMARY No# 4 Daily Instrument Readings:

Multiplier Voltage: 1776

CALIBRATION & CC INFORMATION:

Initial Calibration Date: 10/13/2016 & 10/14/2016

CI test lot # 6021

Sequence Number: 110116V6

	Daily Standard Solution ID#	Volume Added for Purge (ul) Blk/ Smpl	CCV	MS/ LCS	BFB
CCV	W6VM161101-01		5uL ea.		
IS	UVM161010-01	1	1	1	
SS	UVM160801-02	1	1	1	
LCS/MS	W6VM161101-02/03/04			5uL ea.	
BFB	IVM161026-01				1
SHORT	W6VM161101-05		5uL ea.		
SHORT	W6VM161101-06			5uL ea.	

Purge Amount	
5ML	Water Purge Vol:ML
VARIED	Soil Purge Wt.:G
N/A	Mid level ext. MeOH Vol:
100	ul
N/A	Methanol Lot #
x	Heated Purge

Analysis Date Time	Data File	Lab Sample ID	Client	Batch #	Wt.(g) or Vol(ml/ul)	Dil. Factor	pH	AS Slot #	Matrix w or s	Analyst	CI test (Y/N)	Acceptable (O/X)	Comments
1 Nov 2016 09:08	6G201.D	IVM161026-01	GEL	BFB	5mL	1	N/A	1	W	ACJ	N/A	O	
1 Nov 2016 09:37	6G202.D	W6VM161101-01	GEL	CCV	5mL	1	N/A	2	W	ACJ	N/A	O	MIX[A] UVM160621-06G/UVM161024-07E
1 Nov 2016 10:06	6G203.D	W6VM161101-02	GEL	LCS	5mL	1	N/A	3	W	ACJ	N/A	O	MIX[A] UVM161023-01A/UVM160926-01B/IVM161025-03
1 Nov 2016 10:35	6G204.D	W6VM161101-03	GEL	LCS	5G	1	N/A	4	w	ACJ	N/A	O	MIX[A] SOIL UVM161023-01A/UVM160926-01B/IVM161025-03
1 Nov 2016 11:04	6G205.D	W6VM161101-04	GEL	LCSD	5G	1	N/A	5	w	ACJ	N/A	O	MIX[A] SOIL UVM161023-01A/UVM160926-01B/IVM161025-03
1 Nov 2016 11:33	6G206.D	W6VM161101-05	GEL	CCV	5mL	1	N/A	6	w	ACJ	N/A	O	MIX[B] UVM160913-06F/UVM161025-08A
1 Nov 2016 12:02	6G207.D	W6VM161101-06	GEL	LCS	5mL	1	N/A	7	w	ACJ	N/A	O	MIX[B] UVM160913-08C/UVM161025-08A
1 Nov 2016 12:31	6G208.D	120365----	BLANK	BLANK	5ML	1	N/A	8	w	ACJ	N/A	O	
1 Nov 2016 13:00	6G209.D	120365----	BLANK	BLANK	5G	1	N/A	9	s	ACJ	N/A	O	SOIL
1 Nov 2016 13:28	6G210.D	408699001	NREI	1612391	100UL	50	N/A	10	w	ACJ	N/A	O	SOIL
1 Nov 2016 13:57	6G211.D	408829005	NREI	1612391	100UL	50	N/A	11	w	ACJ	N/A	O	SOIL
1 Nov 2016 14:26	6G212.D	408699001	NREI	1612391	7.1G	1	N/A	12	s	ACJ	N/A	O	SOIL
1 Nov 2016 14:55	6G213.D	408829005	NREI	1612391	7.2G	1	N/A	13	s	ACJ	N/A	O	SOIL
1 Nov 2016 15:24	6G214.D	408829006	NREI	1612391	7.1G	1	N/A	14	s	ACJ	N/A	O	SOIL
1 Nov 2016 16:22	6G215.D	409254011	HAAL	1612391	5.6G	1	N/A	15	s	ACJ	N/A	O	SOIL
1 Nov 2016 16:24	6G216.D	409254012	HAAL	1612391	6.7G	1	N/A	16	s	ACJ	N/A	O	SOIL
1 Nov 2016 16:52	6G217.D	409254013	HAAL	1612391	4.8G	1	N/A	17	s	ACJ	N/A	O	SOIL
1 Nov 2016 17:21	6G218.D	409254014	HAAL	1612391	4.7G	1	N/A	18	s	ACJ	N/A	O	SOIL
1 Nov 2016 17:50	6G219.D	409254015	HAAL	1612391	5.5G	1	N/A	19	s	ACJ	N/A	O	SOIL
1 Nov 2016 18:19	6G220.D	409254016	HAAL	1612391	4.6G	1	N/A	20	s	ACJ	N/A	O	SOIL
1 Nov 2016 18:48	6G221.D	409254029	HAAL	1612391	6.2G	1	N/A	21	s	ACJ	N/A	X	SOIL; SS/IS LOW SEE 4H313
1 Nov 2016 19:17	6G222.D	409254032	HAAL	1612391	7.1G	1	N/A	22	s	ACJ	N/A	O	SOIL
1 Nov 2016 19:46	6G223.D	409254034	HAAL	1612391	6.4G	1	N/A	23	s	ACJ	N/A	O	SOIL
1 Nov 2016 20:15	6G224.D	1203659665	UCOR	1611986	5ML	1	PH7	24	w	ACJ	N	O	MIX[A] MS 409250001
1 Nov 2016 20:44	6G225.D	1203659666	UCOR	1611986	5ML	1	PH7	25	w	ACJ	N	O	MIX[A] MSD 409250001

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
Haley & Aldrich, Inc. (HAAL)
SDG #: 409254

Product: **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method: SW846 3541/8270D SIM PAH
Analytical Procedure: GL-OA-E-009 REV# 38
Analytical Batch: 1612777

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-066 REV# 7
Preparation Batch: 1612776

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
409254013	SD140300
409254014	SD140200
409254015	SD140100
409254016	SD140100DUP
409254017	DP100113
409254018	DP100212
409254019	DP100310
409254026	DP050113
409254027	DP050213
409254028	SS050100
1203661742	Method Blank (MB)
1203661743	Laboratory Control Sample (LCS)
1203661744	409254013(SD140300) Matrix Spike (MS)
1203661745	409254013(SD140300) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries
Sample (See Below) did not meet surrogate recovery acceptance criteria. The sample was analyzed at a dilution. As a result, one or more surrogates were diluted out of the acceptance limits.

Sample	Analyte	Value
409254028 (SS050100)	5-alpha-Androstane	0* (30%-118%)

Technical Information

Sample Dilutions
Sample 409254028 (SS050100) was diluted due to the presence of non-target analytes. The data from the dilution are reported.

Miscellaneous Information

Manual Integrations
Samples 409254016 (SD140100DUP) and 409254027 (DP050213) required manual integration to correctly position the baseline as set in the calibration standard injections.

Product: Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
Analytical Method: SW846 3541/8270D
Analytical Procedure: GL-OA-E-009 REV# 38
Analytical Batch: 1614270

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-066 REV# 7
Preparation Batch: 1614269

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
409254029	DP020312
409254032	DP020413
409254034	DP020207
409254036	DP020209
409254038	DP020114
1203665318	Method Blank (MB)
1203665319	Laboratory Control Sample (LCS)
1203665320	409286001(NonSDG) Matrix Spike (MS)
1203665321	409286001(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries
Sample (See Below) did not meet surrogate recovery acceptance criteria. Since the parent sample and associated MS/MSD pair displayed similar recoveries, the failures were attributed to matrix interference and the data results are reported.

Sample	Analyte	Value
1203665320 (Non SDG 409286001MS)	2,4,6-Tribromophenol	32* (39%-115%)

Spike Recovery Statement

The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported.

Sample	Analyte	Value
1203665320 (Non SDG 409286001MS)	Several	See applicable report
1203665321 (Non SDG 409286001MSD)	Several	See applicable report

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent differences (RPD) for the MS and MSD, (See Below), were not within the acceptance limits. The failures were attributed to matrix interference. The data were reported.

Sample	Analyte	Value
1203665320MS and 1203665321MSD (Non SDG 409286001)	2,3,4,6-Tetrachlorophenol	74* (0%-30%)
	2,4,5-Trichlorophenol	56* (0%-30%)
	2,4,6-Trichlorophenol	62* (0%-30%)
	2-Methyl-4,6-dinitrophenol	200* (0%-30%)
	Hexachlorocyclopentadiene	36* (0%-30%)
	Pentachlorophenol	79* (0%-30%)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

HAAL002 Haley & Aldrich, Inc.

Client SDG: 409254 GEL Work Order: 409254

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 16 NOV 2016 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254013**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140300**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 10:54**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.007 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0707.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	5.26	ug/kg	2.63	5.26
91-58-7	2-Chloronaphthalene	U	5.26	ug/kg	2.63	5.26
91-57-6	2-Methylnaphthalene	U	5.26	ug/kg	2.63	5.26
83-32-9	Acenaphthene	U	5.26	ug/kg	2.63	5.26
208-96-8	Acenaphthylene	U	5.26	ug/kg	2.63	5.26
120-12-7	Anthracene	U	5.26	ug/kg	2.63	5.26
56-55-3	Benzo(a)anthracene	U	5.26	ug/kg	2.63	5.26
50-32-8	Benzo(a)pyrene	U	5.26	ug/kg	2.63	5.26
205-99-2	Benzo(b)fluoranthene	U	5.26	ug/kg	2.63	5.26
191-24-2	Benzo(ghi)perylene	U	5.26	ug/kg	2.63	5.26
207-08-9	Benzo(k)fluoranthene	U	5.26	ug/kg	2.63	5.26
218-01-9	Chrysene	U	5.26	ug/kg	2.63	5.26
53-70-3	Dibenzo(a,h)anthracene	U	5.26	ug/kg	2.63	5.26
206-44-0	Fluoranthene	J	3.15	ug/kg	2.63	5.26
86-73-7	Fluorene	U	5.26	ug/kg	2.63	5.26
193-39-5	Indeno(1,2,3-cd)pyrene	U	5.26	ug/kg	2.63	5.26
91-20-3	Naphthalene	U	5.26	ug/kg	1.58	5.26
85-01-8	Phenanthrene	J	3.68	ug/kg	2.63	5.26
129-00-0	Pyrene	J	2.63	ug/kg	2.63	5.26

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:58**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254014**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**44.5**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140200**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 11:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.102 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0709.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	5.98	ug/kg	2.99	5.98
91-58-7	2-Chloronaphthalene	U	5.98	ug/kg	2.99	5.98
91-57-6	2-Methylnaphthalene	U	5.98	ug/kg	2.99	5.98
83-32-9	Acenaphthene	U	5.98	ug/kg	2.99	5.98
208-96-8	Acenaphthylene	U	5.98	ug/kg	2.99	5.98
120-12-7	Anthracene	U	5.98	ug/kg	2.99	5.98
56-55-3	Benzo(a)anthracene	U	5.98	ug/kg	2.99	5.98
50-32-8	Benzo(a)pyrene	U	5.98	ug/kg	2.99	5.98
205-99-2	Benzo(b)fluoranthene	J	4.79	ug/kg	2.99	5.98
191-24-2	Benzo(ghi)perylene	U	5.98	ug/kg	2.99	5.98
207-08-9	Benzo(k)fluoranthene	J	3.59	ug/kg	2.99	5.98
218-01-9	Chrysene	J	3.59	ug/kg	2.99	5.98
53-70-3	Dibenzo(a,h)anthracene	U	5.98	ug/kg	2.99	5.98
206-44-0	Fluoranthene		5.98	ug/kg	2.99	5.98
86-73-7	Fluorene	U	5.98	ug/kg	2.99	5.98
193-39-5	Indeno(1,2,3-cd)pyrene	U	5.98	ug/kg	2.99	5.98
91-20-3	Naphthalene	U	5.98	ug/kg	1.80	5.98
85-01-8	Phenanthrene	J	4.19	ug/kg	2.99	5.98
129-00-0	Pyrene	J	4.19	ug/kg	2.99	5.98

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254015**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**37.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 12:19**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.049 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0710.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	5.34	ug/kg	2.67	5.34
91-58-7	2-Chloronaphthalene	U	5.34	ug/kg	2.67	5.34
91-57-6	2-Methylnaphthalene	U	5.34	ug/kg	2.67	5.34
83-32-9	Acenaphthene	U	5.34	ug/kg	2.67	5.34
208-96-8	Acenaphthylene	U	5.34	ug/kg	2.67	5.34
120-12-7	Anthracene	U	5.34	ug/kg	2.67	5.34
56-55-3	Benzo(a)anthracene	U	5.34	ug/kg	2.67	5.34
50-32-8	Benzo(a)pyrene	U	5.34	ug/kg	2.67	5.34
205-99-2	Benzo(b)fluoranthene	J	3.20	ug/kg	2.67	5.34
191-24-2	Benzo(ghi)perylene	U	5.34	ug/kg	2.67	5.34
207-08-9	Benzo(k)fluoranthene	U	5.34	ug/kg	2.67	5.34
218-01-9	Chrysene	U	5.34	ug/kg	2.67	5.34
53-70-3	Dibenzo(a,h)anthracene	U	5.34	ug/kg	2.67	5.34
206-44-0	Fluoranthene	J	3.74	ug/kg	2.67	5.34
86-73-7	Fluorene	U	5.34	ug/kg	2.67	5.34
193-39-5	Indeno(1,2,3-cd)pyrene	U	5.34	ug/kg	2.67	5.34
91-20-3	Naphthalene	U	5.34	ug/kg	1.60	5.34
85-01-8	Phenanthrene	J	3.74	ug/kg	2.67	5.34
129-00-0	Pyrene	J	3.20	ug/kg	2.67	5.34

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254016**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100DUP**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 12:47**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.078 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0711.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	5.25	ug/kg	2.62	5.25
91-58-7	2-Chloronaphthalene	U	5.25	ug/kg	2.62	5.25
91-57-6	2-Methylnaphthalene	U	5.25	ug/kg	2.62	5.25
83-32-9	Acenaphthene	U	5.25	ug/kg	2.62	5.25
208-96-8	Acenaphthylene	U	5.25	ug/kg	2.62	5.25
120-12-7	Anthracene	J	4.20	ug/kg	2.62	5.25
56-55-3	Benzo(a)anthracene	U	5.25	ug/kg	2.62	5.25
50-32-8	Benzo(a)pyrene	U	5.25	ug/kg	2.62	5.25
205-99-2	Benzo(b)fluoranthene	J	3.67	ug/kg	2.62	5.25
191-24-2	Benzo(ghi)perylene	U	5.25	ug/kg	2.62	5.25
207-08-9	Benzo(k)fluoranthene	U	5.25	ug/kg	2.62	5.25
218-01-9	Chrysene	J	2.62	ug/kg	2.62	5.25
53-70-3	Dibenzo(a,h)anthracene	U	5.25	ug/kg	2.62	5.25
206-44-0	Fluoranthene		6.30	ug/kg	2.62	5.25
86-73-7	Fluorene	U	5.25	ug/kg	2.62	5.25
193-39-5	Indeno(1,2,3-cd)pyrene	U	5.25	ug/kg	2.62	5.25
91-20-3	Naphthalene	U	5.25	ug/kg	1.57	5.25
85-01-8	Phenanthrene	U	5.25	ug/kg	2.62	5.25
129-00-0	Pyrene	J	4.20	ug/kg	2.62	5.25

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 14:30**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254017**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**27.4**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP100113**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 13:16**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.038 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0712.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.58	ug/kg	2.29	4.58
91-58-7	2-Chloronaphthalene	U	4.58	ug/kg	2.29	4.58
91-57-6	2-Methylnaphthalene	U	4.58	ug/kg	2.29	4.58
83-32-9	Acenaphthene	U	4.58	ug/kg	2.29	4.58
208-96-8	Acenaphthylene	U	4.58	ug/kg	2.29	4.58
120-12-7	Anthracene	U	4.58	ug/kg	2.29	4.58
56-55-3	Benzo(a)anthracene	U	4.58	ug/kg	2.29	4.58
50-32-8	Benzo(a)pyrene	U	4.58	ug/kg	2.29	4.58
205-99-2	Benzo(b)fluoranthene	U	4.58	ug/kg	2.29	4.58
191-24-2	Benzo(ghi)perylene	U	4.58	ug/kg	2.29	4.58
207-08-9	Benzo(k)fluoranthene	U	4.58	ug/kg	2.29	4.58
218-01-9	Chrysene	U	4.58	ug/kg	2.29	4.58
53-70-3	Dibenzo(a,h)anthracene	U	4.58	ug/kg	2.29	4.58
206-44-0	Fluoranthene	U	4.58	ug/kg	2.29	4.58
86-73-7	Fluorene	U	4.58	ug/kg	2.29	4.58
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.58	ug/kg	2.29	4.58
91-20-3	Naphthalene	U	4.58	ug/kg	1.38	4.58
85-01-8	Phenanthrene	J	2.29	ug/kg	2.29	4.58
129-00-0	Pyrene	U	4.58	ug/kg	2.29	4.58

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 09:42**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254018**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**24.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP100212**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 13:44**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0713.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.42	ug/kg	2.21	4.42
91-58-7	2-Chloronaphthalene	U	4.42	ug/kg	2.21	4.42
91-57-6	2-Methylnaphthalene	U	4.42	ug/kg	2.21	4.42
83-32-9	Acenaphthene	U	4.42	ug/kg	2.21	4.42
208-96-8	Acenaphthylene	U	4.42	ug/kg	2.21	4.42
120-12-7	Anthracene	U	4.42	ug/kg	2.21	4.42
56-55-3	Benzo(a)anthracene	U	4.42	ug/kg	2.21	4.42
50-32-8	Benzo(a)pyrene	U	4.42	ug/kg	2.21	4.42
205-99-2	Benzo(b)fluoranthene	U	4.42	ug/kg	2.21	4.42
191-24-2	Benzo(ghi)perylene	U	4.42	ug/kg	2.21	4.42
207-08-9	Benzo(k)fluoranthene	U	4.42	ug/kg	2.21	4.42
218-01-9	Chrysene	U	4.42	ug/kg	2.21	4.42
53-70-3	Dibenzo(a,h)anthracene	U	4.42	ug/kg	2.21	4.42
206-44-0	Fluoranthene	U	4.42	ug/kg	2.21	4.42
86-73-7	Fluorene	U	4.42	ug/kg	2.21	4.42
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.42	ug/kg	2.21	4.42
91-20-3	Naphthalene	U	4.42	ug/kg	1.33	4.42
85-01-8	Phenanthrene	J	3.10	ug/kg	2.21	4.42
129-00-0	Pyrene	U	4.42	ug/kg	2.21	4.42

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 10:04**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254019**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**25.2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP100310**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 14:12**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.055 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0714.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.45	ug/kg	2.22	4.45
91-58-7	2-Chloronaphthalene	U	4.45	ug/kg	2.22	4.45
91-57-6	2-Methylnaphthalene	U	4.45	ug/kg	2.22	4.45
83-32-9	Acenaphthene	U	4.45	ug/kg	2.22	4.45
208-96-8	Acenaphthylene	U	4.45	ug/kg	2.22	4.45
120-12-7	Anthracene	U	4.45	ug/kg	2.22	4.45
56-55-3	Benzo(a)anthracene	U	4.45	ug/kg	2.22	4.45
50-32-8	Benzo(a)pyrene	U	4.45	ug/kg	2.22	4.45
205-99-2	Benzo(b)fluoranthene	J	3.56	ug/kg	2.22	4.45
191-24-2	Benzo(ghi)perylene	U	4.45	ug/kg	2.22	4.45
207-08-9	Benzo(k)fluoranthene	U	4.45	ug/kg	2.22	4.45
218-01-9	Chrysene	J	2.22	ug/kg	2.22	4.45
53-70-3	Dibenzo(a,h)anthracene	U	4.45	ug/kg	2.22	4.45
206-44-0	Fluoranthene	J	3.56	ug/kg	2.22	4.45
86-73-7	Fluorene	U	4.45	ug/kg	2.22	4.45
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.45	ug/kg	2.22	4.45
91-20-3	Naphthalene	U	4.45	ug/kg	1.33	4.45
85-01-8	Phenanthrene	J	3.11	ug/kg	2.22	4.45
129-00-0	Pyrene	J	3.11	ug/kg	2.22	4.45

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:14**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254026**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**19**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP050113**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 14:41**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.057 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0715.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.11	ug/kg	2.05	4.11
91-58-7	2-Chloronaphthalene	U	4.11	ug/kg	2.05	4.11
91-57-6	2-Methylnaphthalene	U	4.11	ug/kg	2.05	4.11
83-32-9	Acenaphthene	U	4.11	ug/kg	2.05	4.11
208-96-8	Acenaphthylene	U	4.11	ug/kg	2.05	4.11
120-12-7	Anthracene	U	4.11	ug/kg	2.05	4.11
56-55-3	Benzo(a)anthracene	U	4.11	ug/kg	2.05	4.11
50-32-8	Benzo(a)pyrene	U	4.11	ug/kg	2.05	4.11
205-99-2	Benzo(b)fluoranthene	J	3.29	ug/kg	2.05	4.11
191-24-2	Benzo(ghi)perylene	U	4.11	ug/kg	2.05	4.11
207-08-9	Benzo(k)fluoranthene	U	4.11	ug/kg	2.05	4.11
218-01-9	Chrysene	U	4.11	ug/kg	2.05	4.11
53-70-3	Dibenzo(a,h)anthracene	U	4.11	ug/kg	2.05	4.11
206-44-0	Fluoranthene	U	4.11	ug/kg	2.05	4.11
86-73-7	Fluorene	U	4.11	ug/kg	2.05	4.11
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.11	ug/kg	2.05	4.11
91-20-3	Naphthalene	U	4.11	ug/kg	1.23	4.11
85-01-8	Phenanthrene	J	2.47	ug/kg	2.05	4.11
129-00-0	Pyrene	U	4.11	ug/kg	2.05	4.11

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:34**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254027**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**27.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP050213**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 15:09**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.005 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0716.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.60	ug/kg	2.30	4.60
91-58-7	2-Chloronaphthalene	U	4.60	ug/kg	2.30	4.60
91-57-6	2-Methylnaphthalene	U	4.60	ug/kg	2.30	4.60
83-32-9	Acenaphthene	U	4.60	ug/kg	2.30	4.60
208-96-8	Acenaphthylene	U	4.60	ug/kg	2.30	4.60
120-12-7	Anthracene	U	4.60	ug/kg	2.30	4.60
56-55-3	Benzo(a)anthracene	U	4.60	ug/kg	2.30	4.60
50-32-8	Benzo(a)pyrene	U	4.60	ug/kg	2.30	4.60
205-99-2	Benzo(b)fluoranthene	J	3.22	ug/kg	2.30	4.60
191-24-2	Benzo(ghi)perylene	U	4.60	ug/kg	2.30	4.60
207-08-9	Benzo(k)fluoranthene	U	4.60	ug/kg	2.30	4.60
218-01-9	Chrysene	U	4.60	ug/kg	2.30	4.60
53-70-3	Dibenzo(a,h)anthracene	U	4.60	ug/kg	2.30	4.60
206-44-0	Fluoranthene	J	3.22	ug/kg	2.30	4.60
86-73-7	Fluorene	U	4.60	ug/kg	2.30	4.60
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.60	ug/kg	2.30	4.60
91-20-3	Naphthalene		5.52	ug/kg	1.38	4.60
85-01-8	Phenanthrene		5.52	ug/kg	2.30	4.60
129-00-0	Pyrene	J	2.76	ug/kg	2.30	4.60

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:48**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254028**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS050100**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**200**
Run Date:	**11/07/2016 15:38**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.055 g**	**Final Volume:**	**1.4 mL**
Data File:	**s110716.B\s4k0717.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	1050	ug/kg	523	1050
91-58-7	2-Chloronaphthalene	U	1050	ug/kg	523	1050
91-57-6	2-Methylnaphthalene	U	1050	ug/kg	523	1050
83-32-9	Acenaphthene	U	1050	ug/kg	523	1050
208-96-8	Acenaphthylene	U	1050	ug/kg	523	1050
120-12-7	Anthracene	U	1050	ug/kg	523	1050
56-55-3	Benzo(a)anthracene	U	1050	ug/kg	523	1050
50-32-8	Benzo(a)pyrene	U	1050	ug/kg	523	1050
205-99-2	Benzo(b)fluoranthene	U	1050	ug/kg	523	1050
191-24-2	Benzo(ghi)perylene	U	1050	ug/kg	523	1050
207-08-9	Benzo(k)fluoranthene	U	1050	ug/kg	523	1050
218-01-9	Chrysene	U	1050	ug/kg	523	1050
53-70-3	Dibenzo(a,h)anthracene	U	1050	ug/kg	523	1050
206-44-0	Fluoranthene	U	1050	ug/kg	523	1050
86-73-7	Fluorene	U	1050	ug/kg	523	1050
193-39-5	Indeno(1,2,3-cd)pyrene	U	1050	ug/kg	523	1050
91-20-3	Naphthalene	U	1050	ug/kg	314	1050
85-01-8	Phenanthrene	U	1050	ug/kg	523	1050
129-00-0	Pyrene	U	1050	ug/kg	523	1050

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 14:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.046 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1109.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	450	ug/kg	135	450
95-94-3	1,2,4,5-Tetrachlorobenzene	U	450	ug/kg	135	450
58-90-2	2,3,4,6-Tetrachlorophenol	U	450	ug/kg	135	450
95-95-4	2,4,5-Trichlorophenol	U	450	ug/kg	135	450
88-06-2	2,4,6-Trichlorophenol	U	450	ug/kg	135	450
120-83-2	2,4-Dichlorophenol	U	450	ug/kg	135	450
105-67-9	2,4-Dimethylphenol	U	450	ug/kg	135	450
51-28-5	2,4-Dinitrophenol	U	901	ug/kg	135	901
121-14-2	2,4-Dinitrotoluene	U	450	ug/kg	135	450
606-20-2	2,6-Dinitrotoluene	U	450	ug/kg	135	450
91-58-7	2-Chloronaphthalene	U	45.0	ug/kg	13.5	45.0
95-57-8	2-Chlorophenol	U	450	ug/kg	135	450
534-52-1	2-Methyl-4,6-dinitrophenol	U	450	ug/kg	135	450
91-57-6	2-Methylnaphthalene	U	45.0	ug/kg	13.5	45.0
88-75-5	2-Nitrophenol	U	450	ug/kg	135	450
91-94-1	3,3'-Dichlorobenzidine	U	450	ug/kg	135	450
101-55-3	4-Bromophenylphenylether	U	450	ug/kg	135	450
59-50-7	4-Chloro-3-methylphenol	U	450	ug/kg	180	450
106-47-8	4-Chloroaniline	U	450	ug/kg	135	450
7005-72-3	4-Chlorophenylphenylether	U	450	ug/kg	135	450
100-02-7	4-Nitrophenol	U	450	ug/kg	135	450
83-32-9	Acenaphthene	U	45.0	ug/kg	13.5	45.0
208-96-8	Acenaphthylene	U	45.0	ug/kg	13.5	45.0
98-86-2	Acetophenone	U	450	ug/kg	135	450
120-12-7	Anthracene	U	45.0	ug/kg	13.5	45.0
1912-24-9	Atrazine	U	450	ug/kg	180	450
100-52-7	Benzaldehyde	U	450	ug/kg	135	450
56-55-3	Benzo(a)anthracene	U	45.0	ug/kg	13.5	45.0
50-32-8	Benzo(a)pyrene	U	45.0	ug/kg	13.5	45.0
205-99-2	Benzo(b)fluoranthene	U	45.0	ug/kg	13.5	45.0
191-24-2	Benzo(ghi)perylene	U	45.0	ug/kg	13.5	45.0
207-08-9	Benzo(k)fluoranthene	U	45.0	ug/kg	13.5	45.0
85-68-7	Butylbenzylphthalate	U	450	ug/kg	135	450
105-60-2	Caprolactam	U	450	ug/kg	135	450
86-74-8	Carbazole	U	45.0	ug/kg	13.5	45.0
218-01-9	Chrysene	U	45.0	ug/kg	13.5	45.0
84-74-2	Di-n-butylphthalate	U	450	ug/kg	135	450
117-84-0	Di-n-octylphthalate	U	450	ug/kg	135	450

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 14:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.046 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1109.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	45.0	ug/kg	13.5	45.0
132-64-9	Dibenzofuran	U	450	ug/kg	135	450
84-66-2	Diethylphthalate	U	450	ug/kg	135	450
131-11-3	Dimethylphthalate	U	450	ug/kg	135	450
122-39-4	Diphenylamine	U	450	ug/kg	135	450
206-44-0	Fluoranthene	U	45.0	ug/kg	13.5	45.0
86-73-7	Fluorene	U	45.0	ug/kg	13.5	45.0
118-74-1	Hexachlorobenzene	U	450	ug/kg	135	450
87-68-3	Hexachlorobutadiene	U	450	ug/kg	135	450
77-47-4	Hexachlorocyclopentadiene	U	450	ug/kg	135	450
67-72-1	Hexachloroethane	U	450	ug/kg	135	450
193-39-5	Indeno(1,2,3-cd)pyrene	U	45.0	ug/kg	13.5	45.0
78-59-1	Isophorone	U	450	ug/kg	135	450
621-64-7	N-Nitrosodipropylamine	U	450	ug/kg	135	450
91-20-3	Naphthalene	U	45.0	ug/kg	13.5	45.0
98-95-3	Nitrobenzene	U	450	ug/kg	135	450
87-86-5	Pentachlorophenol	U	450	ug/kg	135	450
85-01-8	Phenanthrene	U	45.0	ug/kg	13.5	45.0
108-95-2	Phenol	U	450	ug/kg	135	450
129-00-0	Pyrene	U	45.0	ug/kg	13.5	45.0
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	450	ug/kg	135	450
111-91-1	bis(2-Chloroethoxy)methane	U	450	ug/kg	135	450
111-44-4	bis(2-Chloroethyl) ether	U	450	ug/kg	135	450
117-81-7	bis(2-Ethylhexyl)phthalate	U	450	ug/kg	135	450
65794-96-9	m,p-Cresols	U	450	ug/kg	135	450
99-09-2	m-Nitroaniline	U	450	ug/kg	135	450
95-48-7	o-Cresol	U	450	ug/kg	135	450
88-74-4	o-Nitroaniline	U	450	ug/kg	149	450
100-01-6	p-Nitroaniline	U	450	ug/kg	135	450

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 15:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.104 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1110.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	403	ug/kg	121	403
95-94-3	1,2,4,5-Tetrachlorobenzene	U	403	ug/kg	121	403
58-90-2	2,3,4,6-Tetrachlorophenol	U	403	ug/kg	121	403
95-95-4	2,4,5-Trichlorophenol	U	403	ug/kg	121	403
88-06-2	2,4,6-Trichlorophenol	U	403	ug/kg	121	403
120-83-2	2,4-Dichlorophenol	U	403	ug/kg	121	403
105-67-9	2,4-Dimethylphenol	U	403	ug/kg	121	403
51-28-5	2,4-Dinitrophenol	U	807	ug/kg	121	807
121-14-2	2,4-Dinitrotoluene	U	403	ug/kg	121	403
606-20-2	2,6-Dinitrotoluene	U	403	ug/kg	121	403
91-58-7	2-Chloronaphthalene	U	40.3	ug/kg	12.1	40.3
95-57-8	2-Chlorophenol	U	403	ug/kg	121	403
534-52-1	2-Methyl-4,6-dinitrophenol	U	403	ug/kg	121	403
91-57-6	2-Methylnaphthalene	U	40.3	ug/kg	12.1	40.3
88-75-5	2-Nitrophenol	U	403	ug/kg	121	403
91-94-1	3,3'-Dichlorobenzidine	U	403	ug/kg	121	403
101-55-3	4-Bromophenylphenylether	U	403	ug/kg	121	403
59-50-7	4-Chloro-3-methylphenol	U	403	ug/kg	161	403
106-47-8	4-Chloroaniline	U	403	ug/kg	121	403
7005-72-3	4-Chlorophenylphenylether	U	403	ug/kg	121	403
100-02-7	4-Nitrophenol	U	403	ug/kg	121	403
83-32-9	Acenaphthene	U	40.3	ug/kg	12.1	40.3
208-96-8	Acenaphthylene	U	40.3	ug/kg	12.1	40.3
98-86-2	Acetophenone	U	403	ug/kg	121	403
120-12-7	Anthracene	U	40.3	ug/kg	12.1	40.3
1912-24-9	Atrazine	U	403	ug/kg	161	403
100-52-7	Benzaldehyde	U	403	ug/kg	121	403
56-55-3	Benzo(a)anthracene	U	40.3	ug/kg	12.1	40.3
50-32-8	Benzo(a)pyrene	U	40.3	ug/kg	12.1	40.3
205-99-2	Benzo(b)fluoranthene	U	40.3	ug/kg	12.1	40.3
191-24-2	Benzo(ghi)perylene	U	40.3	ug/kg	12.1	40.3
207-08-9	Benzo(k)fluoranthene	U	40.3	ug/kg	12.1	40.3
85-68-7	Butylbenzylphthalate	U	403	ug/kg	121	403
105-60-2	Caprolactam	U	403	ug/kg	121	403
86-74-8	Carbazole	U	40.3	ug/kg	12.1	40.3
218-01-9	Chrysene	U	40.3	ug/kg	12.1	40.3
84-74-2	Di-n-butylphthalate	U	403	ug/kg	121	403
117-84-0	Di-n-octylphthalate	U	403	ug/kg	121	403

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 15:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.104 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1110.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	40.3	ug/kg	12.1	40.3
132-64-9	Dibenzofuran	U	403	ug/kg	121	403
84-66-2	Diethylphthalate	U	403	ug/kg	121	403
131-11-3	Dimethylphthalate	U	403	ug/kg	121	403
122-39-4	Diphenylamine	U	403	ug/kg	121	403
206-44-0	Fluoranthene	U	40.3	ug/kg	12.1	40.3
86-73-7	Fluorene	U	40.3	ug/kg	12.1	40.3
118-74-1	Hexachlorobenzene	U	403	ug/kg	121	403
87-68-3	Hexachlorobutadiene	U	403	ug/kg	121	403
77-47-4	Hexachlorocyclopentadiene	U	403	ug/kg	121	403
67-72-1	Hexachloroethane	U	403	ug/kg	121	403
193-39-5	Indeno(1,2,3-cd)pyrene	U	40.3	ug/kg	12.1	40.3
78-59-1	Isophorone	U	403	ug/kg	121	403
621-64-7	N-Nitrosodipropylamine	U	403	ug/kg	121	403
91-20-3	Naphthalene	U	40.3	ug/kg	12.1	40.3
98-95-3	Nitrobenzene	U	403	ug/kg	121	403
87-86-5	Pentachlorophenol	U	403	ug/kg	121	403
85-01-8	Phenanthrene	U	40.3	ug/kg	12.1	40.3
108-95-2	Phenol	U	403	ug/kg	121	403
129-00-0	Pyrene	U	40.3	ug/kg	12.1	40.3
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	403	ug/kg	121	403
111-91-1	bis(2-Chloroethoxy)methane	U	403	ug/kg	121	403
111-44-4	bis(2-Chloroethyl) ether	U	403	ug/kg	121	403
117-81-7	bis(2-Ethylhexyl)phthalate	U	403	ug/kg	121	403
65794-96-9	m,p-Cresols	U	403	ug/kg	121	403
99-09-2	m-Nitroaniline	U	403	ug/kg	121	403
95-48-7	o-Cresol	U	403	ug/kg	121	403
88-74-4	o-Nitroaniline	U	403	ug/kg	133	403
100-01-6	p-Nitroaniline	U	403	ug/kg	121	403

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 15:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1111.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	417	ug/kg	125	417
95-94-3	1,2,4,5-Tetrachlorobenzene	U	417	ug/kg	125	417
58-90-2	2,3,4,6-Tetrachlorophenol	U	417	ug/kg	125	417
95-95-4	2,4,5-Trichlorophenol	U	417	ug/kg	125	417
88-06-2	2,4,6-Trichlorophenol	U	417	ug/kg	125	417
120-83-2	2,4-Dichlorophenol	U	417	ug/kg	125	417
105-67-9	2,4-Dimethylphenol	U	417	ug/kg	125	417
51-28-5	2,4-Dinitrophenol	U	834	ug/kg	125	834
121-14-2	2,4-Dinitrotoluene	U	417	ug/kg	125	417
606-20-2	2,6-Dinitrotoluene	U	417	ug/kg	125	417
91-58-7	2-Chloronaphthalene	U	41.7	ug/kg	12.5	41.7
95-57-8	2-Chlorophenol	U	417	ug/kg	125	417
534-52-1	2-Methyl-4,6-dinitrophenol	U	417	ug/kg	125	417
91-57-6	2-Methylnaphthalene	U	41.7	ug/kg	12.5	41.7
88-75-5	2-Nitrophenol	U	417	ug/kg	125	417
91-94-1	3,3'-Dichlorobenzidine	U	417	ug/kg	125	417
101-55-3	4-Bromophenylphenylether	U	417	ug/kg	125	417
59-50-7	4-Chloro-3-methylphenol	U	417	ug/kg	167	417
106-47-8	4-Chloroaniline	U	417	ug/kg	125	417
7005-72-3	4-Chlorophenylphenylether	U	417	ug/kg	125	417
100-02-7	4-Nitrophenol	U	417	ug/kg	125	417
83-32-9	Acenaphthene	U	41.7	ug/kg	12.5	41.7
208-96-8	Acenaphthylene	U	41.7	ug/kg	12.5	41.7
98-86-2	Acetophenone	U	417	ug/kg	125	417
120-12-7	Anthracene	U	41.7	ug/kg	12.5	41.7
1912-24-9	Atrazine	U	417	ug/kg	167	417
100-52-7	Benzaldehyde	U	417	ug/kg	125	417
56-55-3	Benzo(a)anthracene	U	41.7	ug/kg	12.5	41.7
50-32-8	Benzo(a)pyrene	U	41.7	ug/kg	12.5	41.7
205-99-2	Benzo(b)fluoranthene	U	41.7	ug/kg	12.5	41.7
191-24-2	Benzo(ghi)perylene	U	41.7	ug/kg	12.5	41.7
207-08-9	Benzo(k)fluoranthene	U	41.7	ug/kg	12.5	41.7
85-68-7	Butylbenzylphthalate	U	417	ug/kg	125	417
105-60-2	Caprolactam	U	417	ug/kg	125	417
86-74-8	Carbazole	U	41.7	ug/kg	12.5	41.7
218-01-9	Chrysene	U	41.7	ug/kg	12.5	41.7
84-74-2	Di-n-butylphthalate	U	417	ug/kg	125	417
117-84-0	Di-n-octylphthalate	U	417	ug/kg	125	417

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 15:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1111.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	41.7	ug/kg	12.5	41.7
132-64-9	Dibenzofuran	U	417	ug/kg	125	417
84-66-2	Diethylphthalate	U	417	ug/kg	125	417
131-11-3	Dimethylphthalate	U	417	ug/kg	125	417
122-39-4	Diphenylamine	U	417	ug/kg	125	417
206-44-0	Fluoranthene	U	41.7	ug/kg	12.5	41.7
86-73-7	Fluorene	U	41.7	ug/kg	12.5	41.7
118-74-1	Hexachlorobenzene	U	417	ug/kg	125	417
87-68-3	Hexachlorobutadiene	U	417	ug/kg	125	417
77-47-4	Hexachlorocyclopentadiene	U	417	ug/kg	125	417
67-72-1	Hexachloroethane	U	417	ug/kg	125	417
193-39-5	Indeno(1,2,3-cd)pyrene	U	41.7	ug/kg	12.5	41.7
78-59-1	Isophorone	U	417	ug/kg	125	417
621-64-7	N-Nitrosodipropylamine	U	417	ug/kg	125	417
91-20-3	Naphthalene	U	41.7	ug/kg	12.5	41.7
98-95-3	Nitrobenzene	U	417	ug/kg	125	417
87-86-5	Pentachlorophenol	U	417	ug/kg	125	417
85-01-8	Phenanthrene	U	41.7	ug/kg	12.5	41.7
108-95-2	Phenol	U	417	ug/kg	125	417
129-00-0	Pyrene	U	41.7	ug/kg	12.5	41.7
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	417	ug/kg	125	417
111-91-1	bis(2-Chloroethoxy)methane	U	417	ug/kg	125	417
111-44-4	bis(2-Chloroethyl) ether	U	417	ug/kg	125	417
117-81-7	bis(2-Ethylhexyl)phthalate	U	417	ug/kg	125	417
65794-96-9	m,p-Cresols	U	417	ug/kg	125	417
99-09-2	m-Nitroaniline	U	417	ug/kg	125	417
95-48-7	o-Cresol	U	417	ug/kg	125	417
88-74-4	o-Nitroaniline	U	417	ug/kg	138	417
100-01-6	p-Nitroaniline	U	417	ug/kg	125	417

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 16:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.032 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1112.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	374	ug/kg	112	374
95-94-3	1,2,4,5-Tetrachlorobenzene	U	374	ug/kg	112	374
58-90-2	2,3,4,6-Tetrachlorophenol	U	374	ug/kg	112	374
95-95-4	2,4,5-Trichlorophenol	U	374	ug/kg	112	374
88-06-2	2,4,6-Trichlorophenol	U	374	ug/kg	112	374
120-83-2	2,4-Dichlorophenol	U	374	ug/kg	112	374
105-67-9	2,4-Dimethylphenol	U	374	ug/kg	112	374
51-28-5	2,4-Dinitrophenol	U	747	ug/kg	112	747
121-14-2	2,4-Dinitrotoluene	U	374	ug/kg	112	374
606-20-2	2,6-Dinitrotoluene	U	374	ug/kg	112	374
91-58-7	2-Chloronaphthalene	U	37.4	ug/kg	11.2	37.4
95-57-8	2-Chlorophenol	U	374	ug/kg	112	374
534-52-1	2-Methyl-4,6-dinitrophenol	U	374	ug/kg	112	374
91-57-6	2-Methylnaphthalene	U	37.4	ug/kg	11.2	37.4
88-75-5	2-Nitrophenol	U	374	ug/kg	112	374
91-94-1	3,3'-Dichlorobenzidine	U	374	ug/kg	112	374
101-55-3	4-Bromophenylphenylether	U	374	ug/kg	112	374
59-50-7	4-Chloro-3-methylphenol	U	374	ug/kg	149	374
106-47-8	4-Chloroaniline	U	374	ug/kg	112	374
7005-72-3	4-Chlorophenylphenylether	U	374	ug/kg	112	374
100-02-7	4-Nitrophenol	U	374	ug/kg	112	374
83-32-9	Acenaphthene	U	37.4	ug/kg	11.2	37.4
208-96-8	Acenaphthylene	U	37.4	ug/kg	11.2	37.4
98-86-2	Acetophenone	U	374	ug/kg	112	374
120-12-7	Anthracene	U	37.4	ug/kg	11.2	37.4
1912-24-9	Atrazine	U	374	ug/kg	149	374
100-52-7	Benzaldehyde	U	374	ug/kg	112	374
56-55-3	Benzo(a)anthracene	U	37.4	ug/kg	11.2	37.4
50-32-8	Benzo(a)pyrene	U	37.4	ug/kg	11.2	37.4
205-99-2	Benzo(b)fluoranthene	U	37.4	ug/kg	11.2	37.4
191-24-2	Benzo(ghi)perylene	U	37.4	ug/kg	11.2	37.4
207-08-9	Benzo(k)fluoranthene	U	37.4	ug/kg	11.2	37.4
85-68-7	Butylbenzylphthalate	U	374	ug/kg	112	374
105-60-2	Caprolactam	U	374	ug/kg	112	374
86-74-8	Carbazole	U	37.4	ug/kg	11.2	37.4
218-01-9	Chrysene	U	37.4	ug/kg	11.2	37.4
84-74-2	Di-n-butylphthalate	U	374	ug/kg	112	374
117-84-0	Di-n-octylphthalate	U	374	ug/kg	112	374

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 16:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.032 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1112.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	37.4	ug/kg	11.2	37.4
132-64-9	Dibenzofuran	U	374	ug/kg	112	374
84-66-2	Diethylphthalate	U	374	ug/kg	112	374
131-11-3	Dimethylphthalate	U	374	ug/kg	112	374
122-39-4	Diphenylamine	U	374	ug/kg	112	374
206-44-0	Fluoranthene	U	37.4	ug/kg	11.2	37.4
86-73-7	Fluorene	U	37.4	ug/kg	11.2	37.4
118-74-1	Hexachlorobenzene	U	374	ug/kg	112	374
87-68-3	Hexachlorobutadiene	U	374	ug/kg	112	374
77-47-4	Hexachlorocyclopentadiene	U	374	ug/kg	112	374
67-72-1	Hexachloroethane	U	374	ug/kg	112	374
193-39-5	Indeno(1,2,3-cd)pyrene	U	37.4	ug/kg	11.2	37.4
78-59-1	Isophorone	U	374	ug/kg	112	374
621-64-7	N-Nitrosodipropylamine	U	374	ug/kg	112	374
91-20-3	Naphthalene	U	37.4	ug/kg	11.2	37.4
98-95-3	Nitrobenzene	U	374	ug/kg	112	374
87-86-5	Pentachlorophenol	U	374	ug/kg	112	374
85-01-8	Phenanthrene	U	37.4	ug/kg	11.2	37.4
108-95-2	Phenol	U	374	ug/kg	112	374
129-00-0	Pyrene	U	37.4	ug/kg	11.2	37.4
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	374	ug/kg	112	374
111-91-1	bis(2-Chloroethoxy)methane	U	374	ug/kg	112	374
111-44-4	bis(2-Chloroethyl) ether	U	374	ug/kg	112	374
117-81-7	bis(2-Ethylhexyl)phthalate	U	374	ug/kg	112	374
65794-96-9	m,p-Cresols	U	374	ug/kg	112	374
99-09-2	m-Nitroaniline	U	374	ug/kg	112	374
95-48-7	o-Cresol	U	374	ug/kg	112	374
88-74-4	o-Nitroaniline	U	374	ug/kg	123	374
100-01-6	p-Nitroaniline	U	374	ug/kg	112	374

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 16:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.041 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1113.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	340	ug/kg	102	340
95-94-3	1,2,4,5-Tetrachlorobenzene	U	340	ug/kg	102	340
58-90-2	2,3,4,6-Tetrachlorophenol	U	340	ug/kg	102	340
95-95-4	2,4,5-Trichlorophenol	U	340	ug/kg	102	340
88-06-2	2,4,6-Trichlorophenol	U	340	ug/kg	102	340
120-83-2	2,4-Dichlorophenol	U	340	ug/kg	102	340
105-67-9	2,4-Dimethylphenol	U	340	ug/kg	102	340
51-28-5	2,4-Dinitrophenol	U	679	ug/kg	102	679
121-14-2	2,4-Dinitrotoluene	U	340	ug/kg	102	340
606-20-2	2,6-Dinitrotoluene	U	340	ug/kg	102	340
91-58-7	2-Chloronaphthalene	U	34.0	ug/kg	10.2	34.0
95-57-8	2-Chlorophenol	U	340	ug/kg	102	340
534-52-1	2-Methyl-4,6-dinitrophenol	U	340	ug/kg	102	340
91-57-6	2-Methylnaphthalene	U	34.0	ug/kg	10.2	34.0
88-75-5	2-Nitrophenol	U	340	ug/kg	102	340
91-94-1	3,3'-Dichlorobenzidine	U	340	ug/kg	102	340
101-55-3	4-Bromophenylphenylether	U	340	ug/kg	102	340
59-50-7	4-Chloro-3-methylphenol	U	340	ug/kg	136	340
106-47-8	4-Chloroaniline	U	340	ug/kg	102	340
7005-72-3	4-Chlorophenylphenylether	U	340	ug/kg	102	340
100-02-7	4-Nitrophenol	U	340	ug/kg	102	340
83-32-9	Acenaphthene	U	34.0	ug/kg	10.2	34.0
208-96-8	Acenaphthylene	U	34.0	ug/kg	10.2	34.0
98-86-2	Acetophenone	U	340	ug/kg	102	340
120-12-7	Anthracene	U	34.0	ug/kg	10.2	34.0
1912-24-9	Atrazine	U	340	ug/kg	136	340
100-52-7	Benzaldehyde	U	340	ug/kg	102	340
56-55-3	Benzo(a)anthracene	U	34.0	ug/kg	10.2	34.0
50-32-8	Benzo(a)pyrene	U	34.0	ug/kg	10.2	34.0
205-99-2	Benzo(b)fluoranthene	U	34.0	ug/kg	10.2	34.0
191-24-2	Benzo(ghi)perylene	U	34.0	ug/kg	10.2	34.0
207-08-9	Benzo(k)fluoranthene	U	34.0	ug/kg	10.2	34.0
85-68-7	Butylbenzylphthalate	U	340	ug/kg	102	340
105-60-2	Caprolactam	U	340	ug/kg	102	340
86-74-8	Carbazole	U	34.0	ug/kg	10.2	34.0
218-01-9	Chrysene	U	34.0	ug/kg	10.2	34.0
84-74-2	Di-n-butylphthalate	U	340	ug/kg	102	340
117-84-0	Di-n-octylphthalate	U	340	ug/kg	102	340

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 16:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.041 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1113.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	34.0	ug/kg	10.2	34.0
132-64-9	Dibenzofuran	U	340	ug/kg	102	340
84-66-2	Diethylphthalate	U	340	ug/kg	102	340
131-11-3	Dimethylphthalate	U	340	ug/kg	102	340
122-39-4	Diphenylamine	U	340	ug/kg	102	340
206-44-0	Fluoranthene	U	34.0	ug/kg	10.2	34.0
86-73-7	Fluorene	U	34.0	ug/kg	10.2	34.0
118-74-1	Hexachlorobenzene	U	340	ug/kg	102	340
87-68-3	Hexachlorobutadiene	U	340	ug/kg	102	340
77-47-4	Hexachlorocyclopentadiene	U	340	ug/kg	102	340
67-72-1	Hexachloroethane	U	340	ug/kg	102	340
193-39-5	Indeno(1,2,3-cd)pyrene	U	34.0	ug/kg	10.2	34.0
78-59-1	Isophorone	U	340	ug/kg	102	340
621-64-7	N-Nitrosodipropylamine	U	340	ug/kg	102	340
91-20-3	Naphthalene	U	34.0	ug/kg	10.2	34.0
98-95-3	Nitrobenzene	U	340	ug/kg	102	340
87-86-5	Pentachlorophenol	U	340	ug/kg	102	340
85-01-8	Phenanthrene	U	34.0	ug/kg	10.2	34.0
108-95-2	Phenol	U	340	ug/kg	102	340
129-00-0	Pyrene	U	34.0	ug/kg	10.2	34.0
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	340	ug/kg	102	340
111-91-1	bis(2-Chloroethoxy)methane	U	340	ug/kg	102	340
111-44-4	bis(2-Chloroethyl) ether	U	340	ug/kg	102	340
117-81-7	bis(2-Ethylhexyl)phthalate	U	340	ug/kg	102	340
65794-96-9	m,p-Cresols	U	340	ug/kg	102	340
99-09-2	m-Nitroaniline	U	340	ug/kg	102	340
95-48-7	o-Cresol	U	340	ug/kg	102	340
88-74-4	o-Nitroaniline	U	340	ug/kg	112	340
100-01-6	p-Nitroaniline	U	340	ug/kg	102	340

Quality Control Summary

Surrogate Recovery Report

SDG Number: 409254

Matrix Type: SOLID

Sample ID	Client ID	5-alpha %REC	
1203661742	MB for batch 1612776	103	
1203661743	LCS for batch 1612776	97	
1203661744	SD140300MS	88	
409254013	SD140300	99	
1203661745	SD140300MSD	82	
409254014	SD140200	81	
409254015	SD140100	80	
409254016	SD140100DUP	78	
409254017	DP100113	91	
409254018	DP100212	85	
409254019	DP100310	86	
409254026	DP050113	79	
409254027	DP050213	99	
409254028	SS050100	0 *	D

Surrogate	Acceptance Limits
5-alpha- = 5-alpha-Androstane	(30%-118%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Surrogate Recovery Report

SDG Number: 409254

Matrix Type: SOLID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1203665318	MB for batch 1614269	55	62	80	83	66	74
1203665319	LCS for batch 1614269	69	75	85	82	82	80
409254029	DP020312	51	58	73	74	63	72
409254032	DP020413	54	62	77	82	70	83
409254034	DP020207	53	64	82	83	64	80
409254036	DP020209	57	66	87	87	68	86
409254038	DP020114	52	61	81	80	62	74

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(36%-104%)
PHL	= Phenol-d5	(39%-106%)
NBZ	= Nitrobenzene-d5	(34%-109%)
FBP	= 2-Fluorobiphenyl	(35%-107%)
TBP	= 2,4,6-Tribromophenol	(39%-115%)
TPH	= p-Terphenyl-d14	(45%-119%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612776
Matrix: SOIL
Lab Sample ID 1203661743
Instrument: MSD4.I
Analysis Date: 11/07/2016 09:29
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1612776
Inj. Vol: 1 uL
Batch ID: 1612777

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
91-57-6	LCS	2-Methylnaphthalene	333	0.0	287	86	53-102
91-20-3	LCS	Naphthalene	333	0.0	277	83	57-98
90-12-0	LCS	1-Methylnaphthalene	333	0.0	318	95	55-116
91-58-7	LCS	2-Chloronaphthalene	333	0.0	241	72	50-108
208-96-8	LCS	Acenaphthylene	333	0.0	272	82	48-107
83-32-9	LCS	Acenaphthene	333	0.0	293	88	55-99
86-73-7	LCS	Fluorene	333	0.0	295	89	47-106
85-01-8	LCS	Phenanthrene	333	0.0	273	82	53-97
120-12-7	LCS	Anthracene	333	0.0	280	84	52-102
206-44-0	LCS	Fluoranthene	333	0.0	331	99	39-108
129-00-0	LCS	Pyrene	333	0.0	284	85	41-114
56-55-3	LCS	Benzo(a)anthracene	333	0.0	316	95	51-108
218-01-9	LCS	Chrysene	333	0.0	312	94	54-103
205-99-2	LCS	Benzo(b)fluoranthene	333	0.0	343	103	36-120
207-08-9	LCS	Benzo(k)fluoranthene	333	0.0	348	105	26-121
50-32-8	LCS	Benzo(a)pyrene	333	0.0	333	100	35-121
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	333	0.0	250	75	41-130
53-70-3	LCS	Dibenzo(a,h)anthracene	333	0.0	266	80	35-142
191-24-2	LCS	Benzo(ghi)perylene	333	0.0	230	69	39-119

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: SD140300MS
Lab Sample ID 1203661744
Instrument: MSD4.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: SOIL
%Moisture: 36.6
Analysis Date: 11/07/2016 10:26
Prep Batch ID: 1612776
Batch ID: 1612777
Dilution: 1

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits
85-01-8	MS	Phenanthrene	525	3.68	J	459	87	35-119
206-44-0	MS	Fluoranthene	525	3.15	J	486	92	28-116
129-00-0	MS	Pyrene	525	2.63	J	445	84	30-131
91-57-6	MS	2-Methylnaphthalene	525	0.00	U	471	90	31-119
91-20-3	MS	Naphthalene	525	0.00	U	454	86	33-117
90-12-0	MS	1-Methylnaphthalene	525	0.00	U	524	100	40-127
91-58-7	MS	2-Chloronaphthalene	525	0.00	U	407	78	42-115
208-96-8	MS	Acenaphthylene	525	0.00	U	448	85	39-116
83-32-9	MS	Acenaphthene	525	0.00	U	487	93	38-117
86-73-7	MS	Fluorene	525	0.00	U	489	93	33-123
120-12-7	MS	Anthracene	525	0.00	U	470	89	36-120
56-55-3	MS	Benzo(a)anthracene	525	0.00	U	507	96	41-118
218-01-9	MS	Chrysene	525	0.00	U	499	95	42-113
205-99-2	MS	Benzo(b)fluoranthene	525	0.00	U	534	102	28-126
207-08-9	MS	Benzo(k)fluoranthene	525	0.00	U	552	105	24-122
50-32-8	MS	Benzo(a)pyrene	525	0.00	U	535	102	27-126
193-39-5	MS	Indeno(1,2,3-cd)pyrene	525	0.00	U	390	74	17-133
53-70-3	MS	Dibenzo(a,h)anthracene	525	0.00	U	435	83	18-146
191-24-2	MS	Benzo(ghi)perylene	525	0.00	U	360	69	17-118

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: SD140300MSD
Lab Sample ID 1203661745
Instrument: MSD4.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 36.6
Analysis Date: 11/07/2016 11:22
Prep Batch ID: 1612776
Batch ID: 1612777
Dilution: 1

CAS No	Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
85-01-8	MSD Phenanthrene	525	3.68	J	435	82	35-119	5	0-30
206-44-0	MSD Fluoranthene	525	3.15	J	462	87	28-116	5	0-30
129-00-0	MSD Pyrene	525	2.63	J	513	97	30-131	14	0-30
91-57-6	MSD 2-Methylnaphthalene	525	0.00	U	458	87	31-119	3	0-30
91-20-3	MSD Naphthalene	525	0.00	U	434	83	33-117	4	0-30
90-12-0	MSD 1-Methylnaphthalene	525	0.00	U	508	97	40-127	3	0-30
91-58-7	MSD 2-Chloronaphthalene	525	0.00	U	387	74	42-115	5	0-30
208-96-8	MSD Acenaphthylene	525	0.00	U	435	83	39-116	3	0-30
83-32-9	MSD Acenaphthene	525	0.00	U	468	89	38-117	4	0-30
86-73-7	MSD Fluorene	525	0.00	U	474	90	33-123	3	0-30
120-12-7	MSD Anthracene	525	0.00	U	451	86	36-120	4	0-30
56-55-3	MSD Benzo(a)anthracene	525	0.00	U	507	97	41-118	0	0-30
218-01-9	MSD Chrysene	525	0.00	U	497	95	42-113	0	0-30
205-99-2	MSD Benzo(b)fluoranthene	525	0.00	U	554	106	28-126	4	0-30
207-08-9	MSD Benzo(k)fluoranthene	525	0.00	U	533	102	24-122	3	0-30
50-32-8	MSD Benzo(a)pyrene	525	0.00	U	532	101	27-126	1	0-30
193-39-5	MSD Indeno(1,2,3-cd)pyrene	525	0.00	U	412	78	17-133	6	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	525	0.00	U	459	87	18-146	5	0-30
191-24-2	MSD Benzo(ghi)perylene	525	0.00	U	381	72	17-118	6	0-30

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1614269
Matrix: SOIL
Lab Sample ID 1203665319
Instrument: MSD1.I
Analysis Date: 11/10/2016 18:32
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1614269
Inj. Vol: 1 uL
Batch ID: 1614270

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
108-95-2	LCS	Phenol	1670	0.0	1350	81	54-106
111-44-4	LCS	bis(2-Chloroethyl) ether	1670	0.0	1450	87	50-111
95-57-8	LCS	2-Chlorophenol	1670	0.0	1440	87	54-106
108-60-1	LCS	bis(2-Chloro-1-methylethyl)et	1670	0.0	1650	99	44-128
95-48-7	LCS	o-Cresol	1670	0.0	1450	87	54-108
65794-96-9	LCS	m,p-Cresols	1670	0.0	1440	87	56-122
621-64-7	LCS	N-Nitrosodipropylamine	1670	0.0	1460	88	51-111
67-72-1	LCS	Hexachloroethane	1670	0.0	1420	85	51-105
98-95-3	LCS	Nitrobenzene	1670	0.0	1590	95	55-111
78-59-1	LCS	Isophorone	1670	0.0	1520	91	41-134
88-75-5	LCS	2-Nitrophenol	1670	0.0	1470	88	53-109
105-67-9	LCS	2,4-Dimethylphenol	1670	0.0	1390	84	53-103
111-91-1	LCS	bis(2-Chloroethoxy)methane	1670	0.0	1490	90	52-110
120-83-2	LCS	2,4-Dichlorophenol	1670	0.0	1530	92	55-105
106-47-8	LCS	4-Chloroaniline	1670	0.0	1180	71	38-99
87-68-3	LCS	Hexachlorobutadiene	1670	0.0	1420	85	52-112
59-50-7	LCS	4-Chloro-3-methylphenol	1670	0.0	1450	87	56-111
91-57-6	LCS	2-Methylnaphthalene	1670	0.0	1380	83	50-105
91-20-3	LCS	Naphthalene	1670	0.0	1430	86	54-106
77-47-4	LCS	Hexachlorocyclopentadiene	1670	0.0	1090	66	38-83
88-06-2	LCS	2,4,6-Trichlorophenol	1670	0.0	1420	85	54-112
95-95-4	LCS	2,4,5-Trichlorophenol	1670	0.0	1550	93	58-108

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: LCS for batch 1614269
Lab Sample ID 1203665319
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Laboratory Control Sample
Matrix: SOIL
Analysis Date: 11/10/2016 18:32
Prep Batch ID: 1614269
Batch ID: 1614270
Dilution: 1

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
91-58-7	LCS	2-Chloronaphthalene	1670	0.0	1280	77	55-102
88-74-4	LCS	o-Nitroaniline	1670	0.0	1640	99	53-110
99-09-2	LCS	m-Nitroaniline	1670	0.0	1510	91	42-112
131-11-3	LCS	Dimethylphthalate	1670	0.0	1510	91	59-109
606-20-2	LCS	2,6-Dinitrotoluene	1670	0.0	1660	100	59-109
121-14-2	LCS	2,4-Dinitrotoluene	1670	0.0	1590	96	57-114
208-96-8	LCS	Acenaphthylene	1670	0.0	1550	93	55-107
83-32-9	LCS	Acenaphthene	1670	0.0	1560	94	57-104
51-28-5	LCS	2,4-Dinitrophenol	1670	0.0	871	52	26-113
132-64-9	LCS	Dibenzofuran	1670	0.0	1500	90	55-105
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	1670	0.0	1550	93	57-116
84-66-2	LCS	Diethylphthalate	1670	0.0	1470	88	59-111
100-02-7	LCS	4-Nitrophenol	1670	0.0	1370	82	42-116
86-73-7	LCS	Fluorene	1670	0.0	1530	92	54-108
7005-72-3	LCS	4-Chlorophenylphenylether	1670	0.0	1510	91	53-119
100-01-6	LCS	p-Nitroaniline	1670	0.0	1720	103	41-126
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	1670	0.0	906	54	35-110
122-39-4	LCS	Diphenylamine	1670	0.0	1440	87	56-102
101-55-3	LCS	4-Bromophenylphenylether	1670	0.0	1390	84	56-110
118-74-1	LCS	Hexachlorobenzene	1670	0.0	1340	80	56-103
87-86-5	LCS	Pentachlorophenol	1670	0.0	1120	67	44-111
85-01-8	LCS	Phenanthrene	1670	0.0	1470	89	58-101

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1614269
Matrix: SOIL
Lab Sample ID 1203665319
Instrument: MSD1.I
Analysis Date: 11/10/2016 18:32
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1614269
Inj. Vol: 1 uL
Batch ID: 1614270

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
120-12-7	LCS	Anthracene	1670	0.0	1490	89	58-102
86-74-8	LCS	Carbazole	1670	0.0	1580	95	58-113
84-74-2	LCS	Di-n-butylphthalate	1670	0.0	1410	85	58-127
206-44-0	LCS	Fluoranthene	1670	0.0	1430	86	56-114
129-00-0	LCS	Pyrene	1670	0.0	1310	79	50-109
85-68-7	LCS	Butylbenzylphthalate	1670	0.0	1480	89	57-117
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	1670	0.0	1490	89	58-122
56-55-3	LCS	Benzo(a)anthracene	1670	0.0	1540	93	60-106
218-01-9	LCS	Chrysene	1670	0.0	1590	96	62-111
117-84-0	LCS	Di-n-octylphthalate	1670	0.0	1500	90	53-128
205-99-2	LCS	Benzo(b)fluoranthene	1670	0.0	1410	85	40-115
207-08-9	LCS	Benzo(k)fluoranthene	1670	0.0	1400	84	41-117
50-32-8	LCS	Benzo(a)pyrene	1670	0.0	1490	90	41-115
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	1670	0.0	1340	80	36-123
53-70-3	LCS	Dibenzo(a,h)anthracene	1670	0.0	1570	95	39-129
191-24-2	LCS	Benzo(ghi)perylene	1670	0.0	1510	91	35-126
100-52-7	LCS	Benzaldehyde	1670	0.0	433	26	25-79
98-86-2	LCS	Acetophenone	1670	0.0	1600	96	53-112
105-60-2	LCS	Caprolactam	1670	0.0	1720	103	53-121
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	1670	0.0	1460	87	52-109
92-52-4	LCS	1,1'-Biphenyl	1670	0.0	1870	112	54-113
1912-24-9	LCS	Atrazine	1670	0.0	1500	90	53-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1614269
Matrix: SOIL
Lab Sample ID 1203665319
Instrument: MSD1.I
Analysis Date: 11/10/2016 18:32
Dilution: 1
Analyst: JMB3
Prep Batch ID: 1614269
Inj. Vol: 1 uL
Batch ID: 1614270

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
91-94-1	LCS	3,3'-Dichlorobenzidine	1670	0.0	1390	83	36-111

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: WST03-17-127184MS
Lab Sample ID 1203665320
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: SO
%Moisture: 84.5
Analysis Date: 11/10/2016 19:41
Prep Batch ID: 1614269
Batch ID: 1614270
Dilution: 1

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits
108-95-2	MS	Phenol	10700	0.00	U	7090	66	34-109
111-44-4	MS	bis(2-Chloroethyl) ether	10700	0.00	U	7650	71	35-108
95-57-8	MS	2-Chlorophenol	10700	0.00	U	5910	55	36-107
108-60-1	MS	bis(2-Chloro-1-methylethyl)et	10700	0.00	U	8560	80	30-121
95-48-7	MS	o-Cresol	10700	0.00	U	7720	72	35-111
65794-96-9	MS	m,p-Cresols	10700	0.00	U	7730	72	40-123
621-64-7	MS	N-Nitrosodipropylamine	10700	0.00	U	7720	72	36-108
67-72-1	MS	Hexachloroethane	10700	0.00	U	6410	60	29-101
98-95-3	MS	Nitrobenzene	10700	0.00	U	8230	77	36-111
78-59-1	MS	Isophorone	10700	0.00	U	8000	75	20-130
88-75-5	MS	2-Nitrophenol	10700	0.00	U	1530	14 *	36-108
105-67-9	MS	2,4-Dimethylphenol	10700	0.00	U	8060	75	37-103
111-91-1	MS	bis(2-Chloroethoxy)methane	10700	0.00	U	7940	74	38-107
120-83-2	MS	2,4-Dichlorophenol	10700	0.00	U	5300	49	38-107
106-47-8	MS	4-Chloroaniline	10700	0.00	U	9110	85	30-94
87-68-3	MS	Hexachlorobutadiene	10700	0.00	U	6750	63	34-108
59-50-7	MS	4-Chloro-3-methylphenol	10700	0.00	U	7680	72	44-114
91-57-6	MS	2-Methylnaphthalene	10700	0.00	U	7720	72	34-107
91-20-3	MS	Naphthalene	10700	0.00	U	7450	69	34-108
77-47-4	MS	Hexachlorocyclopentadiene	10700	0.00	U	3020	28	24-80
88-06-2	MS	2,4,6-Trichlorophenol	10700	0.00	U	2730	25 *	38-116
95-95-4	MS	2,4,5-Trichlorophenol	10700	0.00	U	3750	35 *	44-113

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: WST03-17-127184MS
Lab Sample ID 1203665320
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: SO
%Moisture: 84.5
Analysis Date: 11/10/2016 19:41
Prep Batch ID: 1614269
Batch ID: 1614270
Dilution: 1

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits
91-58-7	MS	2-Chloronaphthalene	10700	0.00	U	6920	65	36-106
88-74-4	MS	o-Nitroaniline	10700	0.00	U	9500	89	39-114
99-09-2	MS	m-Nitroaniline	10700	0.00	U	10300	96	33-113
131-11-3	MS	Dimethylphthalate	10700	0.00	U	8900	83	42-114
606-20-2	MS	2,6-Dinitrotoluene	10700	0.00	U	9750	91	44-113
121-14-2	MS	2,4-Dinitrotoluene	10700	0.00	U	9610	90	46-116
208-96-8	MS	Acenaphthylene	10700	0.00	U	8450	79	41-108
83-32-9	MS	Acenaphthene	10700	0.00	U	8490	79	35-113
51-28-5	MS	2,4-Dinitrophenol	10700	0.00	U	0.00	0 *	13-121
132-64-9	MS	Dibenzofuran	10700	0.00	U	8630	80	38-111
58-90-2	MS	2,3,4,6-Tetrachlorophenol	10700	0.00	U	3210	30 *	42-122
84-66-2	MS	Diethylphthalate	10700	137	U	8720	80	46-114
100-02-7	MS	4-Nitrophenol	10700	0.00	U	0.00	0 *	27-123
86-73-7	MS	Fluorene	10700	0.00	U	8760	82	38-114
7005-72-3	MS	4-Chlorophenylphenylether	10700	0.00	U	8320	78	41-121
100-01-6	MS	p-Nitroaniline	10700	0.00	U	9480	88	28-126
534-52-1	MS	2-Methyl-4,6-dinitrophenol	10700	0.00	U	0.00	0 *	25-117
122-39-4	MS	Diphenylamine	10700	0.00	U	8080	75	43-109
101-55-3	MS	4-Bromophenylphenylether	10700	0.00	U	8020	75	42-116
118-74-1	MS	Hexachlorobenzene	10700	0.00	U	7840	73	44-106
87-86-5	MS	Pentachlorophenol	10700	0.00	U	1550	14 *	34-116
85-01-8	MS	Phenanthrene	10700	0.00	U	8670	81	36-116

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: WST03-17-127184MS
Lab Sample ID 1203665320
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: SO
%Moisture: 84.5
Analysis Date: 11/10/2016 19:41
Prep Batch ID: 1614269
Batch ID: 1614270
Dilution: 1

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits
120-12-7	MS	Anthracene	10700	0.00	U	8670	81	41-111
86-74-8	MS	Carbazole	10700	0.00	U	9300	87	43-116
84-74-2	MS	Di-n-butylphthalate	10700	0.00	U	8310	77	45-119
206-44-0	MS	Fluoranthene	10700	0.00	U	8550	80	41-115
129-00-0	MS	Pyrene	10700	0.00	U	7700	72	36-125
85-68-7	MS	Butylbenzylphthalate	10700	0.00	U	8720	81	43-130
117-81-7	MS	bis(2-Ethylhexyl)phthalate	10700	133	U	8850	81	41-132
56-55-3	MS	Benzo(a)anthracene	10700	0.00	U	8870	83	42-115
218-01-9	MS	Chrysene	10700	0.00	U	9240	86	42-121
117-84-0	MS	Di-n-octylphthalate	10700	0.00	U	8840	82	41-129
205-99-2	MS	Benzo(b)fluoranthene	10700	0.00	U	7600	71	30-124
207-08-9	MS	Benzo(k)fluoranthene	10700	0.00	U	8040	75	30-128
50-32-8	MS	Benzo(a)pyrene	10700	0.00	U	8160	76	32-119
193-39-5	MS	Indeno(1,2,3-cd)pyrene	10700	0.00	U	6740	63	15-126
53-70-3	MS	Dibenzo(a,h)anthracene	10700	0.00	U	7960	74	20-129
191-24-2	MS	Benzo(ghi)perylene	10700	0.00	U	7530	70	13-126
100-52-7	MS	Benzaldehyde	10700	0.00	U	1060	10 *	19-93
98-86-2	MS	Acetophenone	10700	0.00	U	8440	79	37-109
105-60-2	MS	Caprolactam	10700	0.00	U	10000	93	39-125
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	10700	0.00	U	7920	74	36-109
92-52-4	MS	1,1'-Biphenyl	10700	0.00	U	10100	94	35-115
1912-24-9	MS	Atrazine	10700	0.00	U	8880	83	49-126

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: WST03-17-127184MS
Lab Sample ID 1203665320
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike
Matrix: SO
%Moisture: 84.5
Analysis Date: 11/10/2016 19:41
Prep Batch ID: 1614269
Batch ID: 1614270

Dilution: 1

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits
91-94-1	MS	3,3'-Dichlorobenzidine	10700	0.00	U	8160	76	25-108

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: WST03-17-127184MSD
Lab Sample ID 1203665321
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: SO
%Moisture: 84.5
Analysis Date: 11/10/2016 20:15
Prep Batch ID: 1614269
Batch ID: 1614270
Dilution: 1

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
108-95-2	MSD	Phenol	10700	0.00	U	7290	68	34-109	3	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	10700	0.00	U	7510	70	35-108	2	0-30
95-57-8	MSD	2-Chlorophenol	10700	0.00	U	6790	63	36-107	14	0-30
108-60-1	MSD	bis(2-Chloro-1-methylethyl)et	10700	0.00	U	8600	80	30-121	1	0-30
95-48-7	MSD	o-Cresol	10700	0.00	U	8120	76	35-111	5	0-30
65794-96-9	MSD	m,p-Cresols	10700	0.00	U	8020	75	40-123	4	0-30
621-64-7	MSD	N-Nitrosodipropylamine	10700	0.00	U	7790	73	36-108	1	0-30
67-72-1	MSD	Hexachloroethane	10700	0.00	U	6140	57	29-101	4	0-30
98-95-3	MSD	Nitrobenzene	10700	0.00	U	8300	77	36-111	1	0-30
78-59-1	MSD	Isophorone	10700	0.00	U	8450	79	20-130	5	0-30
88-75-5	MSD	2-Nitrophenol	10700	0.00	U	1910	18 *	36-108	22	0-30
105-67-9	MSD	2,4-Dimethylphenol	10700	0.00	U	8270	77	37-103	3	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	10700	0.00	U	8320	78	38-107	5	0-30
120-83-2	MSD	2,4-Dichlorophenol	10700	0.00	U	6960	65	38-107	27	0-30
106-47-8	MSD	4-Chloroaniline	10700	0.00	U	8570	80	30-94	6	0-30
87-68-3	MSD	Hexachlorobutadiene	10700	0.00	U	7130	66	34-108	5	0-30
59-50-7	MSD	4-Chloro-3-methylphenol	10700	0.00	U	8790	82	44-114	13	0-30
91-57-6	MSD	2-Methylnaphthalene	10700	0.00	U	7830	73	34-107	1	0-30
91-20-3	MSD	Naphthalene	10700	0.00	U	7610	71	34-108	2	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	10700	0.00	U	2090	20 *	24-80	36 *	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	10700	0.00	U	5150	48	38-116	62 *	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	10700	0.00	U	6650	62	44-113	56 *	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: WST03-17-127184MSD
Lab Sample ID 1203665321
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: SO
%Moisture: 84.5
Analysis Date: 11/10/2016 20:15
Prep Batch ID: 1614269
Batch ID: 1614270
Dilution: 1

CAS No	Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
91-58-7	MSD 2-Chloronaphthalene	10700	0.00	U	7320	68	36-106	6	0-30
88-74-4	MSD o-Nitroaniline	10700	0.00	U	9870	92	39-114	4	0-30
99-09-2	MSD m-Nitroaniline	10700	0.00	U	10700	99	33-113	4	0-30
131-11-3	MSD Dimethylphthalate	10700	0.00	U	9710	91	42-114	9	0-30
606-20-2	MSD 2,6-Dinitrotoluene	10700	0.00	U	10200	95	44-113	4	0-30
121-14-2	MSD 2,4-Dinitrotoluene	10700	0.00	U	10300	96	46-116	7	0-30
208-96-8	MSD Acenaphthylene	10700	0.00	U	9040	84	41-108	7	0-30
83-32-9	MSD Acenaphthene	10700	0.00	U	9230	86	35-113	8	0-30
51-28-5	MSD 2,4-Dinitrophenol	10700	0.00	U	0.00	0 *	13-121	0	0-30
132-64-9	MSD Dibenzofuran	10700	0.00	U	9160	85	38-111	6	0-30
58-90-2	MSD 2,3,4,6-Tetrachlorophenol	10700	0.00	U	6980	65	42-122	74 *	0-30
84-66-2	MSD Diethylphthalate	10700	137	U	9500	87	46-114	9	0-30
100-02-7	MSD 4-Nitrophenol	10700	0.00	U	0.00	0 *	27-123	0	0-30
86-73-7	MSD Fluorene	10700	0.00	U	9380	87	38-114	7	0-30
7005-72-3	MSD 4-Chlorophenylphenylether	10700	0.00	U	9070	85	41-121	9	0-30
100-01-6	MSD p-Nitroaniline	10700	0.00	U	9840	92	28-126	4	0-30
534-52-1	MSD 2-Methyl-4,6-dinitrophenol	10700	0.00	U	2980	28	25-117	200 *	0-30
122-39-4	MSD Diphenylamine	10700	0.00	U	8880	83	43-109	9	0-30
101-55-3	MSD 4-Bromophenylphenylether	10700	0.00	U	8710	81	42-116	8	0-30
118-74-1	MSD Hexachlorobenzene	10700	0.00	U	8710	81	44-106	10	0-30
87-86-5	MSD Pentachlorophenol	10700	0.00	U	3570	33 *	34-116	79 *	0-30
85-01-8	MSD Phenanthrene	10700	0.00	U	9500	89	36-116	9	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: WST03-17-127184MSD
Lab Sample ID 1203665321
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: SO
%Moisture: 84.5
Analysis Date: 11/10/2016 20:15
Dilution: 1
Prep Batch ID: 1614269
Batch ID: 1614270

CAS No	Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
120-12-7	MSD Anthracene	10700	0.00	U	9500	89	41-111	9	0-30
86-74-8	MSD Carbazole	10700	0.00	U	9890	92	43-116	6	0-30
84-74-2	MSD Di-n-butylphthalate	10700	0.00	U	9220	86	45-119	10	0-30
206-44-0	MSD Fluoranthene	10700	0.00	U	9290	87	41-115	8	0-30
129-00-0	MSD Pyrene	10700	0.00	U	9020	84	36-125	16	0-30
85-68-7	MSD Butylbenzylphthalate	10700	0.00	U	10200	95	43-130	15	0-30
117-81-7	MSD bis(2-Ethylhexyl)phthalate	10700	133	U	10500	96	41-132	17	0-30
56-55-3	MSD Benzo(a)anthracene	10700	0.00	U	10100	95	42-115	13	0-30
218-01-9	MSD Chrysene	10700	0.00	U	10400	97	42-121	12	0-30
117-84-0	MSD Di-n-octylphthalate	10700	0.00	U	9760	91	41-129	10	0-30
205-99-2	MSD Benzo(b)fluoranthene	10700	0.00	U	9230	86	30-124	19	0-30
207-08-9	MSD Benzo(k)fluoranthene	10700	0.00	U	9280	86	30-128	14	0-30
50-32-8	MSD Benzo(a)pyrene	10700	0.00	U	9460	88	32-119	15	0-30
193-39-5	MSD Indeno(1,2,3-cd)pyrene	10700	0.00	U	7970	74	15-126	17	0-30
53-70-3	MSD Dibenzo(a,h)anthracene	10700	0.00	U	9260	86	20-129	15	0-30
191-24-2	MSD Benzo(ghi)perylene	10700	0.00	U	8770	82	13-126	15	0-30
100-52-7	MSD Benzaldehyde	10700	0.00	U	1290	12 *	19-93	20	0-30
98-86-2	MSD Acetophenone	10700	0.00	U	8510	79	37-109	1	0-30
105-60-2	MSD Caprolactam	10700	0.00	U	10900	102	39-125	9	0-30
95-94-3	MSD 1,2,4,5-Tetrachlorobenzene	10700	0.00	U	8250	77	36-109	4	0-30
92-52-4	MSD 1,1'-Biphenyl	10700	0.00	U	10700	99	35-115	5	0-30
1912-24-9	MSD Atrazine	10700	0.00	U	9840	92	49-126	10	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: WST03-17-127184MSD
Lab Sample ID 1203665321
Instrument: MSD1.I
Analyst: JMB3
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: SO
%Moisture: 84.5
Analysis Date: 11/10/2016 20:15
Prep Batch ID: 1614269
Batch ID: 1614270
Dilution: 1

CAS No	Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
91-94-1	MSD 3,3'-Dichlorobenzidine	10700	0.00	U	8810	82	25-108	8	0-30

Method Blank Summary

SDG Number:	**409254**	**Client:**	**HAAL002**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 1612776**	**Instrument ID:**	**MSD4.I**	**Data File:**	**s110716.B\s4k0703.D**
Lab Sample ID:	**1203661742**	**Prep Date:**	**11/04/2016 08:33**	**Analyzed:**	**11/07/16 09:01**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1612776	1203661743	s110716.B\s4k0704.D	11/07/16	0929
02	SD140300MS	1203661744	s110716.B\s4k0706.D	11/07/16	1026
03	SD140300	409254013	s110716.B\s4k0707.D	11/07/16	1054
04	SD140300MSD	1203661745	s110716.B\s4k0708.D	11/07/16	1122
05	SD140200	409254014	s110716.B\s4k0709.D	11/07/16	1151
06	SD140100	409254015	s110716.B\s4k0710.D	11/07/16	1219
07	SD140100DUP	409254016	s110716.B\s4k0711.D	11/07/16	1247
08	DP100113	409254017	s110716.B\s4k0712.D	11/07/16	1316
09	DP100212	409254018	s110716.B\s4k0713.D	11/07/16	1344
10	DP100310	409254019	s110716.B\s4k0714.D	11/07/16	1412
11	DP050113	409254026	s110716.B\s4k0715.D	11/07/16	1441
12	DP050213	409254027	s110716.B\s4k0716.D	11/07/16	1509
13	SS050100	409254028	s110716.B\s4k0717.D	11/07/16	1538

Method Blank Summary

SDG Number:	**409254**	**Client:**	**HAAL002**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 1614269**	**Instrument ID:**	**MSD1.I**	**Data File:**	**s111016.B\s1k1016.D**
Lab Sample ID:	**1203665318**	**Prep Date:**	**11/08/2016 12:02**	**Analyzed:**	**11/10/16 17:58**
Column:	**25x.20x.33**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1614269	1203665319	s111016.B\s1k1017.D	11/10/16	1832
04	DP020312	409254029	s111116.B\s1k1109.D	11/11/16	1451
05	DP020413	409254032	s111116.B\s1k1110.D	11/11/16	1521
06	DP020207	409254034	s111116.B\s1k1111.D	11/11/16	1551
07	DP020209	409254036	s111116.B\s1k1112.D	11/11/16	1621
08	DP020114	409254038	s111116.B\s1k1113.D	11/11/16	1651

Instrument Performance Check

DFTPP

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: MSD1.I **Injection Date/Time:** 29-SEP-16 09:17

Column Description: 25x.20x.33 **Lab File ID** s092916.B\s1i2901.D

m/e	Ion Abundance Criteria	% Relative Abundance
51	10 - 80% of mass 198	50.2
68	Less than 2% of mass 69	1.7
69	Mass 69 Relative Abundance	41.9
70	Less than 2% of mass 69	0.3
127	10 - 80% of mass 198	47.8
197	Less than 2% of mass 198	0.7
198	Base Peak, 100% Relative Abundance	100
199	5 - 9% of mass 198	7.3
275	10 - 60% of mass 198	27.7
365	Greater than 1% of mass 198	3.1
441	Less than 24% of mass 442	16
442	Greater than 50% of mass 198	83.4
443	15 - 24% of mass 442	21

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
ICALMIX[A]	WBN160920-08	s092916.B\s1i2903.D	29-SEP-16 10:05
ICALMIX[A]	WBN160920-07	s092916.B\s1i2904.D	29-SEP-16 10:35
ICALMIX[A]	WBN160920-06	s092916.B\s1i2905.D	29-SEP-16 11:09
ICALMIX[A]	WBN160920-04	s092916.B\s1i2907.D	29-SEP-16 12:18
ICALMIX[A]	WBN160920-03	s092916.B\s1i2908.D	29-SEP-16 12:52
ICALMIX[A]	WBN160920-02	s092916.B\s1i2909.D	29-SEP-16 13:26
ICALMIX[A]	WBN160920-01	s092916.B\s1i2910.D	29-SEP-16 14:01
ICALMIX[A]	WBN160920-05.1	s092916.B\s1i2913.D	29-SEP-16 15:44
ICVMIX[A]01	WBN160920-09.1	s092916.B\s1i2914.D	29-SEP-16 16:19

Instrument Performance Check

DFTPP

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: MSD1.I **Injection Date/Time:** 29-SEP-16 16:52

Column Description: 25x.20x.33 **Lab File ID** s092916.B\s1i2915.D

m/e	Ion Abundance Criteria	% Relative Abundance
51	10 - 80% of mass 198	47.8
68	Less than 2% of mass 69	1.7
69	Mass 69 Relative Abundance	41.5
70	Less than 2% of mass 69	0.5
127	10 - 80% of mass 198	47.2
197	Less than 2% of mass 198	0.7
198	Base Peak, 100% Relative Abundance	100
199	5 - 9% of mass 198	7.2
275	10 - 60% of mass 198	26.8
365	Greater than 1% of mass 198	2.9
441	Less than 24% of mass 442	16.2
442	Greater than 50% of mass 198	86
443	15 - 24% of mass 442	19.8

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
ICALMIX[B]	WBN160921-17	s092916.B\s1i2917.D	29-SEP-16 17:40
ICALMIX[B]	WBN160921-16	s092916.B\s1i2918.D	29-SEP-16 18:09
ICALMIX[B]	WBN160921-15.1	s092916.B\s1i2919.D	29-SEP-16 18:39
ICALMIX[B]	WBN160921-14	s092916.B\s1i2920.D	29-SEP-16 19:09
ICALMIX[B]	WBN160921-13	s092916.B\s1i2921.D	29-SEP-16 19:38
ICALMIX[B]	WBN160921-12.1	s092916.B\s1i2922.D	29-SEP-16 20:08
ICALMIX[B]	WBN160921-11	s092916.B\s1i2923.D	29-SEP-16 20:38

Instrument Performance Check

DFTPP

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: MSD1.I **Injection Date/Time:** 30-SEP-16 01:35

Column Description: 25x.20x.33 **Lab File ID** s092916.B\s1i2933.D

m/e	Ion Abundance Criteria	% Relative Abundance
51	10 - 80% of mass 198	45.8
68	Less than 2% of mass 69	1.5
69	Mass 69 Relative Abundance	41.1
70	Less than 2% of mass 69	0.6
127	10 - 80% of mass 198	47.7
197	Less than 2% of mass 198	0.6
198	Base Peak, 100% Relative Abundance	100
199	5 - 9% of mass 198	7.1
275	10 - 60% of mass 198	27.9
365	Greater than 1% of mass 198	3.1
441	Less than 24% of mass 442	15.9
442	Greater than 50% of mass 198	86.8
443	15 - 24% of mass 442	21.2

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
ICALMIX[J]	WBN160801-43	s092916.B\s1i2941.D	30-SEP-16 05:21
ICALMIX[J]	WBN160801-44	s092916.B\s1i2942.D	30-SEP-16 05:51
ICALMIX[J]	WBN160801-45.1	s092916.B\s1i2943.D	30-SEP-16 06:20
ICALMIX[J]	WBN160801-46	s092916.B\s1i2944.D	30-SEP-16 06:50
ICALMIX[J]	WBN160801-48	s092916.B\s1i2945.D	30-SEP-16 07:20
ICALMIX[J]	WBN160801-49	s092916.B\s1i2946.D	30-SEP-16 07:50
ICVMIX[B,J]02	WBN160922-18.2	s092916.B\s1i2948.D	30-SEP-16 09:49

Instrument Performance Check

DFTPP

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: MSD1.I **Injection Date/Time:** 10-NOV-16 11:17

Column Description: 25x.20x.33 **Lab File ID** s111016.B\s1k1003.D

m/e	Ion Abundance Criteria	% Relative Abundance
51	10 - 80% of mass 198	47.9
68	Less than 2% of mass 69	1.6
69	Mass 69 Relative Abundance	41.4
70	Less than 2% of mass 69	0.3
127	10 - 80% of mass 198	48.1
197	Less than 2% of mass 198	0.6
198	Base Peak, 100% Relative Abundance	100
199	5 - 9% of mass 198	7.3
275	10 - 60% of mass 198	28.4
365	Greater than 1% of mass 198	3.1
441	Less than 24% of mass 442	16.5
442	Greater than 50% of mass 198	92.1
443	15 - 24% of mass 442	19.9

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
CCVMIX[B]01	WBN161004-18.4	s111016.B\s1k1005.D	10-NOV-16 12:09
CCVMIX[A]02	WBN161025-05.4	s111016.B\s1k1006.D	10-NOV-16 12:40
CCVMIX[J]03	WBN160801-45.2	s111016.B\s1k1009.D	10-NOV-16 14:07
BLK02	1203665318	s111016.B\s1k1016.D	10-NOV-16 17:58
BLK02LCS	1203665319	s111016.B\s1k1017.D	10-NOV-16 18:32

Instrument Performance Check

DFTPP

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: MSD1.I **Injection Date/Time:** 11-NOV-16 10:33

Column Description: 25x.20x.33 **Lab File ID** s111116.B\s1k1101.D

m/e	Ion Abundance Criteria	% Relative Abundance
51	10 - 80% of mass 198	49.1
68	Less than 2% of mass 69	1.8
69	Mass 69 Relative Abundance	42.6
70	Less than 2% of mass 69	0.3
127	10 - 80% of mass 198	49.8
197	Less than 2% of mass 198	0.5
198	Base Peak, 100% Relative Abundance	100
199	5 - 9% of mass 198	7.1
275	10 - 60% of mass 198	28.5
365	Greater than 1% of mass 198	3.1
441	Less than 24% of mass 442	16.2
442	Greater than 50% of mass 198	87.2
443	15 - 24% of mass 442	21.1

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
CCVMIX[B]04	WBN161004-18.4	s111116.B\s1k1103.D	11-NOV-16 11:27
CCVMIX[J]05	WBN160801-45.2	s111116.B\s1k1106.D	11-NOV-16 12:50
CCVMIX[A]06	WBN161025-05.4	s111116.B\s1k1107.D	11-NOV-16 13:48
DP020312	409254029	s111116.B\s1k1109.D	11-NOV-16 14:51
DP020413	409254032	s111116.B\s1k1110.D	11-NOV-16 15:21
DP020207	409254034	s111116.B\s1k1111.D	11-NOV-16 15:51
DP020209	409254036	s111116.B\s1k1112.D	11-NOV-16 16:21
DP020114	409254038	s111116.B\s1k1113.D	11-NOV-16 16:51

Instrument Performance Check

DFTPP

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: MSD4.I **Injection Date/Time:** 13-OCT-16 10:14

Column Description: DB-5ms **Lab File ID** s101316.B\s4j1301.D

m/e	Ion Abundance Criteria	% Relative Abundance
51	10 - 80% of mass 198	39.8
68	Less than 2% of mass 69	1.6
69	Mass 69 Relative Abundance	39.9
70	Less than 2% of mass 69	0.5
127	10 - 80% of mass 198	51.8
197	Less than 2% of mass 198	0
198	Base Peak, 100% Relative Abundance	100
199	5 - 9% of mass 198	6.9
275	10 - 60% of mass 198	25.1
365	Greater than 1% of mass 198	3.1
441	Less than 24% of mass 442	15.8
442	Greater than 50% of mass 198	74.8
443	15 - 24% of mass 442	20.5

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
ICALMIX[A,B]	WBN160804-83.1	s101316.B\s4j1302.D	13-OCT-16 10:29
ICALMIX[A,B]	WBN160804-88	s101316.B\s4j1303.D	13-OCT-16 11:06
ICALMIX[A,B]	WBN160804-87	s101316.B\s4j1304.D	13-OCT-16 11:34
ICALMIX[A,B]	WBN160804-86	s101316.B\s4j1305.D	13-OCT-16 12:02
ICALMIX[A,B]	WBN160804-85	s101316.B\s4j1306.D	13-OCT-16 12:31
ICALMIX[A,B]	WBN160804-84	s101316.B\s4j1307.D	13-OCT-16 12:59
ICALMIX[A,B]	WBN160804-82	s101316.B\s4j1308.D	13-OCT-16 13:27
ICALMIX[A,B]	WBN160804-81	s101316.B\s4j1309.D	13-OCT-16 13:56
ICVMIX[A,B]01	WBN160804-89.1	s101316.B\s4j1310.D	13-OCT-16 14:24

Instrument Performance Check

DFTPP

Lab Name GEL Laboratories LLC **Client SDG:** 409254

Instrument ID: MSD4.I **Injection Date/Time:** 07-NOV-16 08:14

Column Description: DB-5ms **Lab File ID** s110716.B\s4k0701.D

m/e	Ion Abundance Criteria	% Relative Abundance
51	10 - 80% of mass 198	31.9
68	Less than 2% of mass 69	1.5
69	Mass 69 Relative Abundance	33.6
70	Less than 2% of mass 69	0.5
127	10 - 80% of mass 198	47.6
197	Less than 2% of mass 198	0
198	Base Peak, 100% Relative Abundance	100
199	5 - 9% of mass 198	6.8
275	10 - 60% of mass 198	25.2
365	Greater than 1% of mass 198	3.1
441	Less than 24% of mass 442	14.9
442	Greater than 50% of mass 198	78.5
443	15 - 24% of mass 442	21.3

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, LCS, LCSD,BLANKS AND STANDARDS

Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
CCVMIX[A,B]01	WBN160804-83.4	s110716.B\s4k0702.D	07-NOV-16 08:29
BLK01	1203661742	s110716.B\s4k0703.D	07-NOV-16 09:01
BLK01LCS	1203661743	s110716.B\s4k0704.D	07-NOV-16 09:29
SD140300MS	1203661744	s110716.B\s4k0706.D	07-NOV-16 10:26
SD140300	409254013	s110716.B\s4k0707.D	07-NOV-16 10:54
SD140300MSD	1203661745	s110716.B\s4k0708.D	07-NOV-16 11:22
SD140200	409254014	s110716.B\s4k0709.D	07-NOV-16 11:51
SD140100	409254015	s110716.B\s4k0710.D	07-NOV-16 12:19
SD140100DUP	409254016	s110716.B\s4k0711.D	07-NOV-16 12:47
DP100113	409254017	s110716.B\s4k0712.D	07-NOV-16 13:16
DP100212	409254018	s110716.B\s4k0713.D	07-NOV-16 13:44
DP100310	409254019	s110716.B\s4k0714.D	07-NOV-16 14:12
DP050113	409254026	s110716.B\s4k0715.D	07-NOV-16 14:41
DP050213	409254027	s110716.B\s4k0716.D	07-NOV-16 15:09
SS050100	409254028	s110716.B\s4k0717.D	07-NOV-16 15:38

Internal Standard
Area and RT Summary

Lab Name : GEL Laboratories LLC

Client SDG: 409254

Instrument: MSD1.I

STD Analysis Time: 10-NOV-16 12:40

GC Column: 25x.20x.33

Data File: s111016.B\s1k1006.D

	1,4-Dichlorobenzene-d4		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10		Chrysene-d12		Perylene-d12	
	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #
12 Hour STD	192132	5.32	631767	7.11	354895	9.42	689318	11.3	564283	14.7	586549	17.7
Upper Limit	384264	5.82	1263534	7.61	709790	9.92	1378636	11.8	1128566	15.2	1173098	18.2
Lower Limit	96066	4.82	315884	6.61	177448	8.92	344659	10.8	282142	14.2	293275	17.2
Sample ID												
BLK02	225235	5.32	798475	7.1	444209	9.41	844651	11.3	784241	14.7	728585	17.7
BLK02LCS	219792	5.32	754302	7.11	423808	9.41	880518	11.3	795464	14.7	820502	17.7

Area Upper Limit = +100% of internal standard area
Area Lower Limit = - 50% of internal standard area

RT Upper Limit = + 0.50 minutes of internal standard RT
RT Lower Limit = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Value outside of QC Limits

Internal Standard
Area and RT Summary

Lab Name : GEL Laboratories LLC

Client SDG: 409254

Instrument: MSD1.I

STD Analysis Time: 11-NOV-16 13:48

GC Column: 25x.20x.33

Data File: s111116.B\s1k1107.D

	1,4-Dichlorobenzene-d4		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10		Chrysene-d12		Perylene-d12	
	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #
12 Hour STD	241123	5.38	790182	7.15	442603	9.46	785711	11.3	593459	14.7	511459	17.8
Upper Limit	482246	5.88	1580364	7.65	885206	9.96	1571422	11.8	1186918	15.2	1022918	18.3
Lower Limit	120562	4.88	395091	6.65	221302	8.96	392856	10.8	296730	14.2	255730	17.3
Sample ID												
DP020312	288006	5.38	1007676	7.15	555636	9.46	978579	11.3	832098	14.7	710168	17.8
DP020413	232854	5.38	805696	7.15	444378	9.45	736487	11.3	543483	14.7	477362	17.8
DP020207	244855	5.37	879606	7.15	488958	9.45	836453	11.3	649473	14.7	571706	17.8
DP020209	276085	5.38	957993	7.15	529806	9.45	916581	11.3	662486	14.7	571878	17.8
DP020114	308067	5.38	1066527	7.15	599493	9.46	1058081	11.3	886340	14.7	740803	17.8

Area Upper Limit = +100% of internal standard area
Area Lower Limit = - 50% of internal standard area

RT Upper Limit = + 0.50 minutes of internal standard RT
RT Lower Limit = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Value outside of QC Limits

Internal Standard
Area and RT Summary

Lab Name : GEL Laboratories LLC

Client SDG: 409254

Instrument: MSD4.I

STD Analysis Time: 07-NOV-16 08:29

GC Column: DB-5ms

Data File: s110716.B\s4k0702.D

	1,4-Dichlorobenzene-d4		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10		Chrysene-d12		Perylene-d12	
	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #	Area #	RT #
12 Hour STD	421327	5.45	1325711	7.24	584621	9.57	1033083	11.5	468782	15.0	239758	18.2
Upper Limit	842654	5.95	2651422	7.74	1169242	10.1	2066166	12.0	937564	15.5	479516	18.7
Lower Limit	210664	4.95	662856	6.74	292311	9.07	516542	11.0	234391	14.5	119879	17.7
Sample ID												
BLK01	342443	5.45	1122428	7.24	441282	9.57	805342	11.5	434627	15.0	205839	18.2
BLK01LCS	319246	5.45	1050794	7.24	415224	9.57	807359	11.5	468698	15.0	277767	18.2
SD140300MS	330993	5.45	1117152	7.24	432811	9.57	840484	11.5	442660	15.0	273119	18.2
SD140300	344923	5.45	1150449	7.24	442849	9.57	776072	11.5	326618	15.0	184150	18.2
SD140300MSD	344975	5.45	1162413	7.24	460210	9.57	905432	11.5	385937	15.0	222718	18.2
SD140200	318606	5.45	1077102	7.24	416993	9.57	788172	11.5	425874	15.0	245512	18.2
SD140100	337259	5.45	1158515	7.24	458474	9.57	870314	11.5	368853	15.0	211102	18.2
SD140100DUP	311265	5.43	1097833	7.24	444139	9.57	843386	11.5	443480	15.0	268016	18.2
DP100113	339001	5.45	1154778	7.24	456802	9.57	880630	11.5	410605	15.0	207120	18.2
DP100212	315527	5.45	1091693	7.24	440278	9.57	846866	11.5	370447	15.0	214311	18.2
DP100310	328366	5.45	1129880	7.24	451930	9.57	872333	11.5	382814	15.0	192292	18.2
DP050113	322201	5.45	1113162	7.24	445963	9.57	873618	11.5	488764	15.0	286649	18.2
DP050213	320383	5.45	1099939	7.24	439619	9.57	839406	11.5	423036	15.0	225794	18.2
SS050100	341266	5.45	1144747	7.24	465014	9.58	621005	11.5	402920	15.0	251495	18.2

Area Upper Limit = +100% of internal standard area
Area Lower Limit = - 50% of internal standard area

RT Upper Limit = + 0.50 minutes of internal standard RT
RT Lower Limit = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Value outside of QC Limits

Sample Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 14:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.046 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1109.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	450	ug/kg	135	450
95-94-3	1,2,4,5-Tetrachlorobenzene	U	450	ug/kg	135	450
58-90-2	2,3,4,6-Tetrachlorophenol	U	450	ug/kg	135	450
95-95-4	2,4,5-Trichlorophenol	U	450	ug/kg	135	450
88-06-2	2,4,6-Trichlorophenol	U	450	ug/kg	135	450
120-83-2	2,4-Dichlorophenol	U	450	ug/kg	135	450
105-67-9	2,4-Dimethylphenol	U	450	ug/kg	135	450
51-28-5	2,4-Dinitrophenol	U	901	ug/kg	135	901
121-14-2	2,4-Dinitrotoluene	U	450	ug/kg	135	450
606-20-2	2,6-Dinitrotoluene	U	450	ug/kg	135	450
91-58-7	2-Chloronaphthalene	U	45.0	ug/kg	13.5	45.0
95-57-8	2-Chlorophenol	U	450	ug/kg	135	450
534-52-1	2-Methyl-4,6-dinitrophenol	U	450	ug/kg	135	450
91-57-6	2-Methylnaphthalene	U	45.0	ug/kg	13.5	45.0
88-75-5	2-Nitrophenol	U	450	ug/kg	135	450
91-94-1	3,3'-Dichlorobenzidine	U	450	ug/kg	135	450
101-55-3	4-Bromophenylphenylether	U	450	ug/kg	135	450
59-50-7	4-Chloro-3-methylphenol	U	450	ug/kg	180	450
106-47-8	4-Chloroaniline	U	450	ug/kg	135	450
7005-72-3	4-Chlorophenylphenylether	U	450	ug/kg	135	450
100-02-7	4-Nitrophenol	U	450	ug/kg	135	450
83-32-9	Acenaphthene	U	45.0	ug/kg	13.5	45.0
208-96-8	Acenaphthylene	U	45.0	ug/kg	13.5	45.0
98-86-2	Acetophenone	U	450	ug/kg	135	450
120-12-7	Anthracene	U	45.0	ug/kg	13.5	45.0
1912-24-9	Atrazine	U	450	ug/kg	180	450
100-52-7	Benzaldehyde	U	450	ug/kg	135	450
56-55-3	Benzo(a)anthracene	U	45.0	ug/kg	13.5	45.0
50-32-8	Benzo(a)pyrene	U	45.0	ug/kg	13.5	45.0
205-99-2	Benzo(b)fluoranthene	U	45.0	ug/kg	13.5	45.0
191-24-2	Benzo(ghi)perylene	U	45.0	ug/kg	13.5	45.0
207-08-9	Benzo(k)fluoranthene	U	45.0	ug/kg	13.5	45.0
85-68-7	Butylbenzylphthalate	U	450	ug/kg	135	450
105-60-2	Caprolactam	U	450	ug/kg	135	450
86-74-8	Carbazole	U	45.0	ug/kg	13.5	45.0
218-01-9	Chrysene	U	45.0	ug/kg	13.5	45.0
84-74-2	Di-n-butylphthalate	U	450	ug/kg	135	450
117-84-0	Di-n-octylphthalate	U	450	ug/kg	135	450

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 14:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.046 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1109.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	45.0	ug/kg	13.5	45.0
132-64-9	Dibenzofuran	U	450	ug/kg	135	450
84-66-2	Diethylphthalate	U	450	ug/kg	135	450
131-11-3	Dimethylphthalate	U	450	ug/kg	135	450
122-39-4	Diphenylamine	U	450	ug/kg	135	450
206-44-0	Fluoranthene	U	45.0	ug/kg	13.5	45.0
86-73-7	Fluorene	U	45.0	ug/kg	13.5	45.0
118-74-1	Hexachlorobenzene	U	450	ug/kg	135	450
87-68-3	Hexachlorobutadiene	U	450	ug/kg	135	450
77-47-4	Hexachlorocyclopentadiene	U	450	ug/kg	135	450
67-72-1	Hexachloroethane	U	450	ug/kg	135	450
193-39-5	Indeno(1,2,3-cd)pyrene	U	45.0	ug/kg	13.5	45.0
78-59-1	Isophorone	U	450	ug/kg	135	450
621-64-7	N-Nitrosodipropylamine	U	450	ug/kg	135	450
91-20-3	Naphthalene	U	45.0	ug/kg	13.5	45.0
98-95-3	Nitrobenzene	U	450	ug/kg	135	450
87-86-5	Pentachlorophenol	U	450	ug/kg	135	450
85-01-8	Phenanthrene	U	45.0	ug/kg	13.5	45.0
108-95-2	Phenol	U	450	ug/kg	135	450
129-00-0	Pyrene	U	45.0	ug/kg	13.5	45.0
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	450	ug/kg	135	450
111-91-1	bis(2-Chloroethoxy)methane	U	450	ug/kg	135	450
111-44-4	bis(2-Chloroethyl) ether	U	450	ug/kg	135	450
117-81-7	bis(2-Ethylhexyl)phthalate	U	450	ug/kg	135	450
65794-96-9	m,p-Cresols	U	450	ug/kg	135	450
99-09-2	m-Nitroaniline	U	450	ug/kg	135	450
95-48-7	o-Cresol	U	450	ug/kg	135	450
88-74-4	o-Nitroaniline	U	450	ug/kg	149	450
100-01-6	p-Nitroaniline	U	450	ug/kg	135	450

JMB 11/11/2016

HM 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1109.D
Acq On : 11 Nov 2016 14:51
Operator : JMB3
InstName : MSD1
Sample : |409254029|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 11 15:30:43 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	288006	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.148	7.153	1.000	1007676	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.458	9.458	1.000	555636	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.320	11.319	1.000	978579	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.727	14.732	1.000	832098	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.781	17.786	1.000	710168	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	287187	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.148	7.153	1.000	1007676	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.458	9.458	1.000	555636	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.320	11.319	1.000	978579	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.727	14.732	1.000	832098	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.781	17.786	1.000	710168	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.148	7.153	1.000	1007676	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.458	9.458	1.000	555636	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.320	11.319	1.000	978579	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.727	14.732	1.000	832098	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.148	7.153	1.000	1007676	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.781	17.786	1.000	710168	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	287187	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.320	11.319	1.000	978579	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.727	14.732	1.000	832098	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.741	3.714	0.696	543612	50.85	ng/uL	0.03
8) Phenol-d5	99	4.869	4.864	0.906	759038	57.99	ng/uL	0.00
25) Nitrobenzene-d5	82	6.153	6.158	0.861	433534	36.75	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.597	8.597	0.909	729030	37.23	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.448	10.453	1.105	228177	62.96	ng/uL	0.00
83) p-Terphenyl-d14	244	13.299	13.298	0.903	798877	35.96	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	51%
8) Phenol-d5	100.000	39 - 106	58%
25) Nitrobenzene-d5	50.000	34 - 109	74%
47) 2-Fluorobiphenyl	50.000	35 - 107	74%
66) 2,4,6-Tribromophenol	100.000	39 - 115	63%
83) p-Terphenyl-d14	50.000	45 - 119	72%

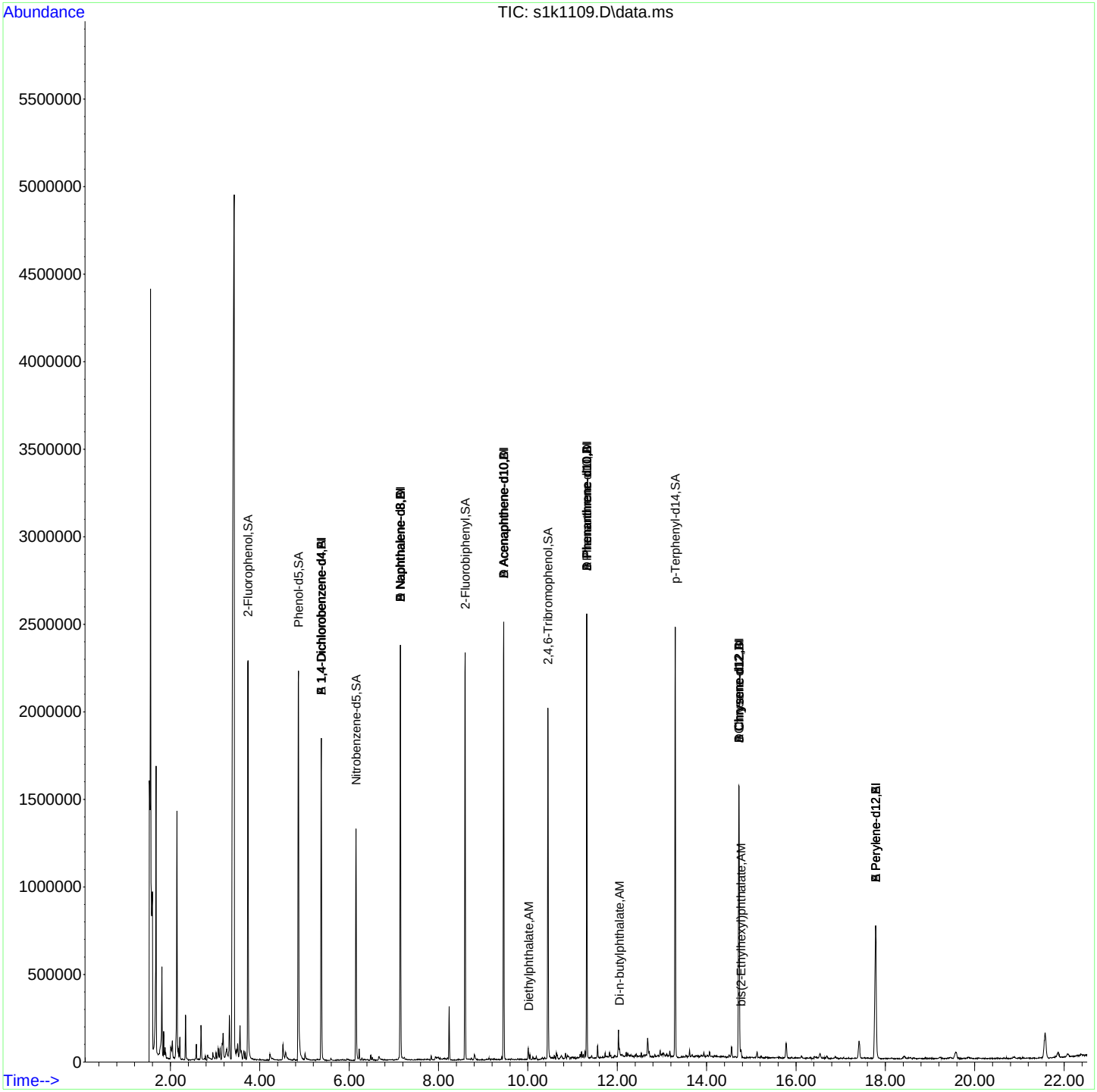
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
61) Diethylphthalate	149	10.020	10.025	1.059	8042	0.34	ng/uL	100
79) Di-n-butylphthalate	149	12.052	12.057	1.065	12167	0.34	ng/uL	93
85) bis(2-Ethylhexyl)phtha...	149	14.769	14.775	1.003	18036	1.00	ng/uL	82

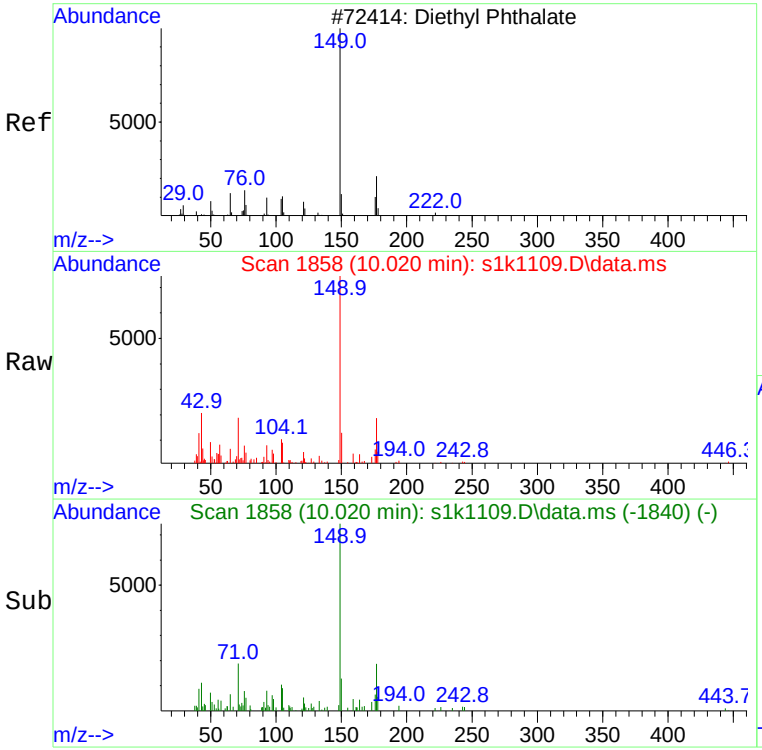
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1109.D
Acq On : 11 Nov 2016 14:51
Operator : JMB3
InstName : MSD1
Sample : |409254029|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 11 15:30:43 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

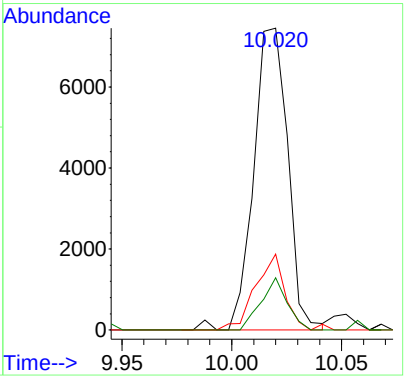


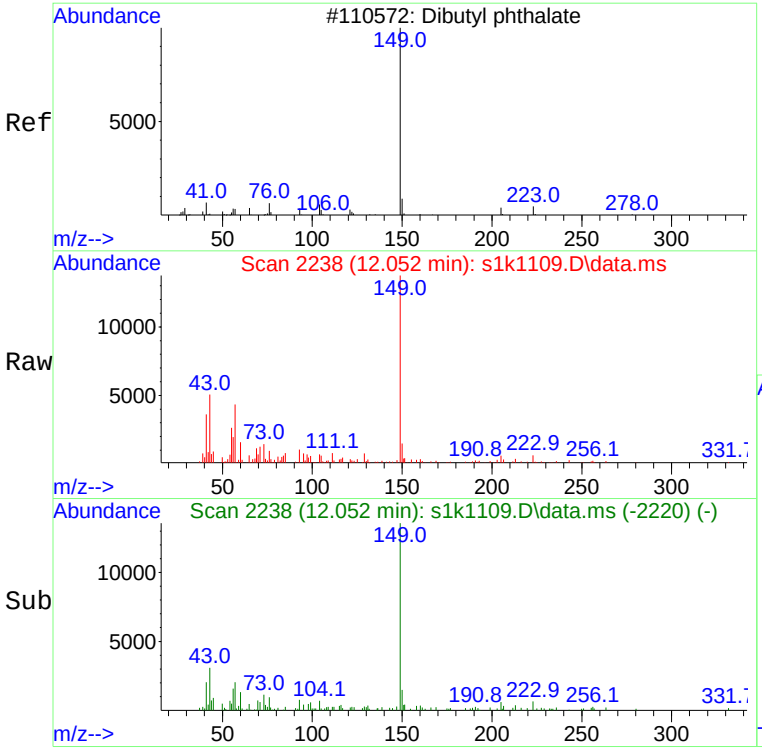


#61
Diethylphthalate
Concen: 0.34 ng/uL
RT: 10.020 min Scan# 1858
Delta R.T. -0.005 min
Lab File: s1k1109.D
Acq: 11 Nov 2016 14:51

Tgt Ion:149 Resp: 8042

Ion	Ratio	Lower	Upper
149	100		
177	22.2	0.0	52.0
150	13.3	0.0	43.4

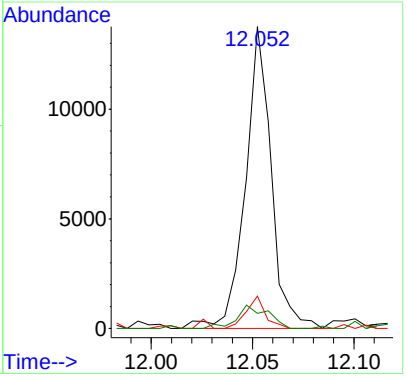


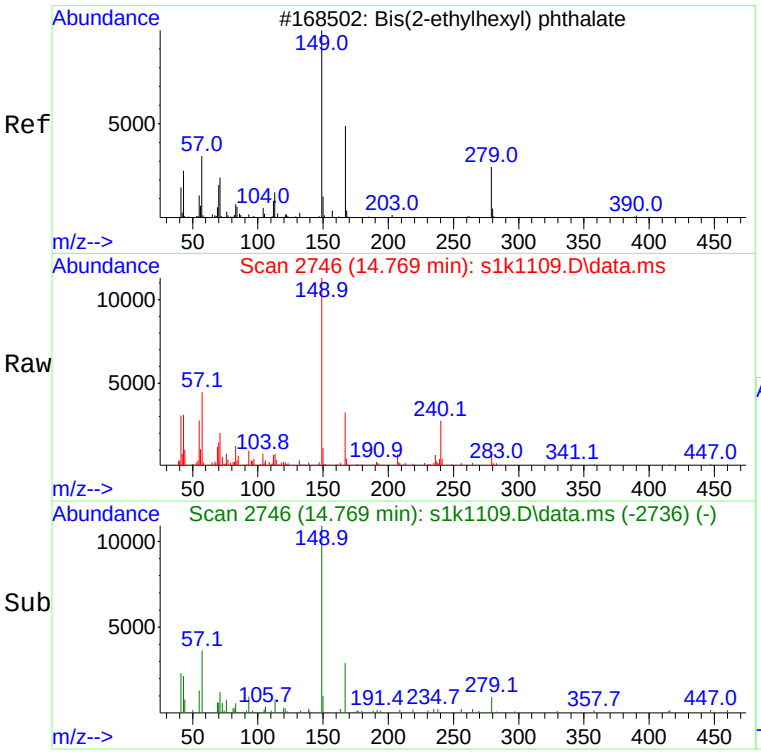


#79
Di-n-butylphthalate
Concen: 0.34 ng/uL
RT: 12.052 min Scan# 2238
Delta R.T. -0.005 min
Lab File: s1k1109.D
Acq: 11 Nov 2016 14:51

Tgt Ion:149 Resp: 12167

Ion	Ratio	Lower	Upper
149	100		
150	8.0	0.0	40.5
104	9.3	0.0	36.6

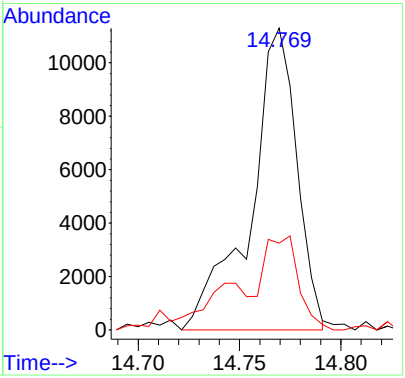


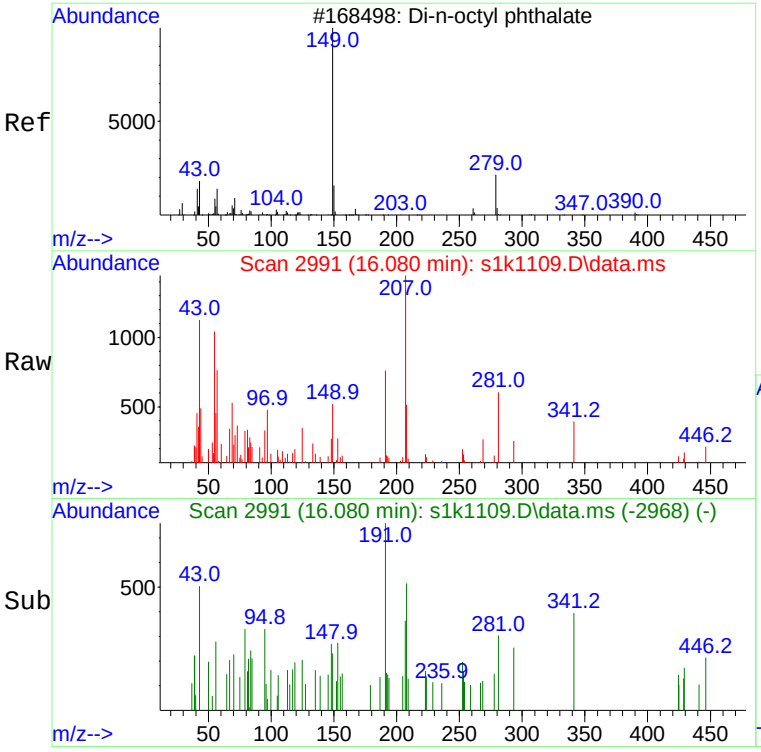


#85
bis(2-Ethylhexyl)phthalate
Concen: 1.00 ng/uL
RT: 14.769 min Scan# 2746
Delta R.T. -0.005 min
Lab File: s1k1109.D
Acq: 11 Nov 2016 14:51

Tgt Ion:149 Resp: 18036

Ion	Ratio	Lower	Upper
149	100		
167	21.6	1.8	61.8

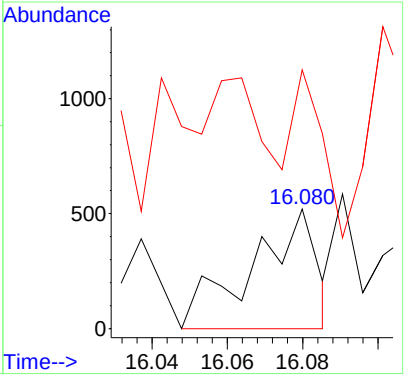




#90 BEFORE analyst DELETION
Di-n-octylphthalate
Concen: 0.49 ng/uL
RT: 16.080 min Scan# 2991
Delta R.T. 0.043 min
Lab File: s1k1109.D
Acq: 11 Nov 2016 14:51

Tgt Ion:149 Resp: 622

Ion	Ratio	Lower	Upper
149	100		
43	150.6	0.0	43.5#



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 15:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.104 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1110.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	403	ug/kg	121	403
95-94-3	1,2,4,5-Tetrachlorobenzene	U	403	ug/kg	121	403
58-90-2	2,3,4,6-Tetrachlorophenol	U	403	ug/kg	121	403
95-95-4	2,4,5-Trichlorophenol	U	403	ug/kg	121	403
88-06-2	2,4,6-Trichlorophenol	U	403	ug/kg	121	403
120-83-2	2,4-Dichlorophenol	U	403	ug/kg	121	403
105-67-9	2,4-Dimethylphenol	U	403	ug/kg	121	403
51-28-5	2,4-Dinitrophenol	U	807	ug/kg	121	807
121-14-2	2,4-Dinitrotoluene	U	403	ug/kg	121	403
606-20-2	2,6-Dinitrotoluene	U	403	ug/kg	121	403
91-58-7	2-Chloronaphthalene	U	40.3	ug/kg	12.1	40.3
95-57-8	2-Chlorophenol	U	403	ug/kg	121	403
534-52-1	2-Methyl-4,6-dinitrophenol	U	403	ug/kg	121	403
91-57-6	2-Methylnaphthalene	U	40.3	ug/kg	12.1	40.3
88-75-5	2-Nitrophenol	U	403	ug/kg	121	403
91-94-1	3,3'-Dichlorobenzidine	U	403	ug/kg	121	403
101-55-3	4-Bromophenylphenylether	U	403	ug/kg	121	403
59-50-7	4-Chloro-3-methylphenol	U	403	ug/kg	161	403
106-47-8	4-Chloroaniline	U	403	ug/kg	121	403
7005-72-3	4-Chlorophenylphenylether	U	403	ug/kg	121	403
100-02-7	4-Nitrophenol	U	403	ug/kg	121	403
83-32-9	Acenaphthene	U	40.3	ug/kg	12.1	40.3
208-96-8	Acenaphthylene	U	40.3	ug/kg	12.1	40.3
98-86-2	Acetophenone	U	403	ug/kg	121	403
120-12-7	Anthracene	U	40.3	ug/kg	12.1	40.3
1912-24-9	Atrazine	U	403	ug/kg	161	403
100-52-7	Benzaldehyde	U	403	ug/kg	121	403
56-55-3	Benzo(a)anthracene	U	40.3	ug/kg	12.1	40.3
50-32-8	Benzo(a)pyrene	U	40.3	ug/kg	12.1	40.3
205-99-2	Benzo(b)fluoranthene	U	40.3	ug/kg	12.1	40.3
191-24-2	Benzo(ghi)perylene	U	40.3	ug/kg	12.1	40.3
207-08-9	Benzo(k)fluoranthene	U	40.3	ug/kg	12.1	40.3
85-68-7	Butylbenzylphthalate	U	403	ug/kg	121	403
105-60-2	Caprolactam	U	403	ug/kg	121	403
86-74-8	Carbazole	U	40.3	ug/kg	12.1	40.3
218-01-9	Chrysene	U	40.3	ug/kg	12.1	40.3
84-74-2	Di-n-butylphthalate	U	403	ug/kg	121	403
117-84-0	Di-n-octylphthalate	U	403	ug/kg	121	403

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 15:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.104 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1110.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	40.3	ug/kg	12.1	40.3
132-64-9	Dibenzofuran	U	403	ug/kg	121	403
84-66-2	Diethylphthalate	U	403	ug/kg	121	403
131-11-3	Dimethylphthalate	U	403	ug/kg	121	403
122-39-4	Diphenylamine	U	403	ug/kg	121	403
206-44-0	Fluoranthene	U	40.3	ug/kg	12.1	40.3
86-73-7	Fluorene	U	40.3	ug/kg	12.1	40.3
118-74-1	Hexachlorobenzene	U	403	ug/kg	121	403
87-68-3	Hexachlorobutadiene	U	403	ug/kg	121	403
77-47-4	Hexachlorocyclopentadiene	U	403	ug/kg	121	403
67-72-1	Hexachloroethane	U	403	ug/kg	121	403
193-39-5	Indeno(1,2,3-cd)pyrene	U	40.3	ug/kg	12.1	40.3
78-59-1	Isophorone	U	403	ug/kg	121	403
621-64-7	N-Nitrosodipropylamine	U	403	ug/kg	121	403
91-20-3	Naphthalene	U	40.3	ug/kg	12.1	40.3
98-95-3	Nitrobenzene	U	403	ug/kg	121	403
87-86-5	Pentachlorophenol	U	403	ug/kg	121	403
85-01-8	Phenanthrene	U	40.3	ug/kg	12.1	40.3
108-95-2	Phenol	U	403	ug/kg	121	403
129-00-0	Pyrene	U	40.3	ug/kg	12.1	40.3
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	403	ug/kg	121	403
111-91-1	bis(2-Chloroethoxy)methane	U	403	ug/kg	121	403
111-44-4	bis(2-Chloroethyl) ether	U	403	ug/kg	121	403
117-81-7	bis(2-Ethylhexyl)phthalate	U	403	ug/kg	121	403
65794-96-9	m,p-Cresols	U	403	ug/kg	121	403
99-09-2	m-Nitroaniline	U	403	ug/kg	121	403
95-48-7	o-Cresol	U	403	ug/kg	121	403
88-74-4	o-Nitroaniline	U	403	ug/kg	133	403
100-01-6	p-Nitroaniline	U	403	ug/kg	121	403

JMB 11/11/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1110.D
Acq On : 11 Nov 2016 15:21
Operator : JMB3
InstName : MSD1
Sample : |409254032|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 9 Sample Multiplier: 1

HM.M 11/14/2016

Quant Time: Nov 11 16:14:14 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	232854	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.148	7.153	1.000	805696	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.453	9.458	1.000	444378	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.320	11.319	1.000	736487	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.721	14.732	1.000	543483	40.00	ng/uL	-0.01
91) A Perylene-d12	264	17.775	17.786	1.000	477362	40.00	ng/uL	-0.01
99) B 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	231780	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.148	7.153	1.000	805696	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.453	9.458	1.000	444378	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.320	11.319	1.000	736487	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.721	14.732	1.000	543483	40.00	ng/uL	-0.01
152) B Perylene-d12	264	17.775	17.786	1.000	477362	40.00	ng/uL	-0.01
155) D Naphthalene-d8	136	7.148	7.153	1.000	805696	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.453	9.458	1.000	444378	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.320	11.319	1.000	736487	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.721	14.732	1.000	543304	40.00	ng/uL	-0.01
169) E Naphthalene-d8	136	7.148	7.153	1.000	805696	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.775	17.786	1.000	477362	40.00	ng/uL	-0.01
173) F 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	231780	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.320	11.319	1.000	736487	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.721	14.732	1.000	543483	40.00	ng/uL	-0.01
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.735	3.714	0.695	465812	53.90	ng/uL	0.02
8) Phenol-d5	99	4.864	4.864	0.905	655280	61.93	ng/uL	0.00
25) Nitrobenzene-d5	82	6.153	6.158	0.861	363869	38.58	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.597	8.597	0.909	638713	40.78	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.448	10.453	1.105	201508	69.52	ng/uL	0.00
83) p-Terphenyl-d14	244	13.299	13.298	0.903	604028	41.63	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	54%
8) Phenol-d5	100.000	39 - 106	62%
25) Nitrobenzene-d5	50.000	34 - 109	77%
47) 2-Fluorobiphenyl	50.000	35 - 107	82%
66) 2,4,6-Tribromophenol	100.000	39 - 115	70%
83) p-Terphenyl-d14	50.000	45 - 119	83%

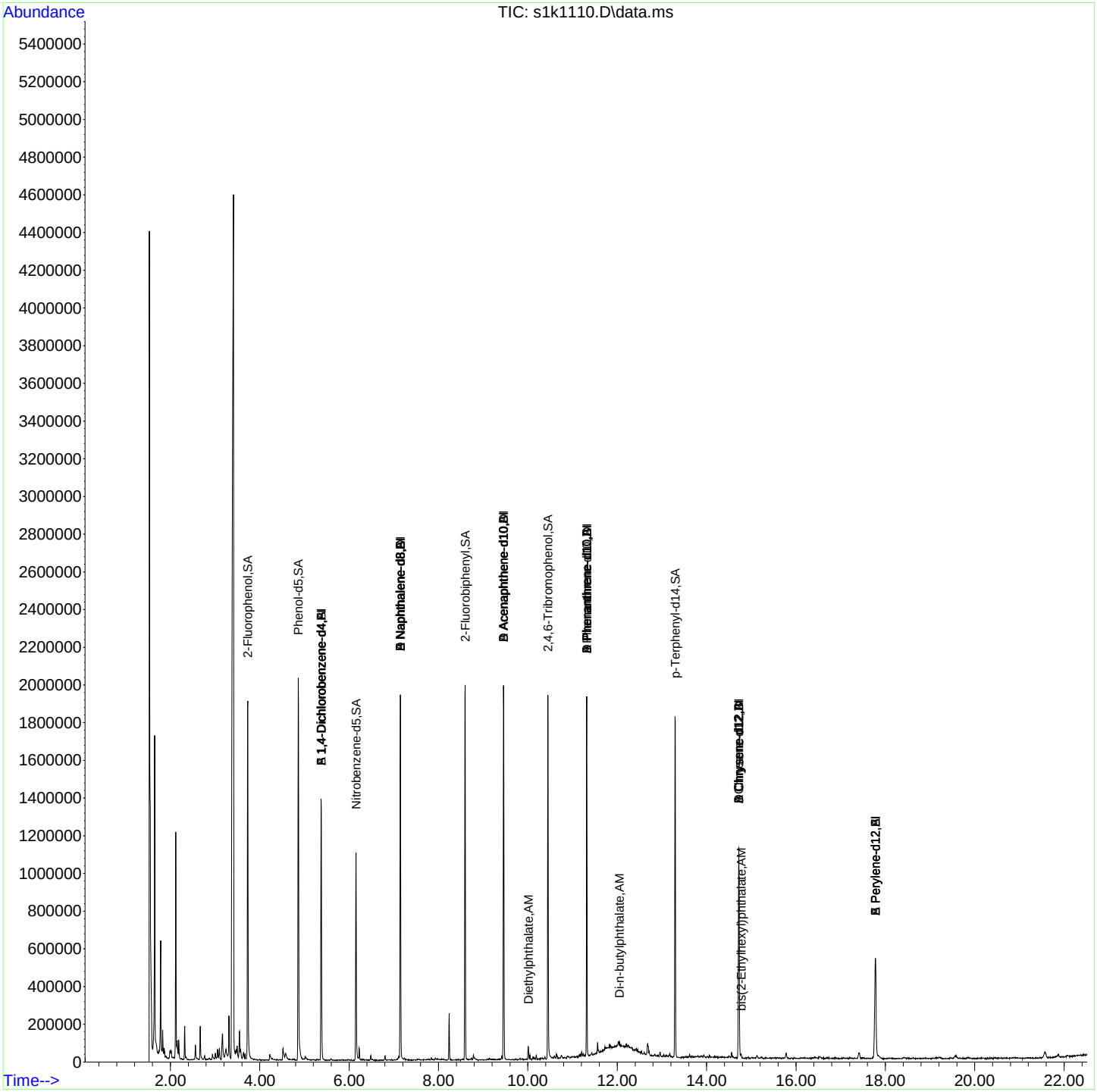
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
61) Diethylphthalate	149	10.014	10.025	1.059	12904	0.67	ng/uL	99
79) Di-n-butylphthalate	149	12.052	12.057	1.065	9058	0.33	ng/uL	94
85) bis(2-Ethylhexyl)phtha...	149	14.775	14.775	1.004	7160	0.61	ng/uL	96

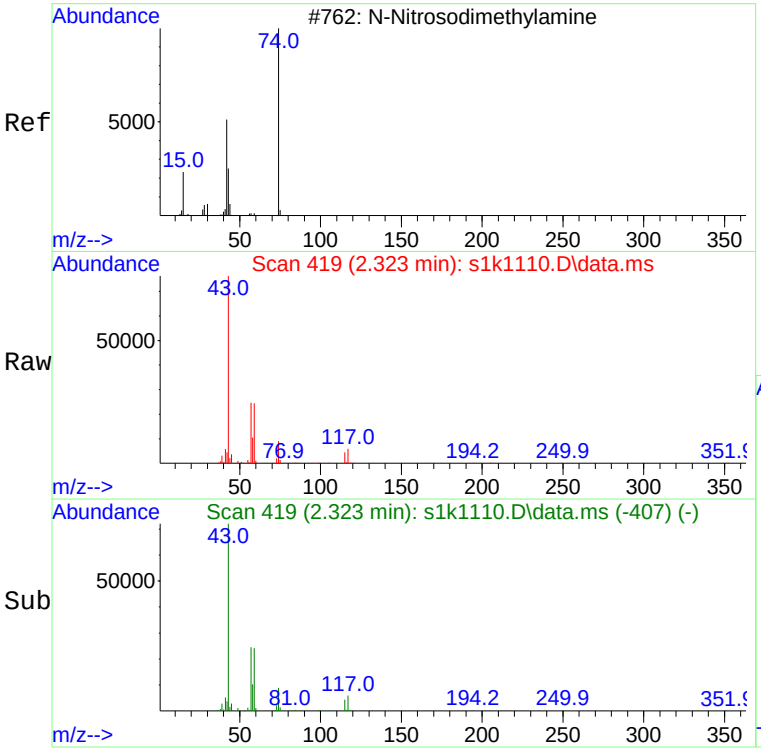
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1110.D
Acq On : 11 Nov 2016 15:21
Operator : JMB3
InstName : MSD1
Sample : |409254032|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 16:14:14 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

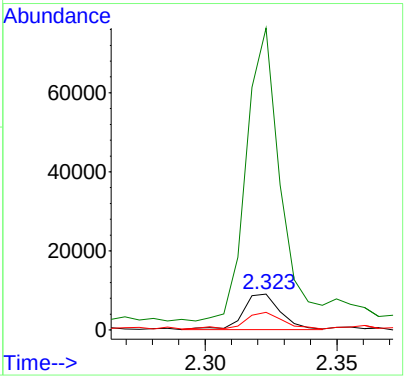


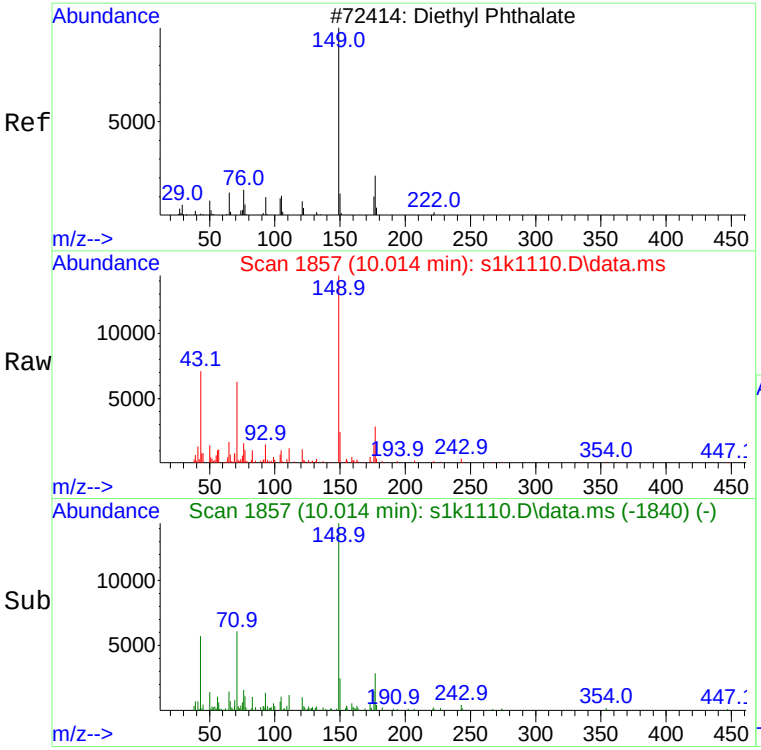


#3 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 1.62 ng/uL
RT: 2.323 min Scan# 419
Delta R.T. -0.069 min
Lab File: s1k1110.D
Acq: 11 Nov 2016 15:21

Tgt Ion: 74 Resp: 8857

Ion	Ratio	Lower	Upper
74	100		
42	47.5	94.0	154.0#
43	748.4	22.3	82.3#

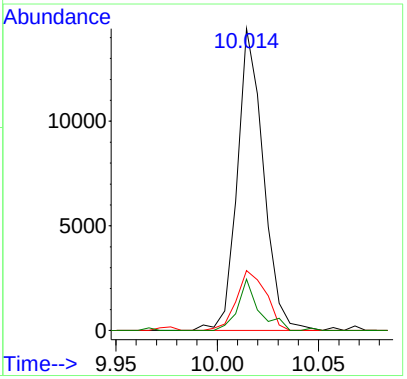


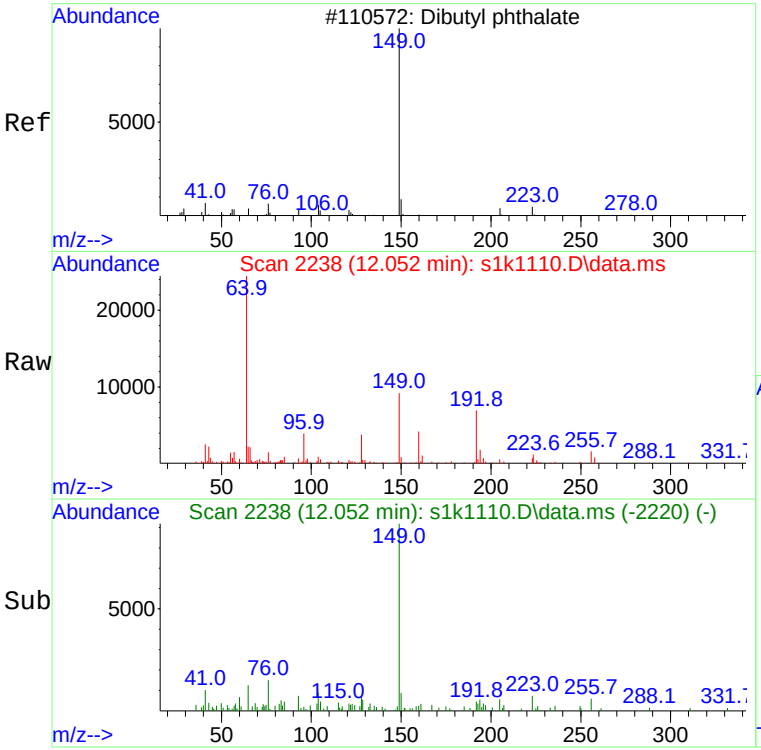


#61
Diethylphthalate
Concen: 0.67 ng/uL
RT: 10.014 min Scan# 1857
Delta R.T. -0.011 min
Lab File: s1k1110.D
Acq: 11 Nov 2016 15:21

Tgt Ion:149 Resp: 12904

Ion	Ratio	Lower	Upper
149	100		
177	22.3	0.0	52.0
150	13.7	0.0	43.4

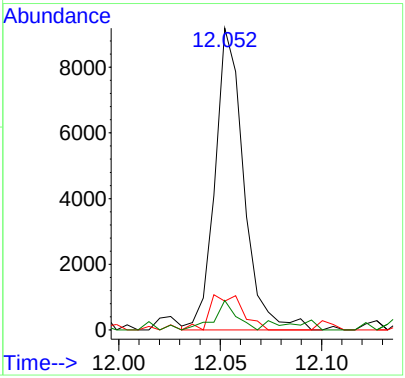


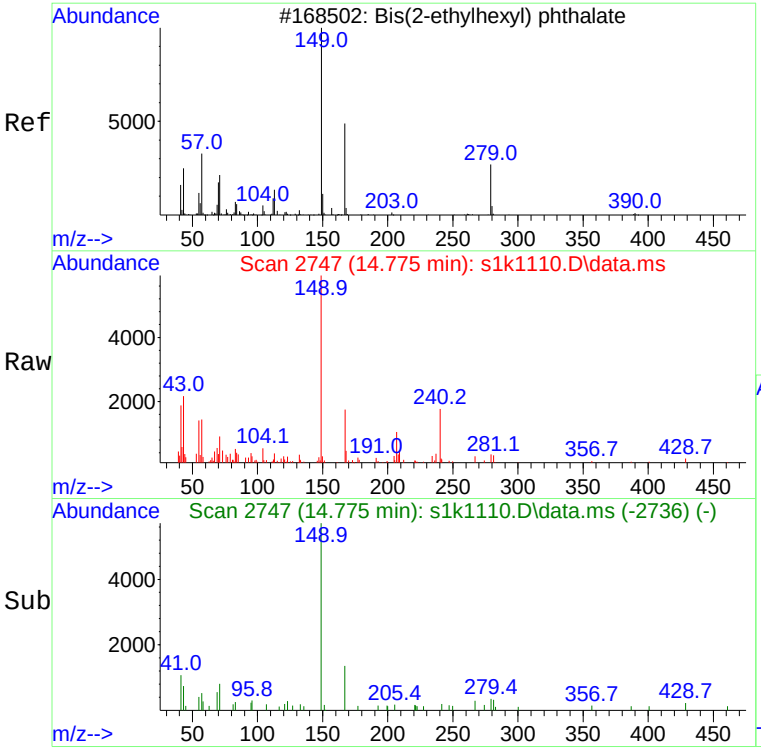


#79
Di-n-butylphthalate
Concen: 0.33 ng/uL
RT: 12.052 min Scan# 2238
Delta R.T. -0.005 min
Lab File: s1k1110.D
Acq: 11 Nov 2016 15:21

Tgt Ion:149 Resp: 9058

Ion	Ratio	Lower	Upper
149	100		
150	13.3	0.0	40.5
104	7.5	0.0	36.6

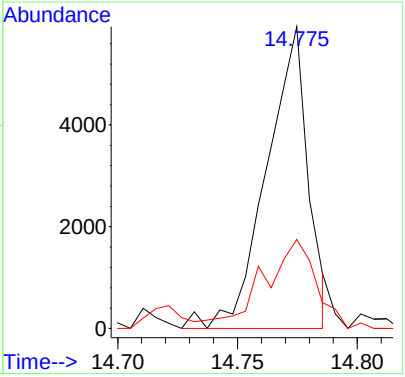


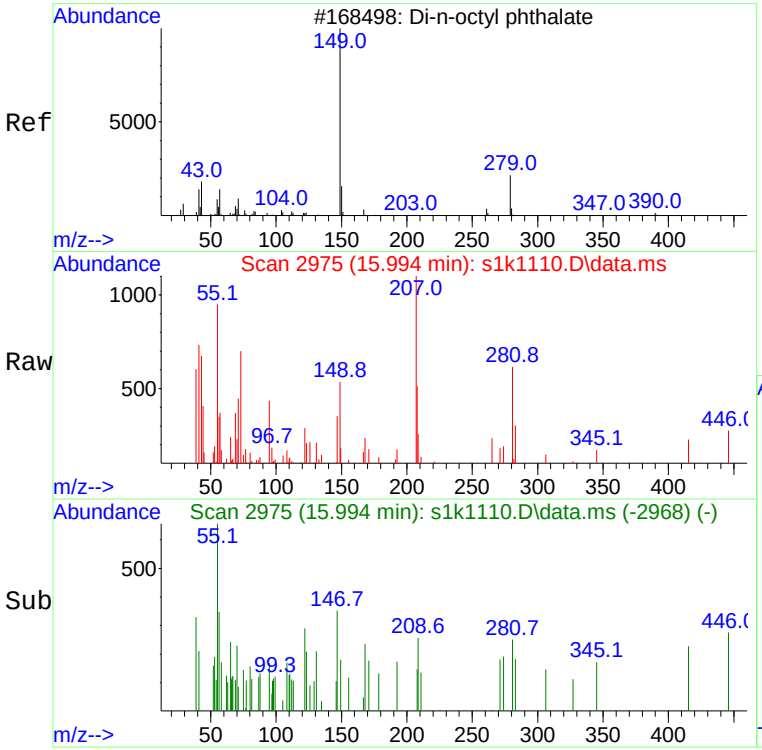


#85
bis(2-Ethylhexyl)phthalate
Concen: 0.61 ng/uL
RT: 14.775 min Scan# 2747
Delta R.T. 0.000 min
Lab File: s1k1110.D
Acq: 11 Nov 2016 15:21

Tgt Ion:149 Resp: 7160

Ion	Ratio	Lower	Upper
149	100		
167	29.7	1.8	61.8

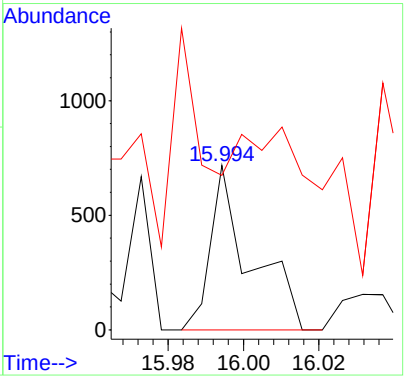




#90 BEFORE analyst DELETION
Di-n-octylphthalate
Concen: 0.50 ng/uL
RT: 15.994 min Scan# 2975
Delta R.T. -0.043 min
Lab File: s1k1110.D
Acq: 11 Nov 2016 15:21

Tgt Ion:149 Resp: 529

Ion	Ratio	Lower	Upper
149	100		
43	190.4	0.0	43.5#



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 15:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1111.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	417	ug/kg	125	417
95-94-3	1,2,4,5-Tetrachlorobenzene	U	417	ug/kg	125	417
58-90-2	2,3,4,6-Tetrachlorophenol	U	417	ug/kg	125	417
95-95-4	2,4,5-Trichlorophenol	U	417	ug/kg	125	417
88-06-2	2,4,6-Trichlorophenol	U	417	ug/kg	125	417
120-83-2	2,4-Dichlorophenol	U	417	ug/kg	125	417
105-67-9	2,4-Dimethylphenol	U	417	ug/kg	125	417
51-28-5	2,4-Dinitrophenol	U	834	ug/kg	125	834
121-14-2	2,4-Dinitrotoluene	U	417	ug/kg	125	417
606-20-2	2,6-Dinitrotoluene	U	417	ug/kg	125	417
91-58-7	2-Chloronaphthalene	U	41.7	ug/kg	12.5	41.7
95-57-8	2-Chlorophenol	U	417	ug/kg	125	417
534-52-1	2-Methyl-4,6-dinitrophenol	U	417	ug/kg	125	417
91-57-6	2-Methylnaphthalene	U	41.7	ug/kg	12.5	41.7
88-75-5	2-Nitrophenol	U	417	ug/kg	125	417
91-94-1	3,3'-Dichlorobenzidine	U	417	ug/kg	125	417
101-55-3	4-Bromophenylphenylether	U	417	ug/kg	125	417
59-50-7	4-Chloro-3-methylphenol	U	417	ug/kg	167	417
106-47-8	4-Chloroaniline	U	417	ug/kg	125	417
7005-72-3	4-Chlorophenylphenylether	U	417	ug/kg	125	417
100-02-7	4-Nitrophenol	U	417	ug/kg	125	417
83-32-9	Acenaphthene	U	41.7	ug/kg	12.5	41.7
208-96-8	Acenaphthylene	U	41.7	ug/kg	12.5	41.7
98-86-2	Acetophenone	U	417	ug/kg	125	417
120-12-7	Anthracene	U	41.7	ug/kg	12.5	41.7
1912-24-9	Atrazine	U	417	ug/kg	167	417
100-52-7	Benzaldehyde	U	417	ug/kg	125	417
56-55-3	Benzo(a)anthracene	U	41.7	ug/kg	12.5	41.7
50-32-8	Benzo(a)pyrene	U	41.7	ug/kg	12.5	41.7
205-99-2	Benzo(b)fluoranthene	U	41.7	ug/kg	12.5	41.7
191-24-2	Benzo(ghi)perylene	U	41.7	ug/kg	12.5	41.7
207-08-9	Benzo(k)fluoranthene	U	41.7	ug/kg	12.5	41.7
85-68-7	Butylbenzylphthalate	U	417	ug/kg	125	417
105-60-2	Caprolactam	U	417	ug/kg	125	417
86-74-8	Carbazole	U	41.7	ug/kg	12.5	41.7
218-01-9	Chrysene	U	41.7	ug/kg	12.5	41.7
84-74-2	Di-n-butylphthalate	U	417	ug/kg	125	417
117-84-0	Di-n-octylphthalate	U	417	ug/kg	125	417

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 15:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1111.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	41.7	ug/kg	12.5	41.7
132-64-9	Dibenzofuran	U	417	ug/kg	125	417
84-66-2	Diethylphthalate	U	417	ug/kg	125	417
131-11-3	Dimethylphthalate	U	417	ug/kg	125	417
122-39-4	Diphenylamine	U	417	ug/kg	125	417
206-44-0	Fluoranthene	U	41.7	ug/kg	12.5	41.7
86-73-7	Fluorene	U	41.7	ug/kg	12.5	41.7
118-74-1	Hexachlorobenzene	U	417	ug/kg	125	417
87-68-3	Hexachlorobutadiene	U	417	ug/kg	125	417
77-47-4	Hexachlorocyclopentadiene	U	417	ug/kg	125	417
67-72-1	Hexachloroethane	U	417	ug/kg	125	417
193-39-5	Indeno(1,2,3-cd)pyrene	U	41.7	ug/kg	12.5	41.7
78-59-1	Isophorone	U	417	ug/kg	125	417
621-64-7	N-Nitrosodipropylamine	U	417	ug/kg	125	417
91-20-3	Naphthalene	U	41.7	ug/kg	12.5	41.7
98-95-3	Nitrobenzene	U	417	ug/kg	125	417
87-86-5	Pentachlorophenol	U	417	ug/kg	125	417
85-01-8	Phenanthrene	U	41.7	ug/kg	12.5	41.7
108-95-2	Phenol	U	417	ug/kg	125	417
129-00-0	Pyrene	U	41.7	ug/kg	12.5	41.7
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	417	ug/kg	125	417
111-91-1	bis(2-Chloroethoxy)methane	U	417	ug/kg	125	417
111-44-4	bis(2-Chloroethyl) ether	U	417	ug/kg	125	417
117-81-7	bis(2-Ethylhexyl)phthalate	U	417	ug/kg	125	417
65794-96-9	m,p-Cresols	U	417	ug/kg	125	417
99-09-2	m-Nitroaniline	U	417	ug/kg	125	417
95-48-7	o-Cresol	U	417	ug/kg	125	417
88-74-4	o-Nitroaniline	U	417	ug/kg	138	417
100-01-6	p-Nitroaniline	U	417	ug/kg	125	417

JMB 11/11/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1111.D
Acq On : 11 Nov 2016 15:51
Operator : JMB3
InstName : MSD1
Sample : |409254034|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 10 Sample Multiplier: 1

HM.M 11/14/2016

Quant Time: Nov 11 16:14:45 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) A 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	244855	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.148	7.153	1.000	879606	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.453	9.458	1.000	488958	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.320	11.319	1.000	836453	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.722	14.732	1.000	649473	40.00	ng/uL	-0.01
91) A Perylene-d12	264	17.776	17.786	1.000	571706	40.00	ng/uL	-0.01
99) B 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	244855	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.148	7.153	1.000	879606	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.453	9.458	1.000	488958	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.320	11.319	1.000	836453	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.722	14.732	1.000	649473	40.00	ng/uL	-0.01
152) B Perylene-d12	264	17.776	17.786	1.000	571706	40.00	ng/uL	-0.01
155) D Naphthalene-d8	136	7.148	7.153	1.000	879606	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.453	9.458	1.000	488958	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.320	11.319	1.000	836453	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.722	14.732	1.000	649473	40.00	ng/uL	-0.01
169) E Naphthalene-d8	136	7.148	7.153	1.000	879606	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.776	17.786	1.000	571706	40.00	ng/uL	-0.01
173) F 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	244855	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.320	11.319	1.000	836453	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.722	14.732	1.000	649473	40.00	ng/uL	-0.01
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.735	3.714	0.695	484596	53.32	ng/uL	0.02
8) Phenol-d5	99	4.869	4.864	0.906	712244	64.01	ng/uL	0.00
25) Nitrobenzene-d5	82	6.153	6.158	0.861	424567	41.23	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.597	8.597	0.909	714465	41.46	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.448	10.453	1.105	205214	64.35	ng/uL	0.00
83) p-Terphenyl-d14	244	13.299	13.298	0.903	697063	40.20	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	53%
8) Phenol-d5	100.000	39 - 106	64%
25) Nitrobenzene-d5	50.000	34 - 109	82%
47) 2-Fluorobiphenyl	50.000	35 - 107	83%
66) 2,4,6-Tribromophenol	100.000	39 - 115	64%
83) p-Terphenyl-d14	50.000	45 - 119	80%

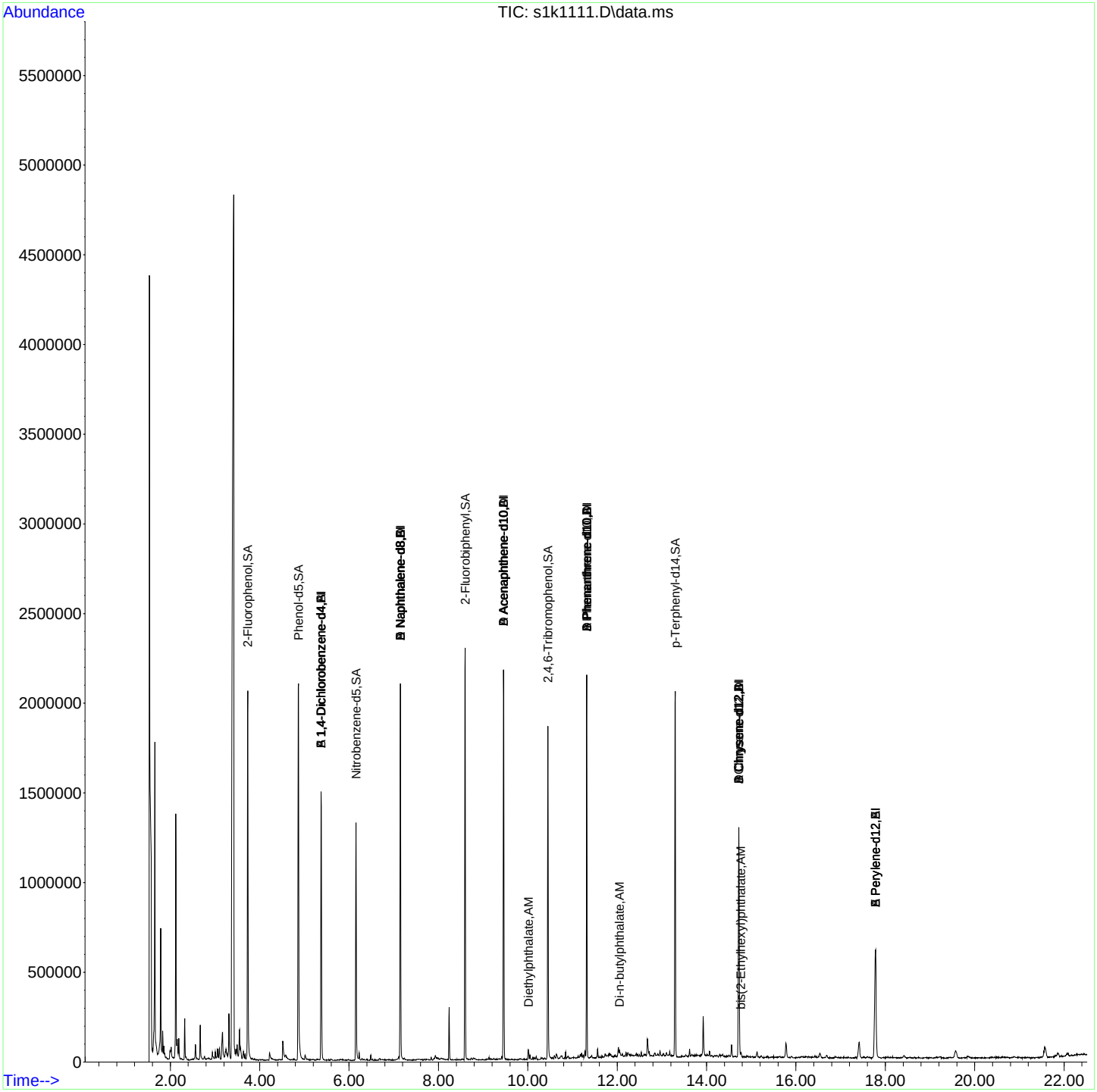
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
61) Diethylphthalate	149	10.015	10.025	1.059	13978	0.66	ng/uL	97
79) Di-n-butylphthalate	149	12.053	12.057	1.065	10806	0.35	ng/uL	98
85) bis(2-Ethylhexyl)phtha...	149	14.764	14.775	1.003	6494	0.46	ng/uL	100

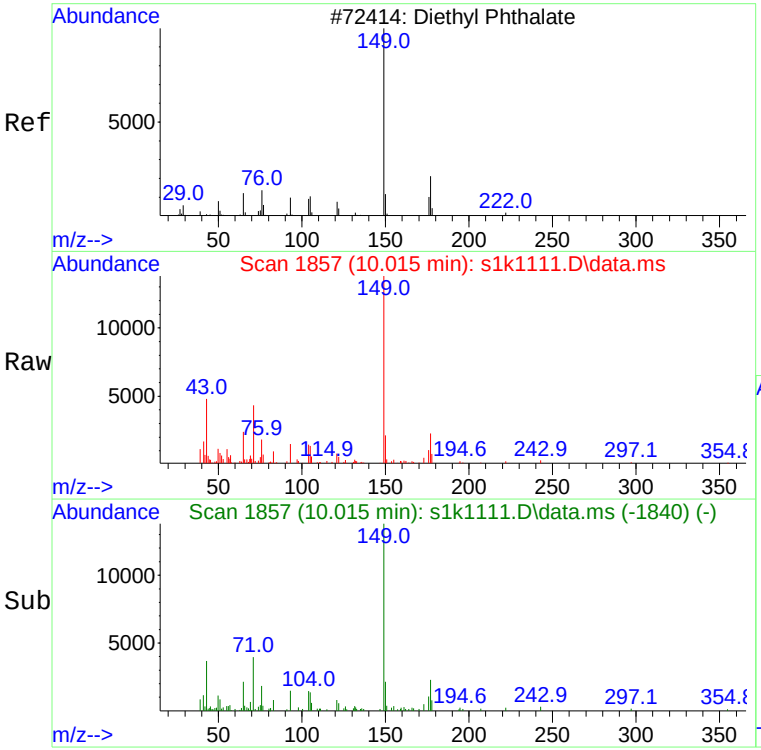
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1111.D
Acq On : 11 Nov 2016 15:51
Operator : JMB3
InstName : MSD1
Sample : |409254034|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 11 16:14:45 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

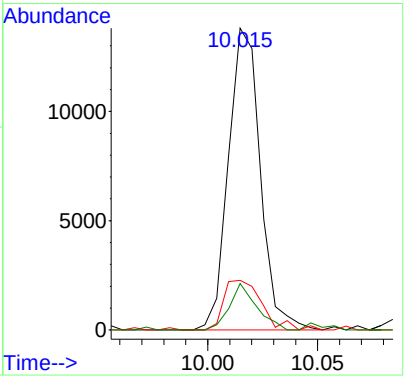


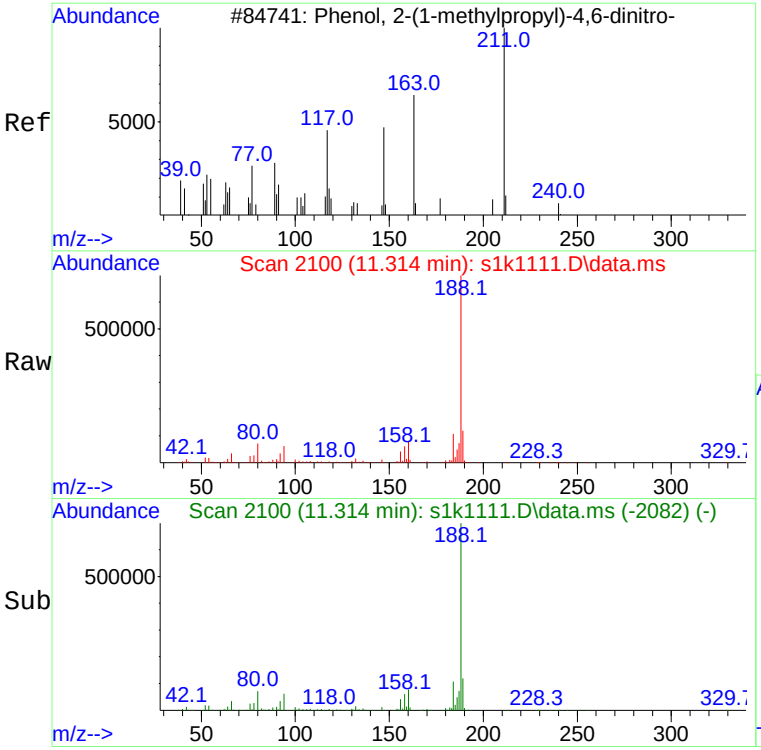


#61
Diethylphthalate
Concen: 0.66 ng/uL
RT: 10.015 min Scan# 1857
Delta R.T. -0.010 min
Lab File: s1k1111.D
Acq: 11 Nov 2016 15:51

Tgt Ion:149 Resp: 13978

Ion	Ratio	Lower	Upper
149	100		
177	19.8	0.0	52.0
150	13.1	0.0	43.4

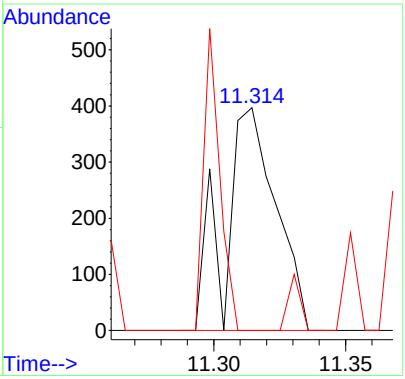


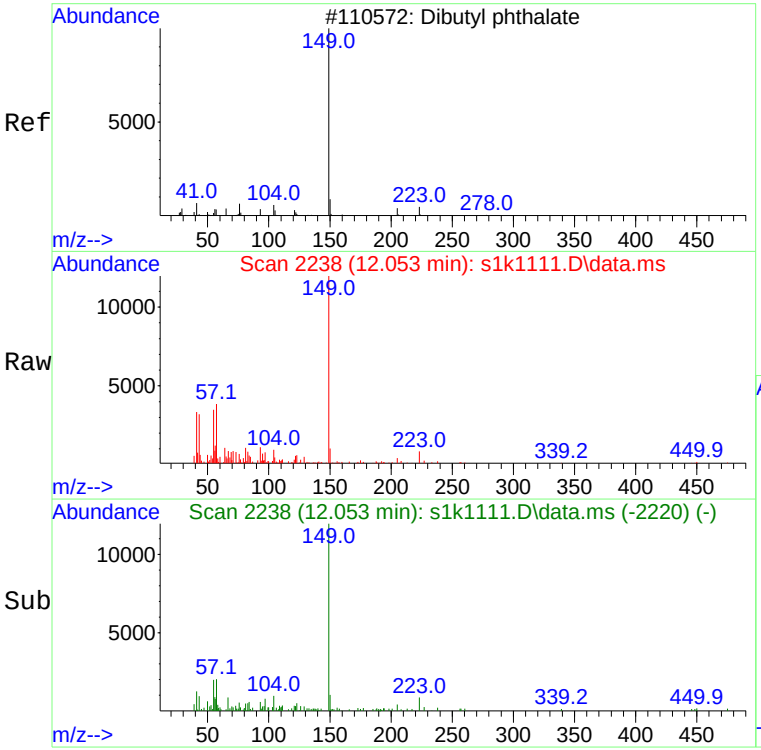


#75 BEFORE analyst DELETION
Dinoseb
Concen: 5.20 ng/uL
RT: 11.314 min Scan# 2100
Delta R.T. -0.005 min
Lab File: s1k1111.D
Acq: 11 Nov 2016 15:51

Tgt Ion:211 Resp: 535

Ion	Ratio	Lower	Upper
211	100		
163	0.0	8.4	68.4#

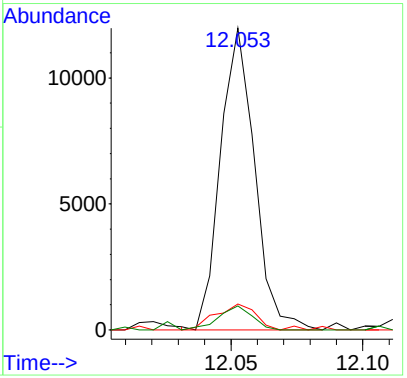


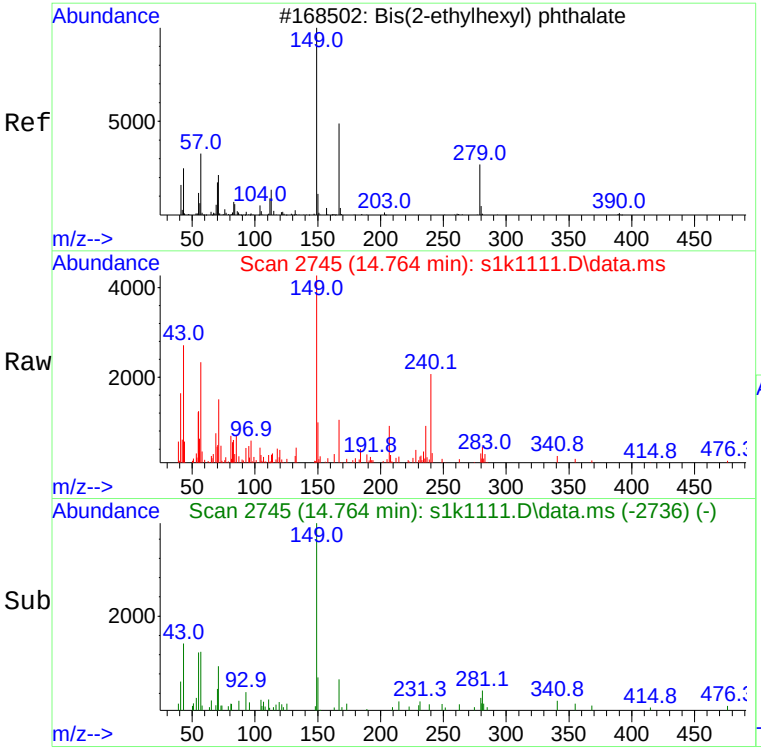


#79
Di-n-butylphthalate
Concen: 0.35 ng/uL
RT: 12.053 min Scan# 2238
Delta R.T. -0.005 min
Lab File: s1k1111.D
Acq: 11 Nov 2016 15:51

Tgt Ion:149 Resp: 10806

Ion	Ratio	Lower	Upper
149	100		
150	10.1	0.0	40.5
104	7.9	0.0	36.6

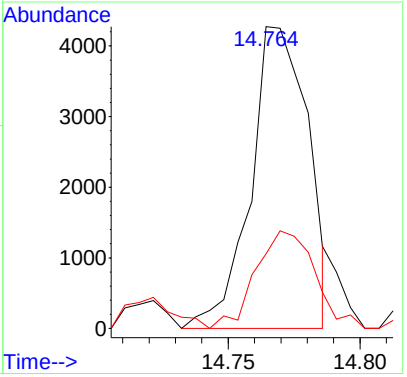


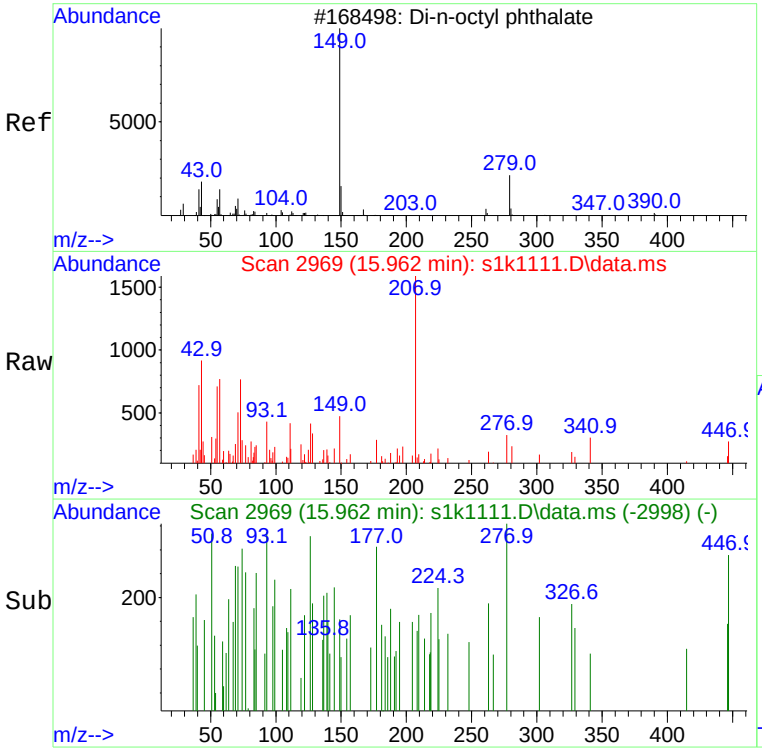


#85
bis(2-Ethylhexyl)phthalate
Concen: 0.46 ng/uL
RT: 14.764 min Scan# 2745
Delta R.T. -0.010 min
Lab File: s1k1111.D
Acq: 11 Nov 2016 15:51

Tgt Ion:149 Resp: 6494

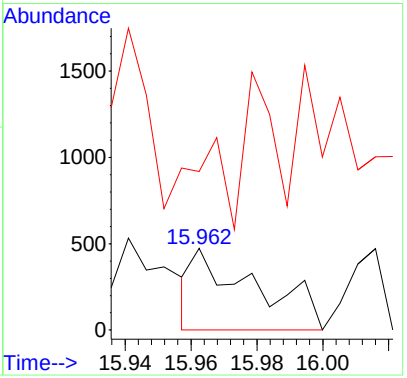
Ion	Ratio	Lower	Upper
149	100		
167	31.7	1.8	61.8






```
#90 BEFORE analyst DELETION
Di-n-octylphthalate
Concen:    0.50 ng/uL
RT:  15.962 min  Scan# 2969
Delta R.T.  -0.074 min
Lab File:   s1k1111.D
Acq: 11 Nov 2016  15:51

Tgt Ion:149 Resp:     627
Ion  Ratio  Lower  Upper
149  100
 43   80.4    0.0   43.5#
```



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 16:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.032 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1112.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	374	ug/kg	112	374
95-94-3	1,2,4,5-Tetrachlorobenzene	U	374	ug/kg	112	374
58-90-2	2,3,4,6-Tetrachlorophenol	U	374	ug/kg	112	374
95-95-4	2,4,5-Trichlorophenol	U	374	ug/kg	112	374
88-06-2	2,4,6-Trichlorophenol	U	374	ug/kg	112	374
120-83-2	2,4-Dichlorophenol	U	374	ug/kg	112	374
105-67-9	2,4-Dimethylphenol	U	374	ug/kg	112	374
51-28-5	2,4-Dinitrophenol	U	747	ug/kg	112	747
121-14-2	2,4-Dinitrotoluene	U	374	ug/kg	112	374
606-20-2	2,6-Dinitrotoluene	U	374	ug/kg	112	374
91-58-7	2-Chloronaphthalene	U	37.4	ug/kg	11.2	37.4
95-57-8	2-Chlorophenol	U	374	ug/kg	112	374
534-52-1	2-Methyl-4,6-dinitrophenol	U	374	ug/kg	112	374
91-57-6	2-Methylnaphthalene	U	37.4	ug/kg	11.2	37.4
88-75-5	2-Nitrophenol	U	374	ug/kg	112	374
91-94-1	3,3'-Dichlorobenzidine	U	374	ug/kg	112	374
101-55-3	4-Bromophenylphenylether	U	374	ug/kg	112	374
59-50-7	4-Chloro-3-methylphenol	U	374	ug/kg	149	374
106-47-8	4-Chloroaniline	U	374	ug/kg	112	374
7005-72-3	4-Chlorophenylphenylether	U	374	ug/kg	112	374
100-02-7	4-Nitrophenol	U	374	ug/kg	112	374
83-32-9	Acenaphthene	U	37.4	ug/kg	11.2	37.4
208-96-8	Acenaphthylene	U	37.4	ug/kg	11.2	37.4
98-86-2	Acetophenone	U	374	ug/kg	112	374
120-12-7	Anthracene	U	37.4	ug/kg	11.2	37.4
1912-24-9	Atrazine	U	374	ug/kg	149	374
100-52-7	Benzaldehyde	U	374	ug/kg	112	374
56-55-3	Benzo(a)anthracene	U	37.4	ug/kg	11.2	37.4
50-32-8	Benzo(a)pyrene	U	37.4	ug/kg	11.2	37.4
205-99-2	Benzo(b)fluoranthene	U	37.4	ug/kg	11.2	37.4
191-24-2	Benzo(ghi)perylene	U	37.4	ug/kg	11.2	37.4
207-08-9	Benzo(k)fluoranthene	U	37.4	ug/kg	11.2	37.4
85-68-7	Butylbenzylphthalate	U	374	ug/kg	112	374
105-60-2	Caprolactam	U	374	ug/kg	112	374
86-74-8	Carbazole	U	37.4	ug/kg	11.2	37.4
218-01-9	Chrysene	U	37.4	ug/kg	11.2	37.4
84-74-2	Di-n-butylphthalate	U	374	ug/kg	112	374
117-84-0	Di-n-octylphthalate	U	374	ug/kg	112	374

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 16:21**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.032 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1112.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	37.4	ug/kg	11.2	37.4
132-64-9	Dibenzofuran	U	374	ug/kg	112	374
84-66-2	Diethylphthalate	U	374	ug/kg	112	374
131-11-3	Dimethylphthalate	U	374	ug/kg	112	374
122-39-4	Diphenylamine	U	374	ug/kg	112	374
206-44-0	Fluoranthene	U	37.4	ug/kg	11.2	37.4
86-73-7	Fluorene	U	37.4	ug/kg	11.2	37.4
118-74-1	Hexachlorobenzene	U	374	ug/kg	112	374
87-68-3	Hexachlorobutadiene	U	374	ug/kg	112	374
77-47-4	Hexachlorocyclopentadiene	U	374	ug/kg	112	374
67-72-1	Hexachloroethane	U	374	ug/kg	112	374
193-39-5	Indeno(1,2,3-cd)pyrene	U	37.4	ug/kg	11.2	37.4
78-59-1	Isophorone	U	374	ug/kg	112	374
621-64-7	N-Nitrosodipropylamine	U	374	ug/kg	112	374
91-20-3	Naphthalene	U	37.4	ug/kg	11.2	37.4
98-95-3	Nitrobenzene	U	374	ug/kg	112	374
87-86-5	Pentachlorophenol	U	374	ug/kg	112	374
85-01-8	Phenanthrene	U	37.4	ug/kg	11.2	37.4
108-95-2	Phenol	U	374	ug/kg	112	374
129-00-0	Pyrene	U	37.4	ug/kg	11.2	37.4
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	374	ug/kg	112	374
111-91-1	bis(2-Chloroethoxy)methane	U	374	ug/kg	112	374
111-44-4	bis(2-Chloroethyl) ether	U	374	ug/kg	112	374
117-81-7	bis(2-Ethylhexyl)phthalate	U	374	ug/kg	112	374
65794-96-9	m,p-Cresols	U	374	ug/kg	112	374
99-09-2	m-Nitroaniline	U	374	ug/kg	112	374
95-48-7	o-Cresol	U	374	ug/kg	112	374
88-74-4	o-Nitroaniline	U	374	ug/kg	123	374
100-01-6	p-Nitroaniline	U	374	ug/kg	112	374

JMB 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1112.D
Acq On : 11 Nov 2016 16:21
Operator : JMB3
InstName : MSD1
Sample : |409254036|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 11 Sample Multiplier: 1

HM.M 11/14/2016

Quant Time: Nov 14 07:38:29 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	276085	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.148	7.153	1.000	957993	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.453	9.458	1.000	529806	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.320	11.319	1.000	916581	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.721	14.732	1.000	662486	40.00	ng/uL	-0.01
91) A Perylene-d12	264	17.775	17.786	1.000	571878	40.00	ng/uL	-0.01
99) B 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	275311	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.148	7.153	1.000	957993	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.453	9.458	1.000	529806	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.320	11.319	1.000	916581	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.721	14.732	1.000	662486	40.00	ng/uL	-0.01
152) B Perylene-d12	264	17.775	17.786	1.000	571878	40.00	ng/uL	-0.01
155) D Naphthalene-d8	136	7.148	7.153	1.000	957993	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.453	9.458	1.000	529806	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.320	11.319	1.000	916581	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.721	14.732	1.000	662381	40.00	ng/uL	-0.01
169) E Naphthalene-d8	136	7.148	7.153	1.000	957993	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.775	17.786	1.000	571878	40.00	ng/uL	-0.01
173) F 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	275311	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.320	11.319	1.000	916581	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.721	14.732	1.000	662486	40.00	ng/uL	-0.01
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.735	3.714	0.695	582733	56.87	ng/uL	0.02
8) Phenol-d5	99	4.869	4.864	0.906	823052	65.60	ng/uL	0.00
25) Nitrobenzene-d5	82	6.153	6.158	0.861	488475	43.56	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.597	8.597	0.909	814172	43.60	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.448	10.453	1.105	235329	68.10	ng/uL	0.00
83) p-Terphenyl-d14	244	13.299	13.298	0.903	760296	42.98	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	57%
8) Phenol-d5	100.000	39 - 106	66%
25) Nitrobenzene-d5	50.000	34 - 109	87%
47) 2-Fluorobiphenyl	50.000	35 - 107	87%
66) 2,4,6-Tribromophenol	100.000	39 - 115	68%
83) p-Terphenyl-d14	50.000	45 - 119	86%

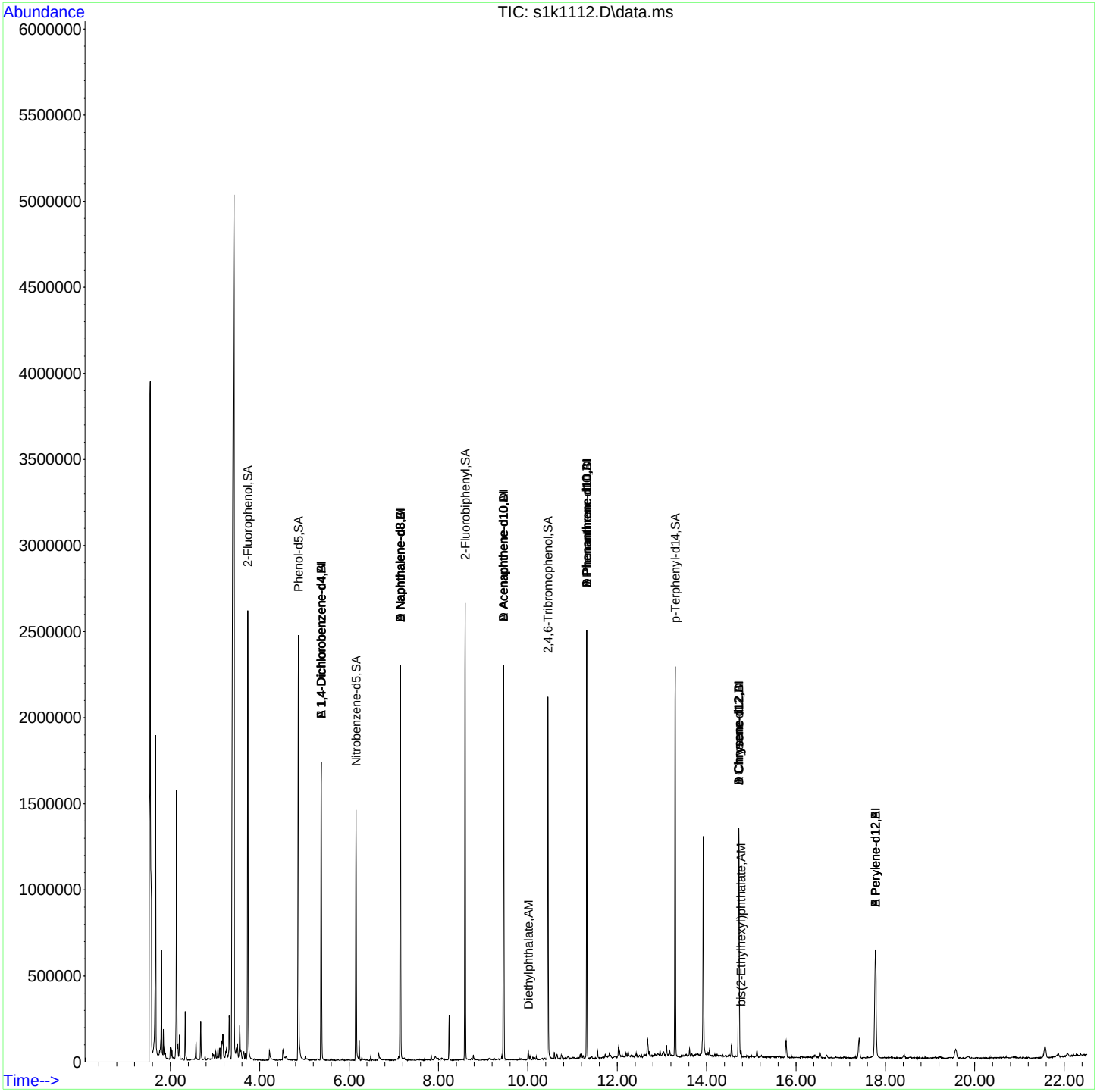
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
61) Diethylphthalate	149	10.014	10.025	1.059	8224	0.36	ng/uL	97
85) bis(2-Ethylhexyl)phtha...	149	14.769	14.775	1.003	11617	0.81	ng/uL	98

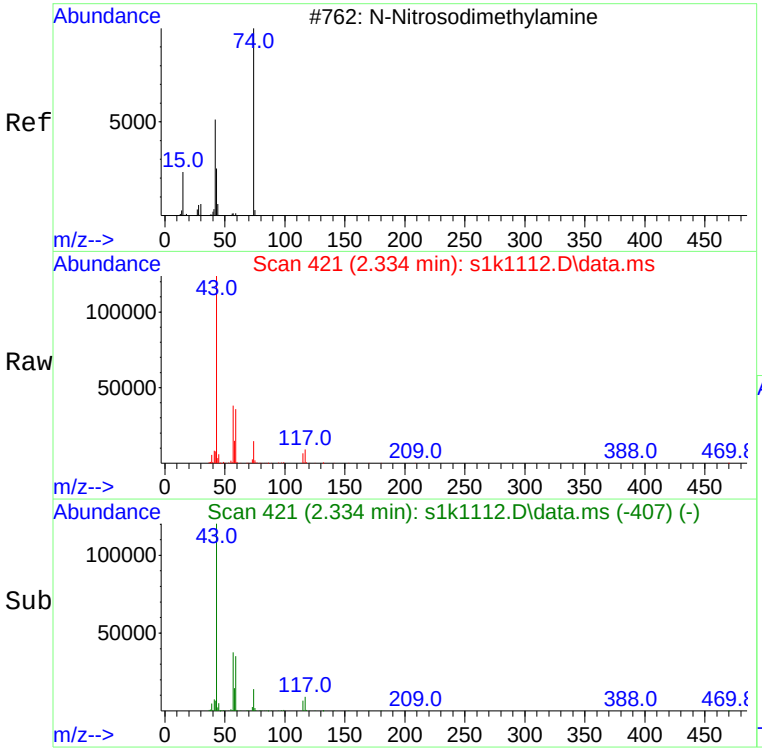
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1112.D
Acq On : 11 Nov 2016 16:21
Operator : JMB3
InstName : MSD1
Sample : |409254036|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 14 07:38:29 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

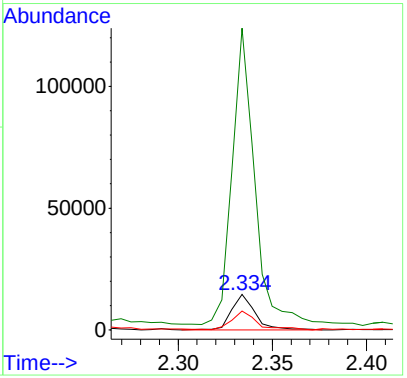


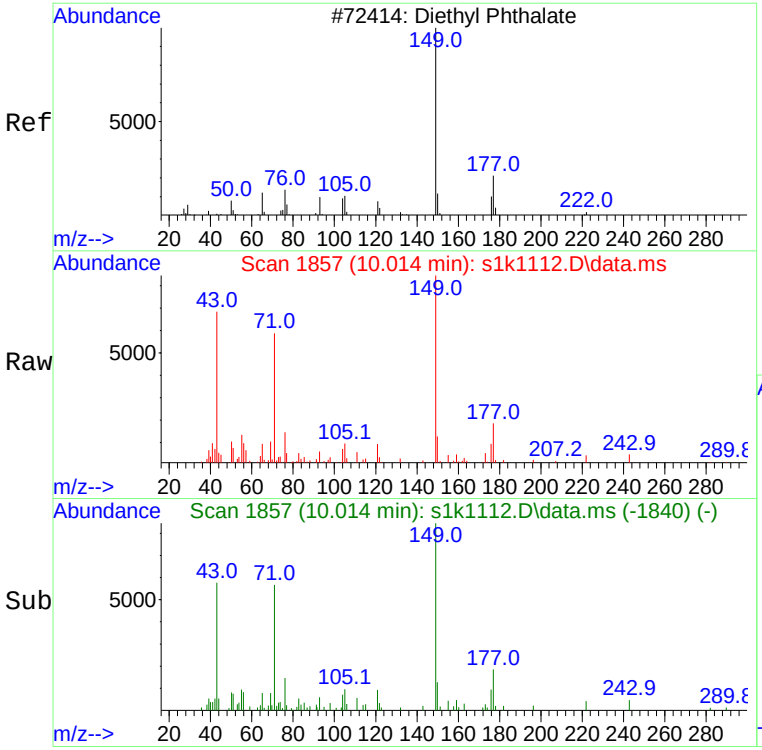


#3 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 1.97 ng/uL
RT: 2.334 min Scan# 421
Delta R.T. -0.059 min
Lab File: s1k1112.D
Acq: 11 Nov 2016 16:21

Tgt Ion: 74 Resp: 12794

Ion	Ratio	Lower	Upper
74	100		
42	58.8	94.0	154.0#
43	810.3	22.3	82.3#

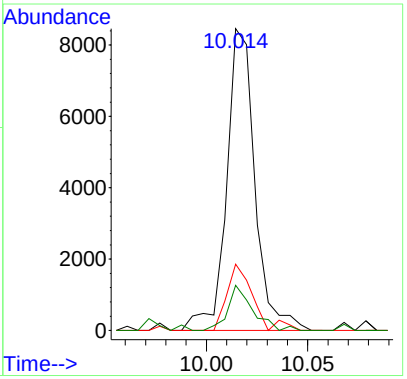


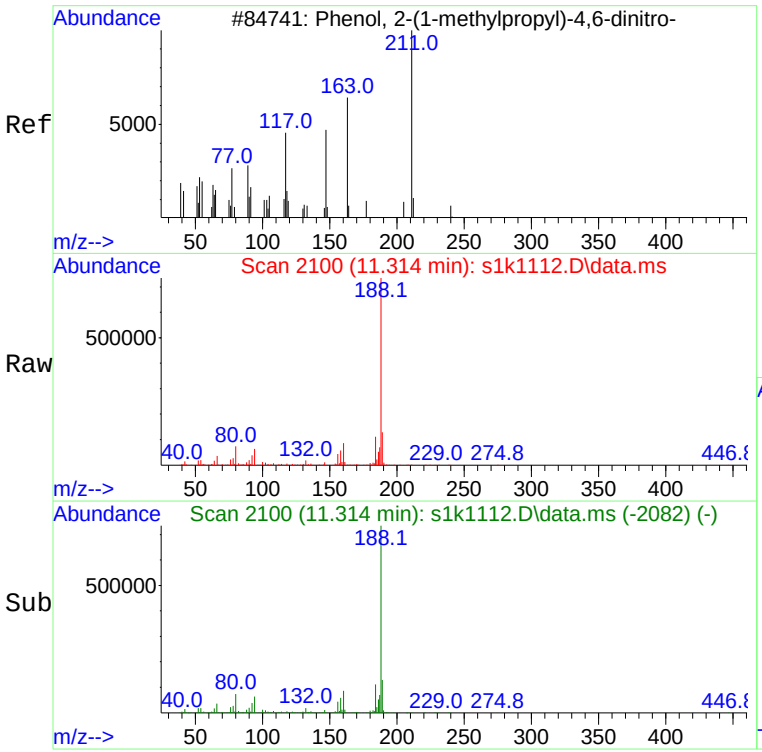


#61
Diethylphthalate
Concen: 0.36 ng/uL
RT: 10.014 min Scan# 1857
Delta R.T. -0.011 min
Lab File: s1k1112.D
Acq: 11 Nov 2016 16:21

Tgt Ion:149 Resp: 8224

Ion	Ratio	Lower	Upper
149	100		
177	20.2	0.0	52.0
150	13.0	0.0	43.4

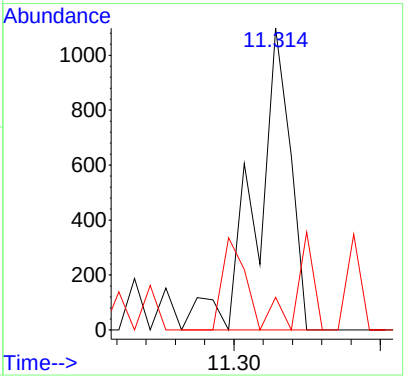


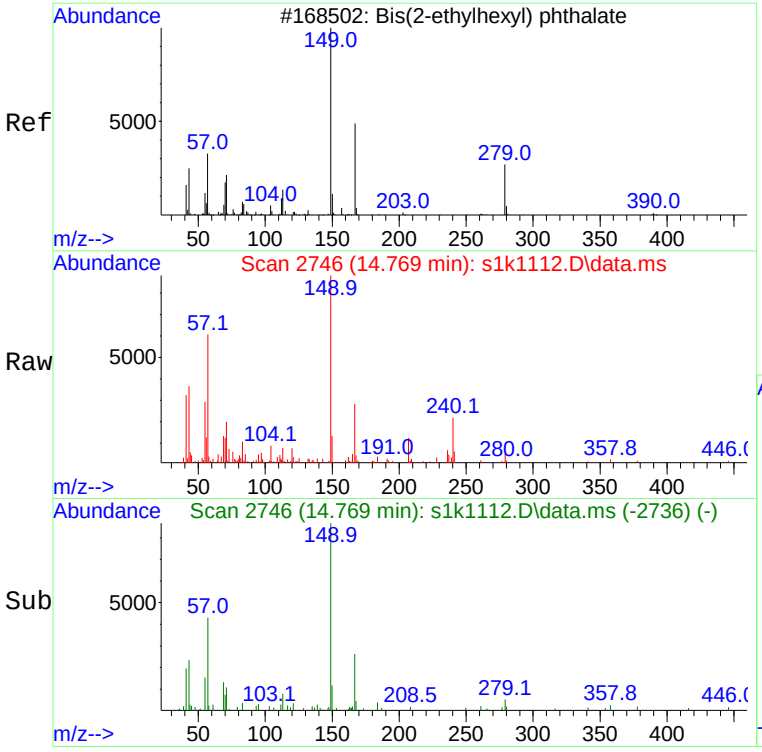


#75 BEFORE analyst DELETION
Dinoseb
Concen: 5.26 ng/uL
RT: 11.314 min Scan# 2100
Delta R.T. -0.005 min
Lab File: s1k1112.D
Acq: 11 Nov 2016 16:21

Tgt Ion:211 Resp: 900

Ion	Ratio	Lower	Upper
211	100		
163	0.0	8.4	68.4#

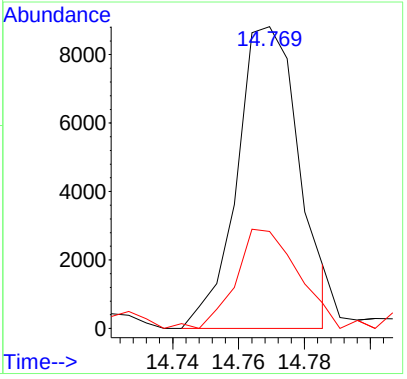


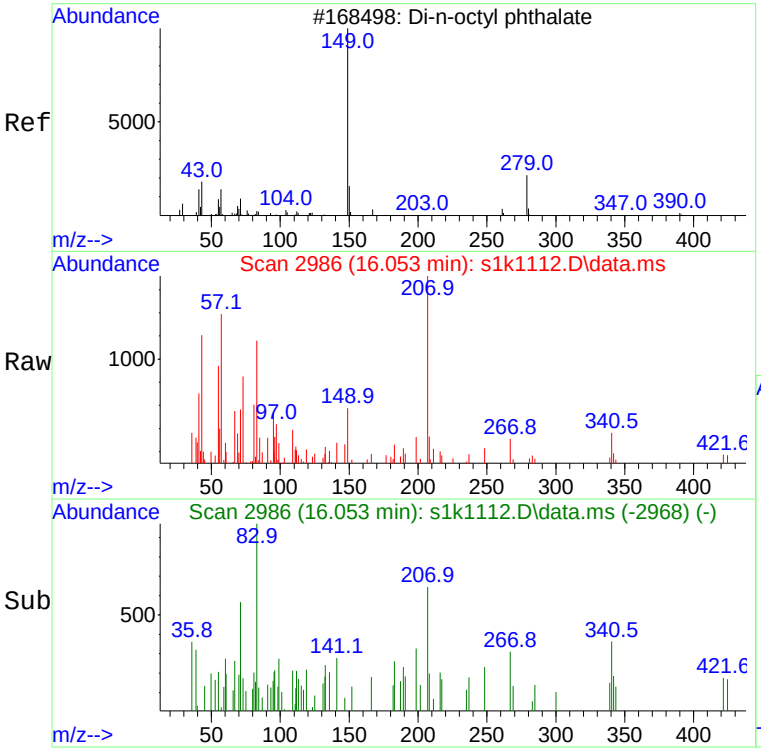


#85
bis(2-Ethylhexyl)phthalate
Concen: 0.81 ng/uL
RT: 14.769 min Scan# 2746
Delta R.T. -0.005 min
Lab File: s1k1112.D
Acq: 11 Nov 2016 16:21

Tgt Ion:149 Resp: 11617

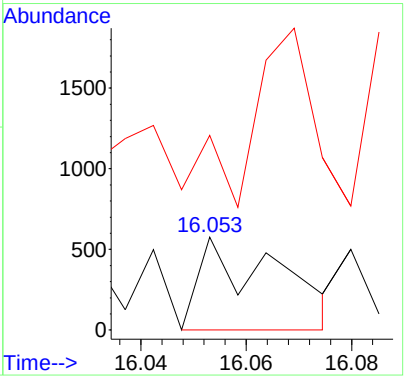
Ion	Ratio	Lower	Upper
149	100		
167	32.8	1.8	61.8






```
#90 BEFORE analyst DELETION
Di-n-octylphthalate
Concen:    0.49 ng/uL
RT:  16.053 min  Scan# 2986
Delta R.T.  0.016 min
Lab File:   s1k1112.D
Acq: 11 Nov 2016  16:21

Tgt Ion:149 Resp:     592
Ion  Ratio  Lower  Upper
149  100
 43  148.8    0.0   43.5#
```



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 16:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.041 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1113.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	340	ug/kg	102	340
95-94-3	1,2,4,5-Tetrachlorobenzene	U	340	ug/kg	102	340
58-90-2	2,3,4,6-Tetrachlorophenol	U	340	ug/kg	102	340
95-95-4	2,4,5-Trichlorophenol	U	340	ug/kg	102	340
88-06-2	2,4,6-Trichlorophenol	U	340	ug/kg	102	340
120-83-2	2,4-Dichlorophenol	U	340	ug/kg	102	340
105-67-9	2,4-Dimethylphenol	U	340	ug/kg	102	340
51-28-5	2,4-Dinitrophenol	U	679	ug/kg	102	679
121-14-2	2,4-Dinitrotoluene	U	340	ug/kg	102	340
606-20-2	2,6-Dinitrotoluene	U	340	ug/kg	102	340
91-58-7	2-Chloronaphthalene	U	34.0	ug/kg	10.2	34.0
95-57-8	2-Chlorophenol	U	340	ug/kg	102	340
534-52-1	2-Methyl-4,6-dinitrophenol	U	340	ug/kg	102	340
91-57-6	2-Methylnaphthalene	U	34.0	ug/kg	10.2	34.0
88-75-5	2-Nitrophenol	U	340	ug/kg	102	340
91-94-1	3,3'-Dichlorobenzidine	U	340	ug/kg	102	340
101-55-3	4-Bromophenylphenylether	U	340	ug/kg	102	340
59-50-7	4-Chloro-3-methylphenol	U	340	ug/kg	136	340
106-47-8	4-Chloroaniline	U	340	ug/kg	102	340
7005-72-3	4-Chlorophenylphenylether	U	340	ug/kg	102	340
100-02-7	4-Nitrophenol	U	340	ug/kg	102	340
83-32-9	Acenaphthene	U	34.0	ug/kg	10.2	34.0
208-96-8	Acenaphthylene	U	34.0	ug/kg	10.2	34.0
98-86-2	Acetophenone	U	340	ug/kg	102	340
120-12-7	Anthracene	U	34.0	ug/kg	10.2	34.0
1912-24-9	Atrazine	U	340	ug/kg	136	340
100-52-7	Benzaldehyde	U	340	ug/kg	102	340
56-55-3	Benzo(a)anthracene	U	34.0	ug/kg	10.2	34.0
50-32-8	Benzo(a)pyrene	U	34.0	ug/kg	10.2	34.0
205-99-2	Benzo(b)fluoranthene	U	34.0	ug/kg	10.2	34.0
191-24-2	Benzo(ghi)perylene	U	34.0	ug/kg	10.2	34.0
207-08-9	Benzo(k)fluoranthene	U	34.0	ug/kg	10.2	34.0
85-68-7	Butylbenzylphthalate	U	340	ug/kg	102	340
105-60-2	Caprolactam	U	340	ug/kg	102	340
86-74-8	Carbazole	U	34.0	ug/kg	10.2	34.0
218-01-9	Chrysene	U	34.0	ug/kg	10.2	34.0
84-74-2	Di-n-butylphthalate	U	340	ug/kg	102	340
117-84-0	Di-n-octylphthalate	U	340	ug/kg	102	340

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/11/2016 16:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.041 g**	**Final Volume:**	**1 mL**
Data File:	**s111116.B\s1k1113.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	34.0	ug/kg	10.2	34.0
132-64-9	Dibenzofuran	U	340	ug/kg	102	340
84-66-2	Diethylphthalate	U	340	ug/kg	102	340
131-11-3	Dimethylphthalate	U	340	ug/kg	102	340
122-39-4	Diphenylamine	U	340	ug/kg	102	340
206-44-0	Fluoranthene	U	34.0	ug/kg	10.2	34.0
86-73-7	Fluorene	U	34.0	ug/kg	10.2	34.0
118-74-1	Hexachlorobenzene	U	340	ug/kg	102	340
87-68-3	Hexachlorobutadiene	U	340	ug/kg	102	340
77-47-4	Hexachlorocyclopentadiene	U	340	ug/kg	102	340
67-72-1	Hexachloroethane	U	340	ug/kg	102	340
193-39-5	Indeno(1,2,3-cd)pyrene	U	34.0	ug/kg	10.2	34.0
78-59-1	Isophorone	U	340	ug/kg	102	340
621-64-7	N-Nitrosodipropylamine	U	340	ug/kg	102	340
91-20-3	Naphthalene	U	34.0	ug/kg	10.2	34.0
98-95-3	Nitrobenzene	U	340	ug/kg	102	340
87-86-5	Pentachlorophenol	U	340	ug/kg	102	340
85-01-8	Phenanthrene	U	34.0	ug/kg	10.2	34.0
108-95-2	Phenol	U	340	ug/kg	102	340
129-00-0	Pyrene	U	34.0	ug/kg	10.2	34.0
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	340	ug/kg	102	340
111-91-1	bis(2-Chloroethoxy)methane	U	340	ug/kg	102	340
111-44-4	bis(2-Chloroethyl) ether	U	340	ug/kg	102	340
117-81-7	bis(2-Ethylhexyl)phthalate	U	340	ug/kg	102	340
65794-96-9	m,p-Cresols	U	340	ug/kg	102	340
99-09-2	m-Nitroaniline	U	340	ug/kg	102	340
95-48-7	o-Cresol	U	340	ug/kg	102	340
88-74-4	o-Nitroaniline	U	340	ug/kg	112	340
100-01-6	p-Nitroaniline	U	340	ug/kg	102	340

JMB 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1113.D
Acq On : 11 Nov 2016 16:51
Operator : JMB3
InstName : MSD1
Sample : |409254038|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 12 Sample Multiplier: 1

HM.M 11/14/2016

Quant Time: Nov 14 07:42:50 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	308067	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.147	7.153	1.000	1066527	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.458	9.458	1.000	599493	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.319	11.319	1.000	1058081	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.726	14.732	1.000	886340	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.786	17.786	1.000	740803	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	307664	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.147	7.153	1.000	1066527	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.458	9.458	1.000	599493	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.319	11.319	1.000	1058081	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.726	14.732	1.000	886340	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.786	17.786	1.000	740803	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.147	7.153	1.000	1066527	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.458	9.458	1.000	599493	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.319	11.319	1.000	1058081	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.726	14.732	1.000	886581	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.147	7.153	1.000	1066527	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.786	17.786	1.000	740803	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	307664	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.319	11.319	1.000	1058081	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.726	14.732	1.000	886340	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.740	3.714	0.696	599434	52.42	ng/uL	0.03
8) Phenol-d5	99	4.869	4.864	0.906	852224	60.87	ng/uL	0.00
25) Nitrobenzene-d5	82	6.153	6.158	0.861	507434	40.64	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.597	8.597	0.909	844874	39.99	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.448	10.453	1.105	241557	61.78	ng/uL	0.00
83) p-Terphenyl-d14	244	13.298	13.298	0.903	872760	36.88	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	52%
8) Phenol-d5	100.000	39 - 106	61%
25) Nitrobenzene-d5	50.000	34 - 109	81%
47) 2-Fluorobiphenyl	50.000	35 - 107	80%
66) 2,4,6-Tribromophenol	100.000	39 - 115	62%
83) p-Terphenyl-d14	50.000	45 - 119	74%

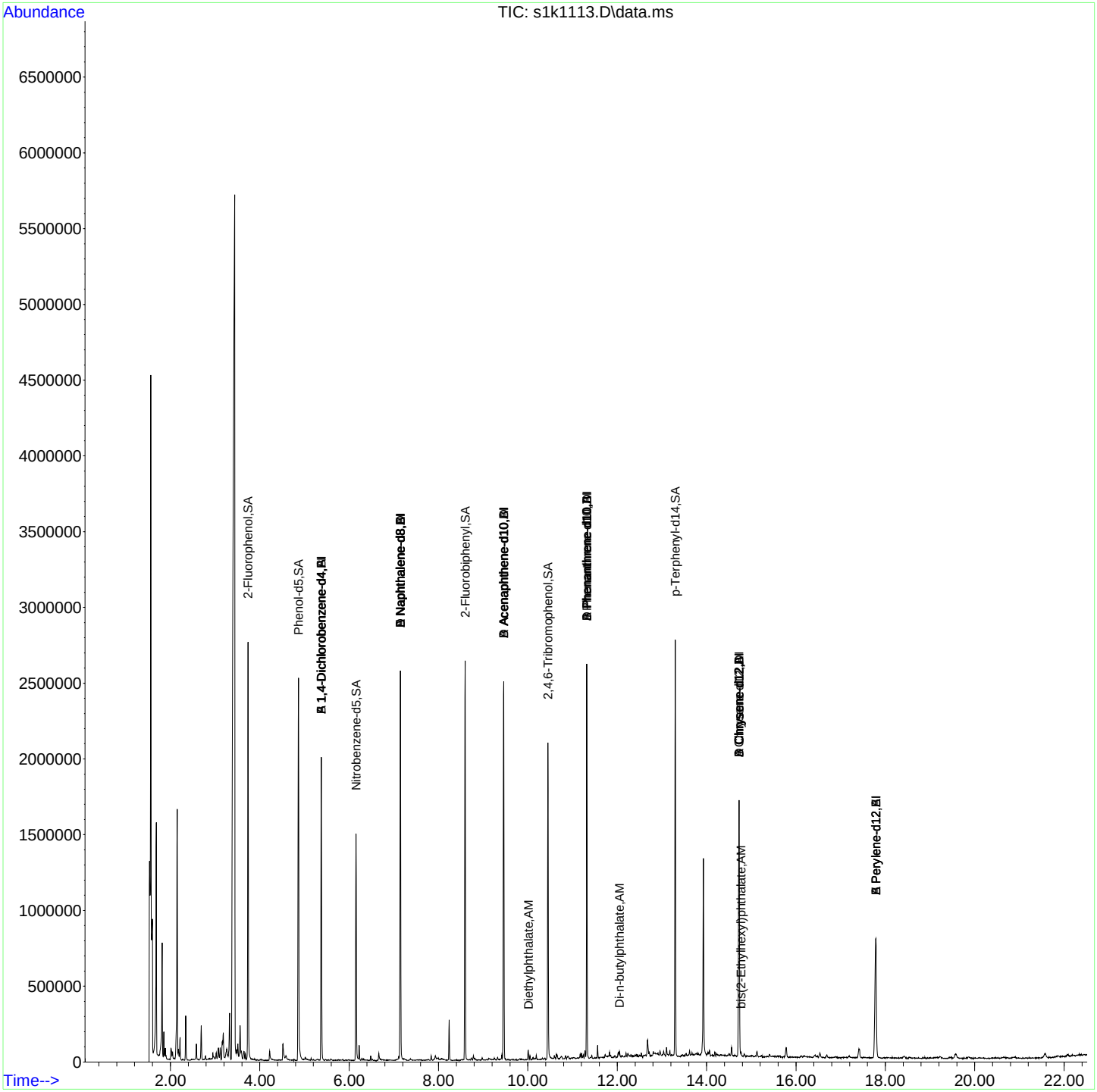
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
61) Diethylphthalate	149	10.014	10.025	1.059	8651	0.33	ng/uL	93
79) Di-n-butylphthalate	149	12.052	12.057	1.065	12215	0.31	ng/uL	97
85) bis(2-Ethylhexyl)phtha...	149	14.769	14.775	1.003	8124	0.42	ng/uL	100

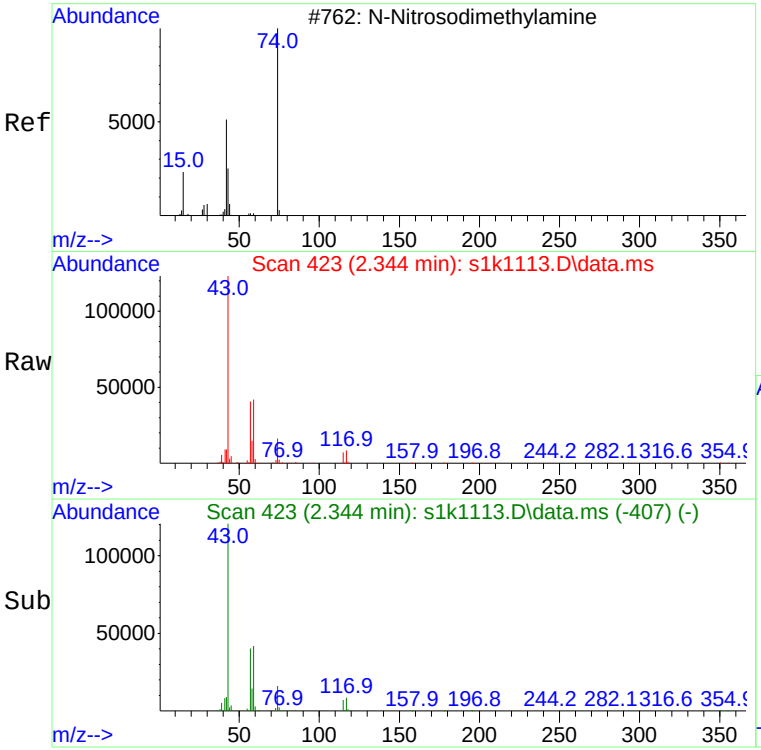
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1113.D
Acq On : 11 Nov 2016 16:51
Operator : JMB3
InstName : MSD1
Sample : |409254038|1614270|1|SVM|1|HAAL
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 14 07:42:50 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

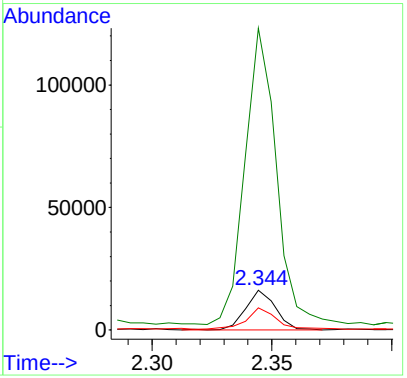


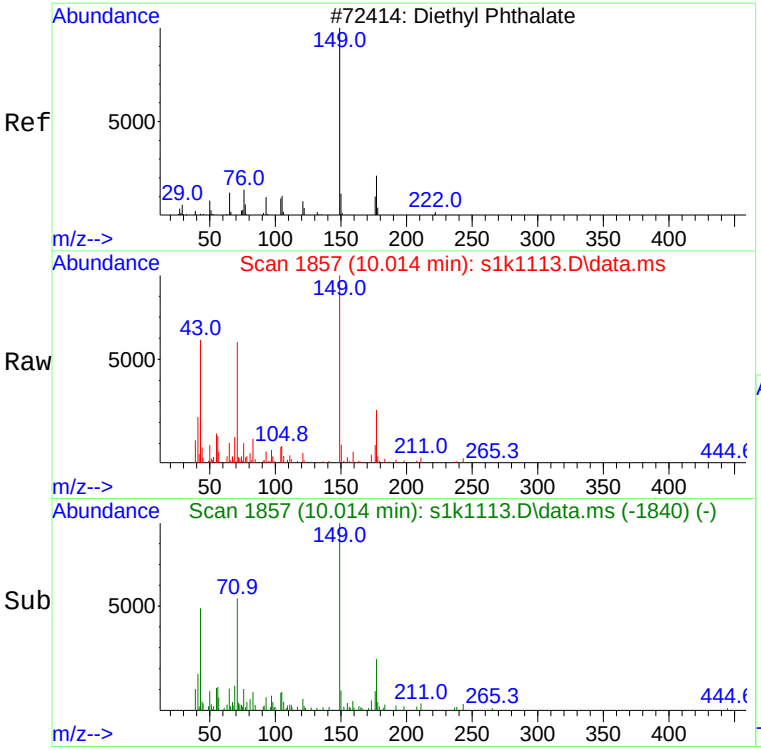


#3 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 1.95 ng/uL
RT: 2.344 min Scan# 423
Delta R.T. -0.048 min
Lab File: s1k1113.D
Acq: 11 Nov 2016 16:51

Tgt Ion: 74 Resp: 14128

Ion	Ratio	Lower	Upper
74	100		
42	54.7	94.0	154.0#
43	784.2	22.3	82.3#

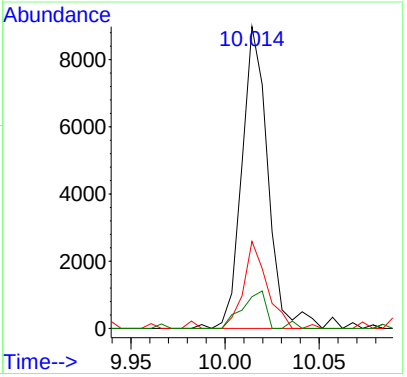


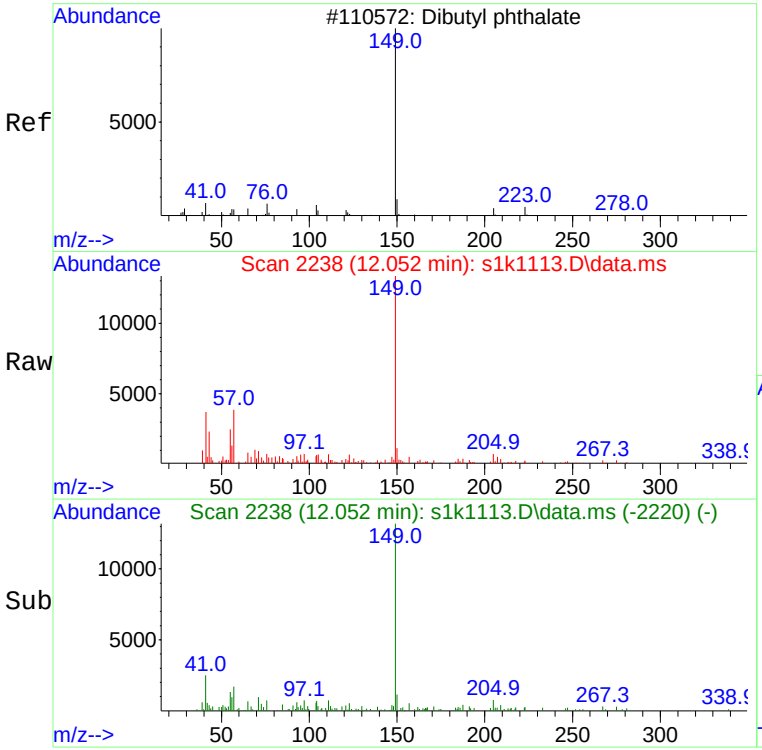


#61
Diethylphthalate
Concen: 0.33 ng/uL
RT: 10.014 min Scan# 1857
Delta R.T. -0.011 min
Lab File: s1k1113.D
Acq: 11 Nov 2016 16:51

Tgt Ion:149 Resp: 8651

Ion	Ratio	Lower	Upper
149	100		
177	25.6	0.0	52.0
150	11.2	0.0	43.4

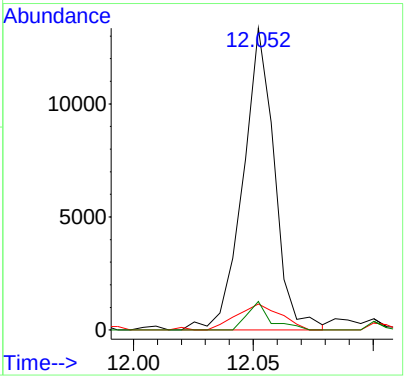


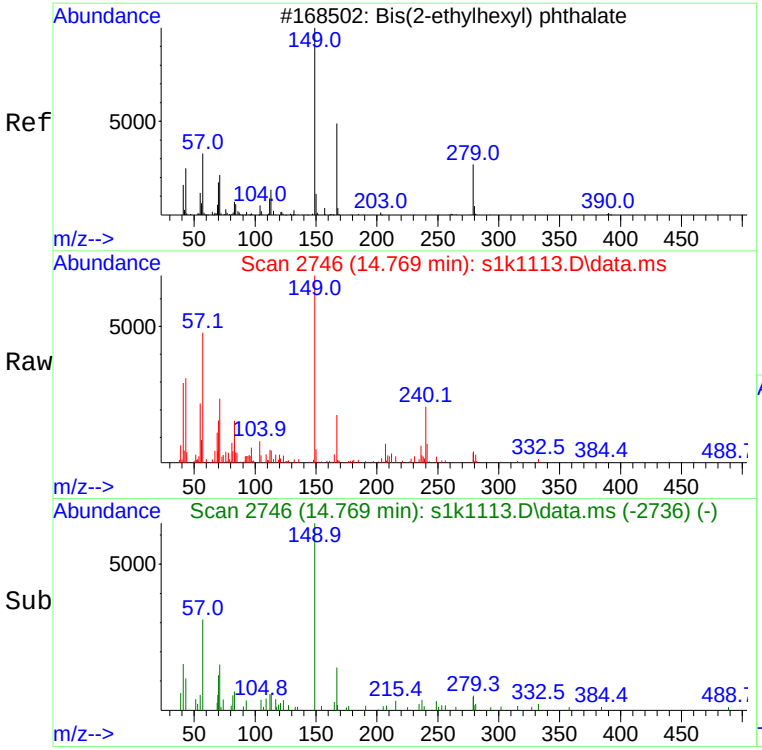


#79
Di-n-butylphthalate
Concen: 0.31 ng/uL
RT: 12.052 min Scan# 2238
Delta R.T. -0.005 min
Lab File: s1k1113.D
Acq: 11 Nov 2016 16:51

Tgt Ion:149 Resp: 12215

Ion	Ratio	Lower	Upper
149	100		
150	12.0	0.0	40.5
104	6.9	0.0	36.6

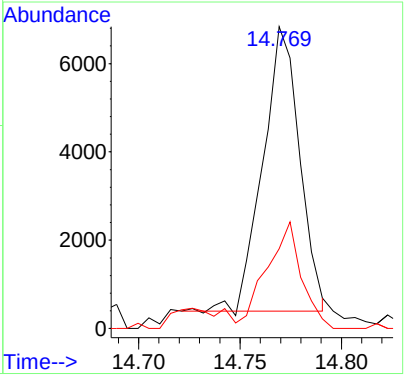


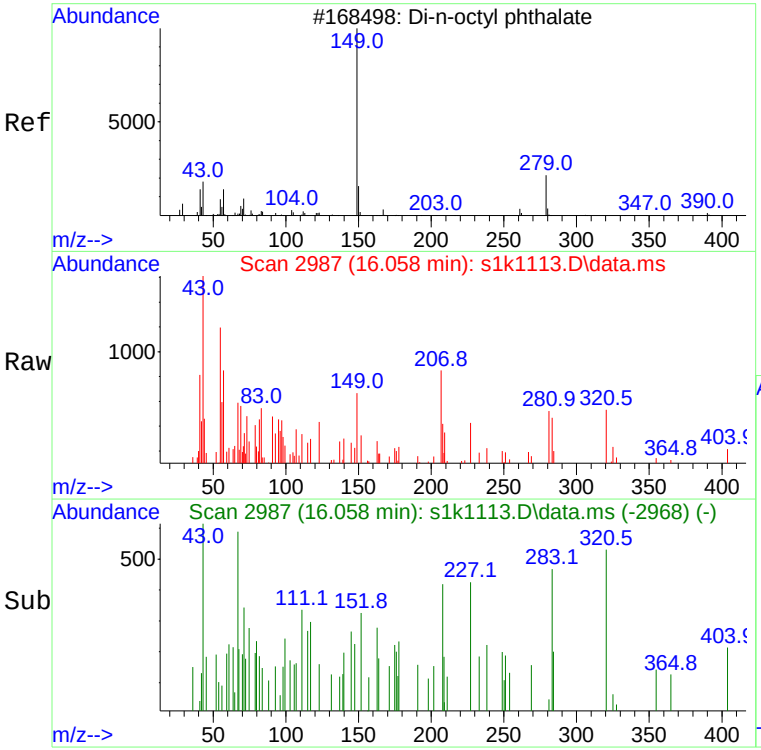


#85
bis(2-Ethylhexyl)phthalate
Concen: 0.42 ng/uL
RT: 14.769 min Scan# 2746
Delta R.T. -0.005 min
Lab File: s1k1113.D
Acq: 11 Nov 2016 16:51

Tgt Ion:149 Resp: 8124

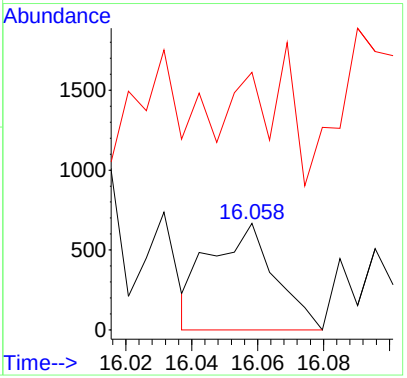
Ion	Ratio	Lower	Upper
149	100		
167	31.7	1.8	61.8






```
#90 BEFORE analyst DELETION
Di-n-octylphthalate
Concen:    0.50 ng/uL
RT:  16.058 min  Scan# 2987
Delta R.T.  0.021 min
Lab File:   s1k1113.D
Acq: 11 Nov 2016  16:51

Tgt Ion:149 Resp:     914
Ion  Ratio  Lower  Upper
149  100
 43   86.9    0.0   43.5#
```



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254013**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140300**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 10:54**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.007 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0707.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	5.26	ug/kg	2.63	5.26
91-58-7	2-Chloronaphthalene	U	5.26	ug/kg	2.63	5.26
91-57-6	2-Methylnaphthalene	U	5.26	ug/kg	2.63	5.26
83-32-9	Acenaphthene	U	5.26	ug/kg	2.63	5.26
208-96-8	Acenaphthylene	U	5.26	ug/kg	2.63	5.26
120-12-7	Anthracene	U	5.26	ug/kg	2.63	5.26
56-55-3	Benzo(a)anthracene	U	5.26	ug/kg	2.63	5.26
50-32-8	Benzo(a)pyrene	U	5.26	ug/kg	2.63	5.26
205-99-2	Benzo(b)fluoranthene	U	5.26	ug/kg	2.63	5.26
191-24-2	Benzo(ghi)perylene	U	5.26	ug/kg	2.63	5.26
207-08-9	Benzo(k)fluoranthene	U	5.26	ug/kg	2.63	5.26
218-01-9	Chrysene	U	5.26	ug/kg	2.63	5.26
53-70-3	Dibenzo(a,h)anthracene	U	5.26	ug/kg	2.63	5.26
206-44-0	Fluoranthene	J	3.15	ug/kg	2.63	5.26
86-73-7	Fluorene	U	5.26	ug/kg	2.63	5.26
193-39-5	Indeno(1,2,3-cd)pyrene	U	5.26	ug/kg	2.63	5.26
91-20-3	Naphthalene	U	5.26	ug/kg	1.58	5.26
85-01-8	Phenanthrene	J	3.68	ug/kg	2.63	5.26
129-00-0	Pyrene	J	2.63	ug/kg	2.63	5.26

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0707.D
Acq On : 07 Nov 2016 10:54
Operator : JMB3
InstName : MSD4
Sample : |409254013|1612777|1|SVM|1|HAAL
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 7 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 11:23:14 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.448	5.448	1.000	344923	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1150449	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	442849	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.455	11.457	1.000	776072	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.956	14.963	1.000	326618	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.228	18.231	1.000	184150	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.448	5.448	1.000	344923	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1150449	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.455	11.457	1.000	776072	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.956	14.963	1.000	326618	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.729	12.731	1.111	119943	4.94	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	99%

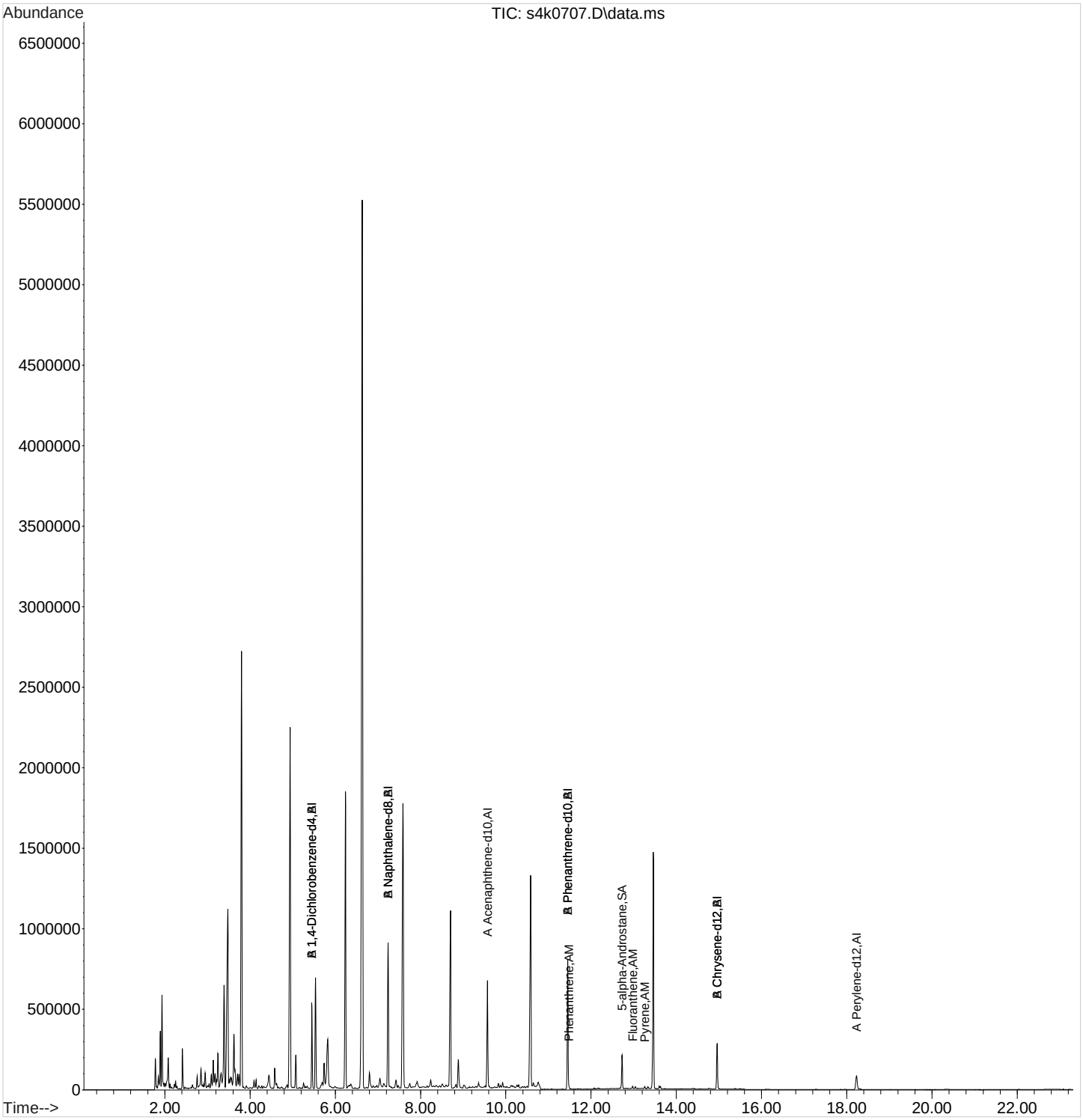
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
15) Phenanthrene	178	11.483	11.489	1.002	17740	0.07	ng/uL	92
18) Fluoranthene	202	12.974	12.981	1.133	14082	0.06	ng/uL	97
20) Pyrene	202	13.260	13.262	0.887	11502	0.05	ng/uL	98

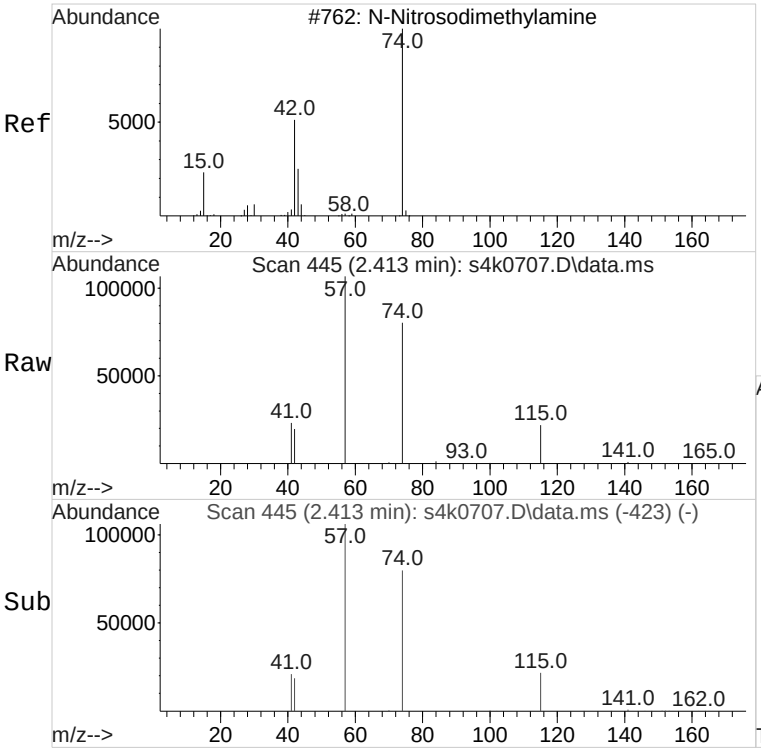
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0707.D
Acq On : 07 Nov 2016 10:54
Operator : JMB3
InstName : MSD4
Sample : |409254013|1612777|1|SVM|1|HAAL
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 11:23:14 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

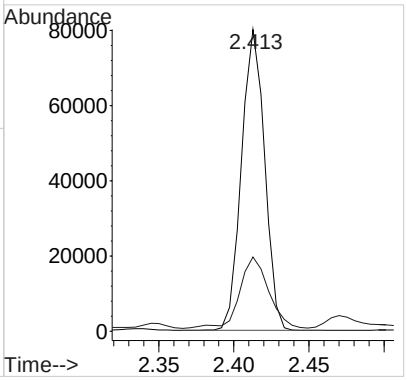


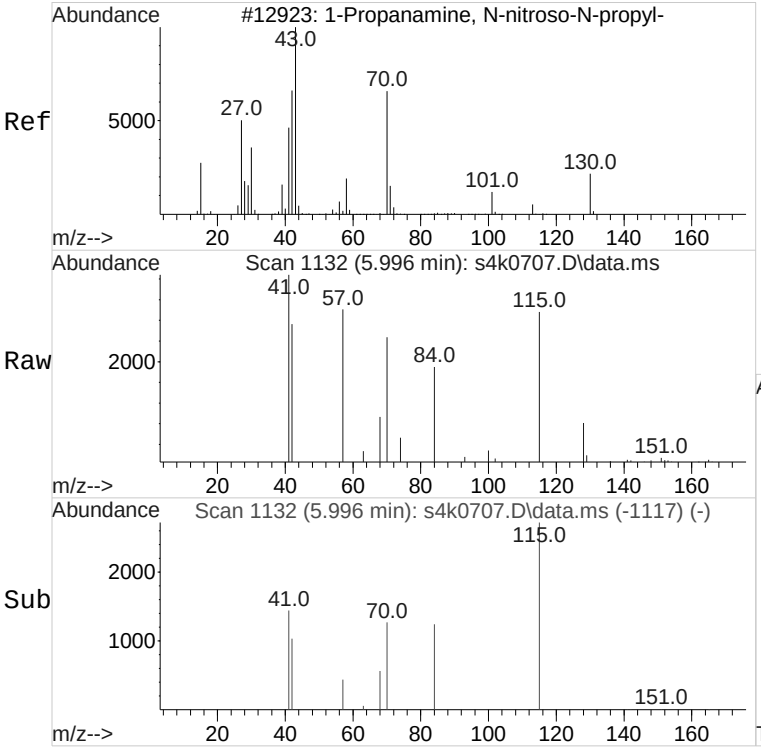


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 1.37 ng/uL
RT: 2.413 min Scan# 445
Delta R.T. -0.015 min
Lab File: s4k0707.D
Acq: 07 Nov 2016 10:54

Tgt Ion: 74 Resp: 85471

Ion	Ratio	Lower	Upper
74	100		
42	29.5	39.1	99.1#

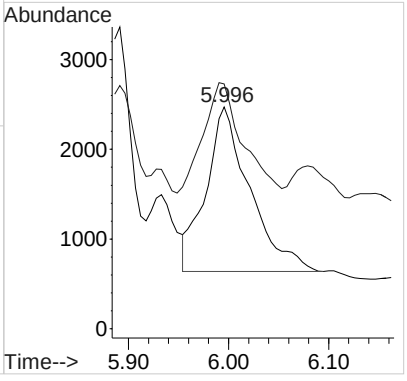


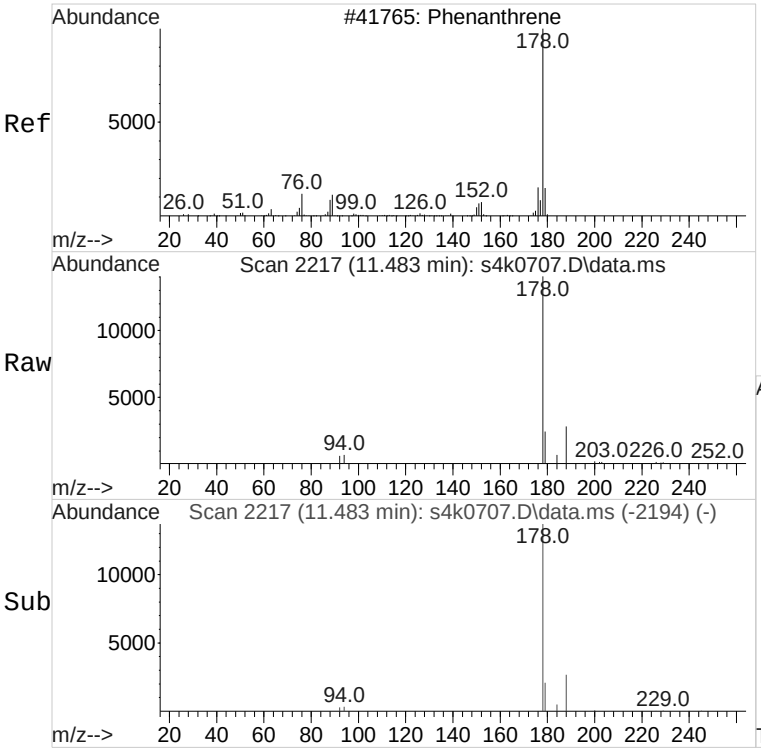


#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.08 ng/uL
RT: 5.996 min Scan# 1132
Delta R.T. -0.021 min
Lab File: s4k0707.D
Acq: 07 Nov 2016 10:54

Tgt Ion: 70 Resp: 5596

Ion	Ratio	Lower	Upper
70	100		
42	60.8	22.5	82.5

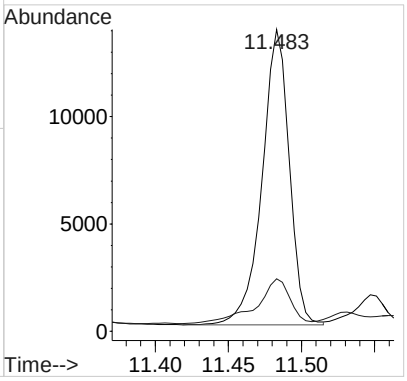


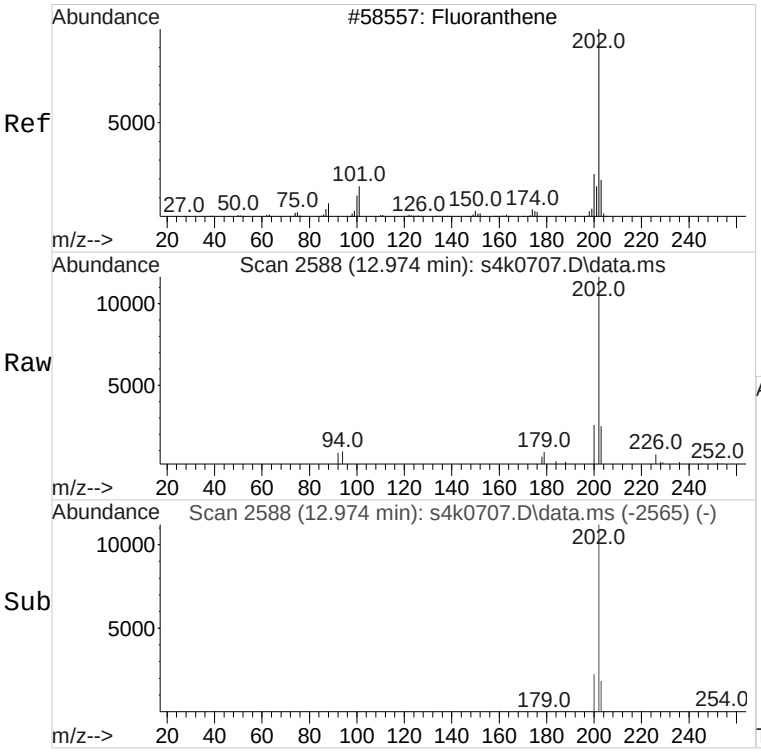


#15
Phenanthrene
Concen: 0.07 ng/uL
RT: 11.483 min Scan# 2217
Delta R.T. -0.006 min
Lab File: s4k0707.D
Acq: 07 Nov 2016 10:54

Tgt Ion:178 Resp: 17740

Ion	Ratio	Lower	Upper
178	100		
179	18.9	0.0	45.6

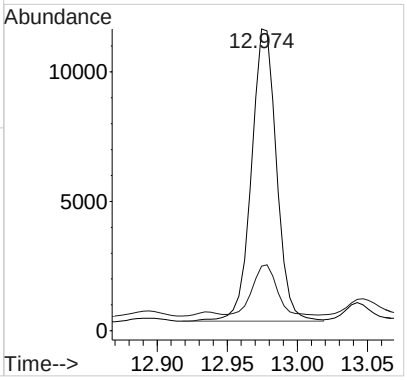


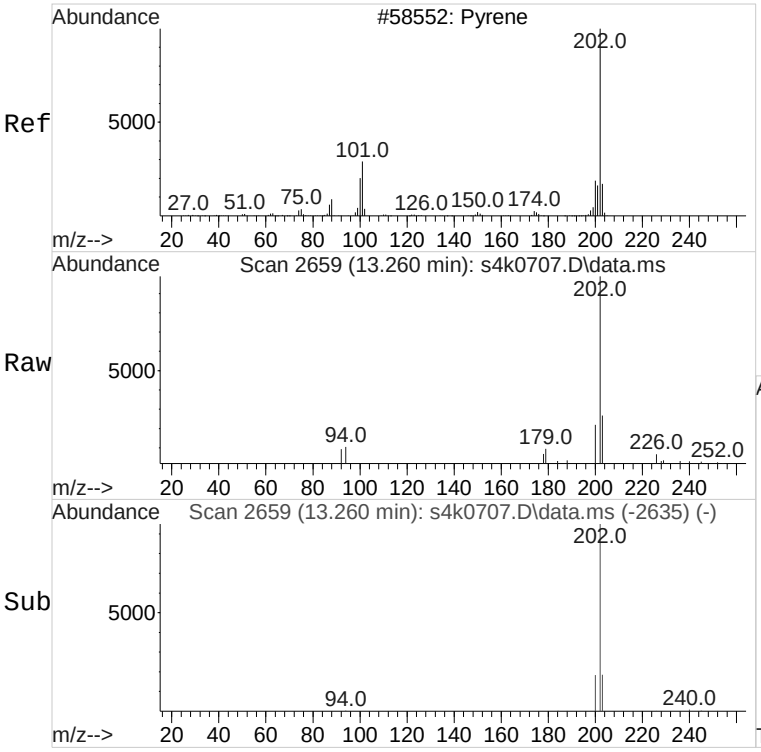


#18
Fluoranthene
Concen: 0.06 ng/uL
RT: 12.974 min Scan# 2588
Delta R.T. -0.006 min
Lab File: s4k0707.D
Acq: 07 Nov 2016 10:54

Tgt Ion:202 Resp: 14082

Ion	Ratio	Lower	Upper
202	100		
203	16.3	0.0	47.7

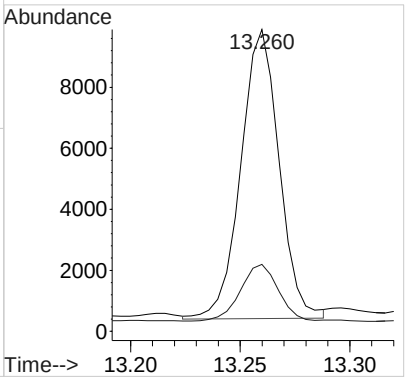




#20
Pyrene
Concen: 0.05 ng/uL
RT: 13.260 min Scan# 2659
Delta R.T. -0.002 min
Lab File: s4k0707.D
Acq: 07 Nov 2016 10:54

Tgt Ion:202 Resp: 11502

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	50.4



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:58**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254014**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**44.5**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140200**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 11:51**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.102 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0709.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	5.98	ug/kg	2.99	5.98
91-58-7	2-Chloronaphthalene	U	5.98	ug/kg	2.99	5.98
91-57-6	2-Methylnaphthalene	U	5.98	ug/kg	2.99	5.98
83-32-9	Acenaphthene	U	5.98	ug/kg	2.99	5.98
208-96-8	Acenaphthylene	U	5.98	ug/kg	2.99	5.98
120-12-7	Anthracene	U	5.98	ug/kg	2.99	5.98
56-55-3	Benzo(a)anthracene	U	5.98	ug/kg	2.99	5.98
50-32-8	Benzo(a)pyrene	U	5.98	ug/kg	2.99	5.98
205-99-2	Benzo(b)fluoranthene	J	4.79	ug/kg	2.99	5.98
191-24-2	Benzo(ghi)perylene	U	5.98	ug/kg	2.99	5.98
207-08-9	Benzo(k)fluoranthene	J	3.59	ug/kg	2.99	5.98
218-01-9	Chrysene	J	3.59	ug/kg	2.99	5.98
53-70-3	Dibenzo(a,h)anthracene	U	5.98	ug/kg	2.99	5.98
206-44-0	Fluoranthene		5.98	ug/kg	2.99	5.98
86-73-7	Fluorene	U	5.98	ug/kg	2.99	5.98
193-39-5	Indeno(1,2,3-cd)pyrene	U	5.98	ug/kg	2.99	5.98
91-20-3	Naphthalene	U	5.98	ug/kg	1.80	5.98
85-01-8	Phenanthrene	J	4.19	ug/kg	2.99	5.98
129-00-0	Pyrene	J	4.19	ug/kg	2.99	5.98

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0709.D
Acq On : 07 Nov 2016 11:51
Operator : JMB3
InstName : MSD4
Sample : |409254014|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 9 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 12:52:53 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	318606	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1077102	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	416993	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	788172	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.962	14.963	1.000	425874	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.236	18.231	1.000	245512	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	318606	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1077102	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.456	11.457	1.000	788172	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.962	14.963	1.000	425874	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	100194	4.06	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	81%

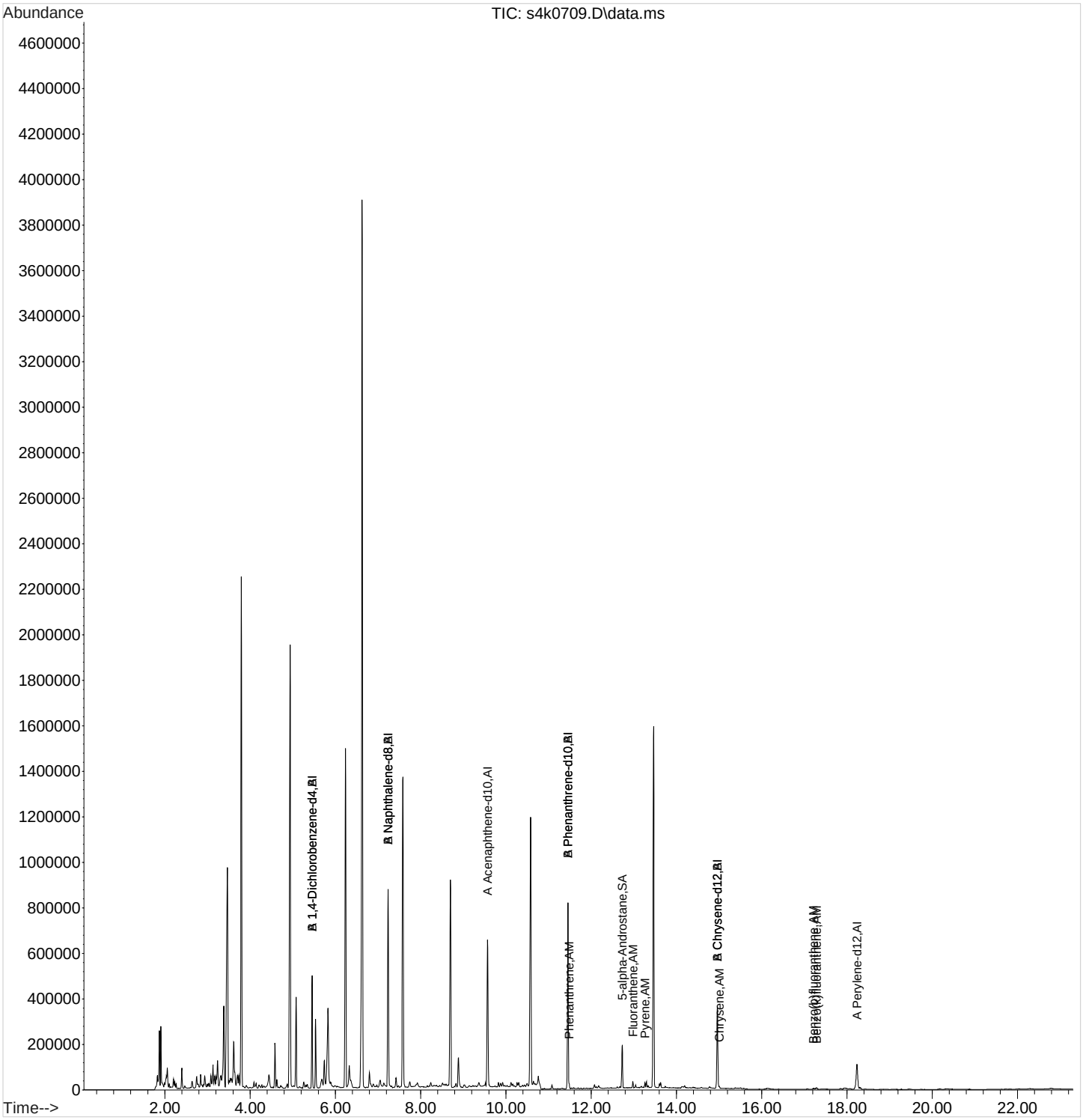
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
15) Phenanthrene	178	11.484	11.489	1.002	20177	0.07	ng/uL	96
18) Fluoranthene	202	12.980	12.981	1.133	23940	0.10	ng/uL	98
20) Pyrene	202	13.261	13.262	0.886	19106	0.07	ng/uL	99
22) Chrysene	228	15.006	15.007	1.003	9317	0.06	ng/uL	99
24) Benzo(b)fluoranthene	252	17.218	17.213	0.944	9015	0.08	ng/uL	97
25) Benzo(k)fluoranthene	252	17.286	17.284	0.948	6612	0.06	ng/uL	74

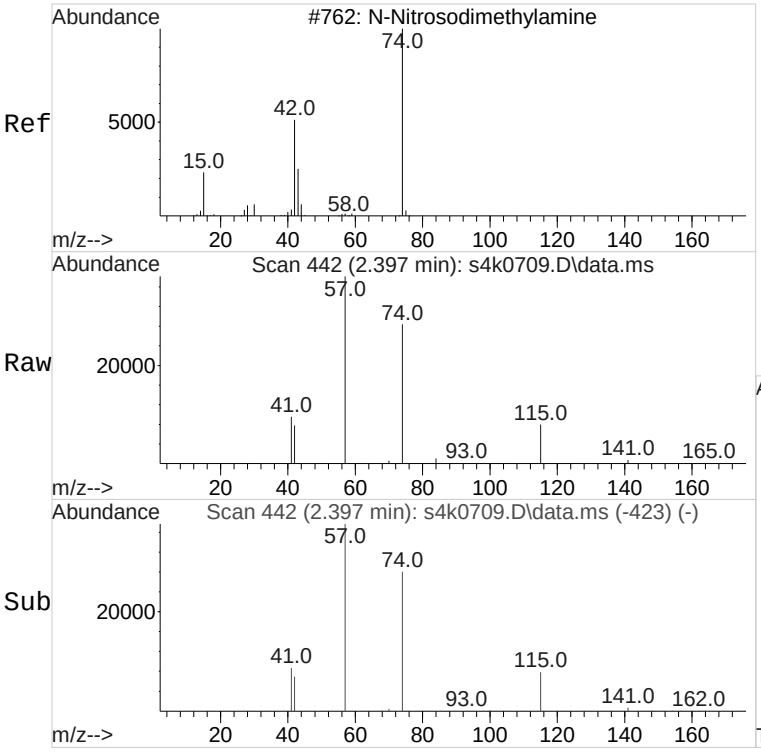
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0709.D
Acq On : 07 Nov 2016 11:51
Operator : JMB3
InstName : MSD4
Sample : |409254014|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 07 12:52:53 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

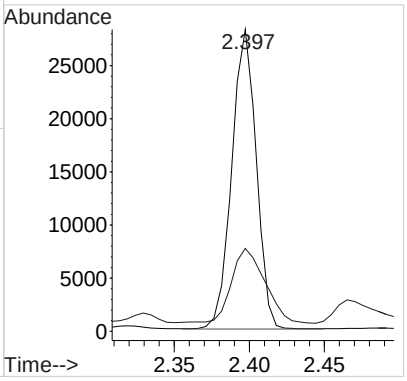


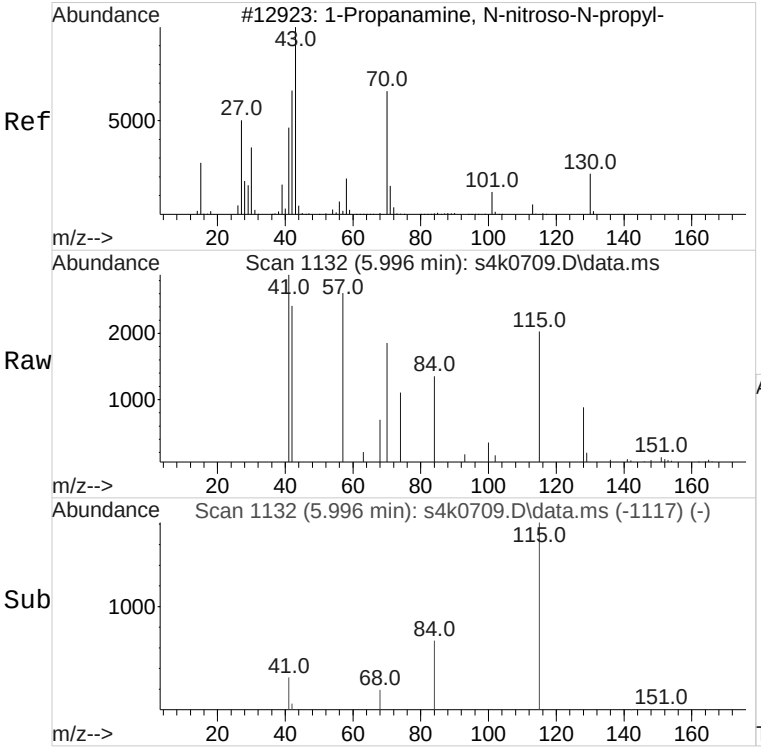


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 0.55 ng/uL
RT: 2.397 min Scan# 442
Delta R.T. -0.031 min
Lab File: s4k0709.D
Acq: 07 Nov 2016 11:51

Tgt Ion: 74 Resp: 31922

Ion	Ratio	Lower	Upper
74	100		
42	34.2	39.1	99.1#

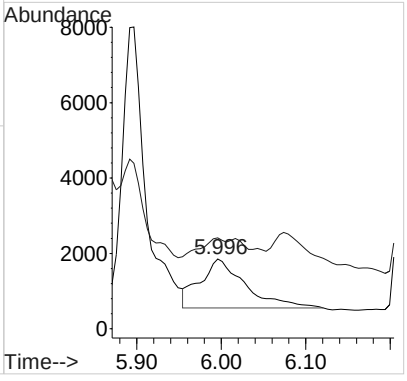


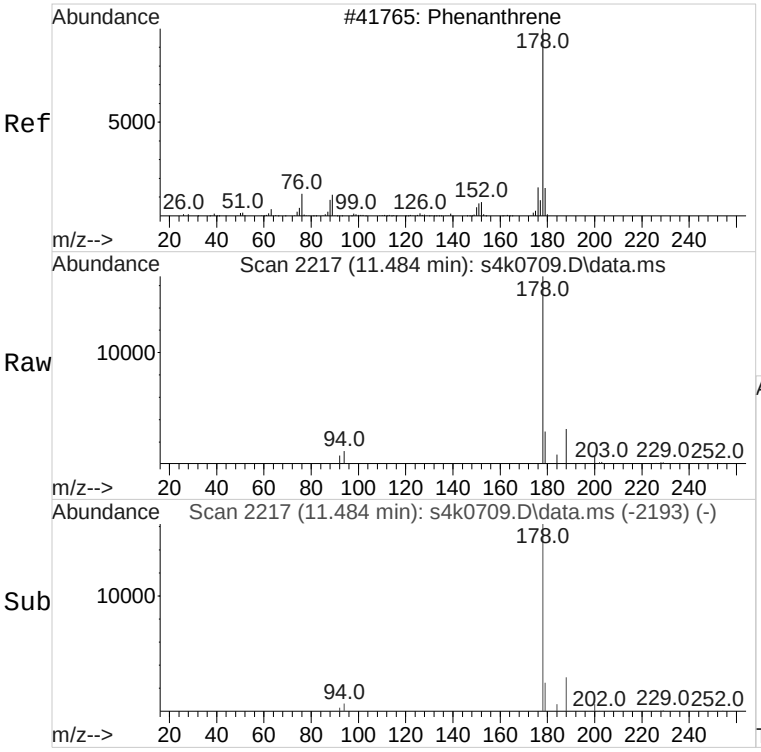


#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.08 ng/uL
RT: 5.996 min Scan# 1132
Delta R.T. -0.021 min
Lab File: s4k0709.D
Acq: 07 Nov 2016 11:51

Tgt Ion: 70 Resp: 4908

Ion	Ratio	Lower	Upper
70	100		
42	21.7	22.5	82.5#

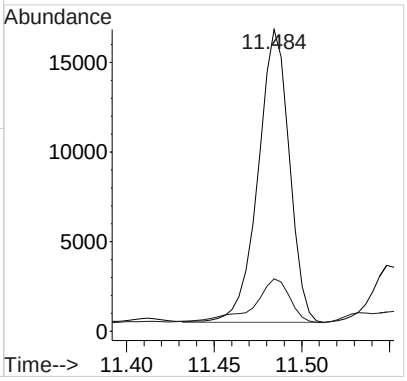


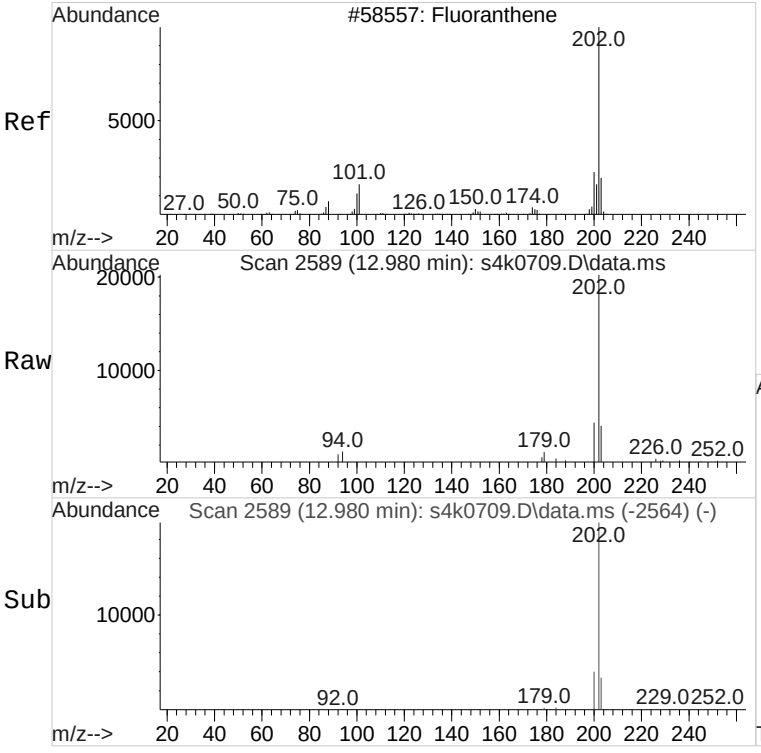


#15
Phenanthrene
Concen: 0.07 ng/uL
RT: 11.484 min Scan# 2217
Delta R.T. -0.005 min
Lab File: s4k0709.D
Acq: 07 Nov 2016 11:51

Tgt Ion:178 Resp: 20177

Ion	Ratio	Lower	Upper
178	100		
179	17.4	0.0	45.6

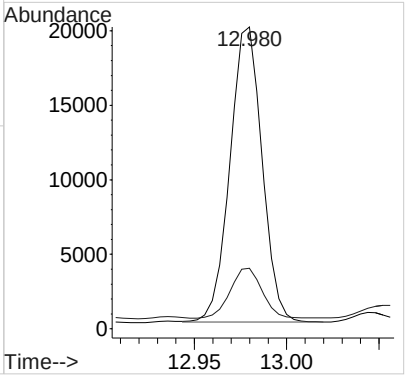


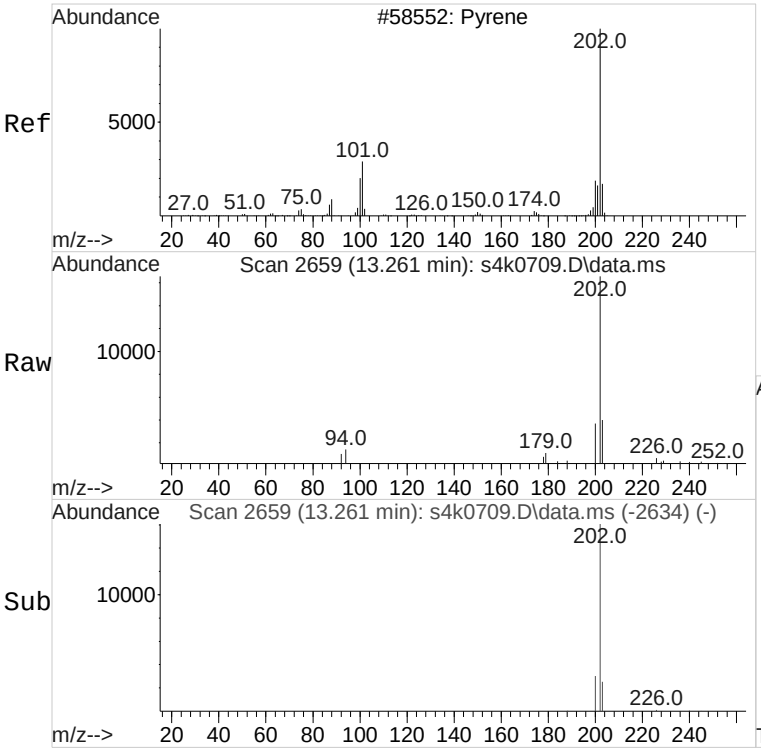


#18
Fluoranthene
Concen: 0.10 ng/uL
RT: 12.980 min Scan# 2589
Delta R.T. -0.001 min
Lab File: s4k0709.D
Acq: 07 Nov 2016 11:51

Tgt Ion:202 Resp: 23940

Ion	Ratio	Lower	Upper
202	100		
203	16.7	0.0	47.7

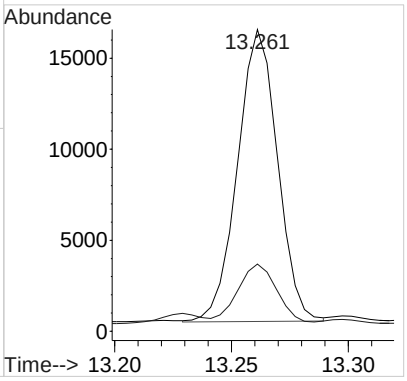


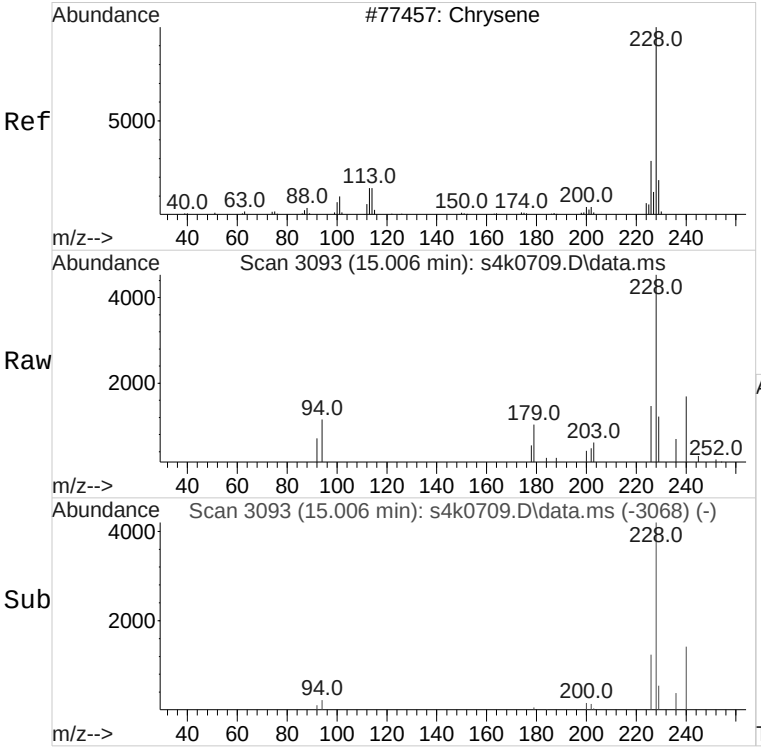


#20
Pyrene
Concen: 0.07 ng/uL
RT: 13.261 min Scan# 2659
Delta R.T. -0.001 min
Lab File: s4k0709.D
Acq: 07 Nov 2016 11:51

Tgt Ion:202 Resp: 19106

Ion	Ratio	Lower	Upper
202	100		
200	19.9	0.0	50.4

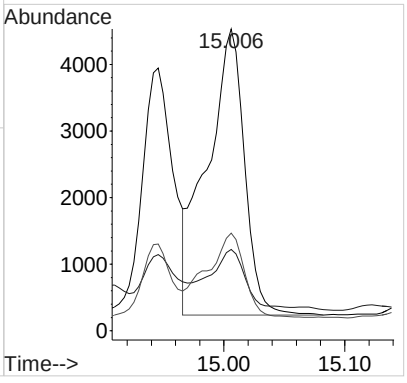


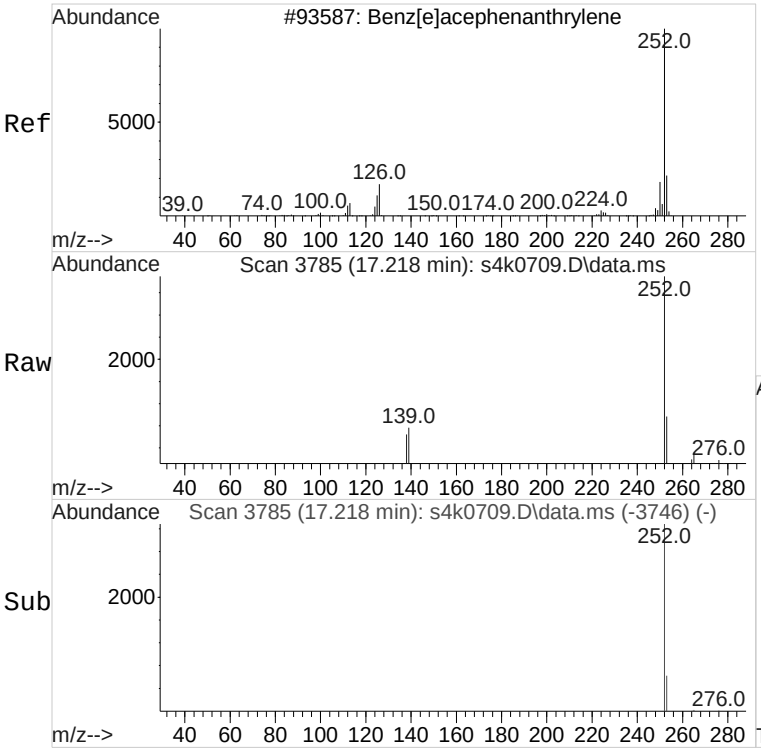


#22
Chrysene
Concen: 0.06 ng/uL
RT: 15.006 min Scan# 3093
Delta R.T. -0.001 min
Lab File: s4k0709.D
Acq: 07 Nov 2016 11:51

Tgt Ion:228 Resp: 9317

Ion	Ratio	Lower	Upper
228	100		
229	19.2	0.0	49.3
226	30.0	0.0	59.2

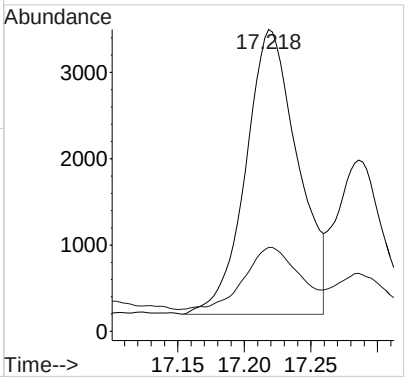


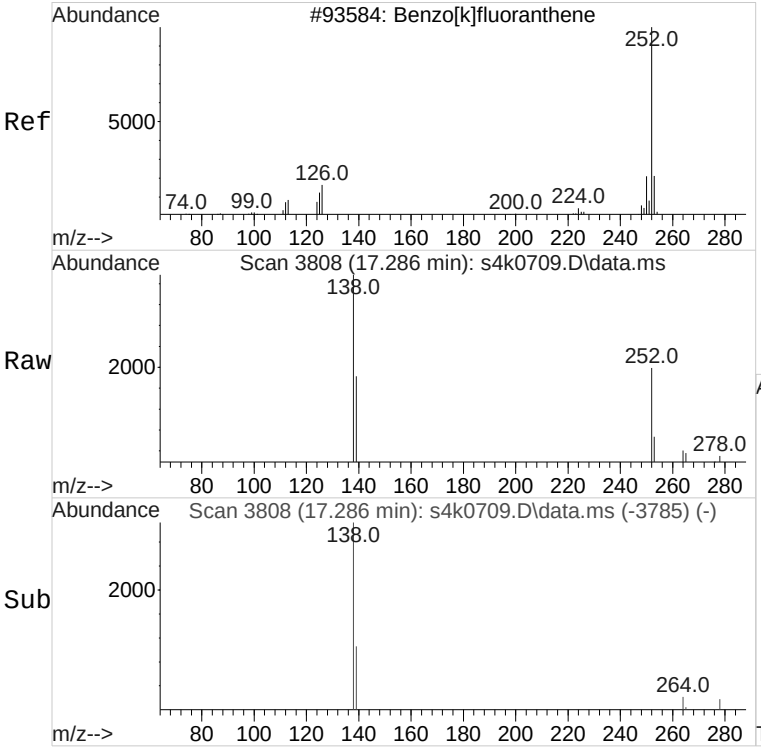


#24
Benzo(b)fluoranthene
Concen: 0.08 ng/uL
RT: 17.218 min Scan# 3785
Delta R.T. 0.005 min
Lab File: s4k0709.D
Acq: 07 Nov 2016 11:51

Tgt Ion:252 Resp: 9015

Ion	Ratio	Lower	Upper
252	100		
253	22.9	0.0	51.6

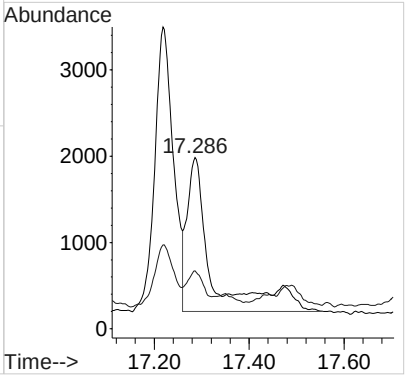




#25
Benzo(k)fluoranthene
Concen: 0.06 ng/uL
RT: 17.286 min Scan# 3808
Delta R.T. 0.002 min
Lab File: s4k0709.D
Acq: 07 Nov 2016 11:51

Tgt Ion:252 Resp: 6612

Ion	Ratio	Lower	Upper
252	100		
253	9.1	0.0	51.4



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254015**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**37.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 12:19**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.049 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0710.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	5.34	ug/kg	2.67	5.34
91-58-7	2-Chloronaphthalene	U	5.34	ug/kg	2.67	5.34
91-57-6	2-Methylnaphthalene	U	5.34	ug/kg	2.67	5.34
83-32-9	Acenaphthene	U	5.34	ug/kg	2.67	5.34
208-96-8	Acenaphthylene	U	5.34	ug/kg	2.67	5.34
120-12-7	Anthracene	U	5.34	ug/kg	2.67	5.34
56-55-3	Benzo(a)anthracene	U	5.34	ug/kg	2.67	5.34
50-32-8	Benzo(a)pyrene	U	5.34	ug/kg	2.67	5.34
205-99-2	Benzo(b)fluoranthene	J	3.20	ug/kg	2.67	5.34
191-24-2	Benzo(ghi)perylene	U	5.34	ug/kg	2.67	5.34
207-08-9	Benzo(k)fluoranthene	U	5.34	ug/kg	2.67	5.34
218-01-9	Chrysene	U	5.34	ug/kg	2.67	5.34
53-70-3	Dibenzo(a,h)anthracene	U	5.34	ug/kg	2.67	5.34
206-44-0	Fluoranthene	J	3.74	ug/kg	2.67	5.34
86-73-7	Fluorene	U	5.34	ug/kg	2.67	5.34
193-39-5	Indeno(1,2,3-cd)pyrene	U	5.34	ug/kg	2.67	5.34
91-20-3	Naphthalene	U	5.34	ug/kg	1.60	5.34
85-01-8	Phenanthrene	J	3.74	ug/kg	2.67	5.34
129-00-0	Pyrene	J	3.20	ug/kg	2.67	5.34

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0710.D
Acq On : 07 Nov 2016 12:19
Operator : JMB3
InstName : MSD4
Sample : |409254015|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 10 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 12:53:31 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	337259	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1158515	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	458474	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	870314	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.961	14.963	1.000	368853	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.236	18.231	1.000	211102	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	337259	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1158515	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.456	11.457	1.000	870314	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.961	14.963	1.000	368853	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	108569	3.99	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	80%

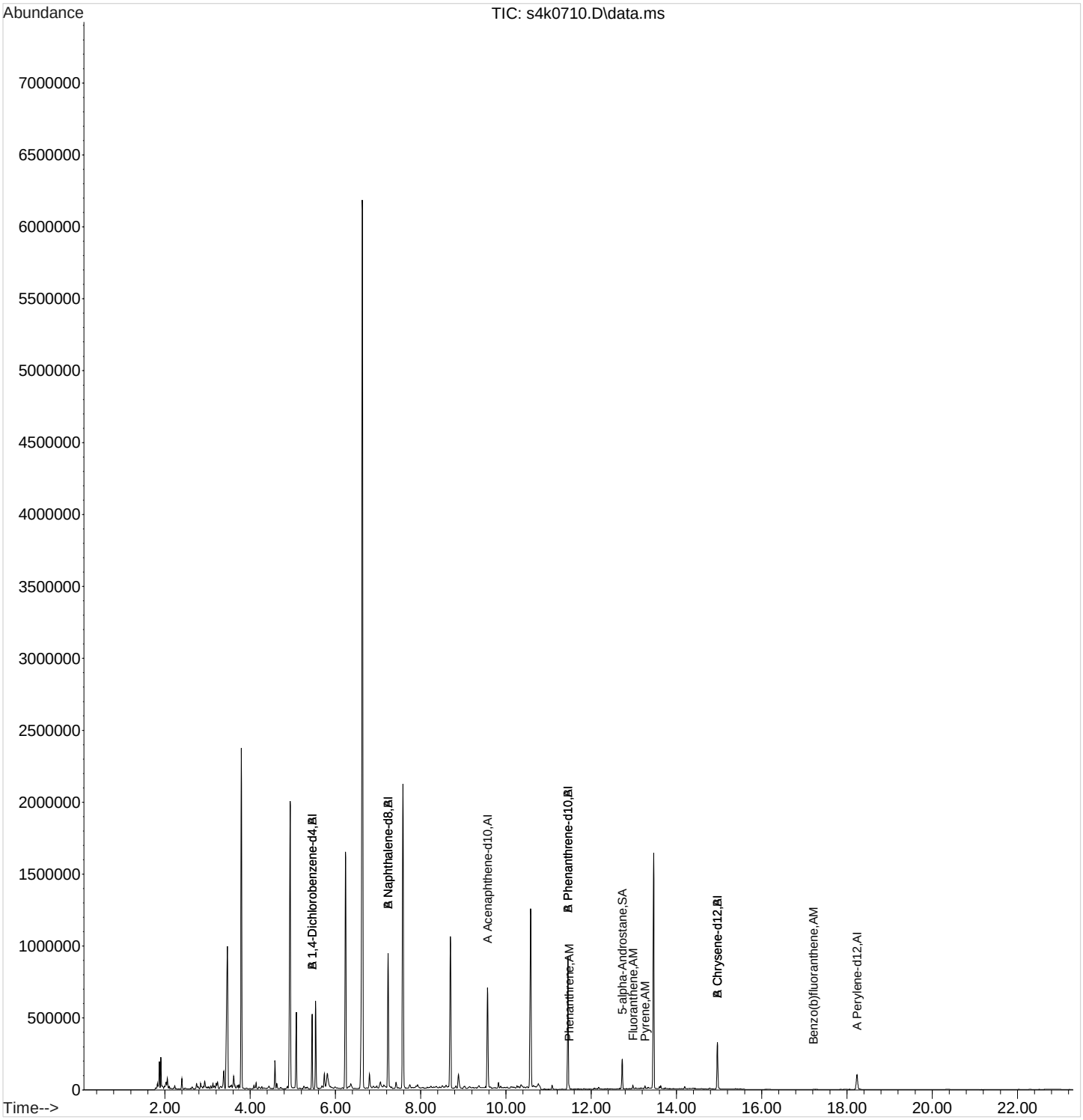
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
15) Phenanthrene	178	11.484	11.489	1.002	20357	0.07	ng/uL	96
18) Fluoranthene	202	12.979	12.981	1.133	20648	0.07	ng/uL	97
20) Pyrene	202	13.261	13.262	0.886	15521	0.06	ng/uL	100
24) Benzo(b)fluoranthene	252	17.218	17.213	0.944	5231	0.06	ng/uL	94

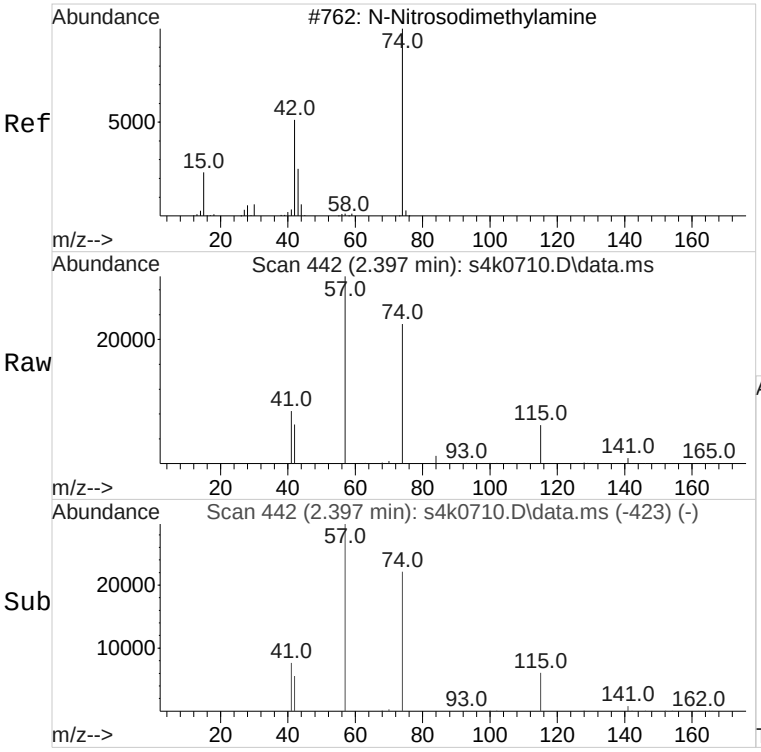
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0710.D
Acq On : 07 Nov 2016 12:19
Operator : JMB3
InstName : MSD4
Sample : |409254015|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 07 12:53:31 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

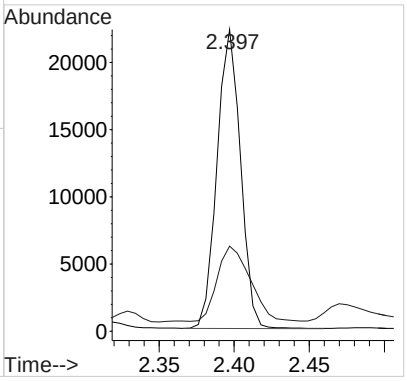


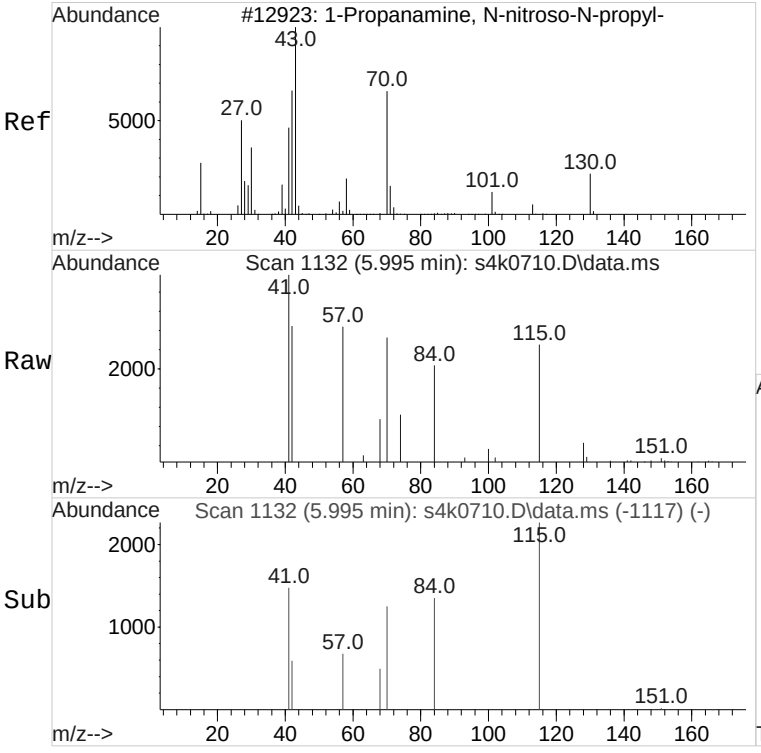


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 0.40 ng/uL
RT: 2.397 min Scan# 442
Delta R.T. -0.031 min
Lab File: s4k0710.D
Acq: 07 Nov 2016 12:19

Tgt Ion: 74 Resp: 24153

Ion	Ratio	Lower	Upper
74	100		
42	36.3	39.1	99.1#

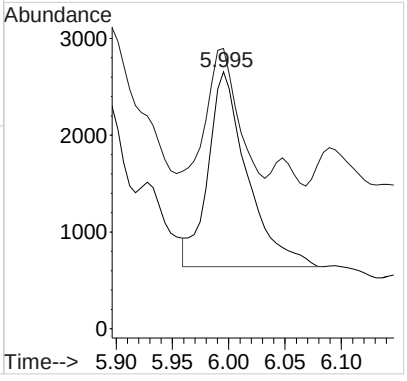


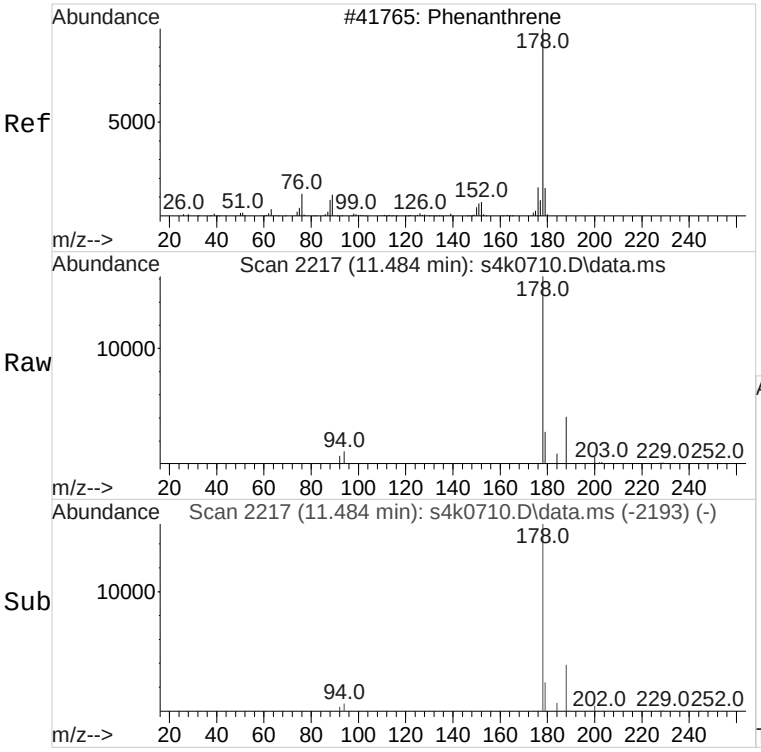


#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.07 ng/uL
RT: 5.995 min Scan# 1132
Delta R.T. -0.021 min
Lab File: s4k0710.D
Acq: 07 Nov 2016 12:19

Tgt Ion: 70 Resp: 4876

Ion	Ratio	Lower	Upper
70	100		
42	49.6	22.5	82.5

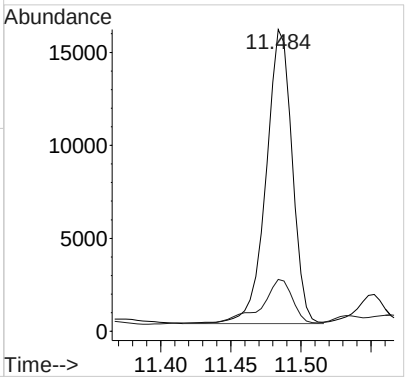


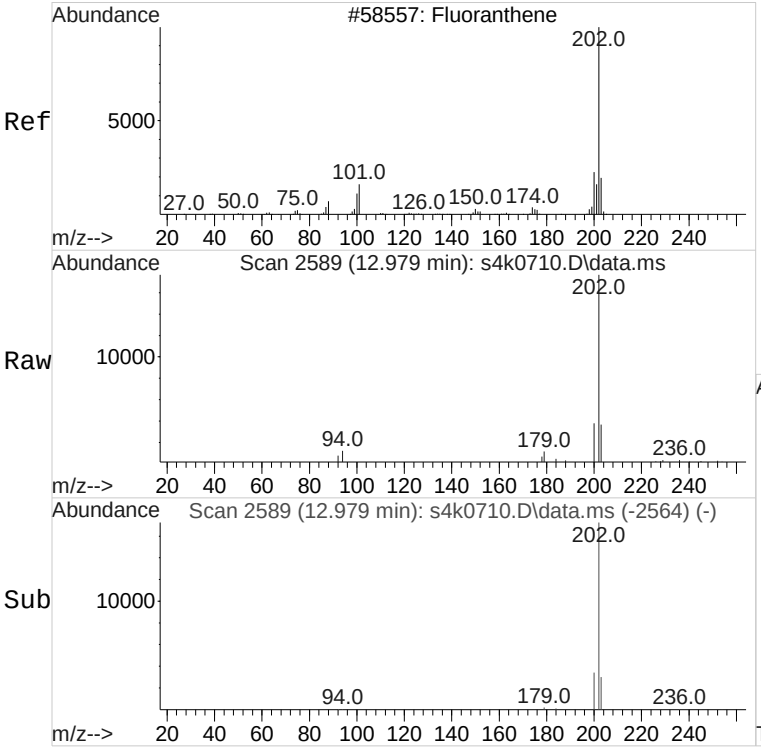


#15
Phenanthrene
Concen: 0.07 ng/uL
RT: 11.484 min Scan# 2217
Delta R.T. -0.005 min
Lab File: s4k0710.D
Acq: 07 Nov 2016 12:19

Tgt Ion:178 Resp: 20357

Ion	Ratio	Lower	Upper
178	100		
179	17.4	0.0	45.6

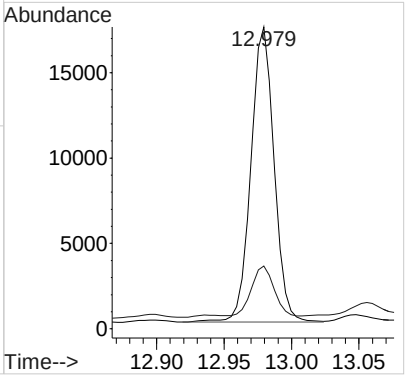


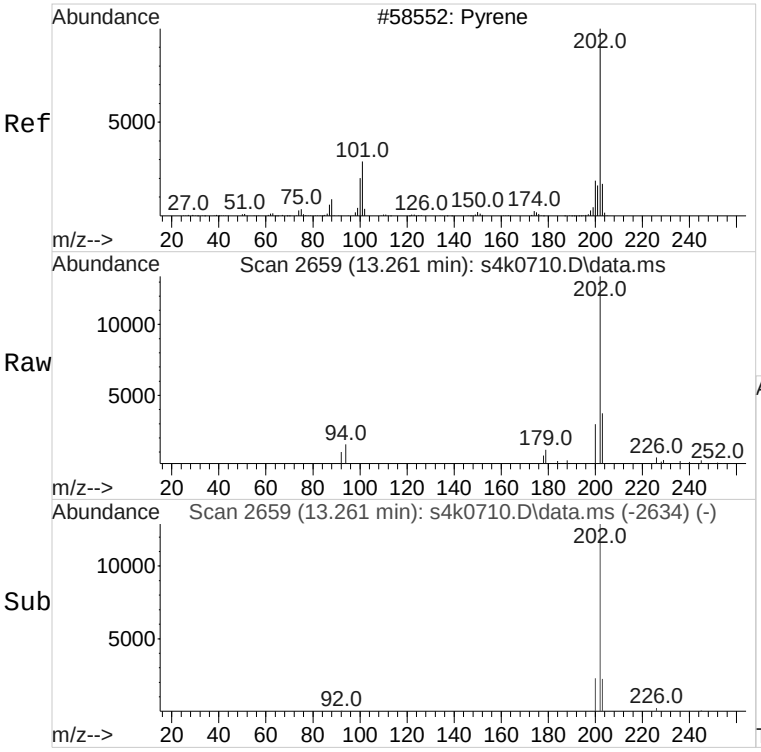


#18
Fluoranthene
Concen: 0.07 ng/uL
RT: 12.979 min Scan# 2589
Delta R.T. -0.001 min
Lab File: s4k0710.D
Acq: 07 Nov 2016 12:19

Tgt Ion:202 Resp: 20648

Ion	Ratio	Lower	Upper
202	100		
203	16.3	0.0	47.7

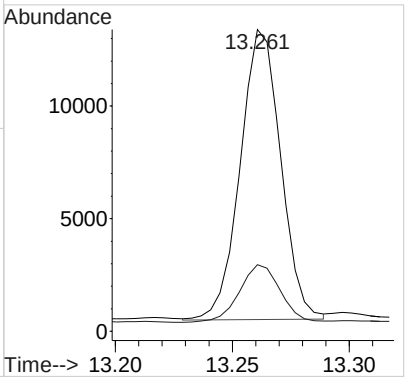


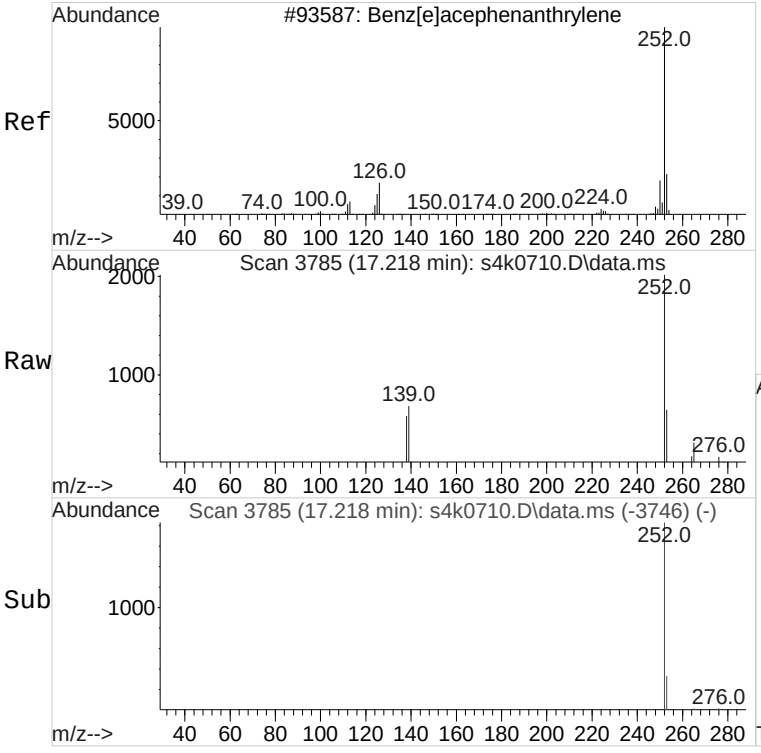


#20
Pyrene
Concen: 0.06 ng/uL
RT: 13.261 min Scan# 2659
Delta R.T. -0.001 min
Lab File: s4k0710.D
Acq: 07 Nov 2016 12:19

Tgt Ion:202 Resp: 15521

Ion	Ratio	Lower	Upper
202	100		
200	20.2	0.0	50.4

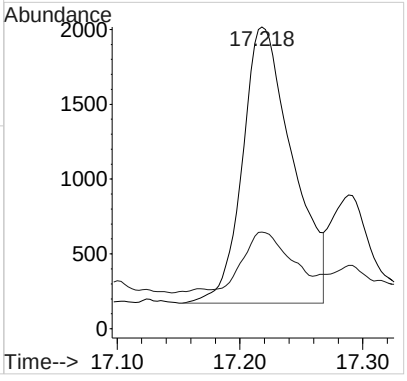




#24
Benzo(b)fluoranthene
Concen: 0.06 ng/uL
RT: 17.218 min Scan# 3785
Delta R.T. 0.005 min
Lab File: s4k0710.D
Acq: 07 Nov 2016 12:19

Tgt Ion:252 Resp: 5231

Ion	Ratio	Lower	Upper
252	100		
253	18.9	0.0	51.6



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 12:35**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254016**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SD140100DUP**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 12:47**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.078 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0711.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	5.25	ug/kg	2.62	5.25
91-58-7	2-Chloronaphthalene	U	5.25	ug/kg	2.62	5.25
91-57-6	2-Methylnaphthalene	U	5.25	ug/kg	2.62	5.25
83-32-9	Acenaphthene	U	5.25	ug/kg	2.62	5.25
208-96-8	Acenaphthylene	U	5.25	ug/kg	2.62	5.25
120-12-7	Anthracene	J	4.20	ug/kg	2.62	5.25
56-55-3	Benzo(a)anthracene	U	5.25	ug/kg	2.62	5.25
50-32-8	Benzo(a)pyrene	U	5.25	ug/kg	2.62	5.25
205-99-2	Benzo(b)fluoranthene	J	3.67	ug/kg	2.62	5.25
191-24-2	Benzo(ghi)perylene	U	5.25	ug/kg	2.62	5.25
207-08-9	Benzo(k)fluoranthene	U	5.25	ug/kg	2.62	5.25
218-01-9	Chrysene	J	2.62	ug/kg	2.62	5.25
53-70-3	Dibenzo(a,h)anthracene	U	5.25	ug/kg	2.62	5.25
206-44-0	Fluoranthene		6.30	ug/kg	2.62	5.25
86-73-7	Fluorene	U	5.25	ug/kg	2.62	5.25
193-39-5	Indeno(1,2,3-cd)pyrene	U	5.25	ug/kg	2.62	5.25
91-20-3	Naphthalene	U	5.25	ug/kg	1.57	5.25
85-01-8	Phenanthrene	U	5.25	ug/kg	2.62	5.25
129-00-0	Pyrene	J	4.20	ug/kg	2.62	5.25

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0711.D
Acq On : 07 Nov 2016 12:47
Operator : JMB3
InstName : MSD4
Sample : |409254016|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 11 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 13:11:12 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.427	5.448	1.000	311265	4.00	ng/uL	-0.02
5) A Naphthalene-d8	136	7.242	7.237	1.000	1097833m	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.573	9.573	1.000	444139m	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	843386m	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.962	14.963	1.000	443480	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.236	18.231	1.000	268016	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.427	5.448	1.000	311265	4.00	ng/uL	-0.02
33) B Naphthalene-d8	136	7.211	7.237	1.000	701230	4.00	ng/uL	-0.03
35) B Phenanthrene-d10	188	11.424	11.457	1.000	217067	4.00	ng/uL	-0.03
37) B Chrysene-d12	240	14.962	14.963	1.000	443480	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	103142	3.91	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	78%

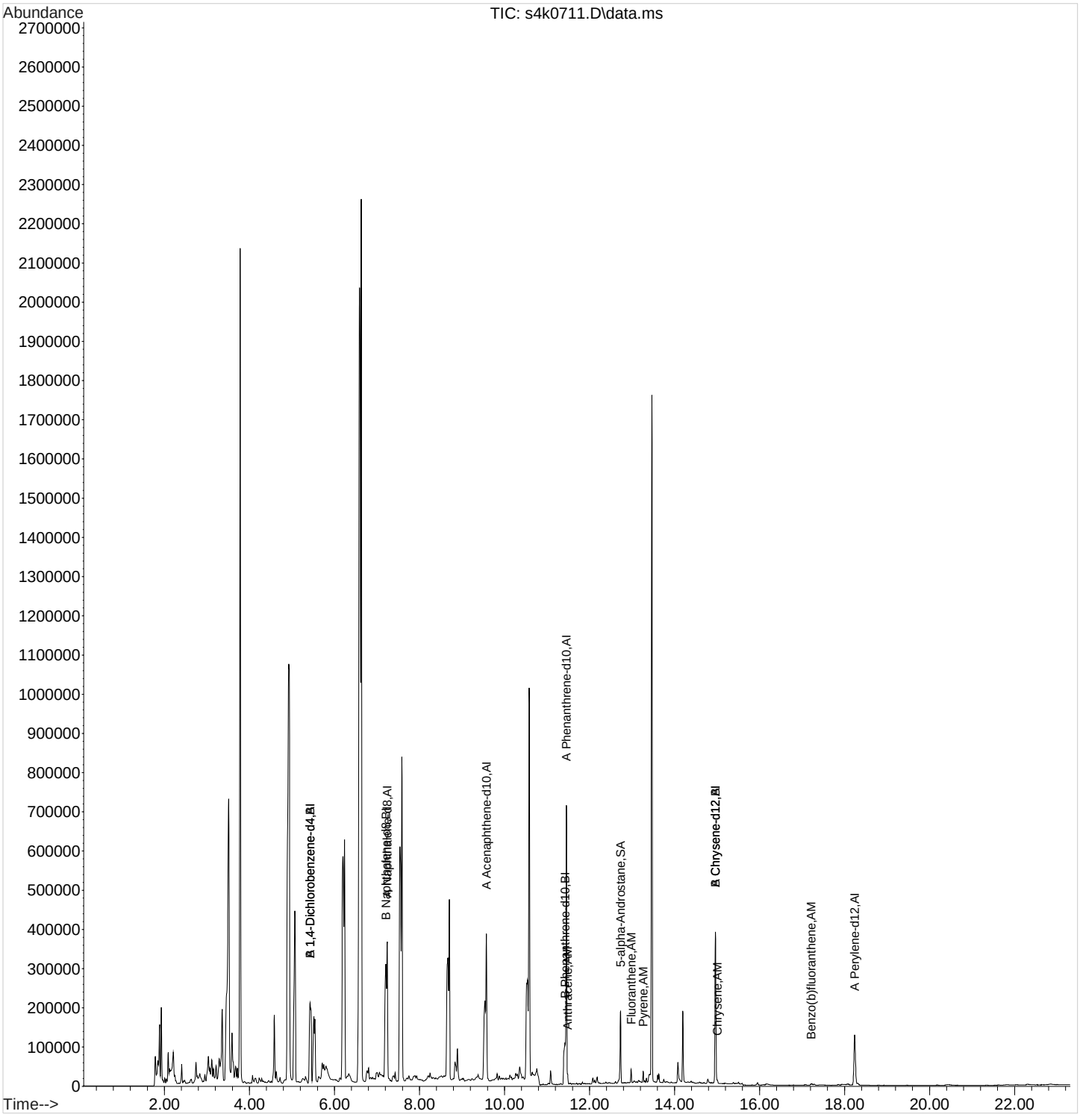
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
16) Anthracene	178	11.484	11.553	1.002	21299	0.08	ng/uL	98
18) Fluoranthene	202	12.980	12.981	1.133	32053	0.12	ng/uL	97
20) Pyrene	202	13.261	13.262	0.886	24391	0.08	ng/uL	99
22) Chrysene	228	15.006	15.007	1.003	9268	0.05	ng/uL	97
24) Benzo(b)fluoranthene	252	17.218	17.213	0.944	8981	0.07	ng/uL	99

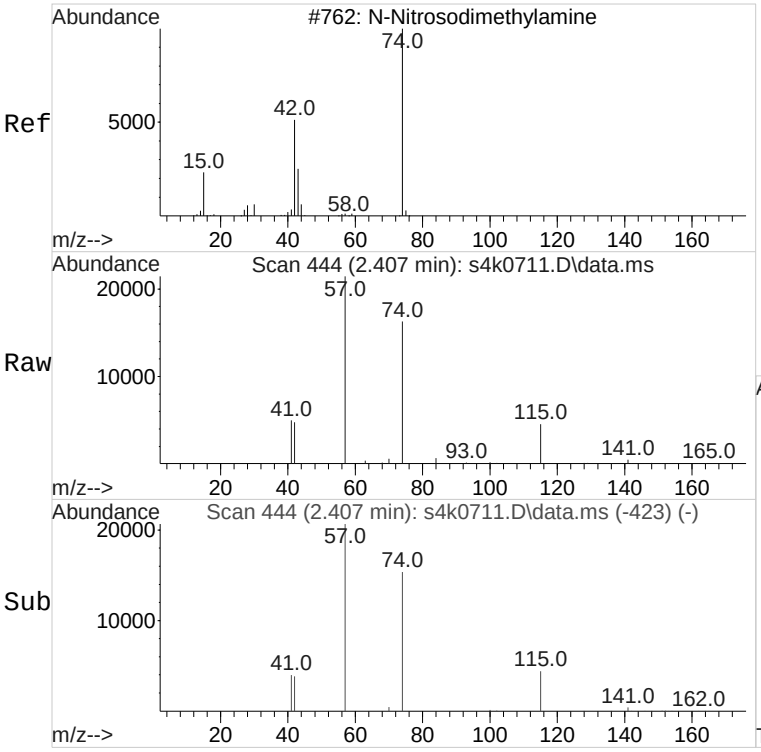
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0711.D
Acq On : 07 Nov 2016 12:47
Operator : JMB3
InstName : MSD4
Sample : |409254016|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 07 13:11:12 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

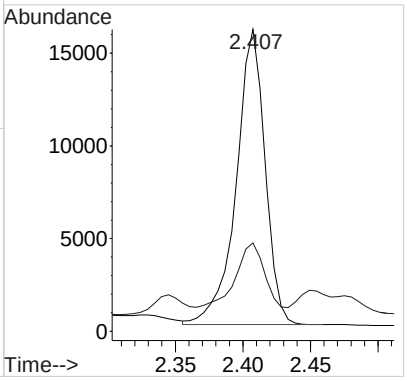


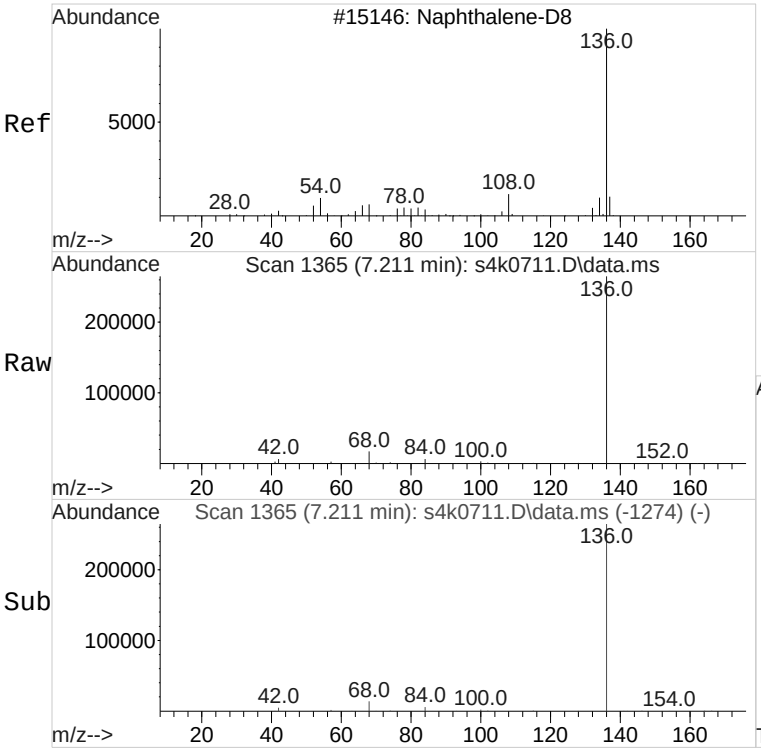


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 0.42 ng/uL
RT: 2.407 min Scan# 444
Delta R.T. -0.021 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion: 74 Resp: 23701

Ion	Ratio	Lower	Upper
74	100		
42	27.1	39.1	99.1#

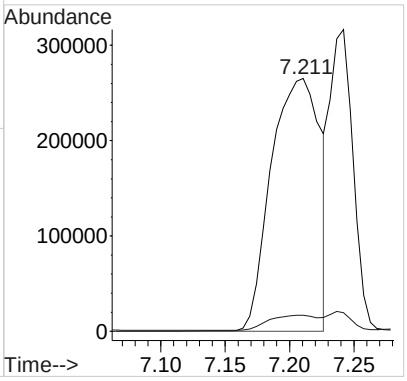


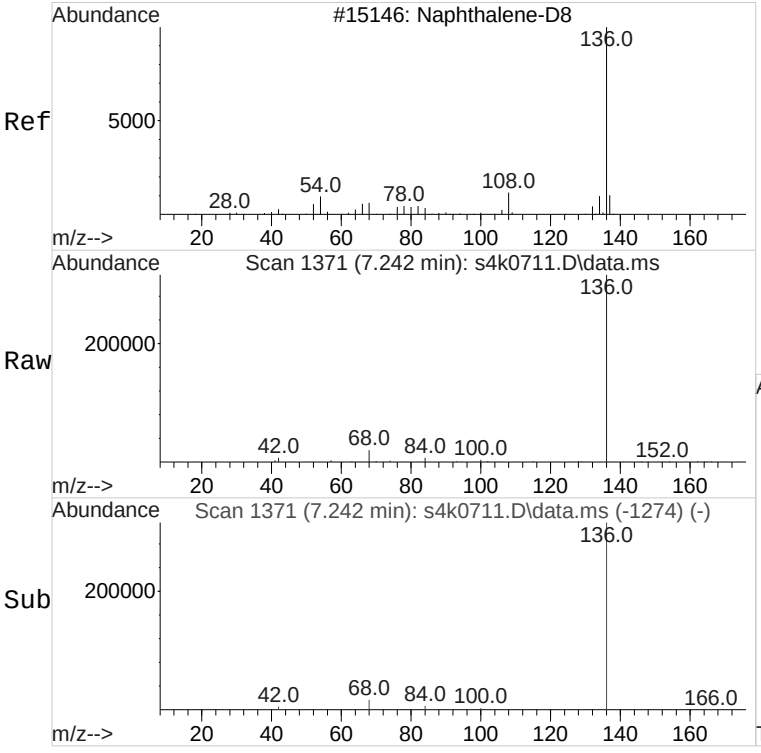


#5 BEFORE analyst integration
A Naphthalene-d8
Concen: 4.00 ng/uL
RT: 7.211 min Scan# 1365
Delta R.T. -0.026 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:136 Resp: 701230

Ion	Ratio	Lower	Upper
136	100		
68	5.9	0.0	36.7

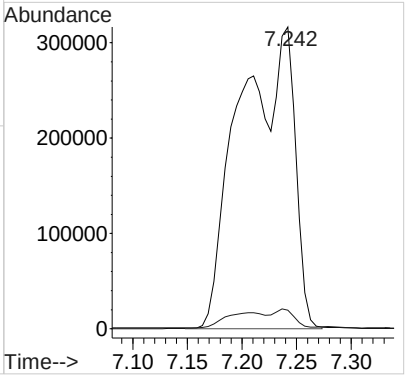


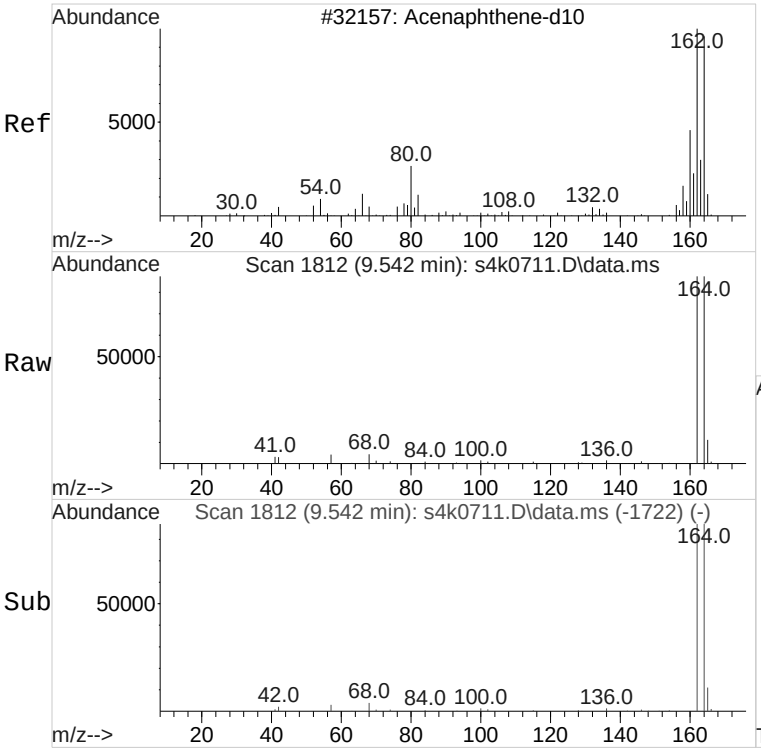


#5 AFTER analyst integration
A Naphthalene-d8 AB
Concen: 4.00 ng/uL MANUALLY INTEGRATED
RT: 7.242 min Scan# 1371
Delta R.T. 0.005 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:136 Resp: 1097833

Ion	Ratio	Lower	Upper
136	100		
68	6.5	0.0	36.7

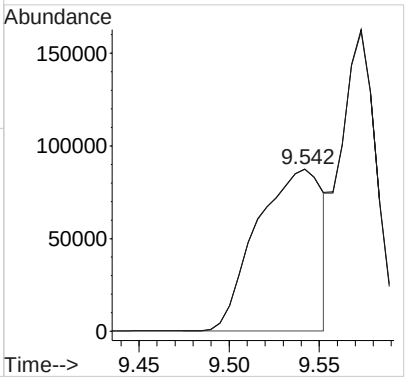


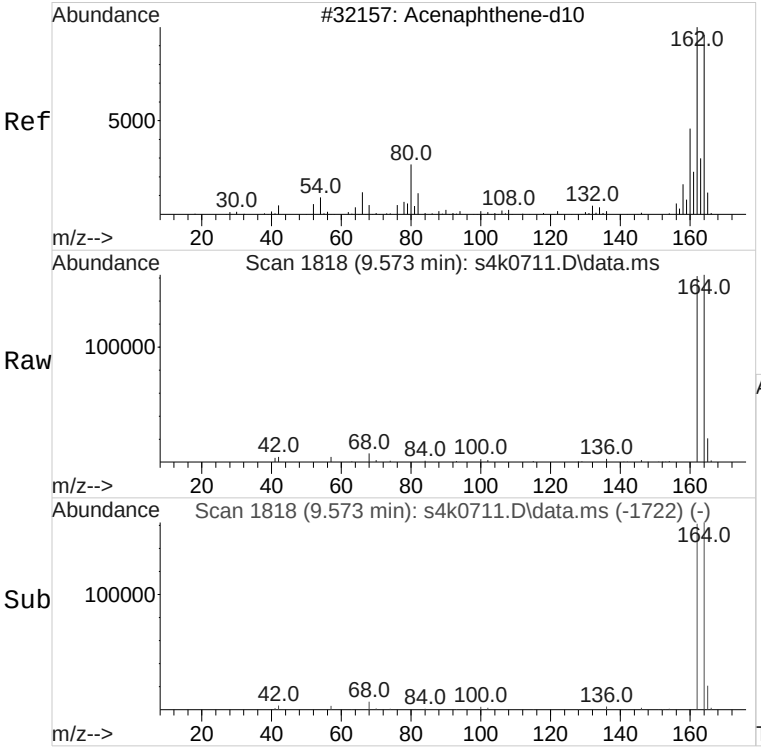


#9 BEFORE analyst integration
A Acenaphthene-d10
Concen: 4.00 ng/uL
RT: 9.542 min Scan# 1812
Delta R.T. -0.031 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:164 Resp: 220273

Ion	Ratio	Lower	Upper
164	100		
162	100.2	69.6	129.6

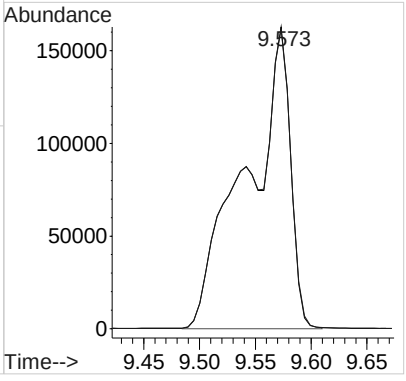


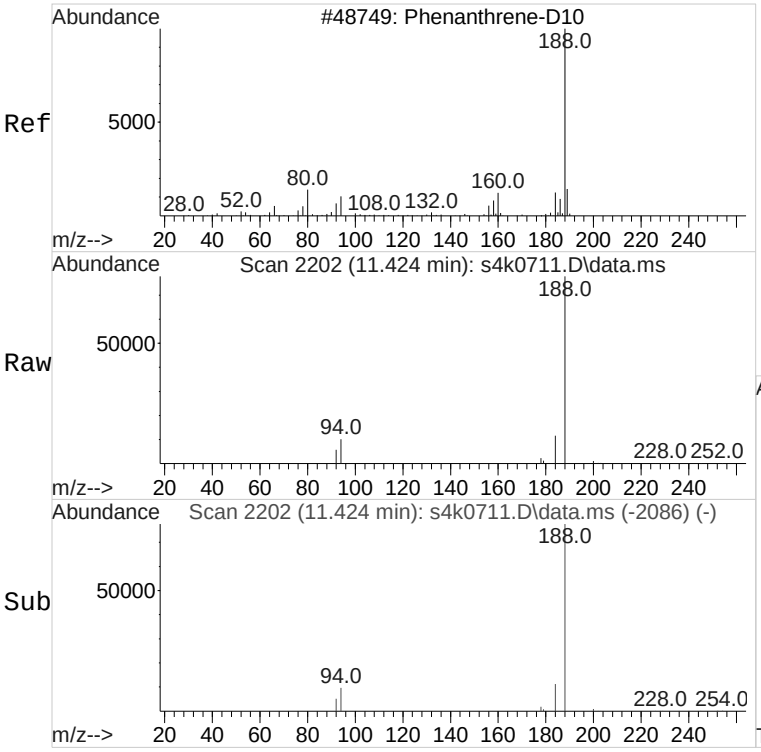


#9 AFTER analyst integration
A Acenaphthene-d10 AB
Concen: 4.00 ng/uL MANUALLY INTEGRATED
RT: 9.573 min Scan# 1818
Delta R.T. 0.000 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:164 Resp: 444139

Ion	Ratio	Lower	Upper
164	100		
162	100.3	69.6	129.6

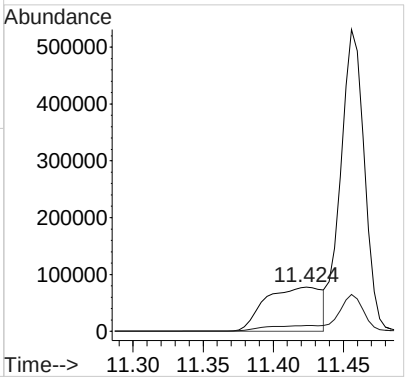


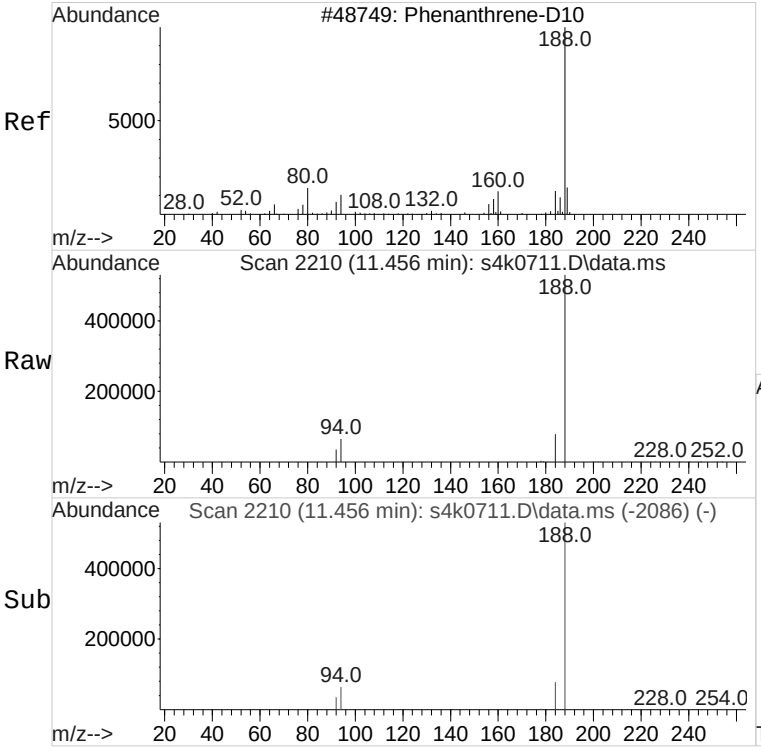


#14 BEFORE analyst integration
A Phenanthrene-d10
Concen: 4.00 ng/uL
RT: 11.424 min Scan# 2202
Delta R.T. -0.033 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:188 Resp: 217067

Ion	Ratio	Lower	Upper
188	100		
94	11.3	0.0	42.3

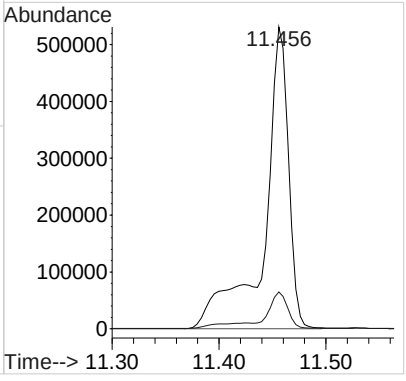


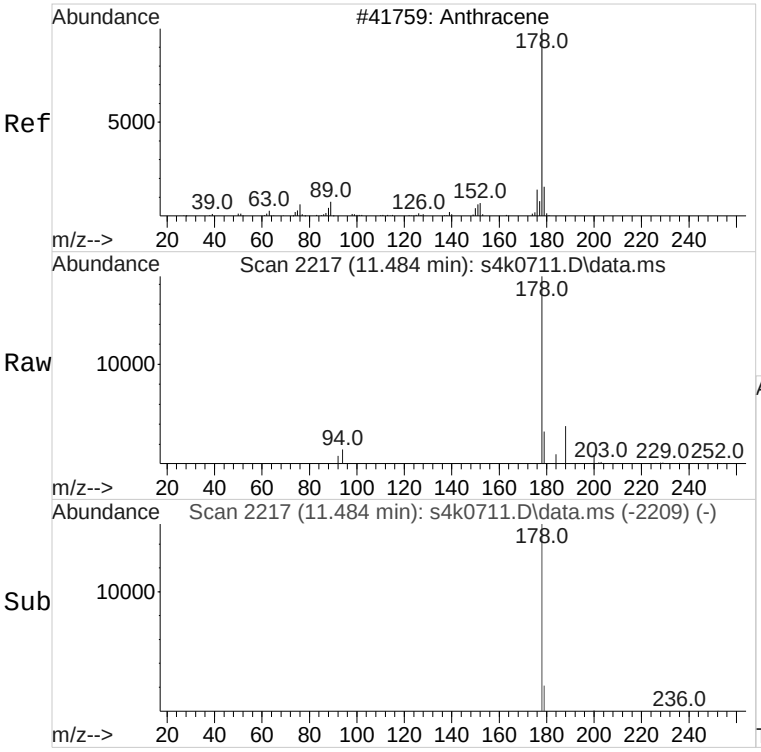


#14 AFTER analyst integration
A Phenanthrene-d10 AB
Concen: 4.00 ng/uL MANUALLY INTEGRATED
RT: 11.456 min Scan# 2210
Delta R.T. -0.001 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:188 Resp: 843386

Ion	Ratio	Lower	Upper
188	100		
94	12.6	0.0	42.3

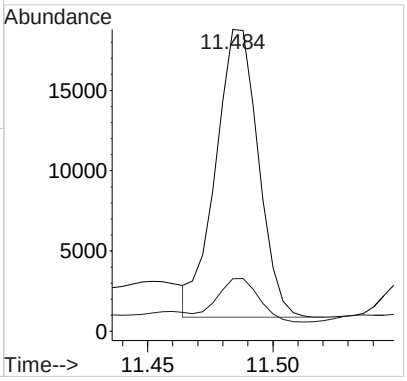


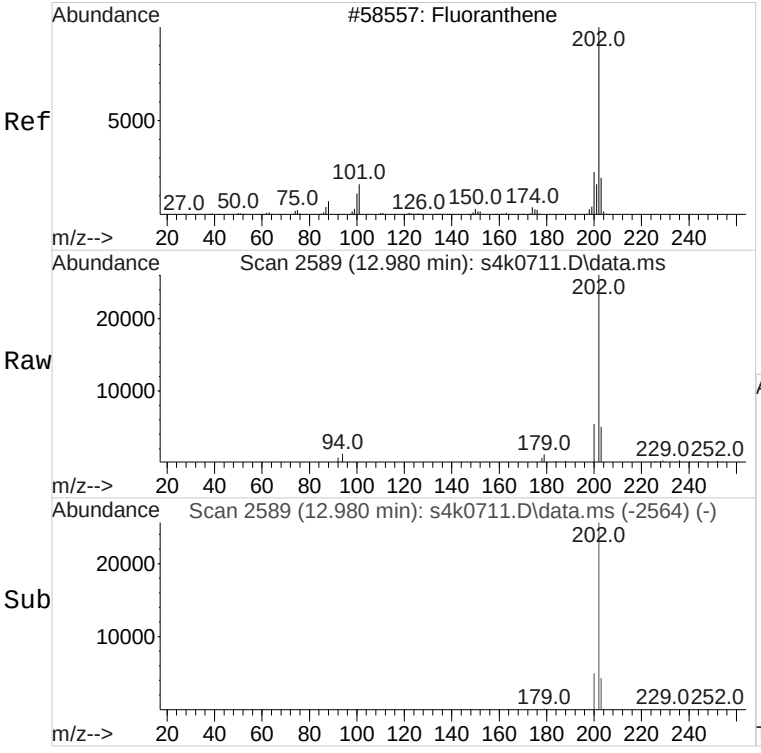


#16
Anthracene
Concen: 0.08 ng/uL
RT: 11.484 min Scan# 2217
Delta R.T. -0.069 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:178 Resp: 21299

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	45.5

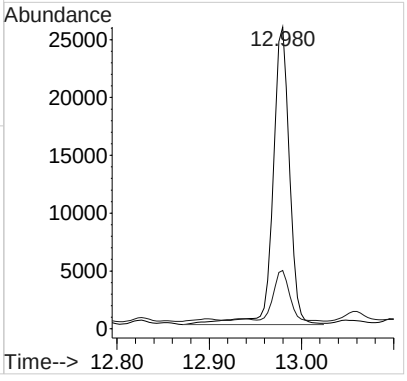


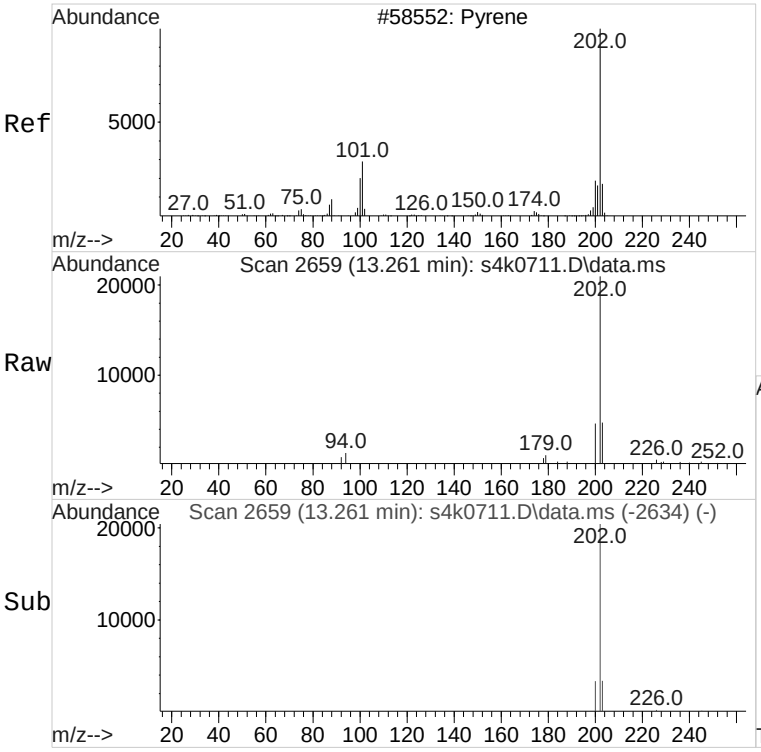


#18
Fluoranthene
Concen: 0.12 ng/uL
RT: 12.980 min Scan# 2589
Delta R.T. -0.001 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:202 Resp: 32053

Ion	Ratio	Lower	Upper
202	100		
203	16.5	0.0	47.7

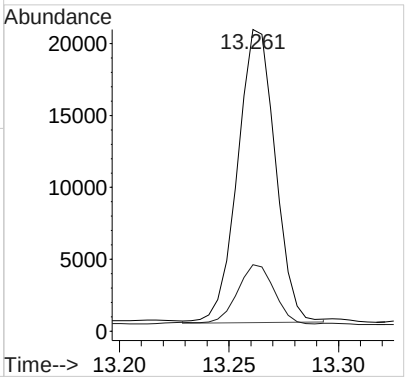


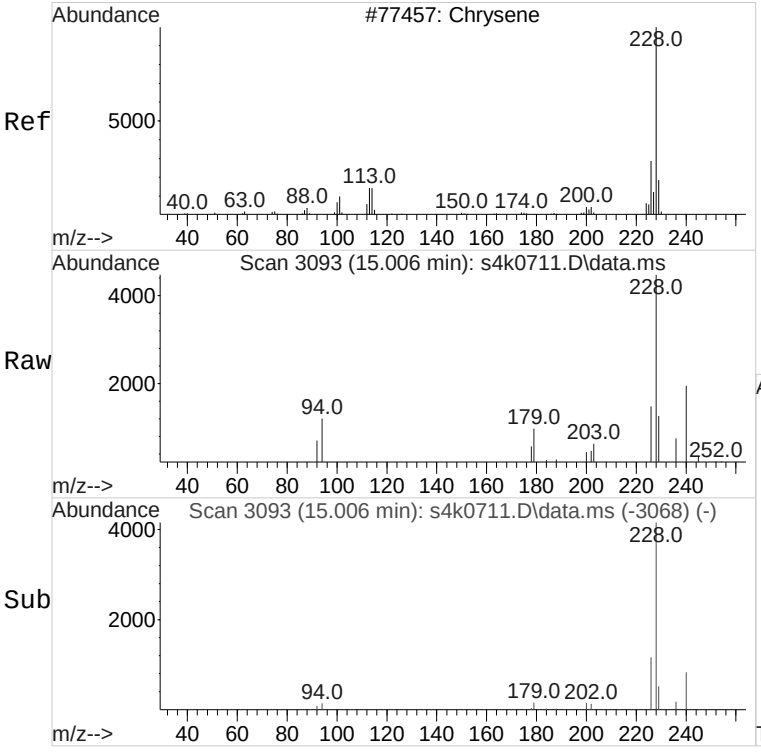


#20
Pyrene
Concen: 0.08 ng/uL
RT: 13.261 min Scan# 2659
Delta R.T. -0.001 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:202 Resp: 24391

Ion	Ratio	Lower	Upper
202	100		
200	20.0	0.0	50.4

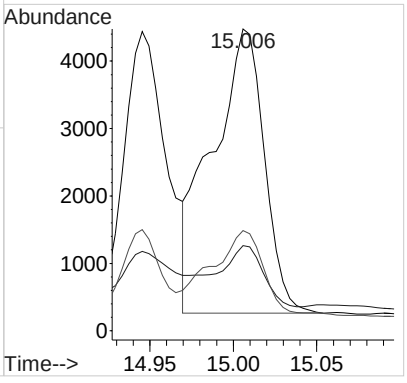


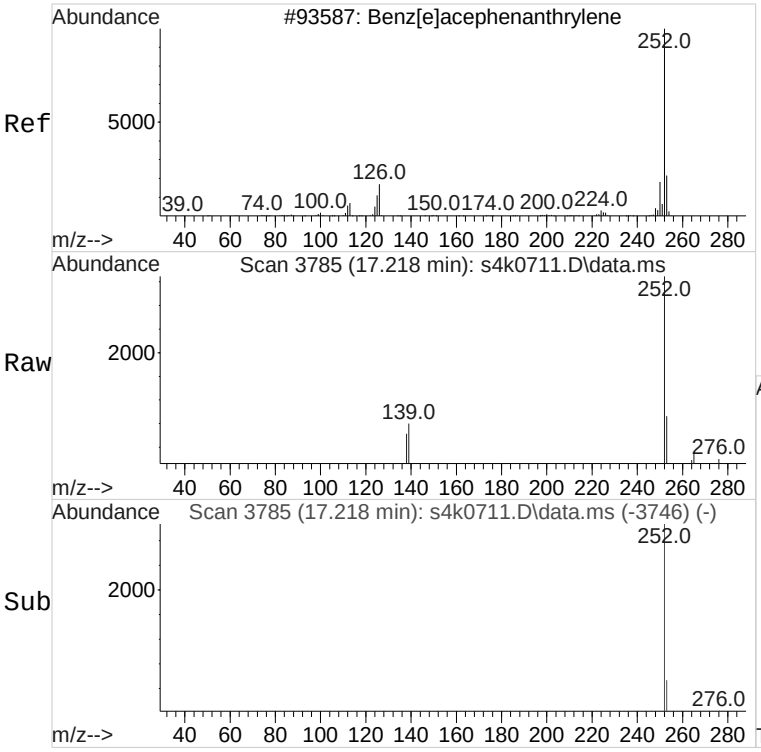


#22
Chrysene
Concen: 0.05 ng/uL
RT: 15.006 min Scan# 3093
Delta R.T. -0.001 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:228 Resp: 9268

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	49.3
226	31.7	0.0	59.2

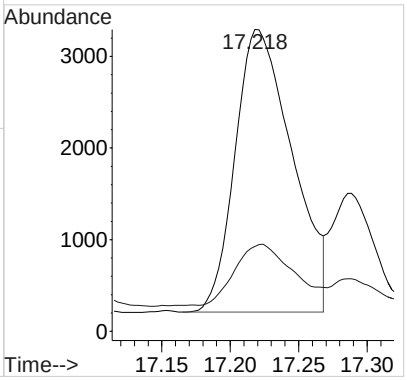




#24
Benzo(b)fluoranthene
Concen: 0.07 ng/uL
RT: 17.218 min Scan# 3785
Delta R.T. 0.005 min
Lab File: s4k0711.D
Acq: 07 Nov 2016 12:47

Tgt Ion:252 Resp: 8981

Ion	Ratio	Lower	Upper
252	100		
253	22.3	0.0	51.6



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 14:30**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254017**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**27.4**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP100113**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 13:16**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.038 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0712.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.58	ug/kg	2.29	4.58
91-58-7	2-Chloronaphthalene	U	4.58	ug/kg	2.29	4.58
91-57-6	2-Methylnaphthalene	U	4.58	ug/kg	2.29	4.58
83-32-9	Acenaphthene	U	4.58	ug/kg	2.29	4.58
208-96-8	Acenaphthylene	U	4.58	ug/kg	2.29	4.58
120-12-7	Anthracene	U	4.58	ug/kg	2.29	4.58
56-55-3	Benzo(a)anthracene	U	4.58	ug/kg	2.29	4.58
50-32-8	Benzo(a)pyrene	U	4.58	ug/kg	2.29	4.58
205-99-2	Benzo(b)fluoranthene	U	4.58	ug/kg	2.29	4.58
191-24-2	Benzo(ghi)perylene	U	4.58	ug/kg	2.29	4.58
207-08-9	Benzo(k)fluoranthene	U	4.58	ug/kg	2.29	4.58
218-01-9	Chrysene	U	4.58	ug/kg	2.29	4.58
53-70-3	Dibenzo(a,h)anthracene	U	4.58	ug/kg	2.29	4.58
206-44-0	Fluoranthene	U	4.58	ug/kg	2.29	4.58
86-73-7	Fluorene	U	4.58	ug/kg	2.29	4.58
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.58	ug/kg	2.29	4.58
91-20-3	Naphthalene	U	4.58	ug/kg	1.38	4.58
85-01-8	Phenanthrene	J	2.29	ug/kg	2.29	4.58
129-00-0	Pyrene	U	4.58	ug/kg	2.29	4.58

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0712.D
Acq On : 07 Nov 2016 13:16
Operator : JMB3
InstName : MSD4
Sample : |409254017|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 12 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 13:51:32 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	339001	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1154778	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	456802	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	880630	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.962	14.963	1.000	410605	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.236	18.231	1.000	207120	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	339001	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1154778	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.456	11.457	1.000	880630	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.962	14.963	1.000	410605	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	125870	4.57	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	91%

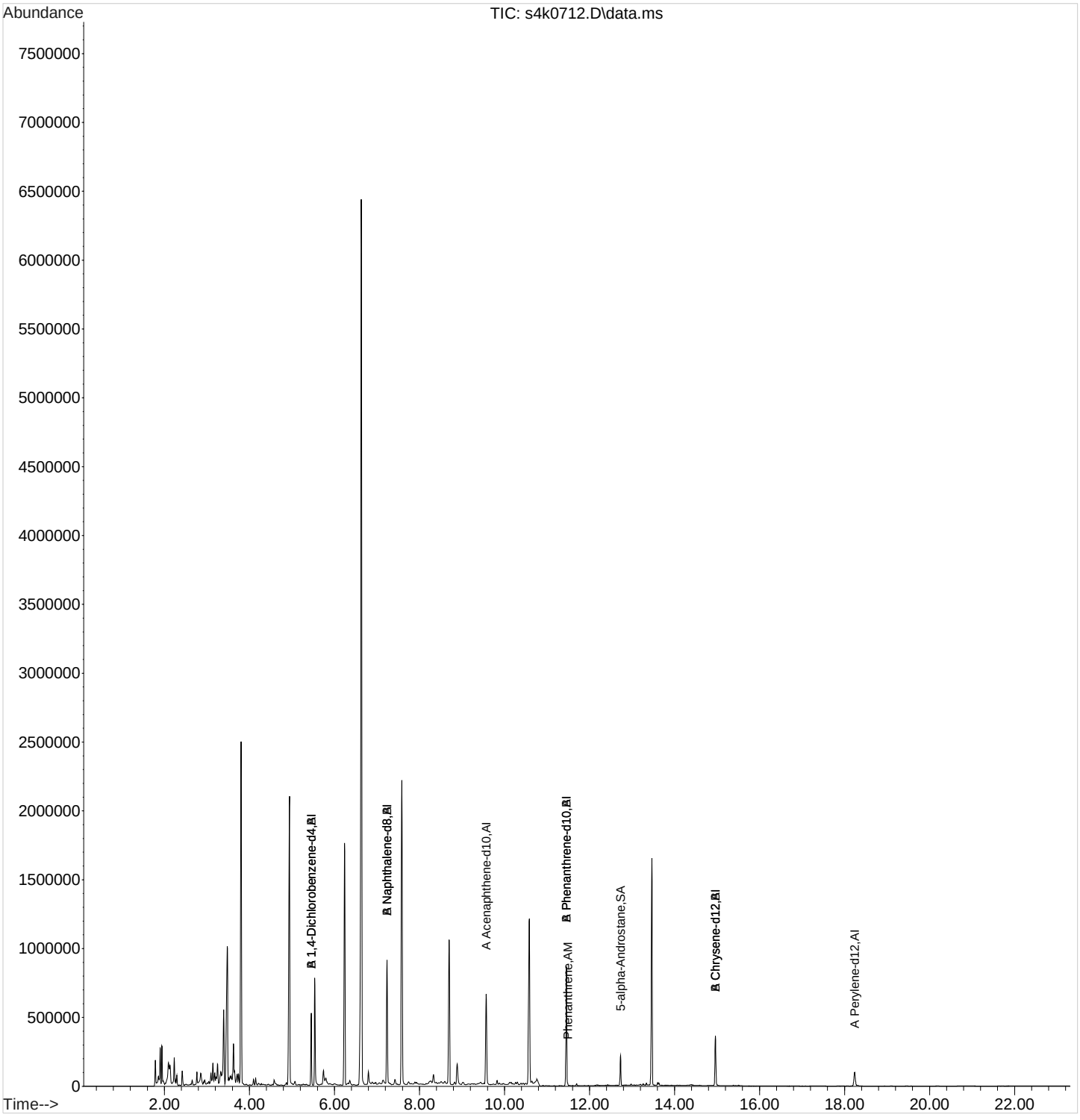
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
15) Phenanthrene	178	11.488	11.489	1.003	16314	0.05	ng/uL	90

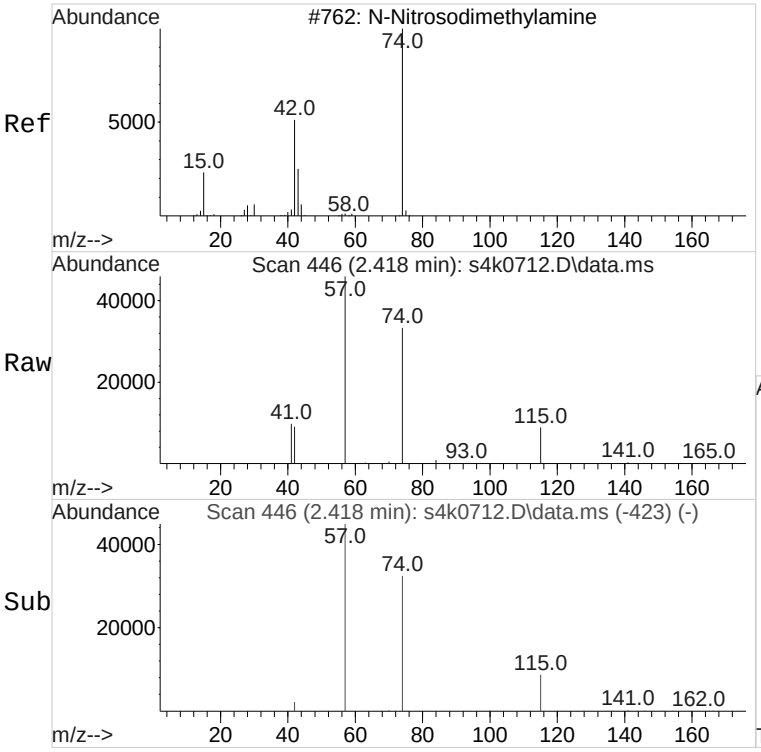
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0712.D
Acq On : 07 Nov 2016 13:16
Operator : JMB3
InstName : MSD4
Sample : |409254017|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 07 13:51:32 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

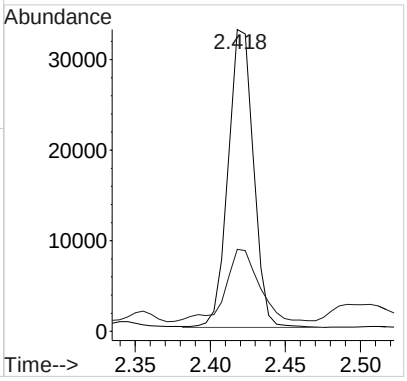


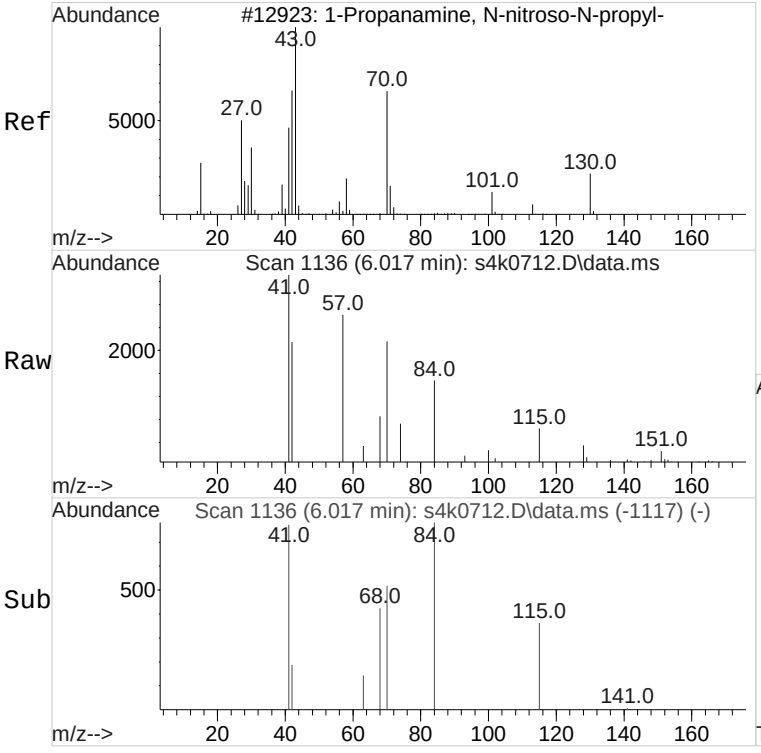


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 0.63 ng/uL
RT: 2.418 min Scan# 446
Delta R.T. -0.010 min
Lab File: s4k0712.D
Acq: 07 Nov 2016 13:16

Tgt Ion: 74 Resp: 38640

Ion	Ratio	Lower	Upper
74	100		
42	31.8	39.1	99.1#

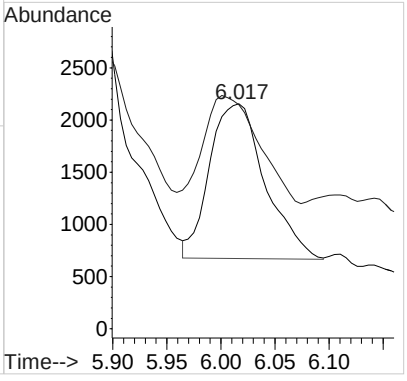


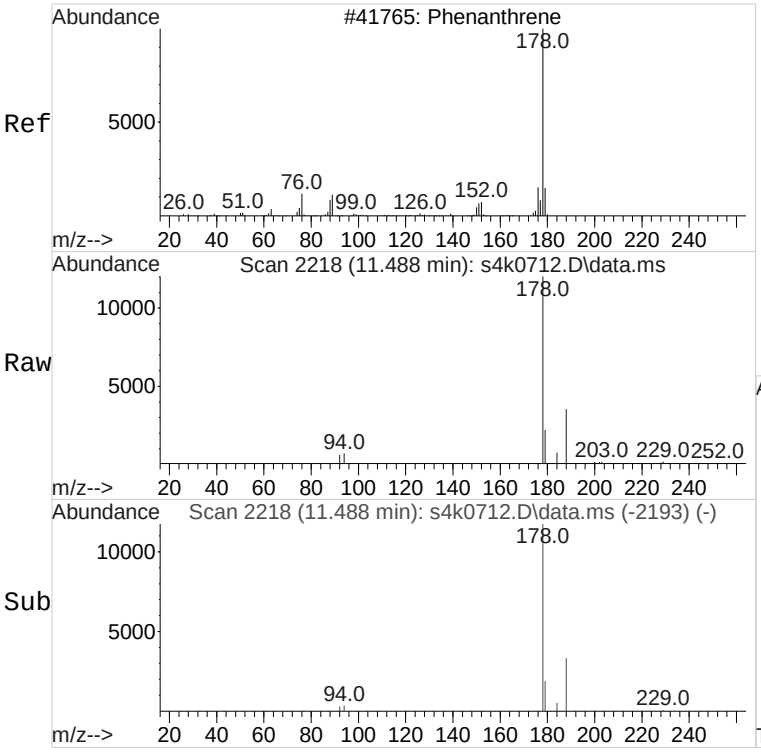


#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.08 ng/uL
RT: 6.017 min Scan# 1136
Delta R.T. 0.000 min
Lab File: s4k0712.D
Acq: 07 Nov 2016 13:16

Tgt Ion: 70 Resp: 5286

Ion	Ratio	Lower	Upper
70	100		
42	69.5	22.5	82.5

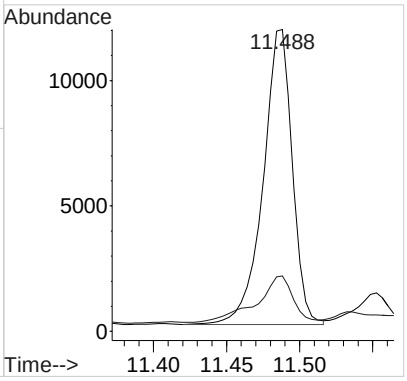




#15
Phenanthrene
Concen: 0.05 ng/uL
RT: 11.488 min Scan# 2218
Delta R.T. -0.001 min
Lab File: s4k0712.D
Acq: 07 Nov 2016 13:16

Tgt Ion:178 Resp: 16314

Ion	Ratio	Lower	Upper
178	100		
179	19.8	0.0	45.6



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 09:42**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254018**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**24.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP100212**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 13:44**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0713.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.42	ug/kg	2.21	4.42
91-58-7	2-Chloronaphthalene	U	4.42	ug/kg	2.21	4.42
91-57-6	2-Methylnaphthalene	U	4.42	ug/kg	2.21	4.42
83-32-9	Acenaphthene	U	4.42	ug/kg	2.21	4.42
208-96-8	Acenaphthylene	U	4.42	ug/kg	2.21	4.42
120-12-7	Anthracene	U	4.42	ug/kg	2.21	4.42
56-55-3	Benzo(a)anthracene	U	4.42	ug/kg	2.21	4.42
50-32-8	Benzo(a)pyrene	U	4.42	ug/kg	2.21	4.42
205-99-2	Benzo(b)fluoranthene	U	4.42	ug/kg	2.21	4.42
191-24-2	Benzo(ghi)perylene	U	4.42	ug/kg	2.21	4.42
207-08-9	Benzo(k)fluoranthene	U	4.42	ug/kg	2.21	4.42
218-01-9	Chrysene	U	4.42	ug/kg	2.21	4.42
53-70-3	Dibenzo(a,h)anthracene	U	4.42	ug/kg	2.21	4.42
206-44-0	Fluoranthene	U	4.42	ug/kg	2.21	4.42
86-73-7	Fluorene	U	4.42	ug/kg	2.21	4.42
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.42	ug/kg	2.21	4.42
91-20-3	Naphthalene	U	4.42	ug/kg	1.33	4.42
85-01-8	Phenanthrene	J	3.10	ug/kg	2.21	4.42
129-00-0	Pyrene	U	4.42	ug/kg	2.21	4.42

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0713.D
Acq On : 07 Nov 2016 13:44
Operator : JMB3
InstName : MSD4
Sample : |409254018|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 13 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 14:13:21 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	315527	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1091693	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	440278	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.459	11.457	1.000	846866	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.964	14.963	1.000	370447	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.238	18.231	1.000	214311	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	315527	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1091693	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.459	11.457	1.000	846866	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.964	14.963	1.000	370447	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.733	12.731	1.111	112055	4.23	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	85%

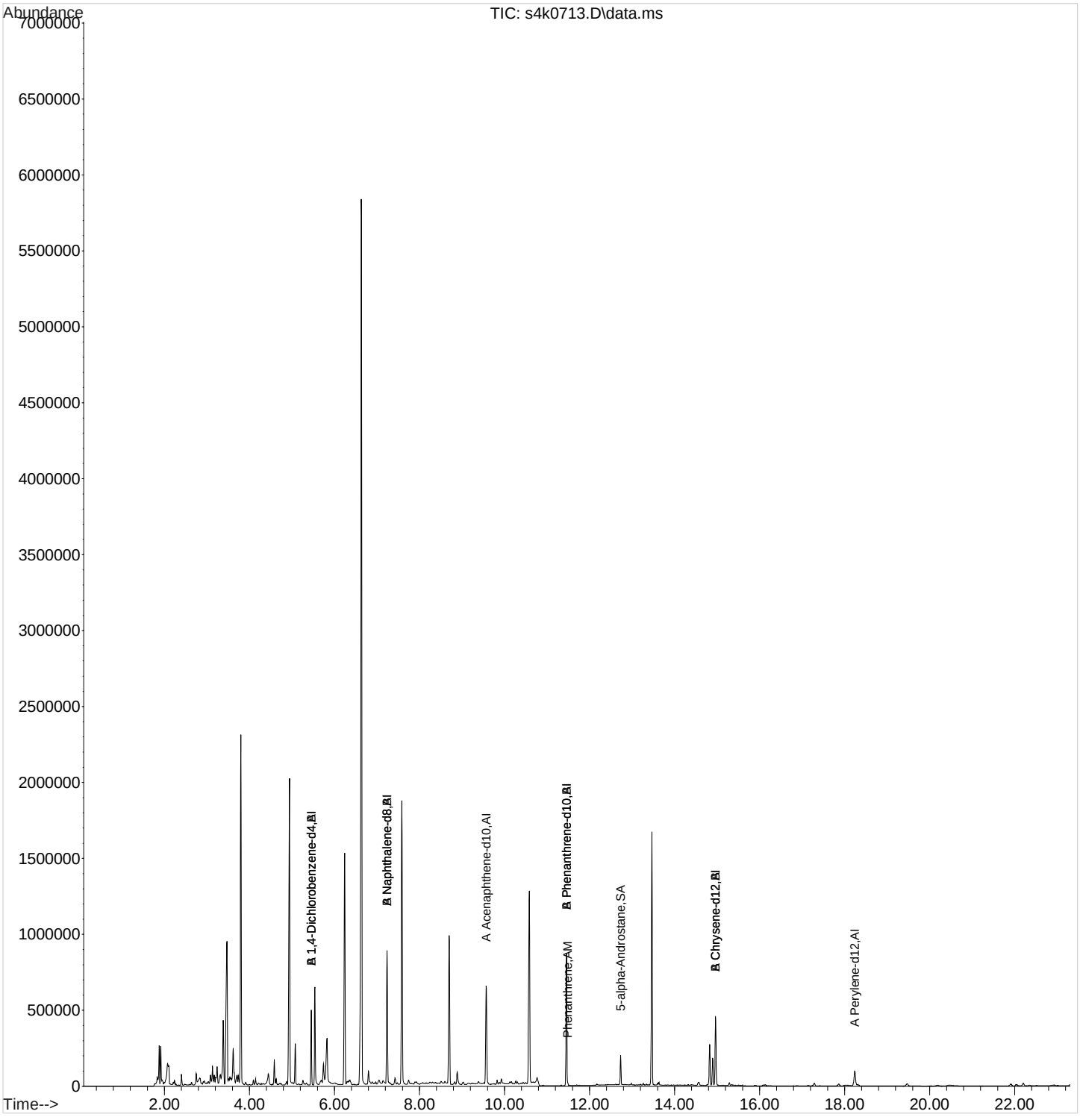
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
15) Phenanthrene	178	11.487	11.489	1.002	19186	0.07	ng/uL	92

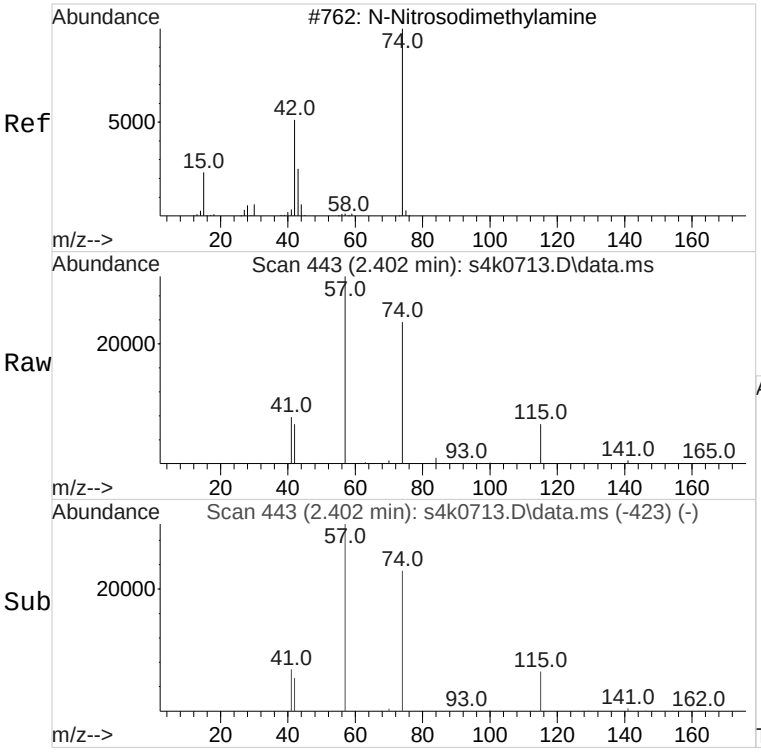
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0713.D
Acq On : 07 Nov 2016 13:44
Operator : JMB3
InstName : MSD4
Sample : |409254018|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 07 14:13:21 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

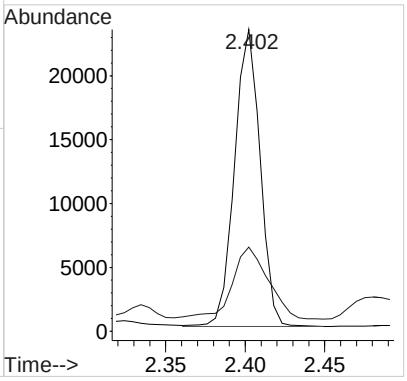


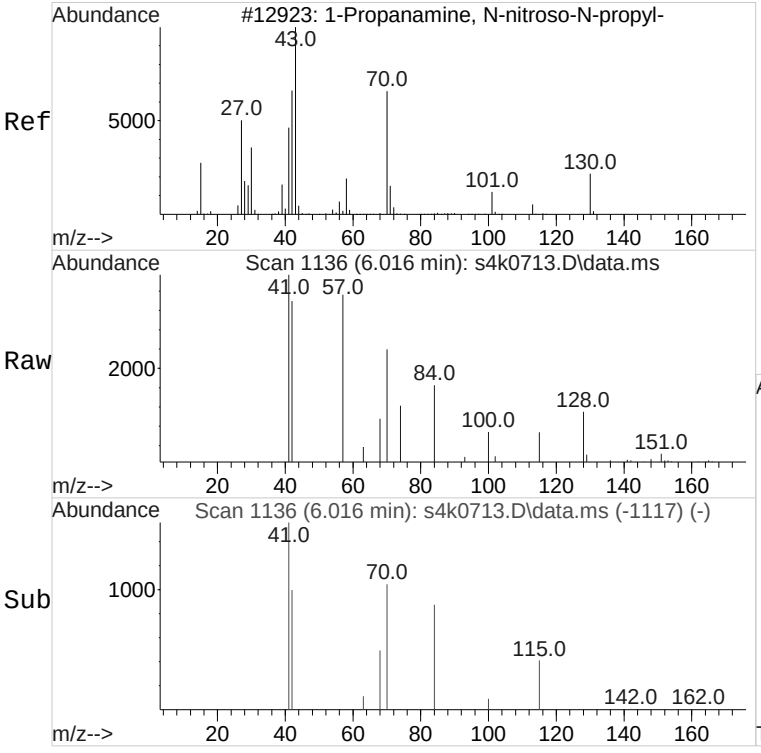


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 0.45 ng/uL
RT: 2.402 min Scan# 443
Delta R.T. -0.026 min
Lab File: s4k0713.D
Acq: 07 Nov 2016 13:44

Tgt Ion: 74 Resp: 25888

Ion	Ratio	Lower	Upper
74	100		
42	34.3	39.1	99.1#

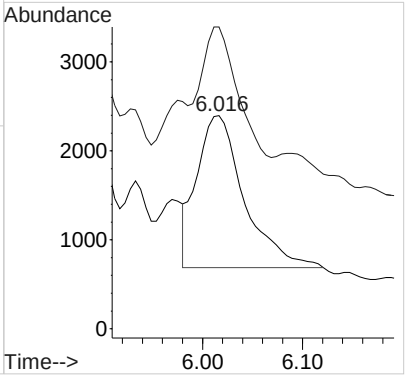


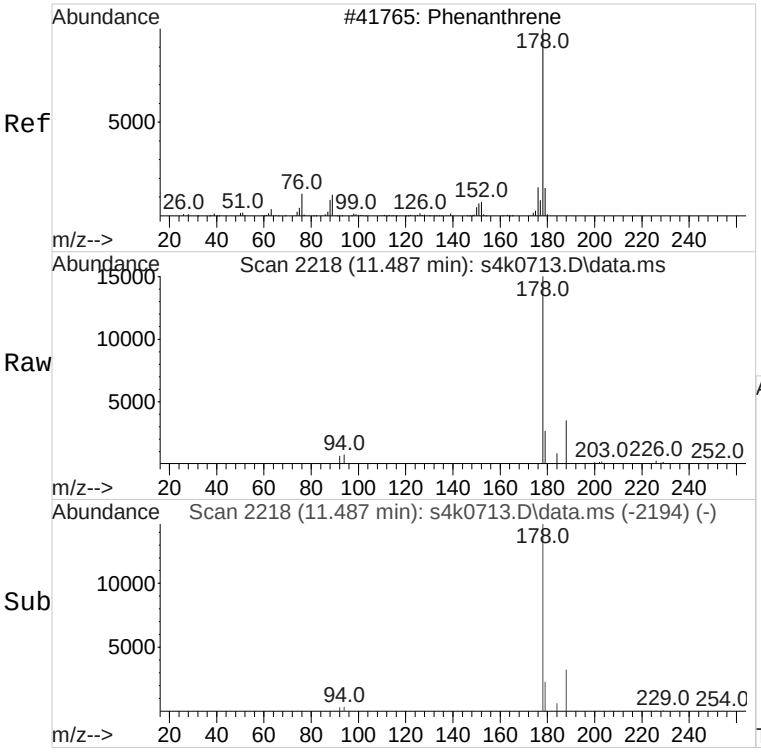


#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.09 ng/uL
RT: 6.016 min Scan# 1136
Delta R.T. 0.000 min
Lab File: s4k0713.D
Acq: 07 Nov 2016 13:44

Tgt Ion: 70 Resp: 5631

Ion	Ratio	Lower	Upper
70	100		
42	69.0	22.5	82.5

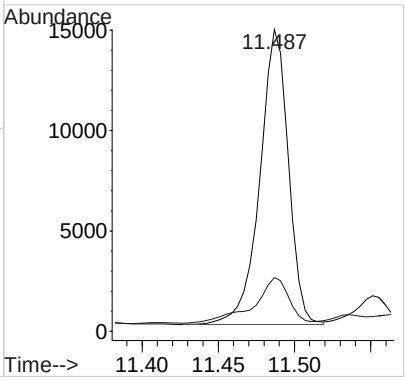




#15
Phenanthrene
Concen: 0.07 ng/uL
RT: 11.487 min Scan# 2218
Delta R.T. -0.002 min
Lab File: s4k0713.D
Acq: 07 Nov 2016 13:44

Tgt Ion:178 Resp: 19186

Ion	Ratio	Lower	Upper
178	100		
179	19.0	0.0	45.6



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 10:04**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254019**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**25.2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP100310**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 14:12**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.055 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0714.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.45	ug/kg	2.22	4.45
91-58-7	2-Chloronaphthalene	U	4.45	ug/kg	2.22	4.45
91-57-6	2-Methylnaphthalene	U	4.45	ug/kg	2.22	4.45
83-32-9	Acenaphthene	U	4.45	ug/kg	2.22	4.45
208-96-8	Acenaphthylene	U	4.45	ug/kg	2.22	4.45
120-12-7	Anthracene	U	4.45	ug/kg	2.22	4.45
56-55-3	Benzo(a)anthracene	U	4.45	ug/kg	2.22	4.45
50-32-8	Benzo(a)pyrene	U	4.45	ug/kg	2.22	4.45
205-99-2	Benzo(b)fluoranthene	J	3.56	ug/kg	2.22	4.45
191-24-2	Benzo(ghi)perylene	U	4.45	ug/kg	2.22	4.45
207-08-9	Benzo(k)fluoranthene	U	4.45	ug/kg	2.22	4.45
218-01-9	Chrysene	J	2.22	ug/kg	2.22	4.45
53-70-3	Dibenzo(a,h)anthracene	U	4.45	ug/kg	2.22	4.45
206-44-0	Fluoranthene	J	3.56	ug/kg	2.22	4.45
86-73-7	Fluorene	U	4.45	ug/kg	2.22	4.45
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.45	ug/kg	2.22	4.45
91-20-3	Naphthalene	U	4.45	ug/kg	1.33	4.45
85-01-8	Phenanthrene	J	3.11	ug/kg	2.22	4.45
129-00-0	Pyrene	J	3.11	ug/kg	2.22	4.45

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0714.D
Acq On : 07 Nov 2016 14:12
Operator : JMB3
InstName : MSD4
Sample : |409254019|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 14 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 14:49:58 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	328366	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1129880	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	451930	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	872333	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.961	14.963	1.000	382814	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.239	18.231	1.000	192292	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	328366	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1129880	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.456	11.457	1.000	872333	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.961	14.963	1.000	382814	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	117819	4.32	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	86%

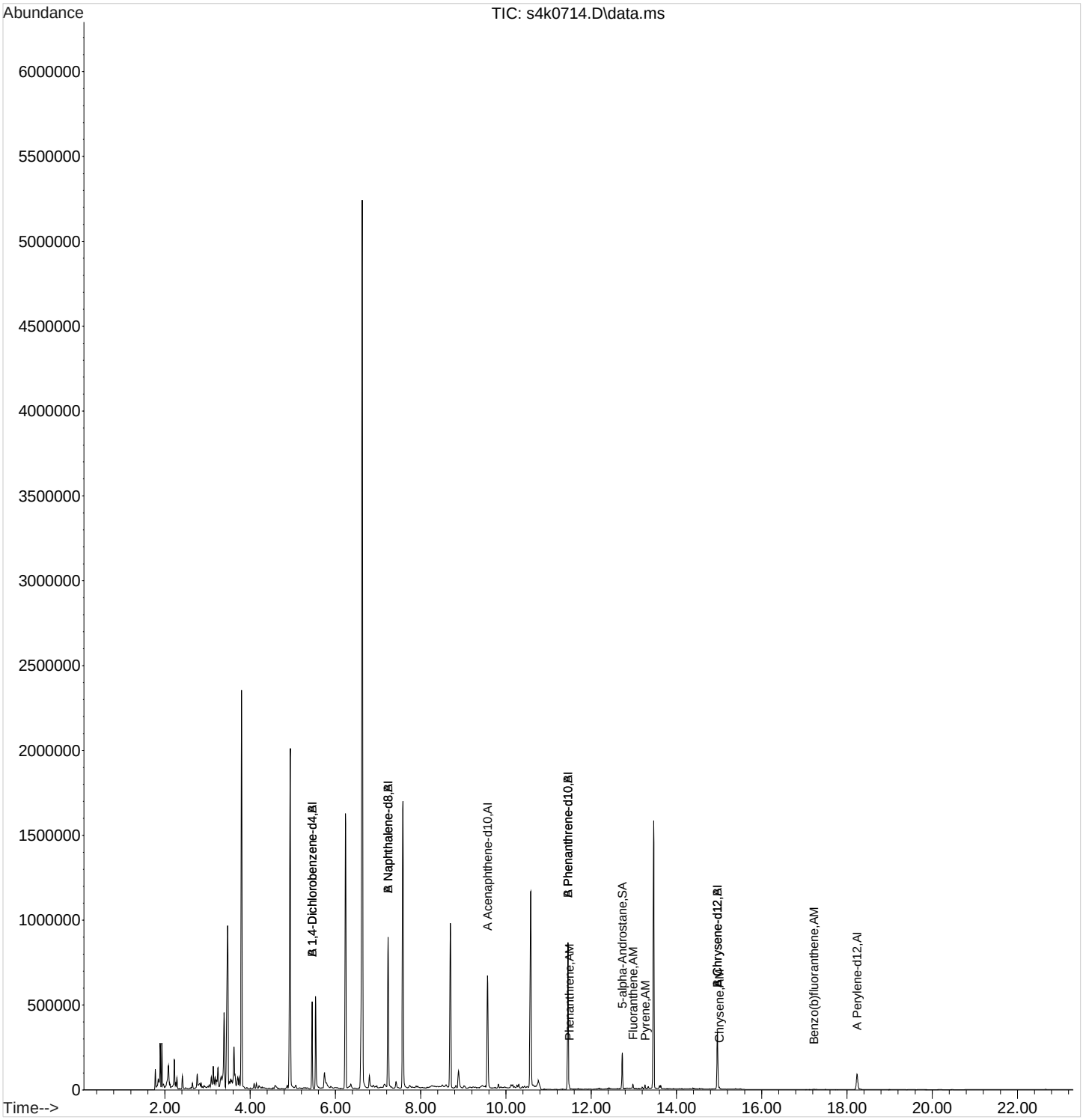
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
15) Phenanthrene	178	11.488	11.489	1.003	20985	0.07	ng/uL	93
18) Fluoranthene	202	12.979	12.981	1.133	22020	0.08	ng/uL	96
20) Pyrene	202	13.265	13.262	0.887	18977	0.07	ng/uL	100
22) Chrysene	228	15.010	15.007	1.003	7420	0.05	ng/uL	99
24) Benzo(b)fluoranthene	252	17.224	17.213	0.944	6524	0.08	ng/uL	100

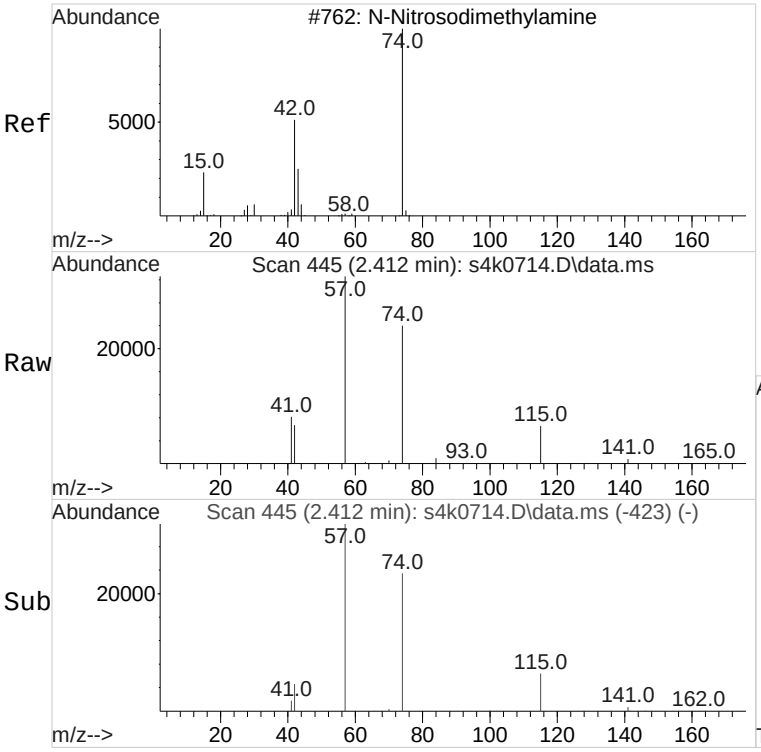
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0714.D
Acq On : 07 Nov 2016 14:12
Operator : JMB3
InstName : MSD4
Sample : |409254019|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 07 14:49:58 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

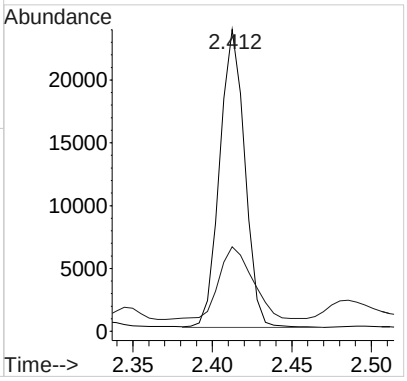


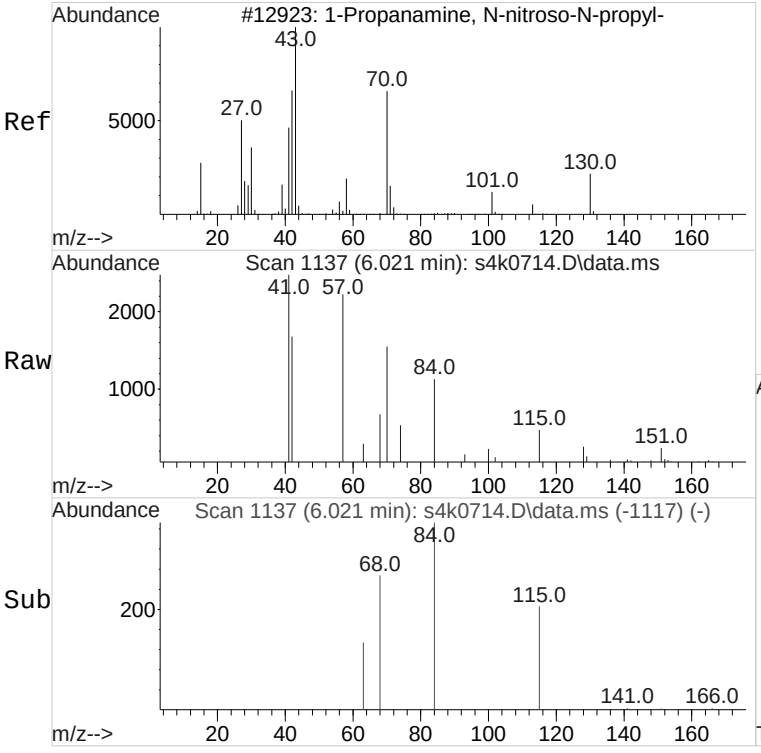


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 0.44 ng/uL
RT: 2.412 min Scan# 445
Delta R.T. -0.016 min
Lab File: s4k0714.D
Acq: 07 Nov 2016 14:12

Tgt Ion: 74 Resp: 25998

Ion	Ratio	Lower	Upper
74	100		
42	32.6	39.1	99.1#

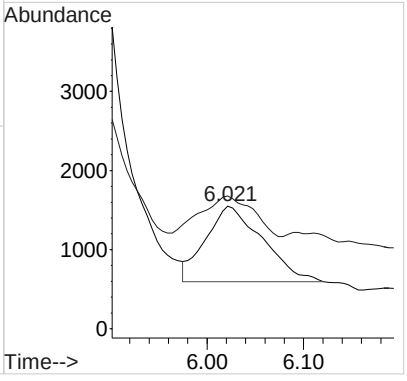


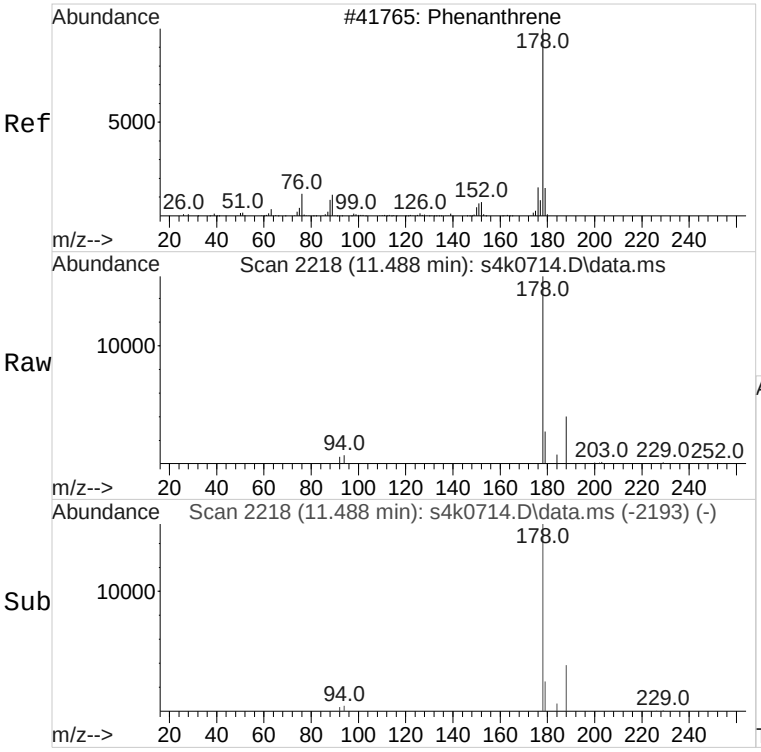


#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.06 ng/uL
RT: 6.021 min Scan# 1137
Delta R.T. 0.005 min
Lab File: s4k0714.D
Acq: 07 Nov 2016 14:12

Tgt Ion: 70 Resp: 3891

Ion	Ratio	Lower	Upper
70	100		
42	49.6	22.5	82.5

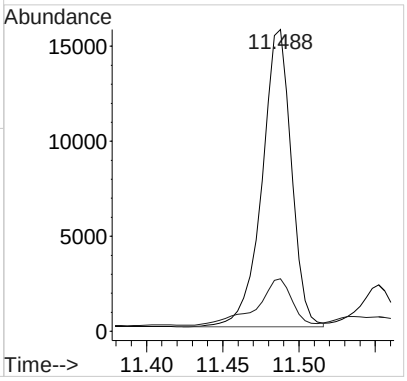


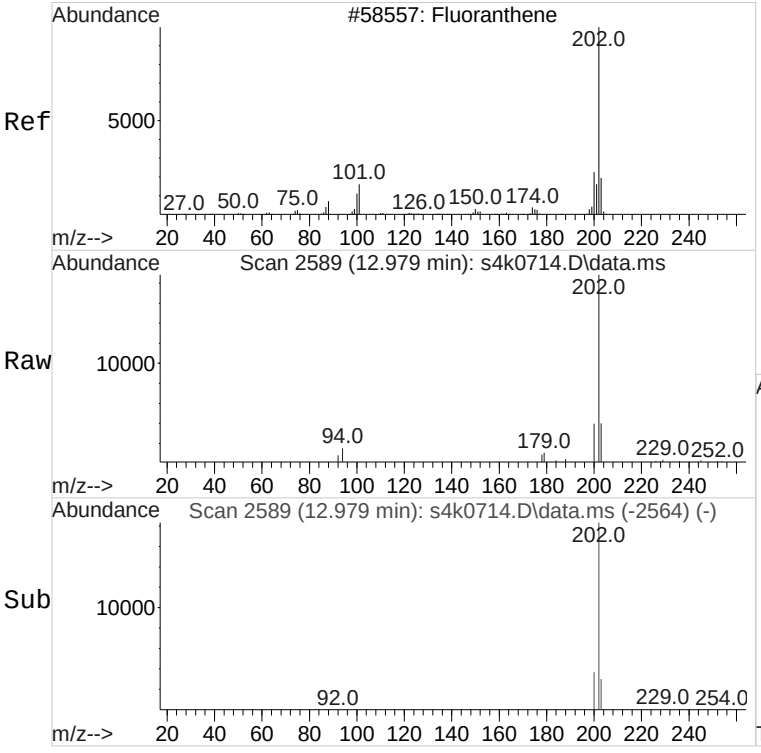


#15
Phenanthrene
Concen: 0.07 ng/uL
RT: 11.488 min Scan# 2218
Delta R.T. -0.001 min
Lab File: s4k0714.D
Acq: 07 Nov 2016 14:12

Tgt Ion:178 Resp: 20985

Ion	Ratio	Lower	Upper
178	100		
179	18.6	0.0	45.6

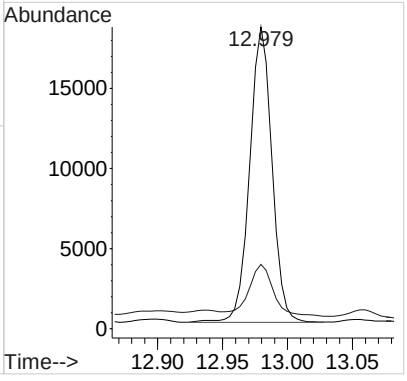


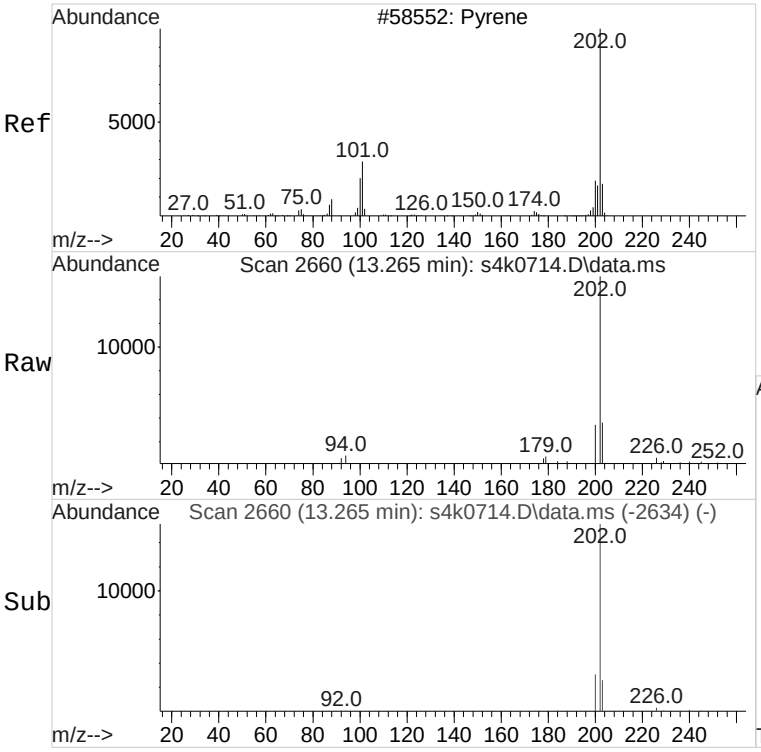


#18
Fluoranthene
Concen: 0.08 ng/uL
RT: 12.979 min Scan# 2589
Delta R.T. -0.001 min
Lab File: s4k0714.D
Acq: 07 Nov 2016 14:12

Tgt Ion:202 Resp: 22020

Ion	Ratio	Lower	Upper
202	100		
203	19.5	0.0	47.7

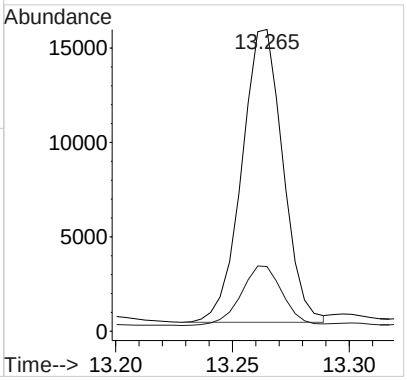


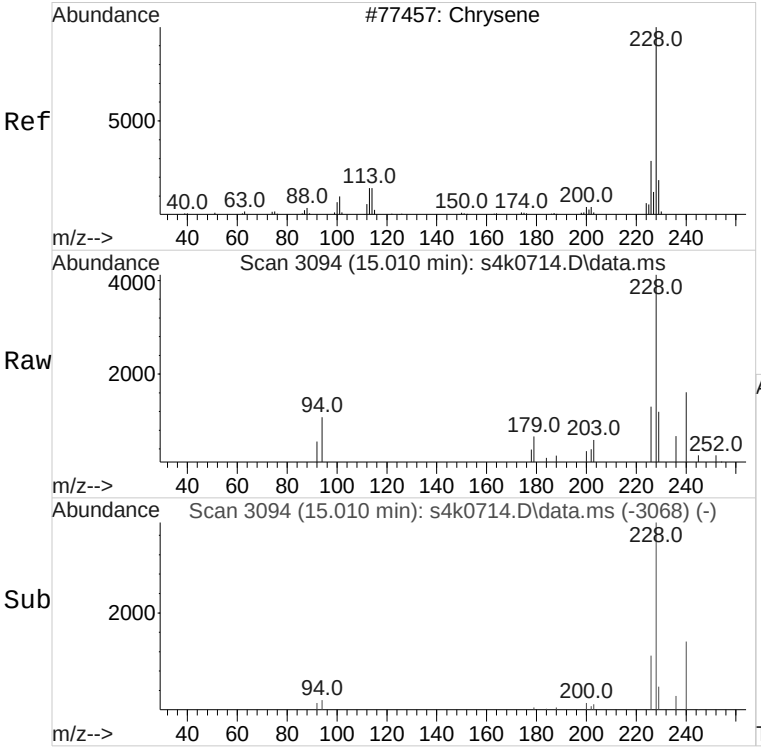


#20
Pyrene
Concen: 0.07 ng/uL
RT: 13.265 min Scan# 2660
Delta R.T. 0.003 min
Lab File: s4k0714.D
Acq: 07 Nov 2016 14:12

Tgt Ion:202 Resp: 18977

Ion	Ratio	Lower	Upper
202	100		
200	20.5	0.0	50.4

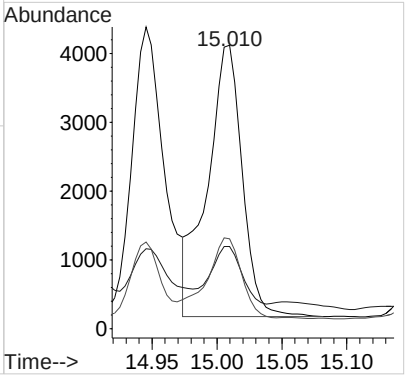


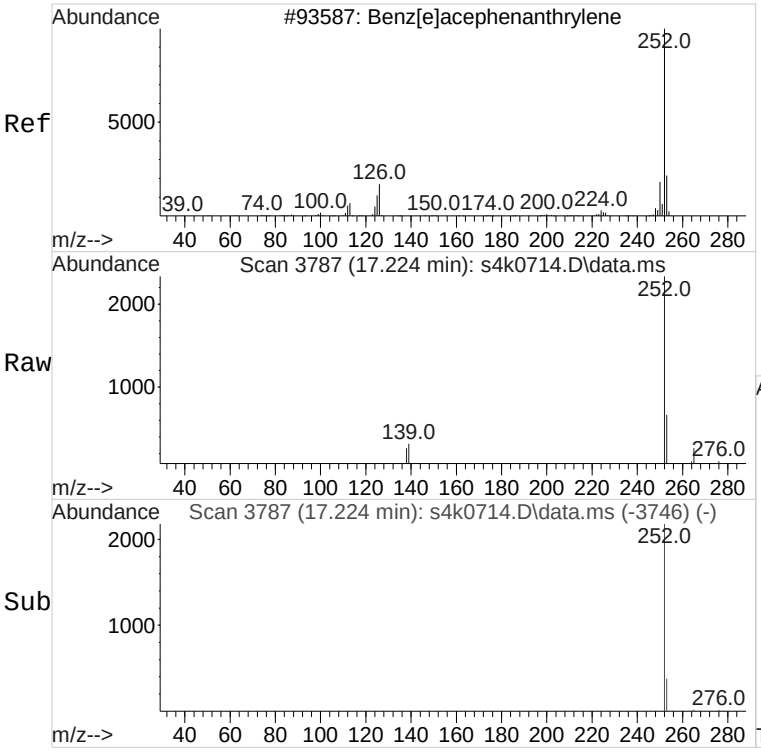


#22
Chrysene
Concen: 0.05 ng/uL
RT: 15.010 min Scan# 3094
Delta R.T. 0.003 min
Lab File: s4k0714.D
Acq: 07 Nov 2016 14:12

Tgt Ion:228 Resp: 7420

Ion	Ratio	Lower	Upper
228	100		
229	18.4	0.0	49.3
226	29.4	0.0	59.2

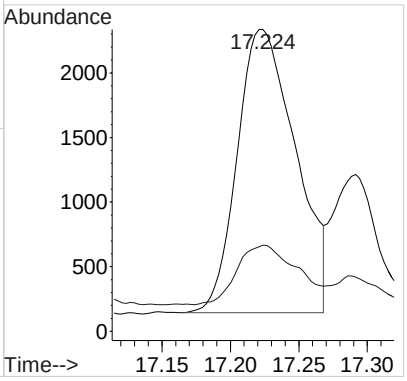




#24
Benzo(b)fluoranthene
Concen: 0.08 ng/uL
RT: 17.224 min Scan# 3787
Delta R.T. 0.011 min
Lab File: s4k0714.D
Acq: 07 Nov 2016 14:12

Tgt Ion:252 Resp: 6524

Ion	Ratio	Lower	Upper
252	100		
253	21.5	0.0	51.6



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:14**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254026**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**19**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP050113**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 14:41**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.057 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0715.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.11	ug/kg	2.05	4.11
91-58-7	2-Chloronaphthalene	U	4.11	ug/kg	2.05	4.11
91-57-6	2-Methylnaphthalene	U	4.11	ug/kg	2.05	4.11
83-32-9	Acenaphthene	U	4.11	ug/kg	2.05	4.11
208-96-8	Acenaphthylene	U	4.11	ug/kg	2.05	4.11
120-12-7	Anthracene	U	4.11	ug/kg	2.05	4.11
56-55-3	Benzo(a)anthracene	U	4.11	ug/kg	2.05	4.11
50-32-8	Benzo(a)pyrene	U	4.11	ug/kg	2.05	4.11
205-99-2	Benzo(b)fluoranthene	J	3.29	ug/kg	2.05	4.11
191-24-2	Benzo(ghi)perylene	U	4.11	ug/kg	2.05	4.11
207-08-9	Benzo(k)fluoranthene	U	4.11	ug/kg	2.05	4.11
218-01-9	Chrysene	U	4.11	ug/kg	2.05	4.11
53-70-3	Dibenzo(a,h)anthracene	U	4.11	ug/kg	2.05	4.11
206-44-0	Fluoranthene	U	4.11	ug/kg	2.05	4.11
86-73-7	Fluorene	U	4.11	ug/kg	2.05	4.11
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.11	ug/kg	2.05	4.11
91-20-3	Naphthalene	U	4.11	ug/kg	1.23	4.11
85-01-8	Phenanthrene	J	2.47	ug/kg	2.05	4.11
129-00-0	Pyrene	U	4.11	ug/kg	2.05	4.11

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0715.D
Acq On : 07 Nov 2016 14:41
Operator : JMB3
InstName : MSD4
Sample : |409254026|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 15 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 15:05:51 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	322201	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1113162	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.573	9.573	1.000	445963	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	873618	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.965	14.963	1.000	488764	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.240	18.231	1.000	286649	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	322201	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1113162	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.456	11.457	1.000	873618	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.965	14.963	1.000	488764	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	107581	3.94	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	79%

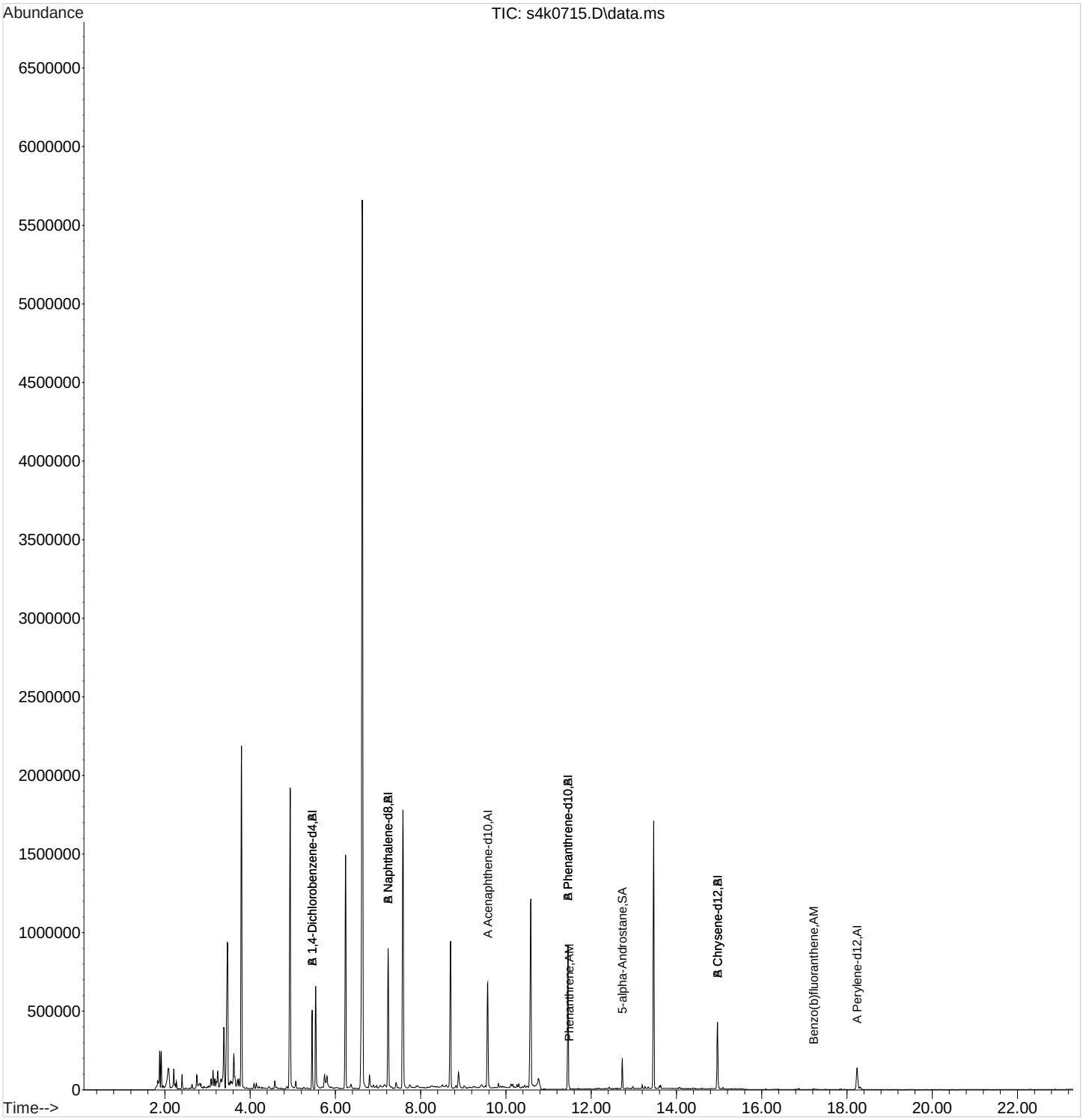
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
15) Phenanthrene	178	11.488	11.489	1.003	19209	0.06	ng/uL	91
24) Benzo(b)fluoranthene	252	17.222	17.213	0.944	10887	0.08	ng/uL	100

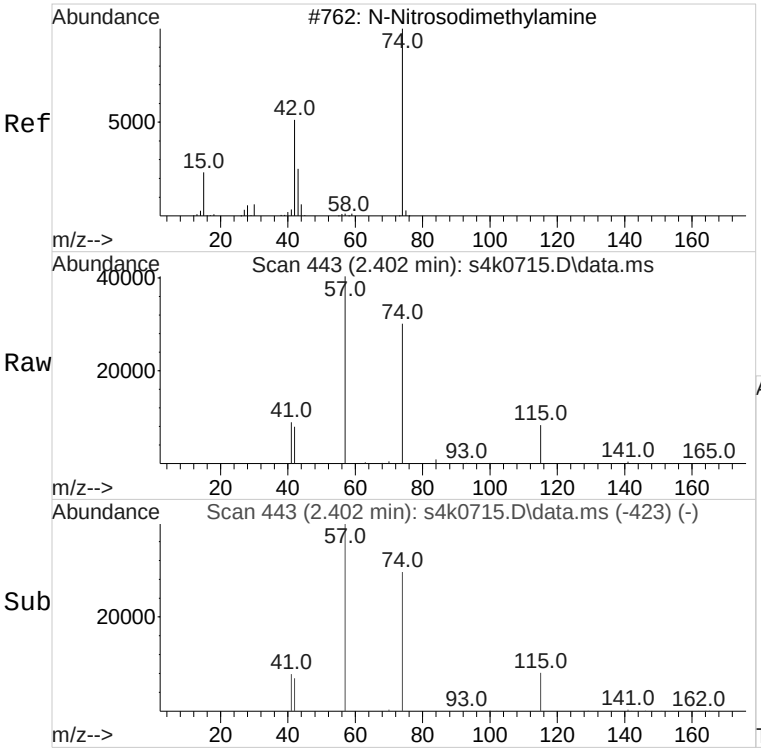
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0715.D
Acq On : 07 Nov 2016 14:41
Operator : JMB3
InstName : MSD4
Sample : |409254026|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 07 15:05:51 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

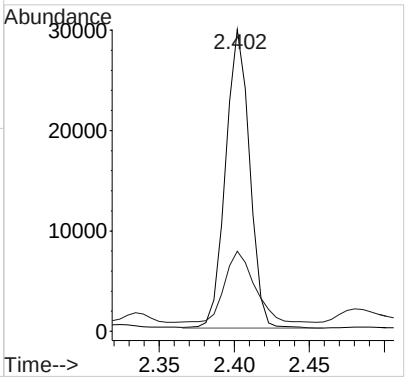


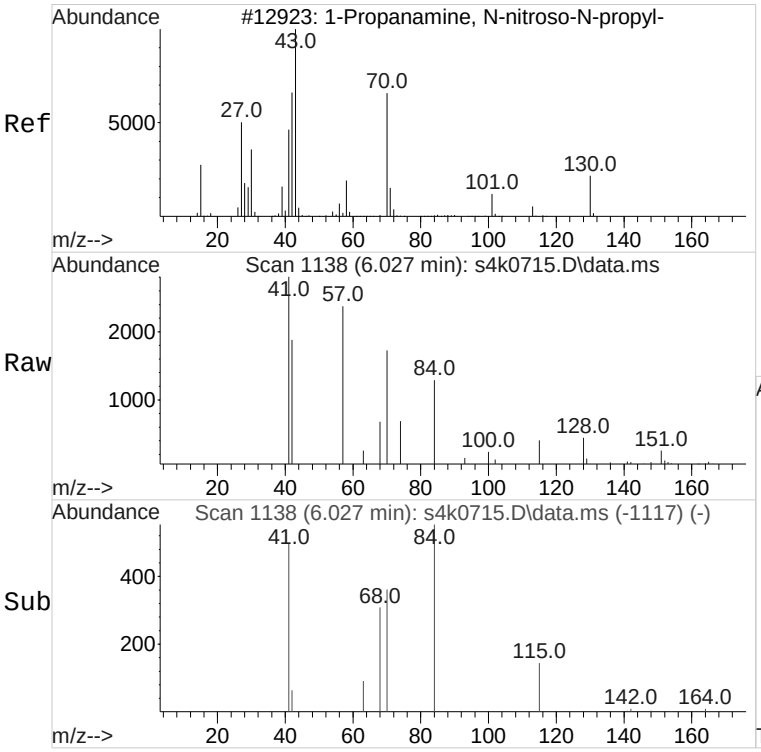


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 0.57 ng/uL
RT: 2.402 min Scan# 443
Delta R.T. -0.026 min
Lab File: s4k0715.D
Acq: 07 Nov 2016 14:41

Tgt Ion: 74 Resp: 32992

Ion	Ratio	Lower	Upper
74	100		
42	29.6	39.1	99.1#

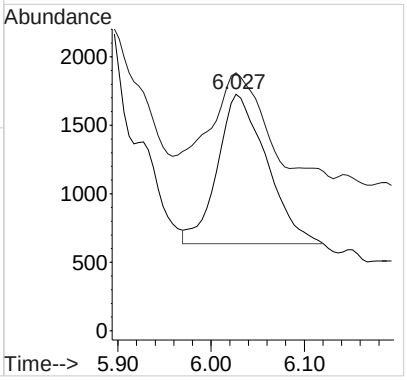


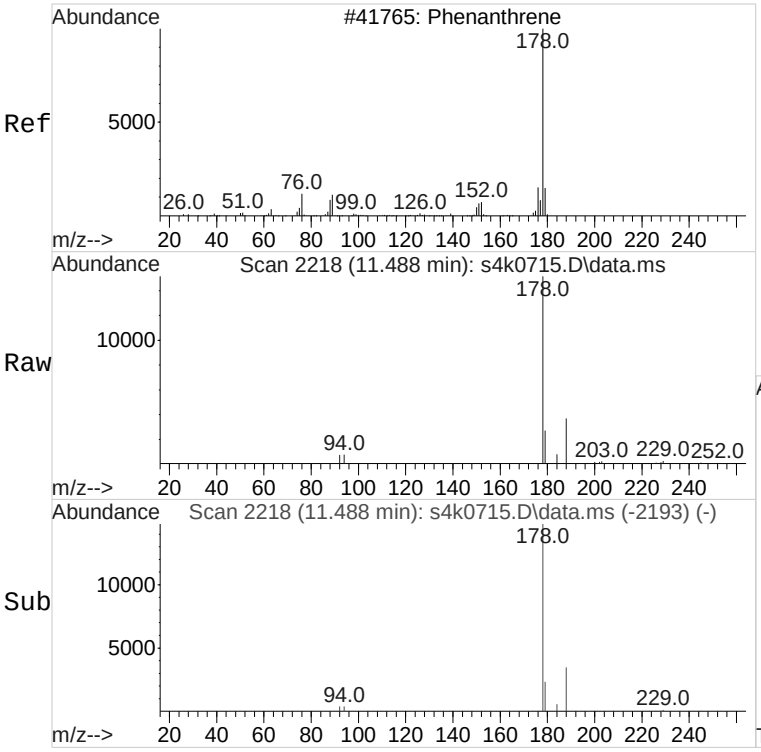


#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.06 ng/uL
RT: 6.027 min Scan# 1138
Delta R.T. 0.010 min
Lab File: s4k0715.D
Acq: 07 Nov 2016 14:41

Tgt Ion: 70 Resp: 4000

Ion	Ratio	Lower	Upper
70	100		
42	60.9	22.5	82.5

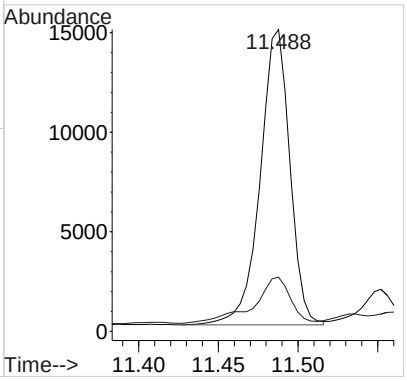


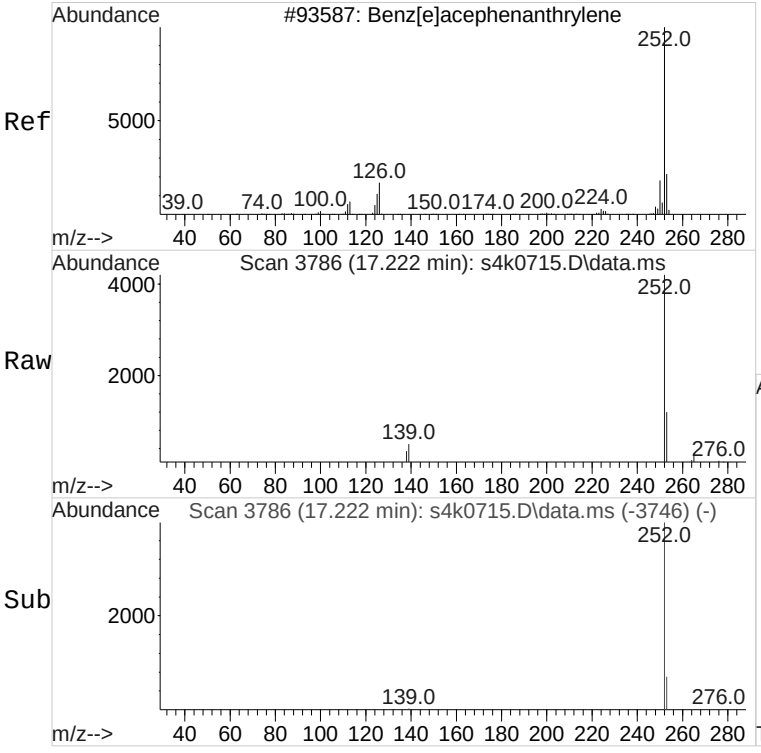


#15
Phenanthrene
Concen: 0.06 ng/uL
RT: 11.488 min Scan# 2218
Delta R.T. -0.001 min
Lab File: s4k0715.D
Acq: 07 Nov 2016 14:41

Tgt Ion:178 Resp: 19209

Ion	Ratio	Lower	Upper
178	100		
179	19.4	0.0	45.6

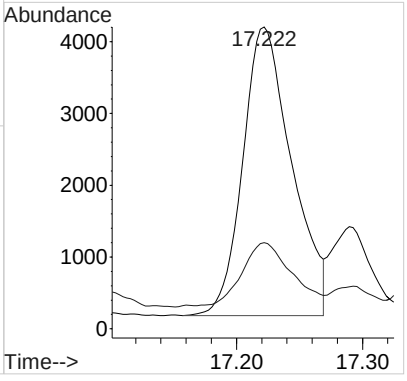




#24
Benzo(b)fluoranthene
Concen: 0.08 ng/uL
RT: 17.222 min Scan# 3786
Delta R.T. 0.009 min
Lab File: s4k0715.D
Acq: 07 Nov 2016 14:41

Tgt Ion:252 Resp: 10887

Ion	Ratio	Lower	Upper
252	100		
253	21.7	0.0	51.6



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:34**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254027**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**27.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP050213**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 15:09**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.005 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0716.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	4.60	ug/kg	2.30	4.60
91-58-7	2-Chloronaphthalene	U	4.60	ug/kg	2.30	4.60
91-57-6	2-Methylnaphthalene	U	4.60	ug/kg	2.30	4.60
83-32-9	Acenaphthene	U	4.60	ug/kg	2.30	4.60
208-96-8	Acenaphthylene	U	4.60	ug/kg	2.30	4.60
120-12-7	Anthracene	U	4.60	ug/kg	2.30	4.60
56-55-3	Benzo(a)anthracene	U	4.60	ug/kg	2.30	4.60
50-32-8	Benzo(a)pyrene	U	4.60	ug/kg	2.30	4.60
205-99-2	Benzo(b)fluoranthene	J	3.22	ug/kg	2.30	4.60
191-24-2	Benzo(ghi)perylene	U	4.60	ug/kg	2.30	4.60
207-08-9	Benzo(k)fluoranthene	U	4.60	ug/kg	2.30	4.60
218-01-9	Chrysene	U	4.60	ug/kg	2.30	4.60
53-70-3	Dibenzo(a,h)anthracene	U	4.60	ug/kg	2.30	4.60
206-44-0	Fluoranthene	J	3.22	ug/kg	2.30	4.60
86-73-7	Fluorene	U	4.60	ug/kg	2.30	4.60
193-39-5	Indeno(1,2,3-cd)pyrene	U	4.60	ug/kg	2.30	4.60
91-20-3	Naphthalene		5.52	ug/kg	1.38	4.60
85-01-8	Phenanthrene		5.52	ug/kg	2.30	4.60
129-00-0	Pyrene	J	2.76	ug/kg	2.30	4.60

JMB 11/08/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0716.D
Acq On : 07 Nov 2016 15:09
Operator : JMB3
InstName : MSD4
Sample : |409254027|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 16 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 08 08:37:17 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	320383	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1099939	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.573	9.573	1.000	439619	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.460	11.457	1.000	839406	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.961	14.963	1.000	423036	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.239	18.231	1.000	225794	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	320383	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1099939	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.460	11.457	1.000	839406	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.961	14.963	1.000	423036	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	129441	4.93	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	99%

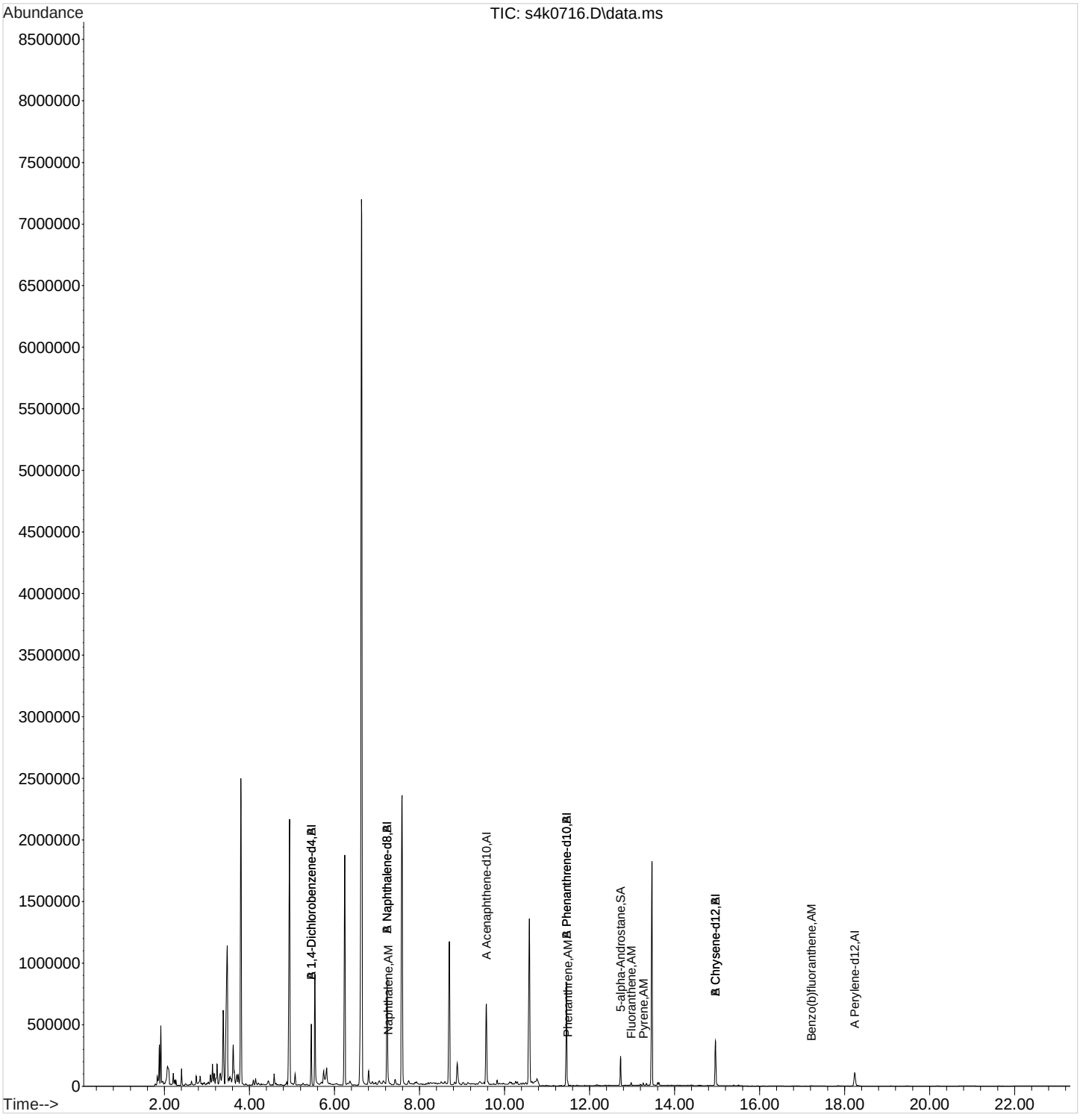
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
6) Naphthalene	128	7.268	7.268	1.004	35609	0.12	ng/uL	80
15) Phenanthrene	178	11.488	11.489	1.002	34898	0.12	ng/uL	96
18) Fluoranthene	202	12.979	12.981	1.133	19461	0.07	ng/uL	99
20) Pyrene	202	13.265	13.262	0.887	16424	0.06	ng/uL	99
24) Benzo(b)fluoranthene	252	17.221	17.213	0.944	7589	0.07	ng/uL	98

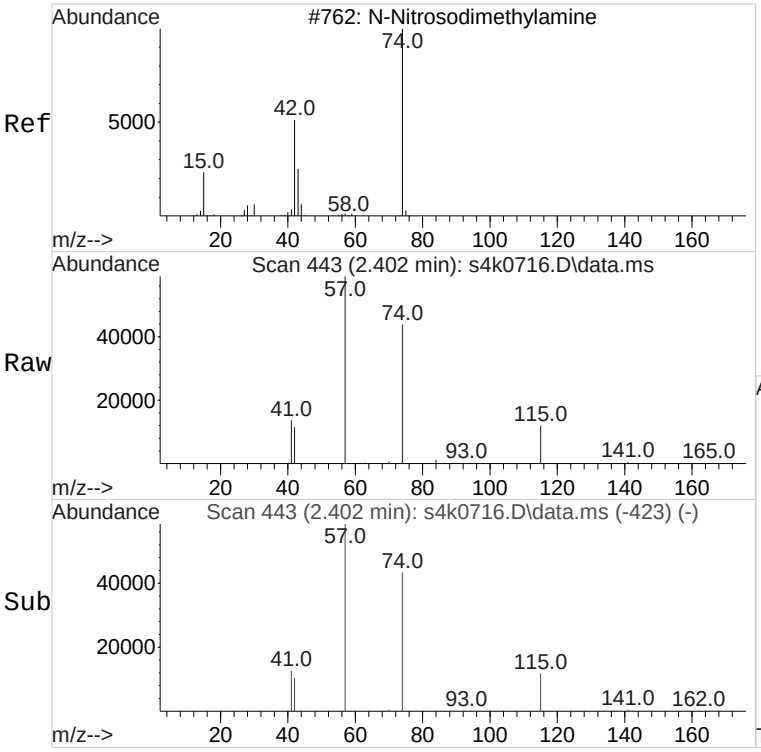
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0716.D
Acq On : 07 Nov 2016 15:09
Operator : JMB3
InstName : MSD4
Sample : |409254027|1612777|1|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 08 08:37:17 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

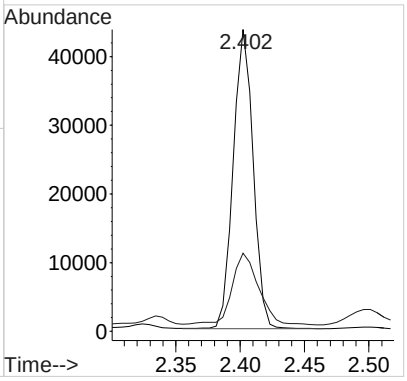


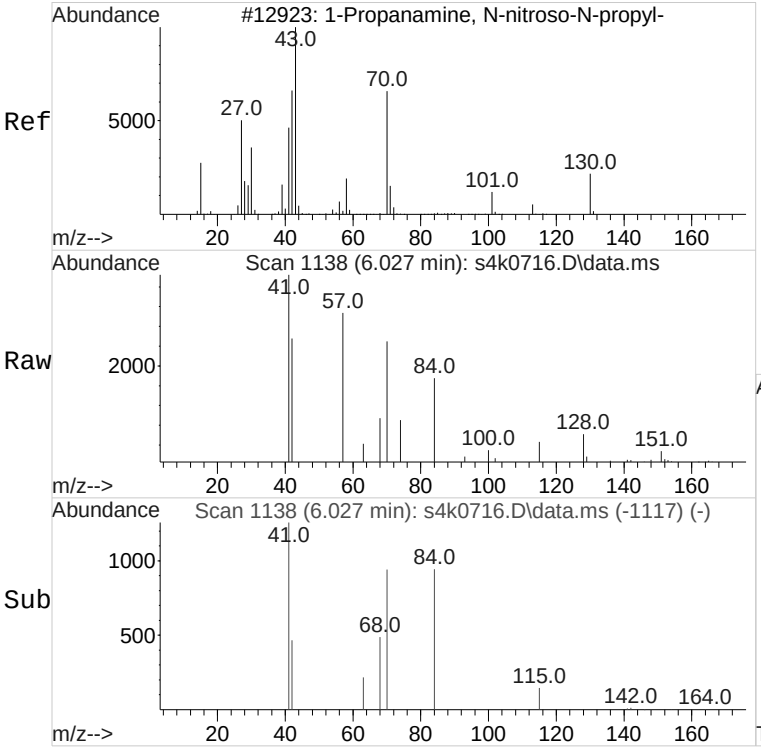


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 0.82 ng/uL
RT: 2.402 min Scan# 443
Delta R.T. -0.026 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion: 74 Resp: 47276

Ion	Ratio	Lower	Upper
74	100		
42	32.0	39.1	99.1#

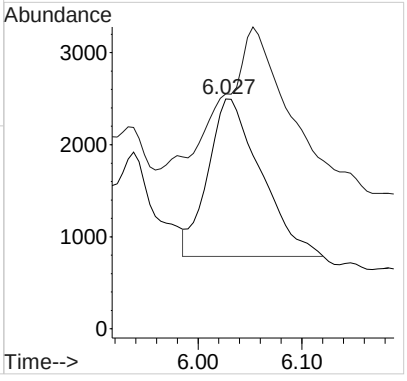


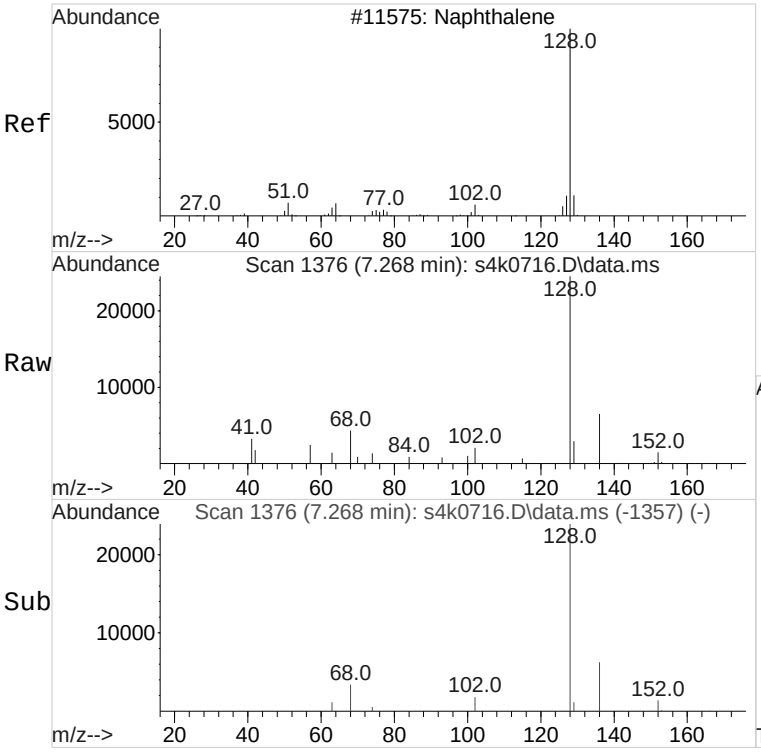


#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.09 ng/uL
RT: 6.027 min Scan# 1138
Delta R.T. 0.010 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion: 70 Resp: 6061

Ion	Ratio	Lower	Upper
70	100		
42	97.6	22.5	82.5#

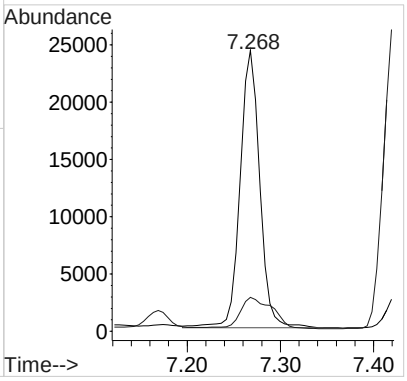


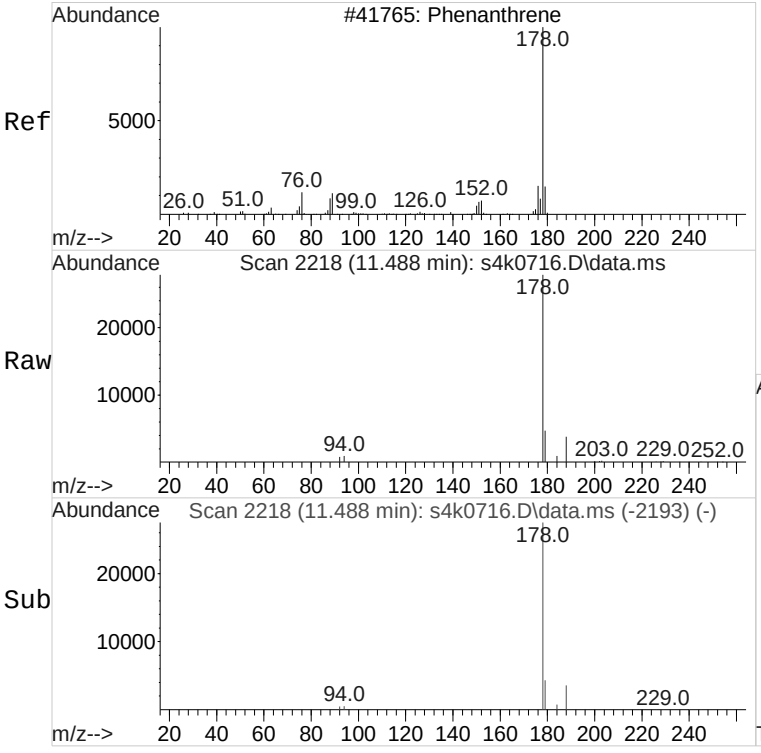


#6
Naphthalene
Concen: 0.12 ng/uL
RT: 7.268 min Scan# 1376
Delta R.T. -0.000 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion:128 Resp: 35609

Ion	Ratio	Lower	Upper
128	100		
129	18.7	0.0	41.2

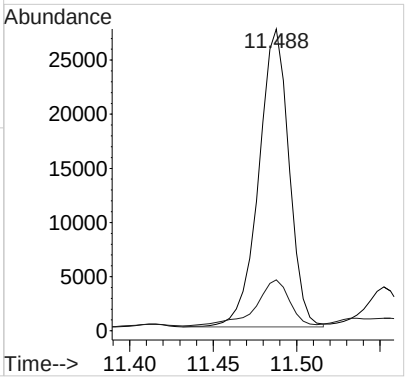


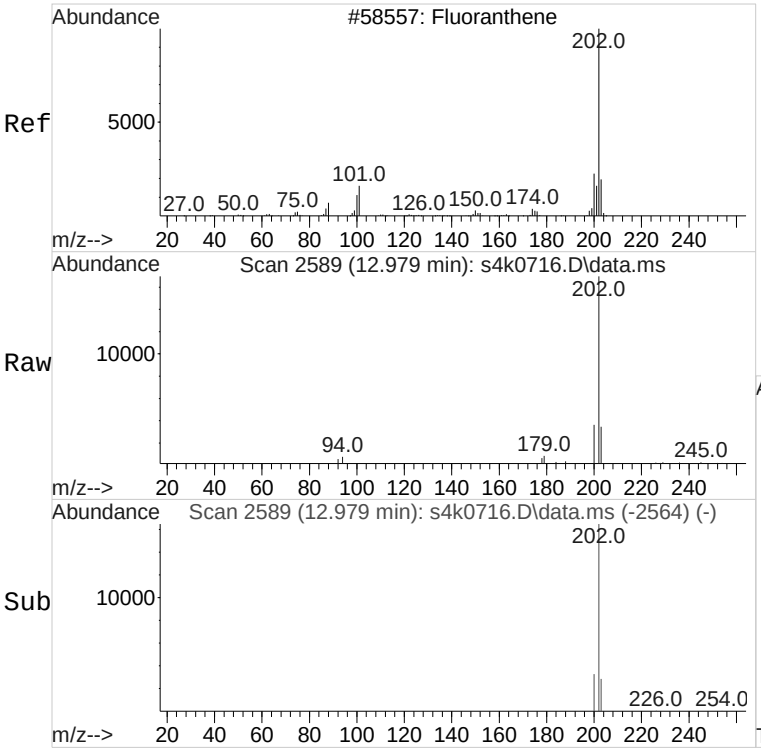


#15
Phenanthrene
Concen: 0.12 ng/uL
RT: 11.488 min Scan# 2218
Delta R.T. -0.001 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion:178 Resp: 34898

Ion	Ratio	Lower	Upper
178	100		
179	17.2	0.0	45.6

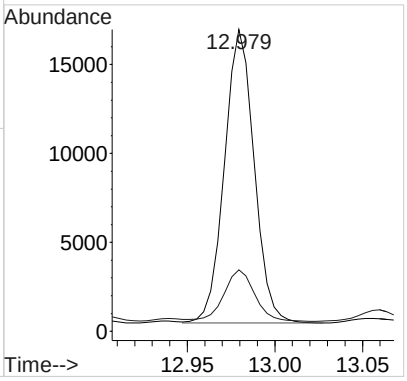


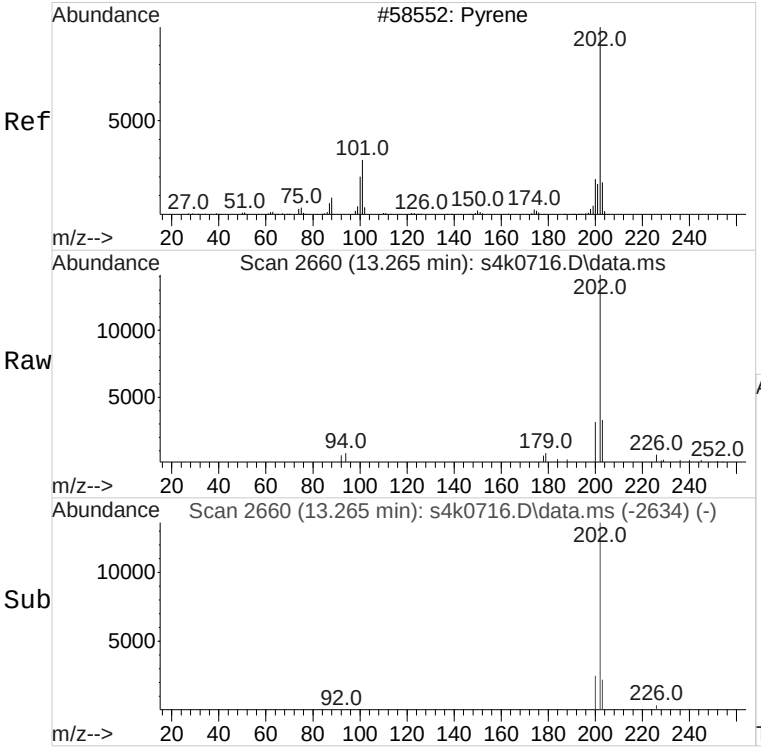


#18
Fluoranthene
Concen: 0.07 ng/uL
RT: 12.979 min Scan# 2589
Delta R.T. -0.001 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion:202 Resp: 19461

Ion	Ratio	Lower	Upper
202	100		
203	18.1	0.0	47.7

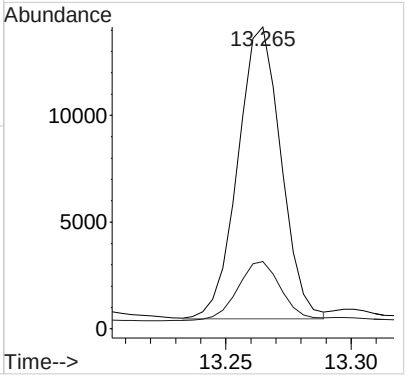


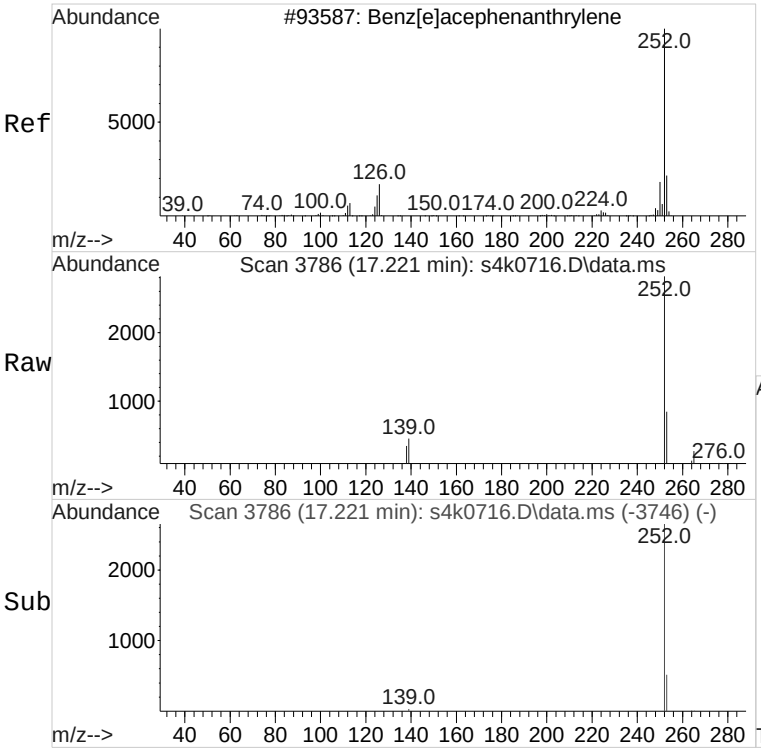


#20
Pyrene
Concen: 0.06 ng/uL
RT: 13.265 min Scan# 2660
Delta R.T. 0.003 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion:202 Resp: 16424

Ion	Ratio	Lower	Upper
202	100		
200	20.7	0.0	50.4

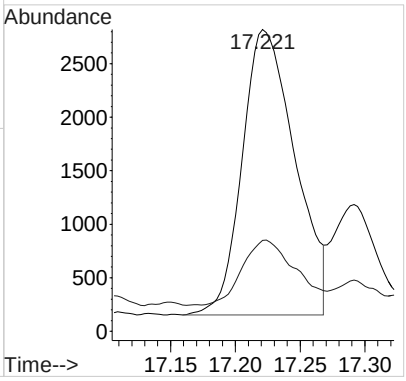


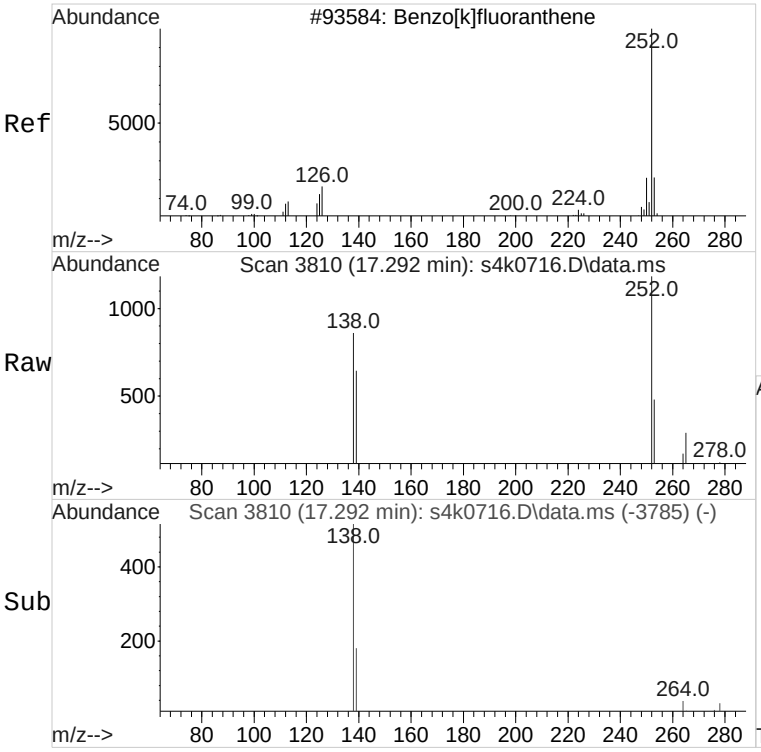


#24
Benzo(b)fluoranthene
Concen: 0.07 ng/uL
RT: 17.221 min Scan# 3786
Delta R.T. 0.008 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion:252 Resp: 7589

Ion	Ratio	Lower	Upper
252	100		
253	22.7	0.0	51.6

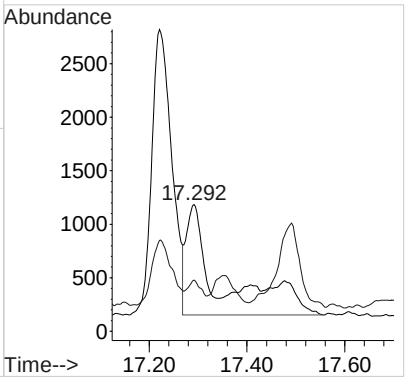


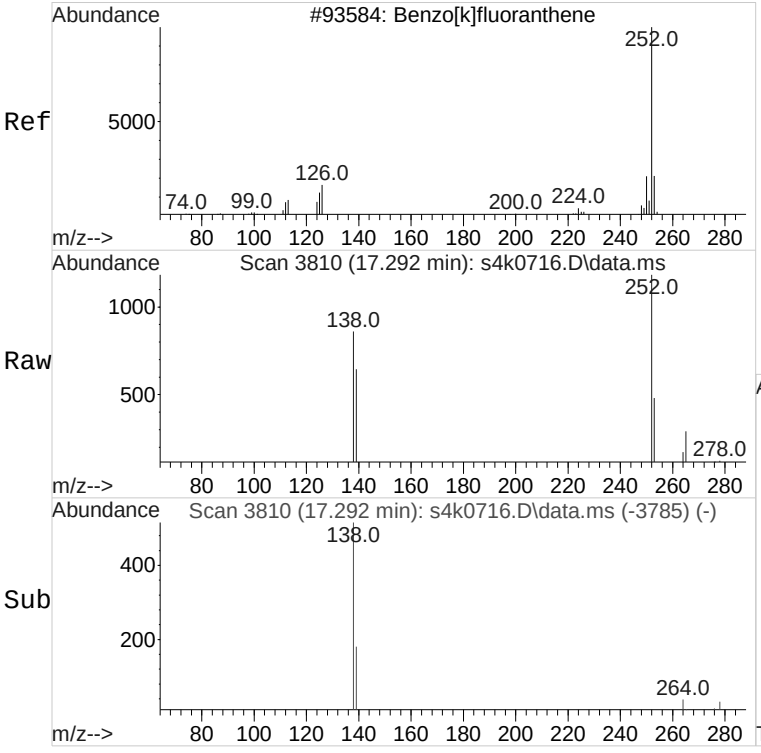


#25 BEFORE analyst integration
Benzo(k)fluoranthene
Concen: 0.05 ng/uL
RT: 17.292 min Scan# 3810
Delta R.T. 0.008 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion:252 Resp: 5038

Ion	Ratio	Lower	Upper
252	100		
253	4.5	0.0	51.4

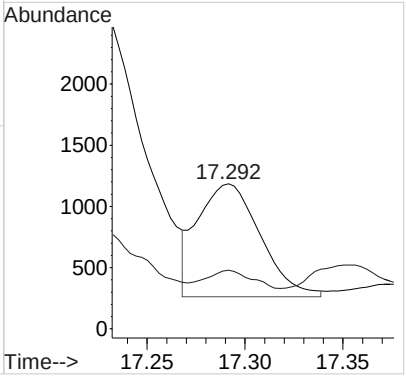




#25 AFTER analyst integration
Benzo(k)fluoranthene AB
Concen: Below Cal MANUALLY INTEGRATED
RT: 17.292 min Scan# 3810
Delta R.T. 0.008 min
Lab File: s4k0716.D
Acq: 07 Nov 2016 15:09

Tgt Ion:252 Resp: 2043

Ion	Ratio	Lower	Upper
252	100		
253	11.2	0.0	51.4



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:48**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254028**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS050100**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**200**
Run Date:	**11/07/2016 15:38**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.055 g**	**Final Volume:**	**1.4 mL**
Data File:	**s110716.B\s4k0717.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	1050	ug/kg	523	1050
91-58-7	2-Chloronaphthalene	U	1050	ug/kg	523	1050
91-57-6	2-Methylnaphthalene	U	1050	ug/kg	523	1050
83-32-9	Acenaphthene	U	1050	ug/kg	523	1050
208-96-8	Acenaphthylene	U	1050	ug/kg	523	1050
120-12-7	Anthracene	U	1050	ug/kg	523	1050
56-55-3	Benzo(a)anthracene	U	1050	ug/kg	523	1050
50-32-8	Benzo(a)pyrene	U	1050	ug/kg	523	1050
205-99-2	Benzo(b)fluoranthene	U	1050	ug/kg	523	1050
191-24-2	Benzo(ghi)perylene	U	1050	ug/kg	523	1050
207-08-9	Benzo(k)fluoranthene	U	1050	ug/kg	523	1050
218-01-9	Chrysene	U	1050	ug/kg	523	1050
53-70-3	Dibenzo(a,h)anthracene	U	1050	ug/kg	523	1050
206-44-0	Fluoranthene	U	1050	ug/kg	523	1050
86-73-7	Fluorene	U	1050	ug/kg	523	1050
193-39-5	Indeno(1,2,3-cd)pyrene	U	1050	ug/kg	523	1050
91-20-3	Naphthalene	U	1050	ug/kg	314	1050
85-01-8	Phenanthrene	U	1050	ug/kg	523	1050
129-00-0	Pyrene	U	1050	ug/kg	523	1050

Quantitation Report
GEL Laboratories, LLC

JMB 11/08/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0717.D
Acq On : 07 Nov 2016 15:38
Operator : JMB3
InstName : MSD4
Sample : |409254028|1612777|200|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 17 Sample Multiplier: 280

JCB 11/08/2016

Quant Time: Nov 08 08:37:19 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.448	5.448	1.000	341266	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.242	7.237	1.000	1144747	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.578	9.573	1.000	465014	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.472	11.457	1.000	621005	4.00	ng/uL	0.01
19) A Chrysene-d12	240	14.969	14.963	1.000	402920	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.240	18.231	1.000	251495	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.448	5.448	1.000	341266	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.242	7.237	1.000	1144747	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.472	11.457	1.000	621028	4.00	ng/uL	0.01
37) B Chrysene-d12	240	14.969	14.963	1.000	402920	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	0.000	12.731	0.000	0d	0.00	ng/uL	

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	0%#

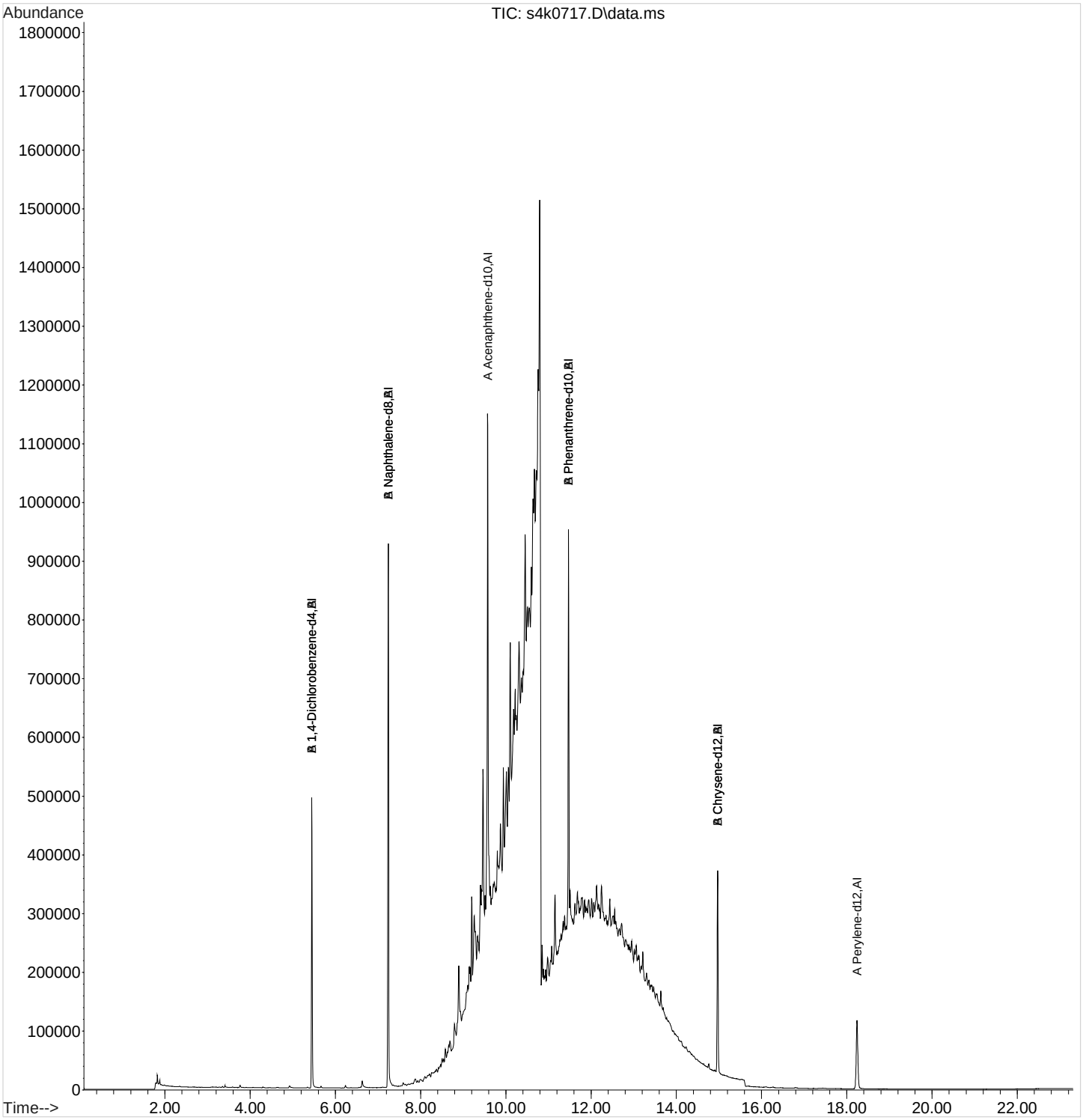
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue

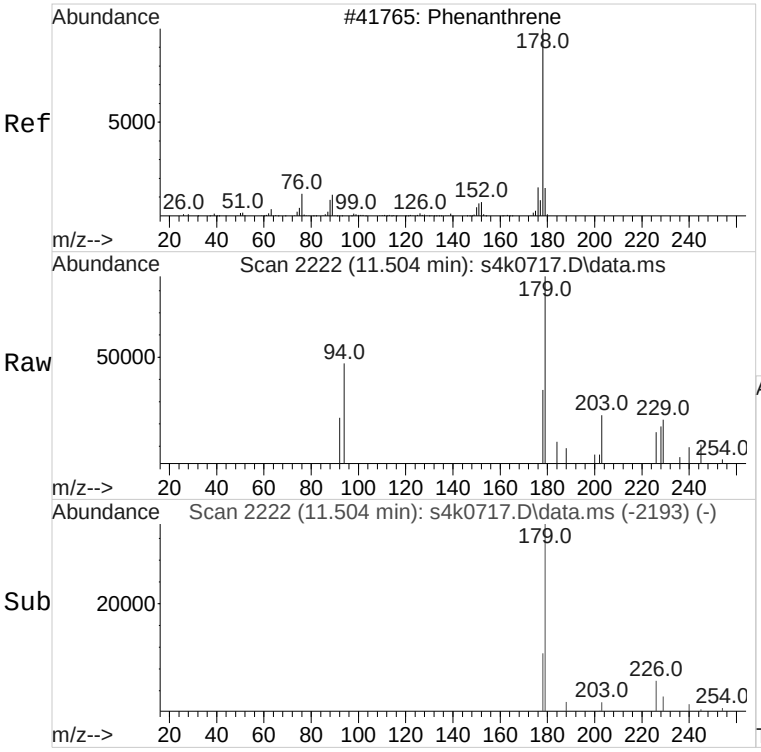
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0717.D
Acq On : 07 Nov 2016 15:38
Operator : JMB3
InstName : MSD4
Sample : |409254028|1612777|200|SVM|1|HAAL|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 17 Sample Multiplier: 280

Quant Time: Nov 08 08:37:19 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

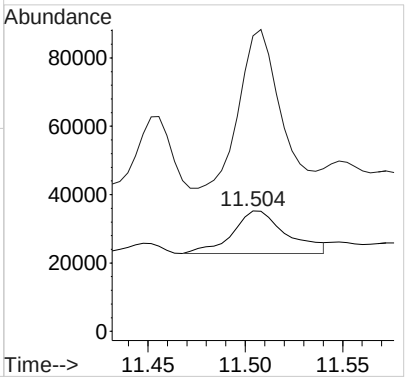


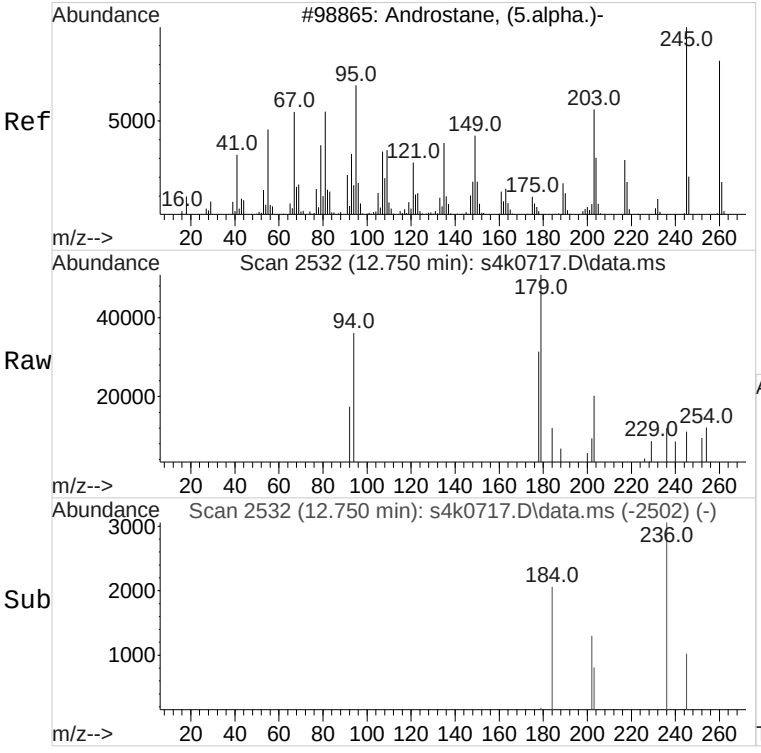


#15 BEFORE analyst DELETION
Phenanthrene
Concen: 0.11 ng/uL
RT: 11.504 min Scan# 2222
Delta R.T. 0.015 min
Lab File: s4k0717.D
Acq: 07 Nov 2016 15:38

Tgt Ion:178 Resp: 24223

Ion	Ratio	Lower	Upper
178	100		
179	277.5	0.0	45.6#

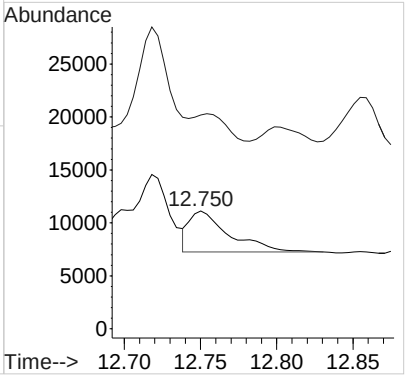




#17 BEFORE analyst DELETION
5-alpha-Androstane
Concen: 100.14 ng/uL
RT: 12.750 min Scan# 2532
Delta R.T. 0.019 min
Lab File: s4k0717.D
Acq: 07 Nov 2016 15:38

Tgt Ion:245 Resp: 6950

Ion	Ratio	Lower	Upper
245	100		
203	51.2	59.8	99.8#



Standards

SW846 8270/EPA 625										
Calibration Standard Concentration Levels*										
MEGA MIX	Level 1	Level 2	Level 3	Level 4#	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
1,4-Dichlorobenzene-d4 (INTERNAL STANDARD)										
Naphthalene-d8 (INTERNAL STANDARD)										
Acenaphthene-d10 (INTERNAL STANDARD)										
Phenanthrene-d10 (INTERNAL STANDARD)										
Chrysene-d12 (INTERNAL STANDARD)										
Perylene-d12 (INTERNAL STANDARD)										
2-Fluorophenol (SURROGATE)		10	20	40	50	80	100	120	30	60
Phenol-d5 (SURROGATE)		10	20	40	50	80	100	120	30	60
2-Chlorophenol-d4 (CLP SURROGATE)		10	20	40	50	80	100	120	30	60
1,2-Dichlorobenzene-d4 (CLP SURROGATE)		10	20	40	50	80	100	120	30	60
Nitrobenzene-d5 (SURROGATE)		10	20	40	50	80	100	120	30	60
2-Fluorobiphenyl (SURROGATE)		10	20	40	50	80	100	120	30	60
2,4,6-Tribromophenol (SURROGATE)		10	20	40	50	80	100	120	30	60
p-Terphenyl-d14 (SURROGATE)		10	20	40	50	80	100	120	30	60
N-Nitrosodimethylamine	1**	10	20	40	50	80	100	120	30	60
Pyridine		10	20	40	50	80	100	120	30	60
Aniline		10	20	40	50	80	100	120	30	60
Phenol		10	20	40	50	80	100	120	30	60
bis(2-Chloroethyl)ether		10	20	40	50	80	100	120	30	60
2-Chlorophenol		10	20	40	50	80	100	120	30	60
n-Decane		10	20	40	50	80	100	120	30	60
1,3-Dichlorobenzene		10	20	40	50	80	100	120	30	60
1,4-Dichlorobenzene		10	20	40	50	80	100	120	30	60
Benzyl Alcohol		10	20	40	50	80	100	120	30	60
1,2-Dichlorobenzene		10	20	40	50	80	100	120	30	60
bis(2-Chloro-1-methylethyl)ether		10	20	40	50	80	100	120	30	60
o-Cresol (2-Methylphenol)		10	20	40	50	80	100	120	30	60
N-Nitrosodipropylamine		10	20	40	50	80	100	120	30	60
m,p-Cresols (3-Methylphenol & 4-Methylphenol)		10	20	40	50	80	100	120	30	60
Hexachloroethane		10	20	40	50	80	100	120	30	60
Nitrobenzene		10	20	40	50	80	100	120	30	60
Isophorone		10	20	40	50	80	100	120	30	60
2-Nitrophenol		10	20	40	50	80	100	120	30	60
2,4-Dimethylphenol		10	20	40	50	80	100	120	30	60
bis(2-Chloroethoxy)methane		10	20	40	50	80	100	120	30	60
2,4-Dichlorophenol		10	20	40	50	80	100	120	30	60
Benzoic Acid			20	40	50	80	100	120	30	60
1,2,4-Trichlorobenzene		10	20	40	50	80	100	120	30	60
Naphthalene	1	10	20	40	50	80	100	120	30	60
alpha-Terpineol		10	20	40	50	80	100	120	30	60
4-Chloroaniline		10	20	40	50	80	100	120	30	60

SW846 8270/EPA 625										
Calibration Standard Concentration Levels*										
MEGA MIX	Level 1	Level 2	Level 3	Level 4#	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
Hexachlorobutadiene		10	20	40	50	80	100	120	30	60
4-Chloro-3-methylphenol		10	20	40	50	80	100	120	30	60
2-Methylnaphthalene	1	10	20	40	50	80	100	120	30	60
1-Methylnaphthalene	1	10	20	40	50	80	100	120	30	60
Hexachlorocyclopentadiene		10	20	40	50	80	100	120	30	60
2,3-Dichloroaniline		10	20	40	50	80	100	120	30	60
2,4,6-Trichlorophenol		10	20	40	50	80	100	120	30	60
2,4,5-Trichlorophenol		10	20	40	50	80	100	120	30	60
2-Chloronaphthalene	1	10	20	40	50	80	100	120	30	60
o-Nitroaniline		10	20	40	50	80	100	120	30	60
m-Nitroaniline		10	20	40	50	80	100	120	30	60
Dimethylphthalate	1**	10	20	40	50	80	100	120	30	60
2,6-Dinitrotoluene		10	20	40	50	80	100	120	30	60
Acenaphthylene	1	10	20	40	50	80	100	120	30	60
Acenaphthene	1	10	20	40	50	80	100	120	30	60
2,4-Dinitrophenol			20	40	50	80	100	120	30	60
Dibenzofuran		10	20	40	50	80	100	120	30	60
2,4-Dinitrotoluene		10	20	40	50	80	100	120	30	60
Diethylphthalate	1**	10	20	40	50	80	100	120	30	60
4-Nitrophenol		10	20	40	50	80	100	120	30	60
Fluorene	1	10	20	40	50	80	100	120	30	60
4-Chlorophenyl phenyl ether		10	20	40	50	80	100	120	30	60
2-Methyl-4,6-dinitrophenol		10	20	40	50	80	100	120	30	60
p-Nitroaniline		10	20	40	50	80	100	120	30	60
Diphenylamine		10	20	40	50	80	100	120	30	60
1,2-Diphenylhydrazine		10	20	40	50	80	100	120	30	60
4-Bromophenyl phenyether		10	20	40	50	80	100	120	30	60
Hexachlorobenzene		10	20	40	50	80	100	120	30	60
Pentachlorophenol		10	20	40	50	80	100	120	30	60
n-Octadecane		10	20	40	50	80	100	120	30	60
Phenanthrene	1	10	20	40	50	80	100	120	30	60
Anthracene	1	10	20	40	50	80	100	120	30	60
Di-n-butylphthalate	1**	10	20	40	50	80	100	120	30	60
Fluoranthene	1	10	20	40	50	80	100	120	30	60
Pyrene	1	10	20	40	50	80	100	120	30	60
Butylbenzylphthalate	1**	10	20	40	50	80	100	120	30	60
Benzo(a)anthracene	1	10	20	40	50	80	100	120	30	60
Chrysene	1	10	20	40	50	80	100	120	30	60
bis (2-Ethylhexyl) phthalate	1	10	20	40	50	80	100	120	30	60
Di-n-octylphthalate	1**	10	20	40	50	80	100	120	30	60

SW846 8270/EPA 625										
Calibration Standard Concentration Levels*										
MEGA MIX	Level 1	Level 2	Level 3	Level 4#	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
Benzo(b)fluoranthene	1	10	20	40	50	80	100	120	30	60
Benzo(k)fluoranthene	1	10	20	40	50	80	100	120	30	60
Benzo(a)pyrene	1	10	20	40	50	80	100	120	30	60
Indeno-(1,2,3-cd)pyrene	1	10	20	40	50	80	100	120	30	60
Dibenzo(a,h)anthracene	1	10	20	40	50	80	100	120	30	60
Benzo(ghi)perylene	1	10	20	40	50	80	100	120	30	60
m-Dinitrobenzene		10	20	40	50	80	100	120	30	60
2,3,4,6-Tetrachlorophenol		10	20	40	50	80	100	120	30	60
Dinoseb		10	20	40	50	80	100	120	30	60
Carbazole	1	10	20	40	50	80	100	120	30	60
p-Benzoquinone		10	20	40	50	80	100	120	30	60
Methoxychlor		10	20	40	50	80	100	120	30	60
p-Toluidine		10	20	40	50	80	100	120	30	60
m-Toluidine		10	20	40	50	80	10	120	30	60
1,4-Dinitrobenzene		10	20	40	50	80	100	120	30	60
2-Ethoxyethanol		10	20	40	50	80	100	120	30	60
Phthalic anhydride		10	20	40	50	80	100	120	30	60
Methylenebis(2-chloroaniline)		10	20	40	50	80	100	120	30	60
Dibenzo(a,e)pyrene		10	20	40	50	80	100	120	30	60

SW846 8270/EPA 625										
Calibration Standard Concentration Levels*										
AP MIX	Level 1	Level 2	Level 3	Level 4#	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
Benzaldehyde		10	20	40	50	80	100	120	30	60
Acetophenone		10	20	40	50	80	100	120	30	60
Caprolactam		10	20	40	50	80	100	120	30	60
1,1'-Biphenyl		10	20	40	50	80	100	120	30	60
Atrazine		10	20	40	50	80	100	120	30	60
Benzidine		10	20	40	50	80	100	120	30	60
3,3'-Dichlorobenzidene		10	20	40	50	80	100	120	30	60
1,4-Dioxane		10	20	40	50	80	100	120	30	60
Methyl methacrylate		10	20	40	50	80	100	120	30	60
Ethyl methacrylate		10	20	40	50	80	100	120	30	60
2-Picoline		10	20	40	50	80	100	120	30	60
N-Nitrosomethylethylamine		10	20	40	50	80	100	120	30	60
2-Butoxyethanol		10	20	40	50	80	100	120	30	60
Methyl methanesulfonate		10	20	40	50	80	100	120	30	60
N-Nitrosodiethylamine		10	20	40	50	80	100	120	30	60
Ethyl methanesulfonate		10	20	40	50	80	100	120	30	60
Pentachloroethane		10	20	40	50	80	100	120	30	60
N-Nitrosopyrrolidine		10	20	40	50	80	100	120	30	60
N-Nitrosomorpholine		10	20	40	50	80	100	120	30	60
o-Toluidine		10	20	40	50	80	100	120	30	60
N-Nitrosopiperidine		10	20	40	50	80	100	120	30	60
a,a-Dimethylphenethylamine		10	20	40	50	80	100	120	30	60
2,6-Dichlorophenol		10	20	40	50	80	100	120	30	60

SW846 8270/EPA 625										
Calibration Standard Concentration Levels*										
AP MIX	Level 1	Level 2	Level 3	Level 4#	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
Hexachloropropene		10	20	40	50	80	100	120	30	60
N-Nitrosodi-n-butylamine		10	20	40	50	80	100	120	30	60
Safrole		10	20	40	50	80	100	120	30	60
1,2,4,5-Tetrachlorobenzene		10	20	40	50	80	100	120	30	60
Isosafrole		10	20	40	50	80	100	120	30	60
1,4-Naphthoquinone		10	20	40	50	80	100	120	30	60
Pentachlorobenzene		10	20	40	50	80	100	120	30	60
1-Naphthylamine		10	20	40	50	80	100	120	30	60
2-Naphthylamine		10	20	40	50	80	100	120	30	60
5-Nitro-o-toluidine		10	20	40	50	80	100	120	30	60
1,3,5-Trinitrobenzene		10	20	40	50	80	100	120	30	60
Phenacetin		10	20	40	50	80	100	120	30	60
Diallate		10	20	40	50	80	100	120	30	60
cis-Diallate		1.5	3	6	7.5	12	15	18	4.5	9
trans-Diallate		8.5	17	34	42	68	85	102	25.5	51
4-Aminobiphenyl		10	20	40	50	80	100	120	30	60
Pentachloronitrobenzene		10	20	40	50	80	100	120	30	60
Pronamide		10	20	40	50	80	100	120	30	60
4-Nitroquinoline-1-oxide		10	20	40	50	80	100	120	30	60
Methapyrilene		10	20	40	50	80	100	120	30	60
Isodrin		10	20	40	50	80	100	120	30	60
Aramite		10	20	40	50	80	100	120	30	60
Kepone		10	20	40	50	80	100	120	30	60
p-(Dimethylamino)azobenzene		10	20	40	50	80	100	120	30	60
Chlorobenzilate		10	20	40	50	80	100	120	30	60
3,3'-Dimethylbenzidine		10	20	40	50	80	100	120	30	60
2-Acetylaminofluorene		10	20	40	50	80	100	120	30	60
7,12-Dimethylbenz(a)anthracene		10	20	40	50	80	100	120	30	60
3-Methylcholanthrene		10	20	40	50	80	100	120	30	60

SW846 8270/EPA 625										
Calibration Standard Concentration Levels*										
	Level 1	Level 2	Level 3	Level 4#	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
Hexachlorophene		500	1000	1250	1500	1750	2000			
p-Phenylenediamine		500	1000	1250	1500	1750	2000			

SW846 8270/EPA 625										
Calibration Standard Concentration Levels*										
PEST MIX	Level 1	Level 2	Level 3	Level 4#	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
bis(Chloromethyl)ether		10	20	40	50	80	100	120	30	60
Tributylphosphate		10	20	40	50	80	100	120	30	60
Triethylphosphorothioate		10	20	40	50	80	100	120	30	60
Thionazin		10	20	40	50	80	100	120	30	60
Sulfotepp		10	20	40	50	80	100	120	30	60
Phorate		10	20	40	50	80	100	120	30	60
Dimethoate		10	20	40	50	80	100	120	30	60
Disulfoton		10	20	40	50	80	100	120	30	60
Methyl parathion		10	20	40	50	80	100	120	30	60
Famphur		10	20	40	50	80	100	120	30	60
Parathion		10	20	40	50	80	100	120	30	60

SW846 8270/EPA 625										
Calibration Standard Concentration Levels*										
NEVADA MIX	Level 1	Level 2	Level 3	Level 4#	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
bis(Chloromethyl)ether		10	20	40	50	80	100	120	30	60
4-Chlorothiophenol		10	20	40	50	80	100	120	30	60
4-Chlorothioanisole		10	20	40	50	80	100	120	30	60
Phthalic acid		10	20	40	50	80	100	120	30	60
Hydroxymethyl phthalimide		10	20	40	50	80	100	120	30	60
Diphenyl sulfide		10	20	40	50	80	100	120	30	60
Diphenyl disulfide		10	20	40	50	80	100	120	30	60
Phenyl sulfone		10	20	40	50	80	100	120	30	60
Octachlorostyrene		10	20	40	50	80	100	120	30	60
Thiophenol		10	20	40	50	80	100	120	30	60
2,2'-Dichlorobenzil		10	20	40	50	80	100	120	30	60
bis(p-Chlorophenyl)disulfide		10	20	40	50	80	100	120	30	60
bis(p-Chlorophenyl)sulfone		10	20	40	50	80	100	120	30	60

All values are mg/L without the prep factor.
# Indicates the calibration verification concentration level used
* Usual calibration levels using SCAN methodology
** This analyte included in this level at special client request.

EPA 522								
Calibration Standard Concentration Levels#								
	Level 1	Level 2	Level 3	Level 4	Level 5	ICV	CCV	
Tetrahydrofuran-d8 (INTERNAL STANDARD)								
1,4-Dioxane-d8 (SURROGATE)	50	100	200	400	500	200	See Method	
1,4-Dioxane	50	100	200	400	500	200	See Method	

All values are ug/L without the prep factor.
Usual calibration levels using SIM methodology

SW846 8270SIM Calibration Standard Concentration Levels*										
MEGASIM analytes (A)	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6#	Level 7	Level 8	Level 9	Level 10
1,4-Dichlorobenzene-d4 (INTERNAL STANDARD)										
Naphthalene-d8 (INTERNAL STANDARD)										
Acenaphthene-d10 (INTERNAL STANDARD)										
Phenanthrene-d10 (INTERNAL STANDARD)										
Chrysene-d12 (INTERNAL STANDARD)										
Perylene-d12 (INTERNAL STANDARD)										
5-alpha-Androstane (SURROGATE)	$0.1	0.2	0.5	1	2	5	10	20		
$N-Methyl-N-nitrosomethylamine		0.2	0.5	1	2	5	10	20		
$bis(2-Chloroethyl)ether	0.1	0.2	0.5	1	2	5	10	20		
$N-Nitrosodipropylamine	0.1	0.2	0.5	1	2	5	10	20		
Naphthalene	$0.1	0.2	0.5	1	2	5	10	20		
2-Methylnaphthalene	$0.1	0.2	0.5	1	2	5	10	20		
1-Methylnaphthalene	$0.1	0.2	0.5	1	2	5	10	20		
2-Chloronaphthalene	$0.1	0.2	0.5	1	2	5	10	20		
Acenaphthylene	$0.1	0.2	0.5	1	2	5	10	20		
Acenaphthene	$0.1	0.2	0.5	1	2	5	10	20		
Fluorene	$0.1	0.2	0.5	1	2	5	10	20		
Phenanthrene	$0.1	0.2	0.5	1	2	5	10	20		
Anthracene	$0.1	0.2	0.5	1	2	5	10	20		
Fluoranthene	$0.1	0.2	0.5	1	2	5	10	20		
Pyrene	$0.1	0.2	0.5	1	2	5	10	20		
Benzo(a)anthracene	$0.1	0.2	0.5	1	2	5	10	20		
Chrysene	$0.1	0.2	0.5	1	2	5	10	20		
Benzo(b)fluoranthene	$0.1	0.2	0.5	1	2	5	10	20		
Benzo(k)fluoranthene	$0.1	0.2	0.5	1	2	5	10	20		
Benzo(a)pyrene	$0.1	0.2	0.5	1	2	5	10	20		
Indeno-(1,2,3-cd)pyrene	$0.1	0.2	0.5	1	2	5	10	20		
Dibenzo(a,h)anthracene	$0.1	0.2	0.5	1	2	5	10	20		
Benzo(ghi)perylene	$0.1	0.2	0.5	1	2	5	10	20		

$ By special request - Not for regulatory purposes

SW846 8270SIM Calibration Standard Concentration Levels*										
APSIM analytes (A)	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6#	Level 7	Level 8	Level 9	Level 10
$N-Nitrosodimethylamine	0.1	0.2	0.5	1	2	5	10	20		
$N-Nitrosopyrrolidine	0.1	0.2	0.5	1	2	5	10	20		
$N-Nitrosodi-n-butylamine	0.1	0.2	0.5	1	2	5	10	20		
$Benzidine			2.5	5	10	25	50	100		
$3,3'-Dichlorobenzidine	0.1	0.2	0.5	1	2	5	10	20		

$ By special request - Not for regulatory purposes

All values are mg/L without prep factor.

# indicates the calibraton verification concentration level used.

* Usual calibration levels using SIM methodology

(10/16/Full list)

Calibration History Report MSD1
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Last Update : Fri Sep 30 09:55:56 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

Cal Lvl:1 Amt:1.00 Last Updated with: C:\msdchem\1\DATA\s092916.B\s1i2903.D

Injection Date	Mix	Calibration File
29 Sep 2016 10:05	A	C:\msdchem\1\DATA\s092916.B\s1i2903.D

Cal Lvl:2 Amt:10.00 Last Updated with: C:\msdchem\1\DATA\s092916.B\s1i2935.D

Injection Date	Mix	Calibration File
29 Sep 2016 10:35	A	C:\msdchem\1\DATA\s092916.B\s1i2904.D
29 Sep 2016 17:40	B	C:\msdchem\1\DATA\s092916.B\s1i2917.D
29 Sep 2016 21:38	D	C:\msdchem\1\DATA\s092916.B\s1i2925.D
30 Sep 2016 02:22	E	C:\msdchem\1\DATA\s092916.B\s1i2935.D
29 Sep 2016 21:38	F	C:\msdchem\1\DATA\s092916.B\s1i2925.D
30 Sep 2016 05:21	J	C:\msdchem\1\DATA\s092916.B\s1i2941.D

Cal Lvl:3 Amt:20.00 Last Updated with: C:\msdchem\1\DATA\s092916.B\s1i2936.D

Injection Date	Mix	Calibration File
29 Sep 2016 11:09	A	C:\msdchem\1\DATA\s092916.B\s1i2905.D
29 Sep 2016 18:09	B	C:\msdchem\1\DATA\s092916.B\s1i2918.D
29 Sep 2016 22:07	D	C:\msdchem\1\DATA\s092916.B\s1i2926.D
30 Sep 2016 02:52	E	C:\msdchem\1\DATA\s092916.B\s1i2936.D
29 Sep 2016 22:07	F	C:\msdchem\1\DATA\s092916.B\s1i2926.D
30 Sep 2016 05:51	J	C:\msdchem\1\DATA\s092916.B\s1i2942.D

Cal Lvl:4 Amt:40.00 Last Updated with: C:\msdchem\1\DATA\s092916.B\s1i2919.D

Injection Date	Mix	Calibration File
29 Sep 2016 15:44	A	C:\msdchem\1\DATA\s092916.B\s1i2913.D
29 Sep 2016 18:39	B	C:\msdchem\1\DATA\s092916.B\s1i2919.D
29 Sep 2016 22:37	D	C:\msdchem\1\DATA\s092916.B\s1i2927.D
30 Sep 2016 03:21	E	C:\msdchem\1\DATA\s092916.B\s1i2937.D
29 Sep 2016 22:37	F	C:\msdchem\1\DATA\s092916.B\s1i2927.D
30 Sep 2016 06:20	J	C:\msdchem\1\DATA\s092916.B\s1i2943.D

Cal Lvl:5 Amt:50.00 Last Updated with: C:\msdchem\1\DATA\s092916.B\s1i2938.D

Injection Date	Mix	Calibration File
29 Sep 2016 12:18	A	C:\msdchem\1\DATA\s092916.B\s1i2907.D
29 Sep 2016 19:09	B	C:\msdchem\1\DATA\s092916.B\s1i2920.D
29 Sep 2016 23:07	D	C:\msdchem\1\DATA\s092916.B\s1i2928.D
30 Sep 2016 03:51	E	C:\msdchem\1\DATA\s092916.B\s1i2938.D
29 Sep 2016 23:07	F	C:\msdchem\1\DATA\s092916.B\s1i2928.D
30 Sep 2016 06:50	J	C:\msdchem\1\DATA\s092916.B\s1i2944.D

Cal Lvl:6 Amt:80.00 Last Updated with: C:\msdchem\1\DATA\s092916.B\s1i2939.D

Injection Date	Mix	Calibration File
29 Sep 2016 12:52	A	C:\msdchem\1\DATA\s092916.B\s1i2908.D
29 Sep 2016 19:38	B	C:\msdchem\1\DATA\s092916.B\s1i2921.D
29 Sep 2016 23:37	D	C:\msdchem\1\DATA\s092916.B\s1i2929.D
30 Sep 2016 04:21	E	C:\msdchem\1\DATA\s092916.B\s1i2939.D
29 Sep 2016 23:37	F	C:\msdchem\1\DATA\s092916.B\s1i2929.D

Calibration History Report MSD1
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Integrator : (RTE Integrator) Response via : Initial Calibration

Cal Lvl:7 Amt:100.00 Last Updated with: C:\msdchem\1\DATA\s092916.B\s1i2930.D

Injection Date	Mix	Calibration File
29 Sep 2016 13:26	A	C:\msdchem\1\DATA\s092916.B\s1i2909.D
29 Sep 2016 20:08	B	C:\msdchem\1\DATA\s092916.B\s1i2922.D
30 Sep 2016 00:06	D	C:\msdchem\1\DATA\s092916.B\s1i2930.D
30 Sep 2016 00:06	F	C:\msdchem\1\DATA\s092916.B\s1i2930.D
30 Sep 2016 07:20	J	C:\msdchem\1\DATA\s092916.B\s1i2945.D

Cal Lvl:8 Amt:120.00 Last Updated with: C:\msdchem\1\DATA\s092916.B\s1i2931.D

Injection Date	Mix	Calibration File
29 Sep 2016 14:01	A	C:\msdchem\1\DATA\s092916.B\s1i2910.D
29 Sep 2016 20:38	B	C:\msdchem\1\DATA\s092916.B\s1i2923.D
30 Sep 2016 00:36	D	C:\msdchem\1\DATA\s092916.B\s1i2931.D
30 Sep 2016 00:36	F	C:\msdchem\1\DATA\s092916.B\s1i2931.D
30 Sep 2016 07:50	J	C:\msdchem\1\DATA\s092916.B\s1i2946.D

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Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b m1 m2	7	8								
2)A 2-Ethoxyethanol		1.0093194	1.0982738	1.1656964	1.1974576	1.1658352				
	1.1081252	1.1346603					1.1256	AVRG		5.5058
3)AM N-Methyl-N-nitrosomethyl		0.8659056	0.9401097	0.9699950	0.9969445	0.9633884				
	0.9197804	0.9275626					0.9405	AVRG		4.4986
4)AM Pyridine		1.5692027	1.6541635	1.5660191	1.5831253	1.5118292				
	1.4411387	1.4505470					1.5394	AVRG		4.9606
5)SA 2-Fluorophenol		1.4534300	1.5773549	1.5524147	1.4913601	1.4842478				
	1.4114549	1.4222171					1.4846	AVRG		4.2119
6)A p-Benzoquinone		0.8676222	1.0609828	1.1854889	1.1981328	1.1504742				
	1.0938225	1.1120292					1.0955	AVRG		10.2090
7)AM Aniline		2.1423116	2.0671321	1.8976871	1.8299145	1.8066386				
	1.7313497	1.7267872					1.8860	AVRG		8.5866
8)SA Phenol-d5		1.8469596	1.9627402	1.8604032	1.8292240	1.7913091				
	1.7297366	1.7038169					1.8177	AVRG		4.7776
9)AMC Phenol		1.8332074	1.8551853	1.6370941	1.6218707	1.5258957				
	1.4479126	1.4682084					1.6271	AVRG		10.1061
10)AM bis(2-Chloroethyl) ether		1.4393461	1.3983602	1.3301920	1.3108929	1.2845949				
	1.2193270	1.2443535					1.3182	AVRG		6.0102
11)AM 2-Chlorophenol		1.3870485	1.3050599	1.2908408	1.2672325	1.2522897				
	1.1857017	1.1998636					1.2697	AVRG		5.3522
12)AM n-Decane		2.4664362	2.2444100	2.0202325	1.9853861	1.8659003				
	1.7450252	1.7121776					2.0057	AVRG		13.5560
13)AM 1,3-Dichlorobenzene		1.5623948	1.4705803	1.4356677	1.3947918	1.3618040				
	1.3119831	1.3025996					1.4057	AVRG		6.5664
14)AMC 1,4-Dichlorobenzene		1.3567350	1.3361808	1.2887552	1.2889875	1.2654555				
	1.2225357	1.2325867					1.2845	AVRG		3.8698
15)AM 1,2-Dichlorobenzene		1.4343914	1.4062887	1.2933023	1.2574102	1.2476263				
	1.1703427	1.1839824					1.2848	AVRG		7.9508
16)AM bis(2-Chloro-1-methyleth		2.9163208	2.8856611	2.6104674	2.5504253	2.4532030				
	2.3087612	2.2841657					2.5727	AVRG		9.8478

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Compound	1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b | m1 | m2	7	8								
17)AM Benzyl alcohol		0.8349678	0.9156479	0.8817541	0.8711599	0.8794757				
	0.8803055	0.8885077					0.8788	AVRG		2.7258
18)AM o-Cresol		1.0747646	1.0601296	1.0294320	1.0242626	1.0219937				
	0.9741412	0.9971836					1.0260	AVRG		3.3513
19)AM m,p-Cresols		1.3326051	1.3881947	1.3527301	1.3541714	1.3217684				
	1.2760866	1.3079291					1.3334	AVRG		2.7174
20)AMP N-Nitrosodipropylamine		1.1176600	1.1439928	1.0430593	1.0277039	1.0301390				
	0.9992231	0.6958801					1.0082	AVRG		14.6062
21)A p-Toluidine		1.8269067	1.7717800	1.5500816	1.5237708	1.4336355				
	1.3197848	1.2275831					1.5219	AVRG		14.4834
22)A m-Toluidine		1.6444403	1.6148436	1.4468840	1.4187959	1.4107989				
	1.3768151	1.4136190					1.4752	AVRG		7.3087
23)AM Hexachloroethane		0.6527356	0.6424789	0.6024963	0.5862078	0.5646525				
	0.5451462	0.5435357					0.5910	AVRG		7.4606
25)SA Nitrobenzene-d5		0.4976207	0.4896922	0.4793970	0.4689075	0.4509563				
	0.4511734	0.4399261					0.4682	AVRG		4.6464
26)AM Nitrobenzene		0.4696228	0.4625995	0.4315634	0.4253218	0.4108934				
	0.4027402	0.3965760					0.4285	AVRG		6.6464
27)AM Isophorone		0.9908217	0.9912109	0.9142653	0.9085862	0.8750823				
	0.8463122	0.8290287					0.9079	AVRG		7.1024
28)AMC 2-Nitrophenol		0.1912347	0.2011870	0.2111389	0.2055079	0.1982021				
	0.1953223	0.1941544					0.1995	AVRG		3.4868
29)AM 2,4-Dimethylphenol		0.3605597	0.3473616	0.3286491	0.3194728	0.3040974				
	0.3043930	0.3009761					0.3236	AVRG		7.1737
30)AM bis(2-Chloroethoxy)metha		0.5292693	0.5245606	0.4858605	0.4703240	0.4671264				
	0.4515246	0.4398783					0.4812	AVRG		7.1570
31)AMC 2,4-Dichlorophenol		0.3440697	0.3342069	0.3311085	0.3219300	0.3093544				
	0.3060685	0.2969641					0.3205	AVRG		5.3196
32)AM Benzoic acid			31937	125340	169459	257899				
-0.0902 | 0.2621 | 0.00	342626	435790						LINR	#	0.9941

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For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b m1 m2	7	8								
33)AM 1,2,4-Trichlorobenzene		0.4479084	0.4231635	0.3976209	0.3885083	0.3732290				
	0.3562911	0.3521509					0.3913	AVRG		8.9467
34)AM alpha-Terpineol		0.4357850	0.4475933	0.4210377	0.4091993	0.3917650				
	0.3843346	0.3794542					0.4099	AVRG		6.3968
35)AM Naphthalene	1.0760512	1.0338600	1.0200830	0.9409483	0.9329618	0.8776850				
	0.8533258	0.8381479					0.9466	AVRG		9.3808
36)AM 4-Chloroaniline		0.4091715	0.3963559	0.3502701	0.3555499	0.3280281				
	0.3074202	0.2807789					0.3468	AVRG		13.2645
37)AMC Hexachlorobutadiene		0.3054276	0.2945672	0.2808114	0.2696417	0.2525786				
	0.2488407	0.2398838					0.2703	AVRG		9.1058
38)AMC 4-Chloro-3-methylphenol		0.4196086	0.4417694	0.4199315	0.4178478	0.3990370				
	0.3942909	0.3845131					0.4110	AVRG		4.7340
39)AM 2-Methylnaphthalene	0.8306832	0.8504886	0.8143440	0.7243556	0.7067756	0.6649937				
	0.6436408	0.6145673					0.7312	AVRG		12.3769
40)A Phthalic anhydride		0.2447988	0.2665723	0.3070199	0.3389238	0.3400561				
	0.3530621	0.3561415					0.3152	AVRG		13.9957
41)AM 1-Methylnaphthalene	0.8249950	0.7476440	0.7253685	0.6432940	0.6155497	0.5903406				
	0.5775352	0.5648512					0.6612	AVRG		14.2483
43)AMP Hexachlorocyclopentadien		0.3880316	0.4316829	0.5054454	0.4973646	0.4887227				
	0.4951478	0.4873460					0.4705	AVRG		9.2938
44)AM 2,3-Dichloroaniline		0.7742967	0.7175250	0.6489326	0.6258553	0.5685501				
	0.5706700	0.5346614					0.6344	AVRG		13.6688
45)AMC 2,4,6-Trichlorophenol		0.4669036	0.4475277	0.4609205	0.4512101	0.4403955				
	0.4343661	0.4295957					0.4473	AVRG		3.0458
46)AM 2,4,5-Trichlorophenol		0.4425094	0.4402172	0.4286250	0.4359653	0.4179196				
	0.4316051	0.4248908					0.4317	AVRG		2.0135
47)SA 2-Fluorobiphenyl		1.6731870	1.5506173	1.4203791	1.3795916	1.2943960				
	1.2966221	1.2532250					1.4097	AVRG		10.8693
48)AM 2-Chloronaphthalene	1.5219185	1.4039404	1.2962177	1.2305256	1.2346674	1.1357605				
	1.1395957	1.1035024					1.2583	AVRG		11.4990

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Compound b | m1 | m2	1 7	2 8	3	4	5	6	Avg	Curve	Exp	%RSD/r2
49)AM o-Nitroaniline		0.5157137	0.5237328	0.4896490	0.5051106	0.4740170				
	0.4932207	0.4775304					0.4970	AVRG		3.7699
50)A 1,4-Dinitrobenzene		0.2287377	0.2332531	0.2395799	0.2488832	0.2401634				
	0.2568967	0.2448670					0.2418	AVRG		3.9194
51)AM m-Nitroaniline		0.3172656	0.3362687	0.2783612	0.2912677	0.2715292				
	0.2799356	0.2590853					0.2905	AVRG		9.3394
52)AM Dimethylphthalate	1.8415042	1.7986692	1.6611079	1.5068999	1.4546144	1.3452151				
	1.3529810	1.2935759					1.5318	AVRG		13.8258
53)A m-Dinitrobenzene		0.2425766	0.2523414	0.2316866	0.2410301	0.2237680				
	0.2347129	0.2297697					0.2366	AVRG		4.0184
54)AM 2,6-Dinitrotoluene		0.3667042	0.3377340	0.3287975	0.3236114	0.3165542				
	0.3139196	0.3157720					0.3290	AVRG		5.6648
55)AM 2,4-Dinitrotoluene		0.4686809	0.4860336	0.4374304	0.4655834	0.4359207				
	0.4411643	0.4311521					0.4523	AVRG		4.6408
56)AM Acenaphthylene	2.3731933	2.1802094	2.0075629	1.8010797	1.7597734	1.6439840				
	1.6747733	1.6079574					1.8811	AVRG		14.7946
57)AMC Acenaphthene	1.1255597	1.1578959	1.1110751	1.0750579	1.0797888	1.0338658				
	1.0409261	1.0238049					1.0810	AVRG		4.4142
58)AMP 2,4-Dinitrophenol -0.0648 | 0.2230 | 0.00	174730	204235	20163	60258	87734	127702		LINR	#	0.9912
59)AM Dibenzofuran		1.9832026	1.8176564	1.6328674	1.5979028	1.5064550				
	1.5109887	1.4690272					1.6454	AVRG		11.4956
60)A 2,3,4,6-Tetrachloropheno		0.3688716	0.3875130	0.3988093	0.4067139	0.3877618				
	0.4015486	0.3891845					0.3915	AVRG		3.1855
61)AM Diethylphthalate	2.1194131	1.9363215	1.8293410	1.6911798	1.6397806	1.5359017				
	1.5511328	1.4892313					1.7240	AVRG		12.8036
62)AMP 4-Nitrophenol -0.0290 | 0.2522 | 0.00	199756	13351 251337	38081	83005	118630	169488		LINR		0.9964
63)AM Fluorene	1.6419896	1.5987581	1.5384497	1.4002120	1.3848696	1.3116139				
	1.3211365	1.2888118					1.4357	AVRG		9.6239

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Compound b | m1 | m2	1 7	2 8	3	4	5	6	Avg	Curve	Exp	%RSD/r2
64)AM 4-Chlorophenylphenylethe		0.9275976	0.8550291	0.7999162	0.7808761	0.7504011				
	0.7711866	0.7494850					0.8049	AVRG		8.0748
65)AM p-Nitroaniline		0.2775044	0.2754802	0.2285436	0.2753864	0.2737646				
	0.2888827	0.2841553					0.2720	AVRG		7.3206
66)SA 2,4,6-Tribromophenol		0.2390762	0.2593884	0.2623379	0.2648716	0.2651665				
	0.2727470	0.2626495					0.2609	AVRG		4.0141
68)AM 2-Methyl-4,6-dinitrophen		12491	35367	86384	117461	174074				
-0.0179 | 0.1396 | 0.00	216120	259338						LINR		0.9993
69)AMC Diphenylamine		0.7143331	0.6650494	0.6681441	0.6461581	0.6078438				
	0.5905591	0.5819935					0.6392	AVRG		7.5091
70)AM 1,2-Diphenylhydrazine		0.9161694	0.8494612	0.8363544	0.7919392	0.7416210				
	0.7038033	0.6971465					0.7909	AVRG		10.3224
71)AM 4-Bromophenylphenylether		0.2992793	0.3041712	0.3046755	0.2885827	0.2771679				
	0.2708062	0.2624301					0.2867	AVRG		5.9095
72)AM Hexachlorobenzene		0.3307004	0.3088157	0.2979942	0.2898763	0.2784305				
	0.2594095	0.2590740					0.2892	AVRG		9.0349
73)AMC Pentachlorophenol		17793	49337	122694	160817	241273				
-0.0149 | 0.1817 | 0.00	282875	339577						LINR		0.9988
74)AM n-Octadecane		0.9066128	0.8186156	0.7768084	0.7161152	0.6618562				
	0.6277406	0.6076223					0.7308	AVRG		14.9383
75)A Dinoseb		18596	56329	141680	190811	295913				
-0.0291 | 0.2282 | 0.00	352309	418761						LINR	#	0.9996
76)AM Phenanthrene	0.9668356	1.0120081	0.9843916	0.9257972	0.9276477	0.8746255				
	0.8532614	0.8325591					0.9221	AVRG		6.9823
77)AM Anthracene	0.9740195	1.0547697	1.0547503	0.9575992	0.9867127	0.9238881				
	0.8960755	0.8728820					0.9651	AVRG		6.9672
78)AM Carbazole	0.8487908	0.9559830	1.0118703	0.9092727	0.9817847	0.9069476				
	0.8805876	0.8590105					0.9193	AVRG		6.3930
79)AM Di-n-butylphthalate	1.4751522	1.7706956	1.6714206	1.5259035	1.4733155	1.3642401				
	1.2773428	1.2371000					1.4744	AVRG		12.4678

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Compound b | m1 | m2	1 7	2 8	3	4	5	6	Avg	Curve	Exp	%RSD/r2
80)AMC Fluoranthene	1.3524814	1.5746454	1.6043884	1.3053658	1.3938903	1.2625210				
	1.1971176	1.1664081					1.3571	AVRG		11.9282
82)AM Pyrene	1.8417480	1.8125797	1.7031748	1.8484109	1.6141230	1.5019184				
	1.3232537	1.3074962					1.6191	AVRG		13.7124
83)SA p-Terphenyl-d14		1.1509693	1.1096405	1.2209873	1.1044431	1.0404700				
	0.9294282	0.9201300					1.0680	AVRG		10.4807
84)AM Butylbenzylphthalate	0.6327252	0.8235246	0.8295571	0.8766597	0.8378568	0.7877832				
	0.7095033	0.7054183					0.7754	AVRG		10.8071
85)AM bis(2-Ethylhexyl)phthala	0.6938905	0.9466609	0.9044964	0.9276626	0.8858808	0.8838450				
	0.8303859	0.8380407					0.8639	AVRG		9.1922
86)AM Benzo(a)anthracene	1.4297129	1.3833153	1.3161799	1.2423341	1.2143227	1.1591998				
	1.1186224	1.1116986					1.2469	AVRG		9.6016
87)AM Chrysene	1.0351435	1.1164425	1.1174270	1.0429096	1.0340272	1.0104002				
	0.9874430	0.9581124					1.0377	AVRG		5.4279
88)A Methoxychlor		1.2573403	1.2121561	1.1856610	1.1493403	1.1220280				
	1.0352602	1.0049016					1.1381	AVRG		8.0744
89)A Methylenebis(2-chloroani		0.2214080	0.2629079	0.2335576	0.2390626	0.2355538				
	0.2399737	0.2318652					0.2378	AVRG		5.3303
90)AMC Di-n-octylphthalate -0.0207 | 1.7504 | 0.00	12792 2404237	260423 2704992	600833	842246	1325599	1920678		1/x^2 LINR		0.9962
92)AM Benzo(b)fluoranthene	1.5304212	1.4833925	1.4727709	1.4360360	1.4395901	1.3893050				
	1.2751793	1.2944837					1.4151	AVRG		6.3832
93)AM Benzo(k)fluoranthene	1.2354691	1.3230645	1.3035858	1.2571499	1.2417050	1.2272933				
	1.1087477	1.0987085					1.2245	AVRG		6.6693
94)AMC Benzo(a)pyrene	1.0786342	1.2680762	1.3252789	1.2885619	1.2885520	1.2541419				
	1.1535442	1.1342256					1.2239	AVRG		7.2819
95)AM Indeno(1,2,3-cd)pyrene	0.6490129	0.9324752	1.0750200	1.0781826	0.9864915	0.9806533				
	0.8925018	0.8939028					0.9360	AVRG		14.5660
96)AM Dibenzo(a,h)anthracene	0.8206250	0.8539362	0.9326725	0.9696170	0.8910570	0.8986763				
	0.8108194	0.7955004					0.8716	AVRG		7.1049

Response Factor Report MSD1
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Last Update : Fri Sep 30 09:55:56 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b | m1 | m2	7	8								
97)AM Benzo(ghi)perylene	0.9510580	0.9494962	1.0580143	1.0765328	0.9716901	0.9592775				
	0.8494200	0.8253401					0.9551	AVRG		9.1690
98)A Dibenzo(a,e)pyrene		0.4436333	0.4688923	0.5776704	0.4556657	0.4750610				
	0.4329324	0.4161782					0.4671	AVRG		11.3051
100)BM 1,4-Dioxane		0.5969485	0.5756025	0.5214846	0.5276328	0.5223052				
	0.5184386	0.4900059					0.5361	AVRG		6.8859
101)B Methyl methacrylate		0.2759391	0.2708045	0.2551193	0.2604468	0.2575220				
	0.2515492	0.2475221					0.2598	AVRG		3.9369
102)B Ethyl methacrylate		1.2478903	1.2476417	1.1722668	1.1555152	1.1352791				
	1.1070048	1.0750378					1.1629	AVRG		5.6772
103)B 2-Picoline		1.6604894	1.5887139	1.4540137	1.4800041	1.3950168				
	1.3778545	1.3144999					1.4672	AVRG		8.2997
104)B N-Nitrosomethylethylamin		0.6626241	0.6086362	0.5454958	0.5513981	0.5479531				
	0.5284201	0.5222548					0.5667	AVRG		8.9506
105)B Methyl methanesulfonate		1.0875341	1.0306111	0.9716106	0.9444196	0.9137151				
	0.8922630	0.8376577					0.9540	AVRG		8.8815
106)B N-Nitrosodiethylamine		0.6461397	0.6870664	0.6338710	0.6378635	0.6217799				
	0.6153762	0.5897390					0.6331	AVRG		4.7508
107)B 2-Butoxyethanol		1.8591579	1.8270835	1.6913091	1.6297525	1.5617527				
	1.5135626	1.4454202					1.6469	AVRG		9.4528
108)B Ethyl methanesulfonate		1.0570799	1.0747482	1.0105445	0.9856895	0.9702371				
	0.9402889	0.9107476					0.9928	AVRG		5.9892
109)BM Benzaldehyde		1.3429551	1.2833937	1.1344196	1.1397340	1.0516661				
	0.9702272						1.1537	AVRG		12.0897
110)B Pentachloroethane		0.6498767	0.6314496	0.5920413	0.5902429	0.5722639				
	0.5507492	0.5334599					0.5886	AVRG		7.0549
111)BM N-Nitrosopyrrolidine		0.6547487	0.6838874	0.6802108	0.6694726	0.6744782				
	0.6511282	0.6311140					0.6636	AVRG		2.8391
112)BM Acetophenone		1.8973130	1.8156730	1.6883710	1.6074768	1.5295370				
	1.4778385	1.4384844					1.6364	AVRG		10.5694

Response Factor Report MSD1
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Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b m1 m2	7	8								
113)B N-Nitrosomorpholine		1.2238098	1.1276160	1.0484339	0.9916732	0.9388210				
	0.9072123	0.8720527					1.0157	AVRG		12.4410
114)B o-Toluidine		1.9505031	1.8050917	1.6384232	1.5545491	1.4824535				
	1.4495461	1.4005018					1.6116	AVRG		12.5073
116)B N-Nitrosopiperidine		0.2134694	0.2104986	0.2063099	0.2003093	0.1974850				
	0.1917987	0.1988715					0.2027	AVRG		3.8018
117)B a,a-Dimethylphenethylami		1.4695628	1.5129893	1.4095332	1.3132824	1.3664136				
	1.3301719	1.3395553					1.3916	AVRG		5.4398
118)BM 2,6-Dichlorophenol		0.2491174	0.2667323	0.2587792	0.2537929	0.2591006				
	0.2511271	0.2561961					0.2564	AVRG		2.2929
119)B Hexachloropropene		0.2484424	0.2603462	0.2522818	0.2325007	0.2179699				
	0.1951342	0.1713194					0.2254	AVRG		14.5119
120)BM Caprolactam		0.1106851	0.1214588	0.1114892	0.1128344	0.1103030				
	0.1056628	0.1073435					0.1114	AVRG		4.5528
121)B N-Nitrosodi-n-butylamine		0.3414736	0.3280611	0.3096867	0.3238457	0.3262383				
	0.3203107	0.3315924					0.3259	AVRG		3.0119
122)B Safrole		0.3168501	0.3113029	0.2874840	0.2807961	0.2723654				
	0.2637535	0.2618060					0.2849	AVRG		7.6886
124)B 1,2,4,5-Tetrachlorobenze		0.8268634	0.7877046	0.7083713	0.6949548	0.6411645				
	0.6193503	0.5966420					0.6964	AVRG		12.3578
125)BM 1,1-Biphenyl		180322	367512	483996	658315	1001393		1/x^2		
0.1585 | 1.1089 | 0.00	1086820	1359584						LINR		0.9927
126)B Isosafrole		0.5599538	0.5538091	0.4940415	0.4876655	0.4705244				
	0.4593892	0.4459644					0.4959	AVRG		9.0174
127)B 1,4-Naphthoquinone		0.4462257	0.4675541	0.4460601	0.4225653	0.3815953				
	0.3633547	0.3348640					0.4089	AVRG		12.1064
128)B Pentachlorobenzene		0.6933200	0.6704451	0.6300584	0.6068912	0.5786623				
	0.5616710	0.5454088					0.6124	AVRG		9.0579
129)B 1-Naphthylamine		1.2800887	1.1856304	1.1087055	1.0111506	0.9824153				
	0.9385415	0.8876382					1.0563	AVRG		13.3528

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Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b m1 m2	7	8								
130)B 2-Naphthylamine		1.1722791	1.1359666	1.0477874	0.9708625	0.9355909				
	0.9138039	0.8546680					1.0044	AVRG		11.7704
131)B 5-Nitro-o-toluidine		0.3472239	0.3762904	0.3729147	0.3346579	0.3616941				
	0.3538942	0.3376830					0.3549	AVRG		4.5930
133)B 1,3,5-Trinitrobenzene		0.2050580	0.2386939	0.2445237	0.2408708	0.2482138				
	0.2469037	0.2351387					0.2371	AVRG		6.2617
134)B Phenacetin		0.4042600	0.3986475	0.3652120	0.3496950	0.3344904				
	0.3420201	0.3287510					0.3604	AVRG		8.4267
135)B Diallate		0.3783017	0.3742656	0.3171182	0.3349200	0.2868120				
	0.2682116	0.2688140					0.3183	AVRG		14.5985
136)B Cis Diallate		0.5089806	0.4774810	0.3975295	0.4441503	0.4172146				
	0.3889517	0.3904081					0.4321	AVRG		10.8269
137)B Trans Diallate		0.4450608	0.4403125	0.3730802	0.3940235	0.3374259				
	0.3155430	0.3162518					0.3745	AVRG		14.5985
138)BM50Atrazine		0.2829117	0.2888760	0.2541456	0.2588540	0.2248698				
	0.2079633	0.1961697					0.2448	AVRG		14.7261
139)B 4-Aminobiphenyl		0.8420274	0.7344300	0.6685626	0.6168792	0.6294084				
	0.6224619	0.5907633					0.6721	AVRG		13.1304
140)B Pentachloronitrobenzene		0.1470085	0.1454992	0.1220863	0.1322468	0.1151668				
	0.1098821	0.1056094					0.1254	AVRG		13.2925
141)B Pronamide		0.4264598	0.4121377	0.3588705	0.3668042	0.3379034				
	0.3180361	0.3176971					0.3626	AVRG		11.9038
142)B 4-Nitroquinoline-1-oxide		8088	28067	59843	80029	150665				
-0.0155 | 0.1067 | 0.00	168701							LINR	#	0.9982
143)B Methapyrilene		0.9865284	0.9508766	0.8195178	0.7933491	0.6374281				
	0.6057112						0.7989	AVRG		19.5647
144)B Isodrin		0.2005010	0.1927688	0.1718603	0.1729621	0.1572949				
	0.1491405	0.1477279					0.1703	AVRG		12.1105
146)B Aramite		0.1010208	0.1081519	0.1022204	0.1169271	0.1017737				
	0.0970708	0.0968720					0.1034	AVRG		6.8126

Response Factor Report MSD1
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For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound			1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b	m1	m2	7	8								
147)B	Kepone			0.1525779	0.1648237	0.1389623	0.1643904	0.1354215				
			0.1277315	0.1312541					0.1450	AVRG		10.6889
148)B	p-(Dimethylamino)azobenz			0.4028121	0.4194389	0.3711045	0.3944673	0.3585887				
			0.3474168	0.3501800					0.3777	AVRG		7.4390
149)B	Chlorobenzilate			0.4371360	0.4593517	0.3965724	0.4422583	0.3886296				
			0.3715028	0.3773841					0.4104	AVRG		8.5538
150)B	3,3'-Dimethylbenzidine			0.8973243	0.8984091	0.7555050	0.7351888	0.6653752				
									0.7904	AVRG		13.1177
151)B	2-Acetylaminofluorene			0.4221987	0.4277785	0.4760041	0.4780136	0.4750558				
			0.4585375	0.4578553					0.4565	AVRG		5.0551
153)B	7,12-Dimethylbenz(a)anth			0.7439281	0.7542027	0.6683641	0.6494320	0.6373773				
			0.6176012	0.5961007					0.6667	AVRG		9.1187
154)B	3-Methylcholanthrene			0.1453644	0.1438608	0.1355571	0.1324098	0.1299669				
			0.1261633	0.1211102					0.1335	AVRG		6.6537
156)D	Triethylphosphorothioate			0.2534080	0.2604142	0.2534705	0.2430870	0.2305640				
			0.2227378	0.2169595					0.2401	AVRG		7.0218
158)D	Thionazine			0.2743256	0.2808111	0.2689750	0.2602864	0.2388456				
			0.2255838	0.2355566					0.2549	AVRG		8.4247
159)DM	Tributylphosphate			2.1103948	1.9476812	1.7753298	1.6750215	1.5135237				
									1.8044	AVRG		12.8891
161)D	Sulfotepp			0.1767142	0.1819718	0.1702236	0.1610076	0.1494975				
			0.1429893	0.1435192					0.1608	AVRG		9.9407
162)D	Phorate			0.5748655	0.5556374	0.5375805	0.4925303	0.4484997				
			0.4185916	0.4089860					0.4910	AVRG		13.7037
163)D	Dimethoate			0.3231734	0.3073601	0.3057247	0.3017621	0.2807216				
			0.2782113	0.2759562					0.2961	AVRG		6.0827
164)D	Disulfoton			0.4445410	0.4194140	0.4071881	0.3822455	0.3530484				
			0.3231696	0.3338165					0.3805	AVRG		12.0203
165)D	Methyl parathion			0.2688084	0.2785763	0.2845388	0.2736153	0.2670460				
			0.2619307	0.2607830					0.2708	AVRG		3.2134

Response Factor Report MSD1
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Last Update : Fri Sep 30 09:55:56 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b m1 m2	7	8								
166)D Parathion		0.1025695	0.1042419	0.1134138	0.1117549	0.1101515				
	0.1020543	0.1014047					0.1065	AVRG		4.7722
168)D Famphur		0.7080119	0.6638943	0.6388593	0.6159355	0.5767916				
	0.5348330	0.5320649					0.6101	AVRG		10.8331
170)E p-Phenylenediamine		0.3231331	0.2803492	0.2963245	0.2792065	0.2856358				
							0.2929	AVRG		6.2098
172)E Hexachlorophene		0.1113213	0.0801289	0.0999107	0.1077964	0.1211828				
							0.1041	AVRG		14.8070
174)F bis(Chloromethyl)ether		0.6973531	0.6583360	0.6057753	0.5016917	0.5477707				
							0.6022	AVRG		13.2023
176)JM Benzidine		0.5920404	0.5629899	0.6598736	0.5685699					
	0.6151767	0.5573526					0.5927	AVRG		6.6353
178)JM 3,3'-Dichlorobenzidine		0.5061185	0.4863471	0.5240062	0.4784068					
	0.5109481	0.5103083					0.5027	AVRG		3.3866

(#) = Out of Range ($) = Individual RF Out of Range
AVRG = Average, LINR = Linear Regression, 1/x = the inverse of concentration, 1/x^2 = the inverse square of concentration

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2903.D
Acq On : 29 Sep 2016 10:05
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-08|ICAL|1|SVM|1|M1
Misc : |MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 30 08:44:05 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	235909	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	773532	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	419418	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.378	11.384	1.000	734975	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.796	14.807	1.000	565680	40.00	ng/uL	-0.01
91) A Perylene-d12	264	17.893	17.904	1.000	406032	40.00	ng/uL	-0.01
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.378	11.379	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.796	14.807	1.000	0m	40.00	ng/uL	-0.01
152) B Perylene-d12	264	17.893	17.904	1.000	0m	40.00	ng/uL	-0.01
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.378	11.379	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.796	14.807	1.000	0m	40.00	ng/uL	-0.01
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.893	17.904	1.000	0m	40.00	ng/uL	-0.01
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.378	11.379	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.796	14.807	1.000	0m	40.00	ng/uL	-0.01
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0d	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0d	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0d	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0d	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0d	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0d	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) N-Methyl-N-nitrosometh...	74	2.451	2.425	0.451	1361	0.25	ng/uL#	15
35) Naphthalene	128	7.238	7.244	1.004	20809	1.14	ng/uL	96
39) 2-Methylnaphthalene	142	8.169	8.169	1.133	16064	1.14	ng/uL	96
41) 1-Methylnaphthalene	142	8.297	8.303	1.151	15954	1.25	ng/uL	97
48) 2-Chloronaphthalene	162	8.800	8.806	0.925	15958	1.21	ng/uL	95
52) Dimethylphthalate	163	9.175	9.191	0.964	19309	1.20	ng/uL	96
56) Acenaphthylene	152	9.335	9.341	0.981	24884	1.26	ng/uL	95
57) Acenaphthene	154	9.554	9.560	1.004	11802	1.04	ng/uL	89
61) Diethylphthalate	149	10.073	10.084	1.058	22223	1.23	ng/uL	99
63) Fluorene	166	10.207	10.212	1.073	17217	1.14	ng/uL	99
76) Phenanthrene	178	11.405	11.410	1.002	17765	1.05	ng/uL	95
77) Anthracene	178	11.469	11.475	1.008	17897	1.01	ng/uL	98
78) Carbazole	167	11.667	11.672	1.025	15596	0.92	ng/uL	96
79) Di-n-butylphthalate	149	12.111	12.116	1.064	27105	1.00	ng/uL	98
80) Fluoranthene	202	12.876	12.881	1.132	24851	1.00	ng/uL	97
82) Pyrene	202	13.159	13.159	0.889	26046	1.14	ng/uL	98
84) Butylbenzylphthalate	149	13.967	13.972	0.944	8948	0.82	ng/uL	97
85) bis(2-Ethylhexyl)phtha...	149	14.849	14.855	1.004	9813	0.80	ng/uL	92
86) Benzo(a)anthracene	228	14.780	14.785	0.999	20219	1.15	ng/uL	96
87) Chrysene	228	14.839	14.850	1.003	14639	1.00	ng/uL	96

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2903.D
Acq On : 29 Sep 2016 10:05
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-08|ICAL|1|SVM|1|M1
Misc : |MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 30 08:44:05 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE

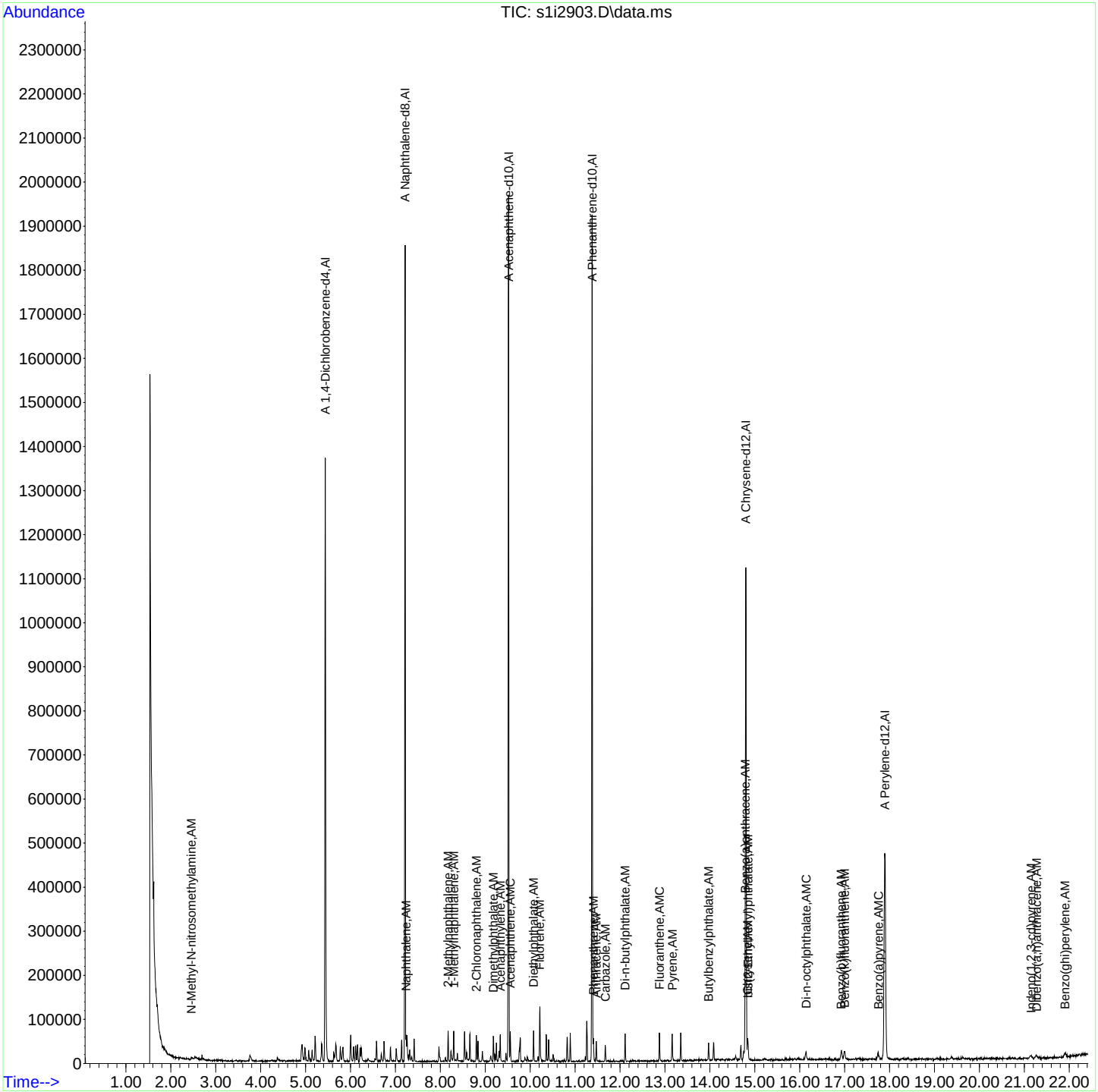
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
90) Di-n-octylphthalate	149	16.139	16.139	1.091	12792	0.99	ng/uL	64
92) Benzo(b)fluoranthene	252	16.919	16.941	0.946	15535	1.08	ng/uL	91
93) Benzo(k)fluoranthene	252	17.000	17.010	0.950	12541	1.01	ng/uL	88
94) Benzo(a)pyrene	252	17.748	17.754	0.992	10949	0.88	ng/uL	93
95) Indeno(1,2,3-cd)pyrene	276	21.150	21.161	1.182	6588	0.69	ng/uL	70
96) Dibenzo(a,h)anthracene	278	21.270	21.274	1.189	8330	0.94	ng/uL	99
97) Benzo(ghi)perylene	276	21.899	21.926	1.224	9654	1.00	ng/uL	81

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2903.D
Acq On : 29 Sep 2016 10:05
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-08|ICAL|1|SVM|1|M1
Misc : |MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 30 08:44:05 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2904.D
Acq On : 29 Sep 2016 10:35
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-07|ICAL|1|SVM|1|M2
Misc : |MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 30 08:43:51 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	205057	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	676049	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	369104	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.379	11.384	1.000	690619	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	586212	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	545207	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.379	11.379	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.379	11.379	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.379	11.379	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.751	3.757	0.690	74509	9.79	ng/uL	0.00
8) Phenol-d5	99	4.901	4.906	0.902	94683	10.16	ng/uL	0.00
25) Nitrobenzene-d5	82	6.212	6.222	0.861	84104	10.63	ng/uL	-0.01
47) 2-Fluorobiphenyl	172	8.656	8.656	0.910	154395	11.87	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.507	10.512	1.104	22061	9.16	ng/uL	0.00
83) p-Terphenyl-d14	244	13.352	13.357	0.902	168678	10.78	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.174	2.173	0.400	51742	8.97	ng/uL	79
3) N-Methyl-N-nitrosometh...	74	2.430	2.425	0.447	44390	9.21	ng/uL	90
4) Pyridine	79	2.478	2.467	0.456	80444	10.19	ng/uL#	77
6) p-Benzoquinone	54	4.361	4.361	0.802	44478	7.92	ng/uL	99
7) Aniline	93	4.982	4.987	0.916	109824	11.36	ng/uL	100
9) Phenol	94	4.917	4.928	0.905	93978	11.27	ng/uL	98
10) bis(2-Chloroethyl) ether	93	5.067	5.067	0.932	73787	10.92	ng/uL	98
11) 2-Chlorophenol	128	5.137	5.142	0.945	71106	10.92	ng/uL	98
12) n-Decane	43	5.212	5.217	0.959	126440	12.30	ng/uL	97
13) 1,3-Dichlorobenzene	146	5.356	5.361	0.985	80095	11.11	ng/uL	99
14) 1,4-Dichlorobenzene	146	5.463	5.463	1.005	69552	10.56	ng/uL	96
15) 1,2-Dichlorobenzene	146	5.672	5.671	1.043	73533	11.16	ng/uL	98
16) bis(2-Chloro-1-methyle...	45	5.827	5.832	1.072	149503	11.34	ng/uL	98
17) Benzyl alcohol	108	5.618	5.629	1.033	42804	9.50	ng/uL	95
18) o-Cresol	107	5.773	5.773	1.062	55097	10.48	ng/uL	97
19) m,p-Cresols	107	5.992	6.008	1.102	68315	9.99	ng/uL	95
20) N-Nitrosodipropylamine	70	6.003	6.019	1.104	57296	11.09	ng/uL	99
21) p-Toluidine	106	6.062	6.067	1.115	93655	12.00	ng/uL	98
22) m-Toluidine	106	6.110	6.115	1.124	84301	11.15	ng/uL	99
23) Hexachloroethane	117	6.153	6.153	1.132	33462	11.04	ng/uL	97

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2904.D
Acq On : 29 Sep 2016 10:35
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-07|ICAL|1|SVM|1|M2
Misc : |MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 30 08:43:51 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
26) Nitrobenzene	77	6.238	6.249	0.865	79372	10.96	ng/uL	99
27) Isophorone	82	6.575	6.586	0.912	167461	10.91	ng/uL	99
28) 2-Nitrophenol	139	6.688	6.688	0.927	32321	9.58	ng/uL	98
29) 2,4-Dimethylphenol	122	6.747	6.752	0.935	60939	11.14	ng/uL	97
30) bis(2-Chloroethoxy)met...	93	6.886	6.891	0.955	89453	11.00	ng/uL	99
31) 2,4-Dichlorophenol	162	7.014	7.019	0.973	58152	10.73	ng/uL	95
33) 1,2,4-Trichlorobenzene	180	7.137	7.137	0.990	75702	11.45	ng/uL	97
34) alpha-Terpineol	59	7.260	7.265	1.007	73653	10.63	ng/uL	97
35) Naphthalene	128	7.239	7.244	1.004	174735	10.92	ng/uL	98
36) 4-Chloroaniline	127	7.314	7.319	1.014	69155	11.80	ng/uL	98
37) Hexachlorobutadiene	225	7.415	7.415	1.028	51621	11.30	ng/uL	98
38) 4-Chloro-3-methylphenol	107	7.966	7.966	1.105	70919	10.21	ng/uL	95
39) 2-Methylnaphthalene	142	8.169	8.169	1.133	143743	11.63	ng/uL	97
40) Phthalic anhydride	104	8.234	8.244	1.142	41374	7.77	ng/uL	90
41) 1-Methylnaphthalene	142	8.298	8.303	1.151	126361	11.31	ng/uL	97
43) Hexachlorocyclopentadiene	237	8.378	8.383	0.880	35806	8.25	ng/uL	100
44) 2,3-Dichloroaniline	161	8.533	8.538	0.897	71449	12.21	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.538	8.538	0.897	43084	10.44	ng/uL	98
46) 2,4,5-Trichlorophenol	196	8.576	8.581	0.901	40833	10.25	ng/uL	96
48) 2-Chloronaphthalene	162	8.800	8.806	0.925	129550	11.16	ng/uL	97
49) o-Nitroaniline	65	8.929	8.934	0.938	47588	10.38	ng/uL	96
50) 1,4-Dinitrobenzene	168	9.116	9.121	0.958	21107	9.46	ng/uL	99
51) m-Nitroaniline	138	9.458	9.464	0.994	29276	10.92	ng/uL	94
52) Dimethylphthalate	163	9.180	9.191	0.965	165974	11.74	ng/uL	99
53) m-Dinitrobenzene	168	9.207	9.217	0.967	22384	10.25	ng/uL	100
54) 2,6-Dinitrotoluene	165	9.250	9.260	0.972	33838	11.15	ng/uL	99
55) 2,4-Dinitrotoluene	165	9.758	9.763	1.025	43248	10.36	ng/uL	97
56) Acenaphthylene	152	9.335	9.341	0.981	201181	11.59	ng/uL	98
57) Acenaphthene	154	9.555	9.560	1.004	106846	10.71	ng/uL	99
59) Dibenzofuran	168	9.774	9.779	1.027	183002	12.05	ng/uL	98
60) 2,3,4,6-Tetrachlorophenol	232	9.929	9.934	1.043	34038	9.42	ng/uL	98
61) Diethylphthalate	149	10.073	10.084	1.058	178676	11.23	ng/uL	96
62) 4-Nitrophenol	139	9.667	9.672	1.016	13351	10.35	ng/uL	96
63) Fluorene	166	10.207	10.212	1.072	147527	11.14	ng/uL	99
64) 4-Chlorophenylphenylether	204	10.213	10.218	1.073	85595	11.52	ng/uL	96
65) p-Nitroaniline	138	10.223	10.234	1.074	25607	10.20	ng/uL	94
68) 2-Methyl-4,6-dinitroph...	198	10.266	10.277	0.902	12491	10.30	ng/uL	99
69) Diphenylamine	169	10.357	10.362	0.910	123333	11.18	ng/uL	99
70) 1,2-Diphenylhydrazine	77	10.410	10.416	0.915	158181	11.58	ng/uL	95
71) 4-Bromophenylphenylether	248	10.822	10.827	0.951	51672	10.44	ng/uL	93
72) Hexachlorobenzene	284	10.892	10.897	0.957	57097	11.44	ng/uL	97
73) Pentachlorophenol	266	11.138	11.138	0.979	17793	8.95	ng/uL	96
74) n-Octadecane	57	11.261	11.261	0.990	156531	12.41	ng/uL	97
75) Dinoseb	211	11.373	11.373	1.000	18596	9.81	ng/uL	94
76) Phenanthrene	178	11.405	11.410	1.002	174728	10.97	ng/uL	98
77) Anthracene	178	11.469	11.475	1.008	182111	10.93	ng/uL	95
78) Carbazole	167	11.667	11.672	1.025	165055	10.40	ng/uL	98
79) Di-n-butylphthalate	149	12.111	12.116	1.064	305719	12.01	ng/uL	98
80) Fluoranthene	202	12.876	12.881	1.132	271870	11.60	ng/uL	98
82) Pyrene	202	13.160	13.159	0.889	265639	11.20	ng/uL	99
84) Butylbenzylphthalate	149	13.973	13.972	0.944	120690	10.62	ng/uL	99
85) bis(2-Ethylhexyl)phtha...	149	14.850	14.855	1.003	138736	10.96	ng/uL	94
86) Benzo(a)anthracene	228	14.780	14.785	0.999	202729	11.09	ng/uL	97

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2904.D
Acq On : 29 Sep 2016 10:35
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-07|ICAL|1|SVM|1|M2
Misc : |MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 30 08:43:51 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE

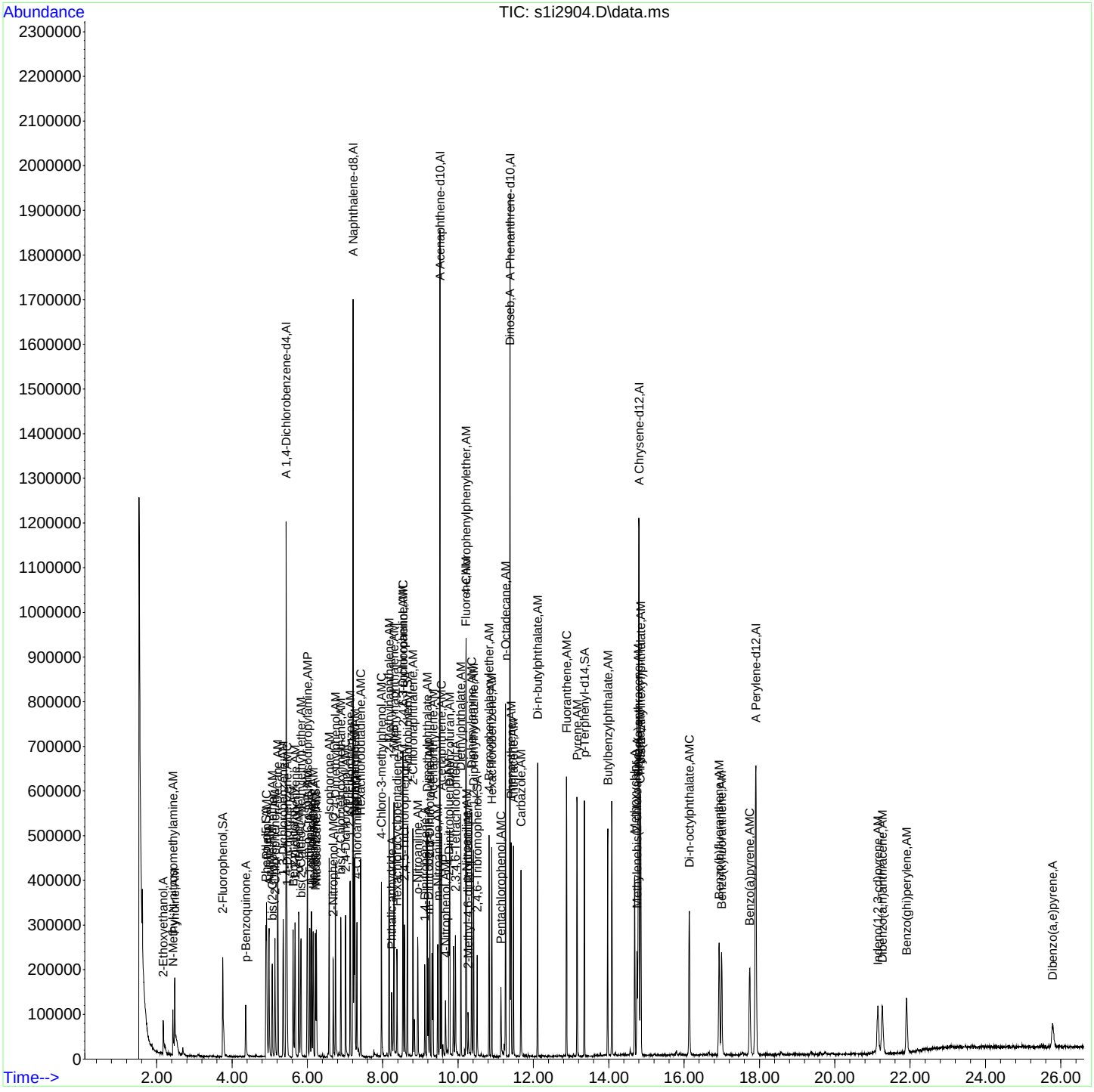
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
87) Chrysene	228	14.839	14.850	1.003	163618	10.76	ng/uL	97
88) Methoxychlor	227	14.689	14.689	0.992	184267	11.05	ng/uL	97
89) Methylenebis(2-chloroa...	231	14.748	14.753	0.996	32448	9.31	ng/uL	93
90) Di-n-octylphthalate	149	16.139	16.139	1.090	260423	10.63	ng/uL	100
92) Benzo(b)fluoranthene	252	16.930	16.941	0.946	202189	10.48	ng/uL	100
93) Benzo(k)fluoranthene	252	16.995	17.010	0.949	180336	10.81	ng/uL	98
94) Benzo(a)pyrene	252	17.738	17.754	0.991	172841	10.36	ng/uL	99
95) Indeno(1,2,3-cd)pyrene	276	21.140	21.161	1.181	127098	9.96	ng/uL	96
96) Dibenzo(a,h)anthracene	278	21.264	21.274	1.188	116393	9.80	ng/uL	91
97) Benzo(ghi)perylene	276	21.905	21.926	1.223	129418	9.94	ng/uL	97
98) Dibenzo(a,e)pyrene	302	25.782	25.804	1.440	60468	9.50	ng/uL	71

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2904.D
Acq On : 29 Sep 2016 10:35
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-07|ICAL|1|SVM|1|M2
Misc : |MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 30 08:43:51 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2905.D
Acq On : 29 Sep 2016 11:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-06|ICAL|1|SVM|1|M3
Misc : |MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 30 08:46:27 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	192218	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	638401	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	364411	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.378	11.384	1.000	695010	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	636489	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	616969	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.378	11.379	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.378	11.379	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.378	11.379	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.751	3.757	0.690	151598	21.25	ng/uL	0.00
8) Phenol-d5	99	4.901	4.906	0.902	188637	21.60	ng/uL	0.00
25) Nitrobenzene-d5	82	6.217	6.222	0.862	156310	20.92	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.656	8.656	0.910	282531	22.00	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.507	10.512	1.104	47262	19.88	ng/uL	0.00
83) p-Terphenyl-d14	244	13.352	13.357	0.902	353137	20.78	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.173	2.173	0.400	105554	19.51	ng/uL	75
3) N-Methyl-N-nitrosometh...	74	2.425	2.425	0.446	90353	19.99	ng/uL	95
4) Pyridine	79	2.468	2.467	0.454	158980	21.49	ng/uL	90
6) p-Benzoquinone	54	4.361	4.361	0.802	101970	19.37	ng/uL	99
7) Aniline	93	4.981	4.987	0.916	198670	21.92	ng/uL	99
9) Phenol	94	4.923	4.928	0.906	178300	22.80	ng/uL	99
10) bis(2-Chloroethyl) ether	93	5.067	5.067	0.932	134395	21.22	ng/uL	97
11) 2-Chlorophenol	128	5.137	5.142	0.945	125428	20.56	ng/uL	97
12) n-Decane	43	5.211	5.217	0.959	215708	22.38	ng/uL	98
13) 1,3-Dichlorobenzene	146	5.356	5.361	0.985	141336	20.92	ng/uL	98
14) 1,4-Dichlorobenzene	146	5.463	5.463	1.005	128419	20.81	ng/uL	99
15) 1,2-Dichlorobenzene	146	5.671	5.671	1.043	135157	21.89	ng/uL	96
16) bis(2-Chloro-1-methyle...	45	5.832	5.832	1.073	277338	22.43	ng/uL	99
17) Benzyl alcohol	108	5.623	5.629	1.034	88002	20.84	ng/uL	99
18) o-Cresol	107	5.773	5.773	1.062	101888	20.67	ng/uL	97
19) m,p-Cresols	107	5.998	6.008	1.103	133418	20.82	ng/uL	98
20) N-Nitrosodipropylamine	70	6.008	6.019	1.105	109948	22.69	ng/uL	98
21) p-Toluidine	106	6.067	6.067	1.116	170284	23.28	ng/uL	98
22) m-Toluidine	106	6.115	6.115	1.125	155201	21.89	ng/uL	97
23) Hexachloroethane	117	6.153	6.153	1.132	61748	21.74	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2905.D
Acq On : 29 Sep 2016 11:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-06|ICAL|1|SVM|1|M3
Misc : |MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 30 08:46:27 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
26) Nitrobenzene	77	6.244	6.249	0.866	147662	21.59	ng/uL	98
27) Isophorone	82	6.581	6.586	0.912	316395	21.84	ng/uL	100
28) 2-Nitrophenol	139	6.688	6.688	0.927	64219	20.17	ng/uL	97
29) 2,4-Dimethylphenol	122	6.747	6.752	0.935	110878	21.47	ng/uL	95
30) bis(2-Chloroethoxy)met...	93	6.891	6.891	0.956	167440	21.80	ng/uL	96
31) 2,4-Dichlorophenol	162	7.014	7.019	0.973	106679	20.85	ng/uL	98
32) Benzoic acid	105	6.854	6.891	0.950	31937	21.41	ng/uL	90
33) 1,2,4-Trichlorobenzene	180	7.137	7.137	0.990	135074	21.63	ng/uL	100
34) alpha-Terpineol	59	7.260	7.265	1.007	142872	21.84	ng/uL	97
35) Naphthalene	128	7.239	7.244	1.004	325611	21.55	ng/uL	98
36) 4-Chloroaniline	127	7.314	7.319	1.014	126517	22.86	ng/uL	99
37) Hexachlorobutadiene	225	7.415	7.415	1.028	94026	21.80	ng/uL	100
38) 4-Chloro-3-methylphenol	107	7.966	7.966	1.105	141013	21.50	ng/uL	99
39) 2-Methylnaphthalene	142	8.169	8.169	1.133	259939	22.27	ng/uL	99
40) Phthalic anhydride	104	8.233	8.244	1.142	85090	16.91	ng/uL	99
41) 1-Methylnaphthalene	142	8.298	8.303	1.151	231538	21.94	ng/uL	99
43) Hexachlorocyclopentadiene	237	8.378	8.383	0.880	78655	18.35	ng/uL	97
44) 2,3-Dichloroaniline	161	8.538	8.538	0.897	130737	22.62	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.538	8.538	0.897	81542	20.01	ng/uL	93
46) 2,4,5-Trichlorophenol	196	8.581	8.581	0.902	80210	20.40	ng/uL	100
48) 2-Chloronaphthalene	162	8.800	8.806	0.925	236178	20.60	ng/uL	98
49) o-Nitroaniline	65	8.934	8.934	0.939	95427	21.08	ng/uL	97
50) 1,4-Dinitrobenzene	168	9.121	9.121	0.958	42500	19.30	ng/uL	95
51) m-Nitroaniline	138	9.458	9.464	0.994	61270	23.15	ng/uL	99
52) Dimethylphthalate	163	9.186	9.191	0.965	302663	21.69	ng/uL	99
53) m-Dinitrobenzene	168	9.212	9.217	0.968	45978	21.33	ng/uL	97
54) 2,6-Dinitrotoluene	165	9.255	9.260	0.972	61537	20.53	ng/uL	100
55) 2,4-Dinitrotoluene	165	9.758	9.763	1.025	88558	21.49	ng/uL	96
56) Acenaphthylene	152	9.335	9.341	0.981	365789	21.34	ng/uL	97
57) Acenaphthene	154	9.560	9.560	1.004	202444	20.56	ng/uL	99
58) 2,4-Dinitrophenol	184	9.592	9.597	1.008	20163	21.55	ng/uL	97
59) Dibenzofuran	168	9.779	9.779	1.028	331187	22.09	ng/uL	99
60) 2,3,4,6-Tetrachlorophenol	232	9.929	9.934	1.043	70607	19.80	ng/uL	98
61) Diethylphthalate	149	10.079	10.084	1.059	333316	21.22	ng/uL	98
62) 4-Nitrophenol	139	9.667	9.672	1.016	38081	21.18	ng/uL	98
63) Fluorene	166	10.207	10.212	1.072	280314	21.43	ng/uL	99
64) 4-Chlorophenylphenylether	204	10.212	10.218	1.073	155791	21.24	ng/uL	97
65) p-Nitroaniline	138	10.229	10.234	1.075	50194	20.26	ng/uL	99
68) 2-Methyl-4,6-dinitroph...	198	10.271	10.277	0.903	35367	19.70	ng/uL	98
69) Diphenylamine	169	10.362	10.362	0.911	231108	20.81	ng/uL	100
70) 1,2-Diphenylhydrazine	77	10.410	10.416	0.915	295192	21.48	ng/uL	98
71) 4-Bromophenylphenylether	248	10.828	10.827	0.952	105701	21.22	ng/uL	98
72) Hexachlorobenzene	284	10.897	10.897	0.958	107315	21.36	ng/uL	96
73) Pentachlorophenol	266	11.138	11.138	0.979	49337	18.90	ng/uL	96
74) n-Octadecane	57	11.261	11.261	0.990	284473	22.40	ng/uL	97
75) Dinoseb	211	11.373	11.373	1.000	56329	19.30	ng/uL	93
76) Phenanthrene	178	11.411	11.410	1.003	342081	21.35	ng/uL	100
77) Anthracene	178	11.475	11.475	1.008	366531	21.86	ng/uL	98
78) Carbazole	167	11.667	11.672	1.025	351630	22.01	ng/uL	99
79) Di-n-butylphthalate	149	12.111	12.116	1.064	580827	22.67	ng/uL	99
80) Fluoranthene	202	12.881	12.881	1.132	557533	23.64	ng/uL	98
82) Pyrene	202	13.160	13.159	0.889	542026	21.04	ng/uL	96
84) Butylbenzylphthalate	149	13.973	13.972	0.944	264002	21.40	ng/uL	97

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2905.D
Acq On : 29 Sep 2016 11:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-06|ICAL|1|SVM|1|M3
Misc : |MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 30 08:46:27 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE

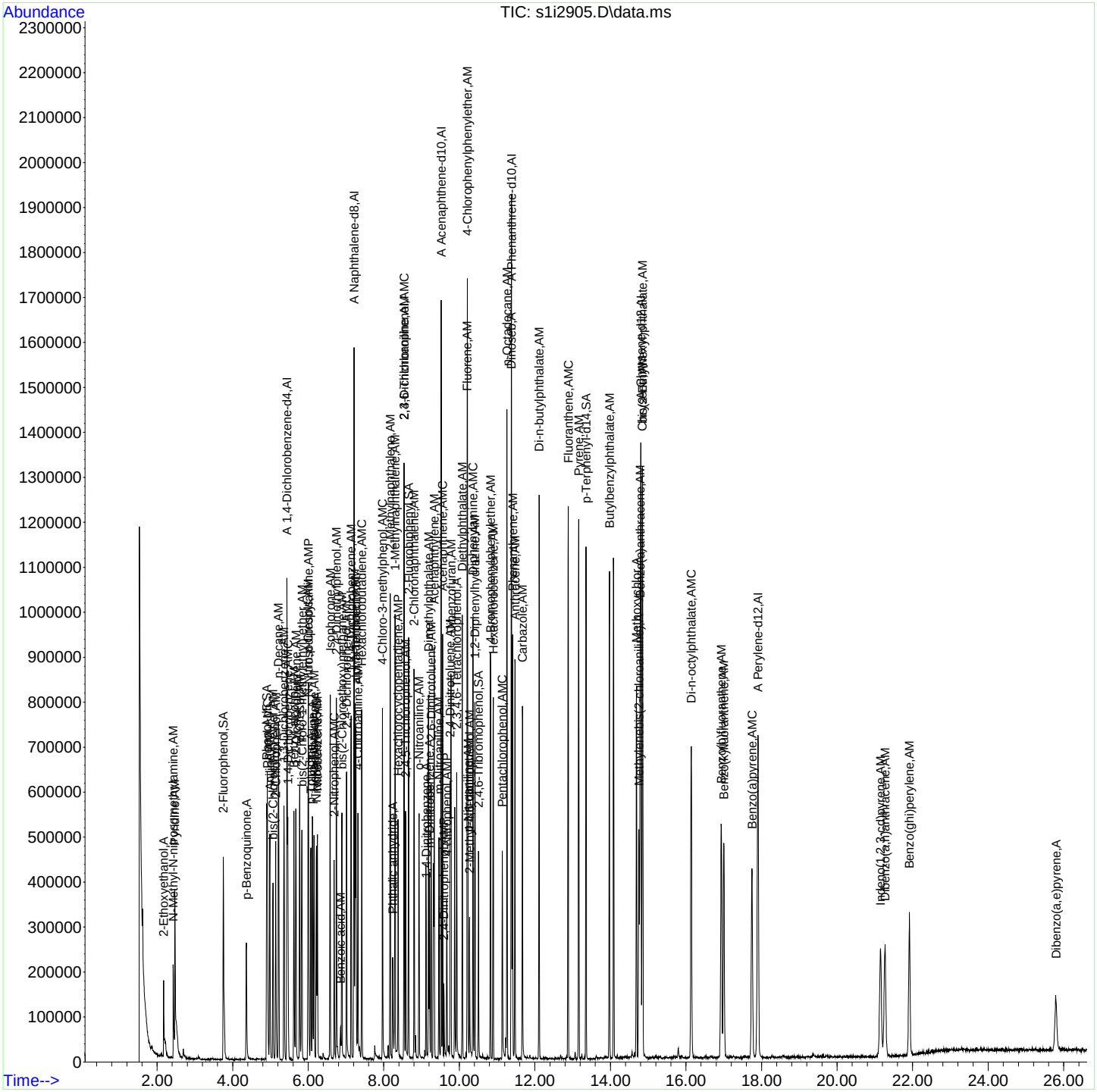
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
85) bis(2-Ethylhexyl)phtha...	149	14.850	14.855	1.003	287851	20.94	ng/uL	99
86) Benzo(a)anthracene	228	14.786	14.785	0.999	418867	21.11	ng/uL	99
87) Chrysene	228	14.844	14.850	1.003	355615	21.54	ng/uL	97
88) Methoxychlor	227	14.689	14.689	0.992	385762	21.30	ng/uL	99
89) Methylenebis(2-chloroa...	231	14.753	14.753	0.997	83669	22.12	ng/uL	98
90) Di-n-octylphthalate	149	16.139	16.139	1.090	600833	22.05	ng/uL	99
92) Benzo(b)fluoranthene	252	16.936	16.941	0.946	454327	20.81	ng/uL	99
93) Benzo(k)fluoranthene	252	17.000	17.010	0.950	402136	21.29	ng/uL	99
94) Benzo(a)pyrene	252	17.749	17.754	0.991	408828	21.66	ng/uL	98
95) Indeno(1,2,3-cd)pyrene	276	21.150	21.161	1.181	331627	22.97	ng/uL	97
96) Dibenzo(a,h)anthracene	278	21.268	21.274	1.188	287715	21.40	ng/uL	96
97) Benzo(ghi)perylene	276	21.915	21.926	1.224	326381	22.15	ng/uL	99
98) Dibenzo(a,e)pyrene	302	25.798	25.804	1.441	144646	20.07	ng/uL	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2905.D
Acq On : 29 Sep 2016 11:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-06|ICAL|1|SVM|1|M3
Misc : |MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 30 08:46:27 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 08:42:18 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2907.D
Acq On : 29 Sep 2016 12:18
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-04|ICAL|1|SVM|1|M5
Misc : |MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 29 15:28:33 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	207364	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.217	7.212	1.000	694136	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.522	9.522	1.000	388330	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	724193	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.812	14.807	1.000	606897	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.909	17.904	1.000	514816	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	0m	40.00	ng/uL	0.00
114) B Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
122) B Acenaphthene-d10	164	9.522	9.517	1.000	0m	40.00	ng/uL	0.00
131) B Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
144) B Chrysene-d12	240	14.812	14.807	1.000	0m	40.00	ng/uL	0.00
151) B Perylene-d12	264	17.909	17.904	1.000	0m	40.00	ng/uL	0.00
154) D Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
156) D Acenaphthene-d10	164	9.522	9.517	1.000	0m	40.00	ng/uL	0.00
159) D Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
166) D Chrysene-d12	240	14.812	14.807	1.000	0m	40.00	ng/uL	0.00
168) E Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
170) E Perylene-d12	264	17.909	17.904	1.000	0m	40.00	ng/uL	0.00
172) F 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	0m	40.00	ng/uL	0.00
174) J Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
176) J Chrysene-d12	240	14.812	14.807	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.757	3.757	0.690	386568	50.30	ng/uL	0.00
8) Phenol-d5	99	4.912	4.906	0.903	474144	50.28	ng/uL	0.00
25) Nitrobenzene-d5	82	6.222	6.222	0.862	406857	50.09	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.661	8.656	0.910	669671	48.94	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.517	10.512	1.104	128572	50.88	ng/uL	0.00
83) p-Terphenyl-d14	244	13.357	13.357	0.902	837854	52.61	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.173	2.173	0.399	310387	53.12	ng/uL	98
3) N-Methyl-N-nitrosometh...	74	2.430	2.425	0.447	258413	52.93	ng/uL	99
4) Pyridine	79	2.468	2.467	0.453	410354	51.19	ng/uL	98
6) p-Benzoquinone	54	4.361	4.361	0.801	310562	54.97	ng/uL	99
7) Aniline	93	4.987	4.987	0.916	474323	48.59	ng/uL	99
9) Phenol	94	4.933	4.928	0.907	420397	49.68	ng/uL	100
10) bis(2-Chloroethyl) ether	93	5.072	5.067	0.932	339790	49.71	ng/uL	99
11) 2-Chlorophenol	128	5.147	5.142	0.946	328473	49.85	ng/uL	99
12) n-Decane	43	5.217	5.217	0.959	514622	49.36	ng/uL	97
13) 1,3-Dichlorobenzene	146	5.361	5.361	0.985	361537	49.64	ng/uL	98
14) 1,4-Dichlorobenzene	146	5.463	5.463	1.004	334112	50.23	ng/uL	99
15) 1,2-Dichlorobenzene	146	5.677	5.671	1.043	325927	48.90	ng/uL	100
16) bis(2-Chloro-1-methyle...	45	5.837	5.832	1.073	661083	49.46	ng/uL	98
17) Benzyl alcohol	108	5.629	5.629	1.034	225809	49.37	ng/uL	96
18) o-Cresol	107	5.778	5.773	1.062	265494	49.73	ng/uL	98
19) m,p-Cresols	107	6.014	6.008	1.105	351008	50.71	ng/uL	99
20) N-Nitrosodipropylamine	70	6.024	6.019	1.107	266386	50.76	ng/uL	100
21) p-Toluidine	106	6.073	6.067	1.116	394969	49.91	ng/uL	97
22) m-Toluidine	106	6.121	6.115	1.125	367759	47.63	ng/uL	99
23) Hexachloroethane	117	6.153	6.153	1.131	151948	49.63	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2907.D
Acq On : 29 Sep 2016 12:18
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-04|ICAL|1|SVM|1|M5
Misc : |MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 29 15:28:33 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
26) Nitrobenzene	77	6.249	6.249	0.866	369039	49.52	ng/uL	99
27) Isophorone	82	6.586	6.586	0.913	788353	49.96	ng/uL	99
28) 2-Nitrophenol	139	6.693	6.688	0.927	178313	51.79	ng/uL	99
29) 2,4-Dimethylphenol	122	6.757	6.752	0.936	277197	49.49	ng/uL	97
30) bis(2-Chloroethoxy)met...	93	6.896	6.891	0.956	408086	49.01	ng/uL	100
31) 2,4-Dichlorophenol	162	7.019	7.019	0.973	279329	50.24	ng/uL	96
32) Benzoic acid	105	6.923	6.891	0.959	169459	52.02	ng/uL	95
33) 1,2,4-Trichlorobenzene	180	7.137	7.137	0.989	337097	49.77	ng/uL	99
34) alpha-Terpineol	59	7.271	7.265	1.007	355050	49.99	ng/uL	97
35) Naphthalene	128	7.244	7.244	1.004	809503	49.25	ng/uL	99
36) 4-Chloroaniline	127	7.319	7.319	1.014	308500	51.39	ng/uL	100
37) Hexachlorobutadiene	225	7.420	7.415	1.028	233960	50.09	ng/uL	99
38) 4-Chloro-3-methylphenol	107	7.971	7.966	1.104	362554	50.88	ng/uL	99
39) 2-Methylnaphthalene	142	8.175	8.169	1.133	613248	48.33	ng/uL	99
40) Phthalic anhydride	104	8.244	8.244	1.142	294074	53.76	ng/uL	97
41) 1-Methylnaphthalene	142	8.303	8.303	1.150	534094	46.51	ng/uL	98
43) Hexachlorocyclopentadiene	237	8.383	8.383	0.880	241427	53.37	ng/uL	97
44) 2,3-Dichloroaniline	161	8.538	8.538	0.897	303798	49.21	ng/uL	98
45) 2,4,6-Trichlorophenol	196	8.544	8.538	0.897	219023	50.55	ng/uL	98
46) 2,4,5-Trichlorophenol	196	8.581	8.581	0.901	211623	50.27	ng/uL	99
48) 2-Chloronaphthalene	162	8.806	8.806	0.925	599323	49.04	ng/uL	99
49) o-Nitroaniline	65	8.939	8.934	0.939	245187	50.66	ng/uL	98
50) 1,4-Dinitrobenzene	168	9.127	9.121	0.958	120811	51.57	ng/uL	98
51) m-Nitroaniline	138	9.469	9.464	0.994	141385	49.76	ng/uL	99
52) Dimethylphthalate	163	9.196	9.191	0.966	706088	47.42	ng/uL	99
53) m-Dinitrobenzene	168	9.218	9.217	0.968	116999	50.99	ng/uL	93
54) 2,6-Dinitrotoluene	165	9.260	9.260	0.972	157085	49.37	ng/uL	97
55) 2,4-Dinitrotoluene	165	9.768	9.763	1.026	226000	51.43	ng/uL	95
56) Acenaphthylene	152	9.341	9.341	0.981	854216	46.65	ng/uL	100
57) Acenaphthene	154	9.565	9.560	1.004	524143	49.95	ng/uL	97
58) 2,4-Dinitrophenol	184	9.603	9.597	1.008	87734	54.44	ng/uL	92
59) Dibenzofuran	168	9.784	9.779	1.028	775642	48.52	ng/uL	98
60) 2,3,4,6-Tetrachlorophenol	232	9.934	9.934	1.043	197424	52.19	ng/uL	99
61) Diethylphthalate	149	10.084	10.084	1.059	795970	47.64	ng/uL	100
62) 4-Nitrophenol	139	9.678	9.672	1.016	118630	53.22	ng/uL	94
63) Fluorene	166	10.212	10.212	1.072	672233	48.27	ng/uL	100
64) 4-Chlorophenylphenylether	204	10.218	10.218	1.073	379047	48.73	ng/uL	98
65) p-Nitroaniline	138	10.244	10.234	1.076	133676	50.12	ng/uL	97
68) 2-Methyl-4,6-dinitroph...	198	10.282	10.277	0.903	117461	55.94	ng/uL	98
69) Diphenylamine	169	10.367	10.362	0.911	584929	50.70	ng/uL	99
70) 1,2-Diphenylhydrazine	77	10.421	10.416	0.915	716896	50.34	ng/uL	99
71) 4-Bromophenylphenylether	248	10.827	10.827	0.951	261237	50.37	ng/uL	97
72) Hexachlorobenzene	284	10.902	10.897	0.958	262408	50.21	ng/uL	97
73) Pentachlorophenol	266	11.143	11.138	0.979	160817	52.28	ng/uL	98
74) n-Octadecane	57	11.266	11.261	0.990	648257	48.98	ng/uL	99
75) Dinoseb	211	11.378	11.373	1.000	190811	51.57	ng/uL	96
76) Phenanthrene	178	11.416	11.410	1.003	839745	50.16	ng/uL	99
77) Anthracene	178	11.480	11.475	1.008	893213	50.89	ng/uL	99
78) Carbazole	167	11.678	11.672	1.026	888752	53.23	ng/uL	98
79) Di-n-butylphthalate	149	12.116	12.116	1.064	1333706	49.75	ng/uL	99
80) Fluoranthene	202	12.887	12.881	1.132	1261807	50.99	ng/uL	98
82) Pyrene	202	13.165	13.159	0.889	1224508	50.69	ng/uL	99
84) Butylbenzylphthalate	149	13.978	13.972	0.944	635616	54.37	ng/uL	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2907.D
Acq On : 29 Sep 2016 12:18
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-04|ICAL|1|SVM|1|M5
Misc : |MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 29 15:28:33 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

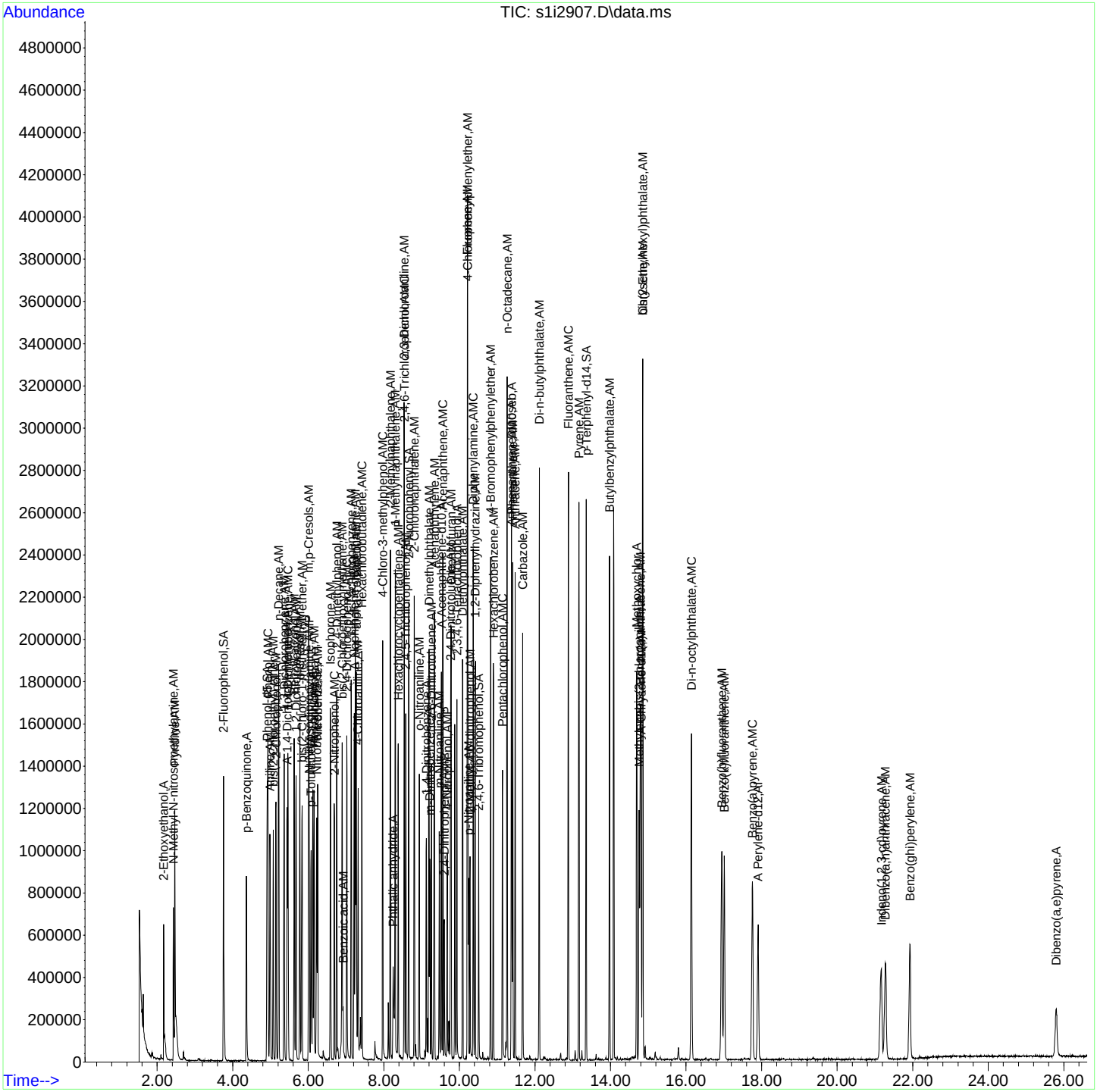
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
85) bis(2-Ethylhexyl)phtha...	149	14.855	14.855	1.003	672048	51.36	ng/uL	99
86) Benzo(a)anthracene	228	14.791	14.785	0.999	921211	48.72	ng/uL	99
87) Chrysene	228	14.855	14.850	1.003	784435	49.77	ng/uL	100
88) Methoxychlor	227	14.695	14.689	0.992	871914	50.33	ng/uL	97
89) Methylenebis(2-chloroa...	231	14.759	14.753	0.996	181358	50.22	ng/uL	97
90) Di-n-octylphthalate	149	16.144	16.139	1.090	1325599	51.69	ng/uL	100
92) Benzo(b)fluoranthene	252	16.946	16.941	0.946	926405	50.82	ng/uL	99
93) Benzo(k)fluoranthene	252	17.016	17.010	0.950	799062	50.71	ng/uL	100
94) Benzo(a)pyrene	252	17.759	17.754	0.992	829209	52.59	ng/uL	99
95) Indeno(1,2,3-cd)pyrene	276	21.172	21.161	1.182	634827	52.96	ng/uL	99
96) Dibenzo(a,h)anthracene	278	21.279	21.274	1.188	573413	51.42	ng/uL	99
97) Benzo(ghi)perylene	276	21.931	21.926	1.225	625302	51.31	ng/uL	100
98) Dibenzo(a,e)pyrene	302	25.798	25.804	1.441	293230	49.20	ng/uL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2907.D
Acq On : 29 Sep 2016 12:18
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-04|ICAL|1|SVM|1|M5
Misc : |MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 29 15:28:33 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2908.D
Acq On : 29 Sep 2016 12:52
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-03|ICAL|1|SVM|1|M6
Misc : |MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 29 15:28:39 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	190418	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.217	7.212	1.000	646658	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.522	9.522	1.000	368395	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	681917	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.812	14.807	1.000	560613	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.909	17.904	1.000	472614	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	0m	40.00	ng/uL	0.00
114) B Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
122) B Acenaphthene-d10	164	9.522	9.517	1.000	0m	40.00	ng/uL	0.00
131) B Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
144) B Chrysene-d12	240	14.812	14.807	1.000	0m	40.00	ng/uL	0.00
151) B Perylene-d12	264	17.909	17.904	1.000	0m	40.00	ng/uL	0.00
154) D Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
156) D Acenaphthene-d10	164	9.522	9.517	1.000	0m	40.00	ng/uL	0.00
159) D Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
166) D Chrysene-d12	240	14.812	14.807	1.000	0m	40.00	ng/uL	0.00
168) E Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
170) E Perylene-d12	264	17.909	17.904	1.000	0m	40.00	ng/uL	0.00
172) F 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	0m	40.00	ng/uL	0.00
174) J Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
176) J Chrysene-d12	240	14.812	14.807	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.756	3.757	0.690	565255	80.09	ng/uL	0.00
8) Phenol-d5	99	4.917	4.906	0.904	682195	78.78	ng/uL	0.01
25) Nitrobenzene-d5	82	6.228	6.222	0.863	583229	77.08	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.661	8.656	0.910	953698	73.47	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.517	10.512	1.104	195372	81.50	ng/uL	0.00
83) p-Terphenyl-d14	244	13.363	13.357	0.902	1166602	79.30	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.173	2.173	0.399	443992	82.74	ng/uL	98
3) N-Methyl-N-nitrosometh...	74	2.430	2.425	0.447	366893	81.84	ng/uL	99
4) Pyridine	79	2.467	2.467	0.453	575759	78.22	ng/uL	99
6) p-Benzoquinone	54	4.361	4.361	0.801	438142	84.45	ng/uL	99
7) Aniline	93	4.987	4.987	0.916	688033	76.75	ng/uL	99
9) Phenol	94	4.939	4.928	0.908	581116	74.78	ng/uL	99
10) bis(2-Chloroethyl) ether	93	5.078	5.067	0.933	489220	77.94	ng/uL	97
11) 2-Chlorophenol	128	5.147	5.142	0.946	476917	78.82	ng/uL	99
12) n-Decane	43	5.217	5.217	0.959	710602	74.23	ng/uL	99
13) 1,3-Dichlorobenzene	146	5.361	5.361	0.985	518624	77.55	ng/uL	98
14) 1,4-Dichlorobenzene	146	5.468	5.463	1.005	481931	78.89	ng/uL	99
15) 1,2-Dichlorobenzene	146	5.677	5.671	1.043	475141	77.63	ng/uL	99
16) bis(2-Chloro-1-methyle...	45	5.837	5.832	1.073	934268	76.12	ng/uL	98
17) Benzyl alcohol	108	5.634	5.629	1.035	334936	79.75	ng/uL	100
18) o-Cresol	107	5.784	5.773	1.063	389212	79.40	ng/uL	98
19) m,p-Cresols	107	6.019	6.008	1.106	503377	79.20	ng/uL	100
20) N-Nitrosodipropylamine	70	6.030	6.019	1.108	392314	81.41	ng/uL	100
21) p-Toluidine	106	6.072	6.067	1.116	545980	75.14	ng/uL	100
22) m-Toluidine	106	6.126	6.115	1.126	537283	75.79	ng/uL	98
23) Hexachloroethane	117	6.153	6.153	1.131	215040	76.49	ng/uL	98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2908.D
Acq On : 29 Sep 2016 12:52
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-03|ICAL|1|SVM|1|M6
Misc : |MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 29 15:28:39 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
26) Nitrobenzene	77	6.260	6.249	0.867	531415	76.54	ng/uL	98
27) Isophorone	82	6.597	6.586	0.914	1131758	76.98	ng/uL	98
28) 2-Nitrophenol	139	6.693	6.688	0.927	256338	79.92	ng/uL	99
29) 2,4-Dimethylphenol	122	6.762	6.752	0.937	393294	75.38	ng/uL	97
30) bis(2-Chloroethoxy)met...	93	6.901	6.891	0.956	604142	77.88	ng/uL	99
31) 2,4-Dichlorophenol	162	7.024	7.019	0.973	400093	77.24	ng/uL	97
32) Benzoic acid	105	6.955	6.891	0.964	257899	75.42	ng/uL	90
33) 1,2,4-Trichlorobenzene	180	7.142	7.137	0.990	482703	76.49	ng/uL	99
34) alpha-Terpineol	59	7.276	7.265	1.008	506676	76.58	ng/uL	97
35) Naphthalene	128	7.249	7.244	1.004	1135124	74.13	ng/uL	98
36) 4-Chloroaniline	127	7.324	7.319	1.015	424244	75.86	ng/uL	98
37) Hexachlorobutadiene	225	7.420	7.415	1.028	326664	75.08	ng/uL	98
38) 4-Chloro-3-methylphenol	107	7.977	7.966	1.105	516081	77.75	ng/uL	97
39) 2-Methylnaphthalene	142	8.174	8.169	1.133	860047	72.75	ng/uL	100
40) Phthalic anhydride	104	8.249	8.244	1.143	439800	86.30	ng/uL	97
41) 1-Methylnaphthalene	142	8.308	8.303	1.151	763497	71.37	ng/uL	98
43) Hexachlorocyclopentadiene	237	8.383	8.383	0.880	360086	83.91	ng/uL	98
44) 2,3-Dichloroaniline	161	8.544	8.538	0.897	418902	71.53	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.544	8.538	0.897	324479	78.95	ng/uL	100
46) 2,4,5-Trichlorophenol	196	8.586	8.581	0.902	307919	77.10	ng/uL	96
48) 2-Chloronaphthalene	162	8.811	8.806	0.925	836817	72.17	ng/uL	98
49) o-Nitroaniline	65	8.945	8.934	0.939	349251	76.06	ng/uL	97
50) 1,4-Dinitrobenzene	168	9.132	9.121	0.959	176950	79.62	ng/uL	98
51) m-Nitroaniline	138	9.474	9.464	0.995	200060	74.22	ng/uL	95
52) Dimethylphthalate	163	9.201	9.191	0.966	991141	70.16	ng/uL	97
53) m-Dinitrobenzene	168	9.228	9.217	0.969	164870	75.74	ng/uL	94
54) 2,6-Dinitrotoluene	165	9.271	9.260	0.974	233234	77.26	ng/uL	96
55) 2,4-Dinitrotoluene	165	9.779	9.763	1.027	321182	77.05	ng/uL	95
56) Acenaphthylene	152	9.346	9.341	0.981	1211271	69.72	ng/uL	98
57) Acenaphthene	154	9.570	9.560	1.005	761742	76.52	ng/uL	98
58) 2,4-Dinitrophenol	184	9.608	9.597	1.009	127702	83.52	ng/uL	95
59) Dibenzofuran	168	9.784	9.779	1.028	1109941	73.19	ng/uL	99
60) 2,3,4,6-Tetrachlorophenol	232	9.940	9.934	1.044	285699	79.62	ng/uL	97
61) Diethylphthalate	149	10.089	10.084	1.060	1131637	71.39	ng/uL	97
62) 4-Nitrophenol	139	9.688	9.672	1.017	169488	77.63	ng/uL	96
63) Fluorene	166	10.218	10.212	1.073	966384	73.15	ng/uL	99
64) 4-Chlorophenylphenylether	204	10.223	10.218	1.074	552888	74.93	ng/uL	99
65) p-Nitroaniline	138	10.255	10.234	1.077	201707	79.72	ng/uL	98
68) 2-Methyl-4,6-dinitroph...	198	10.287	10.277	0.904	174074	88.04	ng/uL	98
69) Diphenylamine	169	10.373	10.362	0.911	828998	76.31	ng/uL	99
70) 1,2-Diphenylhydrazine	77	10.421	10.416	0.915	1011448	75.43	ng/uL	99
71) 4-Bromophenylphenylether	248	10.833	10.827	0.952	378011	77.41	ng/uL	99
72) Hexachlorobenzene	284	10.902	10.897	0.958	379733	77.17	ng/uL	98
73) Pentachlorophenol	266	11.143	11.138	0.979	241273	81.11	ng/uL	98
74) n-Octadecane	57	11.266	11.261	0.990	902662	72.43	ng/uL	97
75) Dinoseb	211	11.384	11.373	1.000	295913	81.33	ng/uL	96
76) Phenanthrene	178	11.421	11.410	1.003	1192844	75.67	ng/uL	97
77) Anthracene	178	11.485	11.475	1.009	1260030	76.24	ng/uL	97
78) Carbazole	167	11.678	11.672	1.026	1236926	78.67	ng/uL	97
79) Di-n-butylphthalate	149	12.116	12.116	1.064	1860597	73.71	ng/uL	98
80) Fluoranthene	202	12.887	12.881	1.132	1721869	73.90	ng/uL	96
82) Pyrene	202	13.170	13.159	0.889	1683990	75.47	ng/uL	97
84) Butylbenzylphthalate	149	13.978	13.972	0.944	883283	81.80	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2908.D
Acq On : 29 Sep 2016 12:52
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-03|ICAL|1|SVM|1|M6
Misc : |MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 29 15:28:39 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

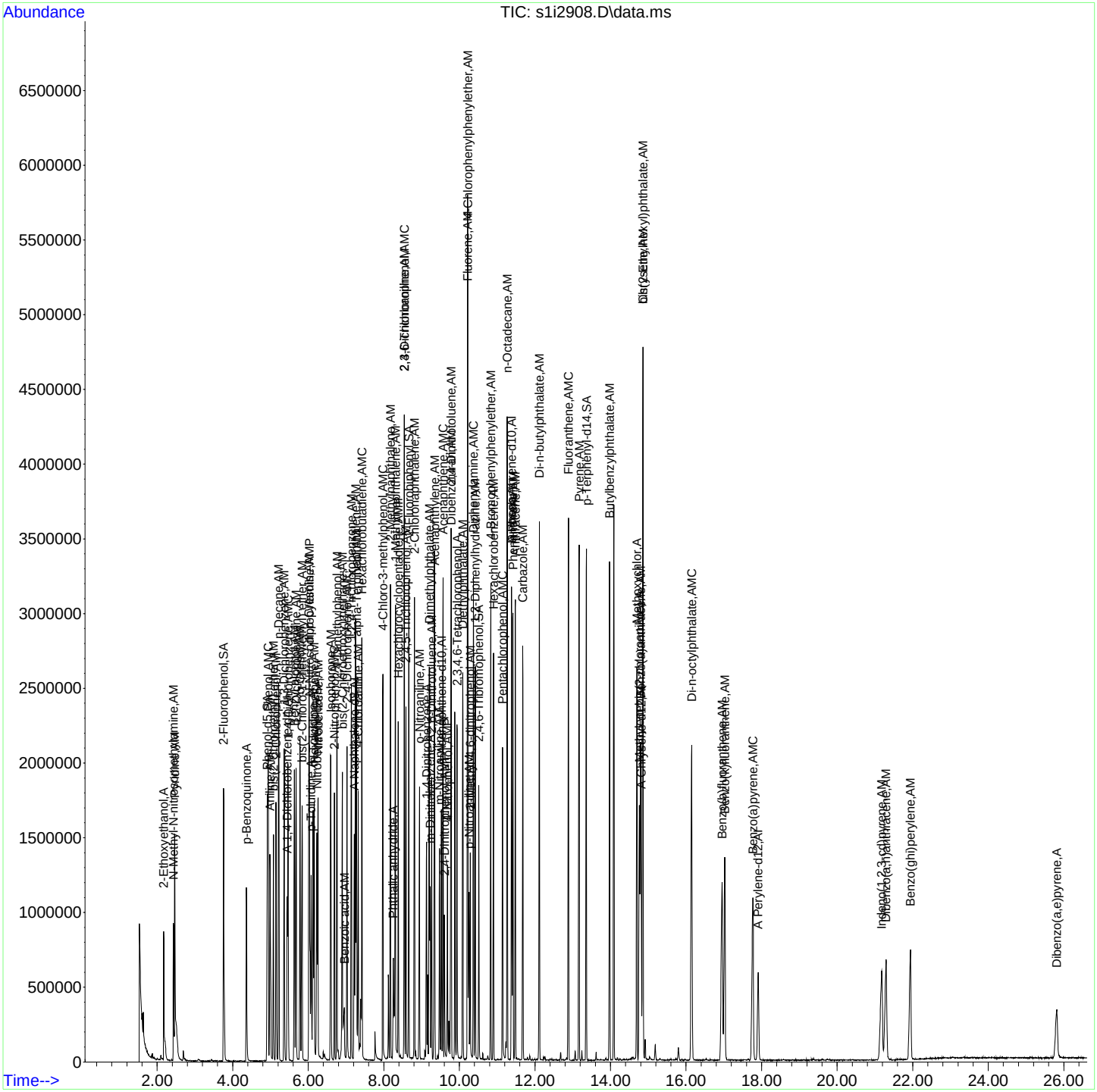
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
85) bis(2-Ethylhexyl)phtha...	149	14.860	14.855	1.003	990990	81.99	ng/uL	99	
86) Benzo(a)anthracene	228	14.796	14.785	0.999	1299725	74.41	ng/uL	97	
87) Chrysene	228	14.860	14.850	1.003	1132887	77.81	ng/uL	99	
88) Methoxychlor	227	14.700	14.689	0.992	1258047	78.62	ng/uL	98	
89) Methylenebis(2-chloroa...	231	14.764	14.753	0.997	264109	79.17	ng/uL	99	
90) Di-n-octylphthalate	149	16.149	16.139	1.090	1920678	82.67	ng/uL	98	
92) Benzo(b)fluoranthene	252	16.957	16.941	0.947	1313210	78.47	ng/uL	99	
93) Benzo(k)fluoranthene	252	17.026	17.010	0.951	1160072	80.19	ng/uL	100	
94) Benzo(a)pyrene	252	17.770	17.754	0.992	1185450	81.90	ng/uL	99	
95) Indeno(1,2,3-cd)pyrene	276	21.177	21.161	1.182	926941	84.23	ng/uL	97	
96) Dibenzo(a,h)anthracene	278	21.289	21.274	1.189	849454	82.98	ng/uL	99	
97) Benzo(ghi)perylene	276	21.942	21.926	1.225	906736	81.05	ng/uL	99	
98) Dibenzo(a,e)pyrene	302	25.809	25.804	1.441	449041	82.07	ng/uL	88	A

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2908.D
Acq On : 29 Sep 2016 12:52
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-03|ICAL|1|SVM|1|M6
Misc : |MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 29 15:28:39 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2909.D
Acq On : 29 Sep 2016 13:26
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-02|ICAL|1|SVM|1|M7
Misc : |MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 29 15:28:44 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	181756	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.217	7.212	1.000	610466	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.522	9.522	1.000	339148	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	656821	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.818	14.807	1.000	584534	40.00	ng/uL	0.01
91) A Perylene-d12	264	17.920	17.904	1.000	570125	40.00	ng/uL	0.02
99) B 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	0m	40.00	ng/uL	0.00
114) B Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
122) B Acenaphthene-d10	164	9.522	9.517	1.000	0m	40.00	ng/uL	0.00
131) B Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
144) B Chrysene-d12	240	14.818	14.807	1.000	0m	40.00	ng/uL	0.01
151) B Perylene-d12	264	17.920	17.904	1.000	0m	40.00	ng/uL	0.02
154) D Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
156) D Acenaphthene-d10	164	9.522	9.517	1.000	0m	40.00	ng/uL	0.00
159) D Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
166) D Chrysene-d12	240	14.818	14.807	1.000	0m	40.00	ng/uL	0.01
168) E Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
170) E Perylene-d12	264	17.920	17.904	1.000	0m	40.00	ng/uL	0.02
172) F 1,4-Dichlorobenzene-d4	152	5.441	5.436	1.000	0m	40.00	ng/uL	0.00
174) J Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
176) J Chrysene-d12	240	14.818	14.807	1.000	0m	40.00	ng/uL	0.01
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.762	3.757	0.691	641351	95.20	ng/uL	0.00
8) Phenol-d5	99	4.923	4.906	0.905	785975	95.09	ng/uL	0.02
25) Nitrobenzene-d5	82	6.233	6.222	0.864	688565	96.39	ng/uL	0.01
47) 2-Fluorobiphenyl	172	8.661	8.656	0.910	1099367	91.99	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.523	10.512	1.105	231254	104.79	ng/uL	0.01
83) p-Terphenyl-d14	244	13.363	13.357	0.902	1358206	88.54	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.173	2.173	0.399	503521	98.31	ng/uL	99
3) N-Methyl-N-nitrosometh...	74	2.435	2.425	0.448	417939	97.67	ng/uL	99
4) Pyridine	79	2.462	2.467	0.452	654839	93.20	ng/uL	99
6) p-Benzoquinone	54	4.361	4.361	0.801	497022	100.36	ng/uL	99
7) Aniline	93	4.987	4.987	0.916	786708	91.95	ng/uL	100
9) Phenol	94	4.944	4.928	0.909	657917	88.70	ng/uL	97
10) bis(2-Chloroethyl) ether	93	5.078	5.067	0.933	554050	92.47	ng/uL	98
11) 2-Chlorophenol	128	5.153	5.142	0.947	538771	93.29	ng/uL	99
12) n-Decane	43	5.217	5.217	0.959	792922	86.78	ng/uL	100
13) 1,3-Dichlorobenzene	146	5.361	5.361	0.985	596152	93.39	ng/uL	98
14) 1,4-Dichlorobenzene	146	5.468	5.463	1.005	555508	95.27	ng/uL	99
15) 1,2-Dichlorobenzene	146	5.677	5.671	1.043	531792	91.03	ng/uL	99
16) bis(2-Chloro-1-methyle...	45	5.837	5.832	1.073	1049078	89.54	ng/uL	96
17) Benzyl alcohol	108	5.639	5.629	1.036	400002	99.78	ng/uL	97
18) o-Cresol	107	5.784	5.773	1.063	442640	94.60	ng/uL	98
19) m,p-Cresols	107	6.024	6.008	1.107	579841	95.57	ng/uL	100
20) N-Nitrosodipropylamine	70	6.035	6.019	1.109	454037	98.71	ng/uL	99
21) p-Toluidine	106	6.078	6.067	1.117	599697	86.46	ng/uL	97
22) m-Toluidine	106	6.126	6.115	1.126	625611	92.45	ng/uL	99
23) Hexachloroethane	117	6.158	6.153	1.132	247709	92.32	ng/uL	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2909.D
Acq On : 29 Sep 2016 13:26
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-02|ICAL|1|SVM|1|M7
Misc : |MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 29 15:28:44 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
26) Nitrobenzene	77	6.260	6.249	0.867	614648	93.78	ng/uL	97	
27) Isophorone	82	6.597	6.586	0.914	1291612	93.07	ng/uL	97	
28) 2-Nitrophenol	139	6.698	6.688	0.928	298094	98.45	ng/uL	99	
29) 2,4-Dimethylphenol	122	6.763	6.752	0.937	464554	94.32	ng/uL	96	
30) bis(2-Chloroethoxy)met...	93	6.902	6.891	0.956	689101	94.09	ng/uL	98	
31) 2,4-Dichlorophenol	162	7.030	7.019	0.974	467111	95.52	ng/uL	98	
32) Benzoic acid	105	6.971	6.891	0.966	342626	99.98	ng/uL	92	
33) 1,2,4-Trichlorobenzene	180	7.142	7.137	0.990	543759	91.28	ng/uL	99	
34) alpha-Terpineol	59	7.276	7.265	1.008	586558	93.91	ng/uL	97	
35) Naphthalene	128	7.249	7.244	1.004	1302316	90.10	ng/uL	96	
36) 4-Chloroaniline	127	7.324	7.319	1.015	469174	88.87	ng/uL	98	
37) Hexachlorobutadiene	225	7.420	7.415	1.028	379772	92.46	ng/uL	99	
38) 4-Chloro-3-methylphenol	107	7.977	7.966	1.105	601753	96.03	ng/uL	98	
39) 2-Methylnaphthalene	142	8.180	8.169	1.133	982302	88.02	ng/uL	100	
40) Phthalic anhydride	104	8.255	8.244	1.144	538831	112.00	ng/uL	82	
41) 1-Methylnaphthalene	142	8.308	8.303	1.151	881414	87.28	ng/uL	98	
43) Hexachlorocyclopentadiene	237	8.383	8.383	0.880	419821	106.27	ng/uL	100	
44) 2,3-Dichloroaniline	161	8.544	8.538	0.897	483854	89.74	ng/uL	99	
45) 2,4,6-Trichlorophenol	196	8.544	8.538	0.897	368286	97.33	ng/uL	96	
46) 2,4,5-Trichlorophenol	196	8.586	8.581	0.902	365945	99.53	ng/uL	98	
48) 2-Chloronaphthalene	162	8.811	8.806	0.925	966229	90.52	ng/uL	97	
49) o-Nitroaniline	65	8.945	8.934	0.939	418187	98.93	ng/uL	99	
50) 1,4-Dinitrobenzene	168	9.132	9.121	0.959	217815	106.47	ng/uL	95	
51) m-Nitroaniline	138	9.480	9.464	0.996	237349	95.65	ng/uL	97	
52) Dimethylphthalate	163	9.207	9.191	0.967	1147152	88.21	ng/uL	97	
53) m-Dinitrobenzene	168	9.228	9.217	0.969	199006	99.31	ng/uL	84	
54) 2,6-Dinitrotoluene	165	9.271	9.260	0.974	266163	95.78	ng/uL	98	
55) 2,4-Dinitrotoluene	165	9.779	9.763	1.027	374050	97.47	ng/uL	93	
56) Acenaphthylene	152	9.346	9.341	0.981	1419990	88.79	ng/uL	97	
57) Acenaphthene	154	9.571	9.560	1.005	882570	96.31	ng/uL	98	
58) 2,4-Dinitrophenol	184	9.608	9.597	1.009	174730	124.14	ng/uL	89	A
59) Dibenzofuran	168	9.790	9.779	1.028	1281122	91.76	ng/uL	97	
60) 2,3,4,6-Tetrachlorophenol	232	9.940	9.934	1.044	340461	103.06	ng/uL	100	
61) Diethylphthalate	149	10.095	10.084	1.060	1315159	90.12	ng/uL	97	
62) 4-Nitrophenol	139	9.694	9.672	1.018	199756	97.98	ng/uL	99	
63) Fluorene	166	10.223	10.212	1.074	1120152	92.11	ng/uL	100	
64) 4-Chlorophenylphenylether	204	10.223	10.218	1.074	653866	96.26	ng/uL	97	
65) p-Nitroaniline	138	10.261	10.234	1.078	244935	105.15	ng/uL	96	
68) 2-Methyl-4,6-dinitroph...	198	10.293	10.277	0.904	216120	113.49	ng/uL	96	
69) Diphenylamine	169	10.378	10.362	0.912	969729	92.68	ng/uL	99	
70) 1,2-Diphenylhydrazine	77	10.426	10.416	0.916	1155682	89.48	ng/uL	98	
71) 4-Bromophenylphenylether	248	10.833	10.827	0.952	444678	94.54	ng/uL	98	
72) Hexachlorobenzene	284	10.908	10.897	0.958	425964	89.87	ng/uL	99	
73) Pentachlorophenol	266	11.143	11.138	0.979	282875	97.93	ng/uL	95	
74) n-Octadecane	57	11.266	11.261	0.990	1030783	85.87	ng/uL	97	
75) Dinoseb	211	11.384	11.373	1.000	352309	99.22	ng/uL	94	
76) Phenanthrene	178	11.421	11.410	1.003	1401100	92.28	ng/uL	96	
77) Anthracene	178	11.485	11.475	1.009	1471403	92.43	ng/uL	97	
78) Carbazole	167	11.683	11.672	1.026	1445971	95.48	ng/uL	96	
79) Di-n-butylphthalate	149	12.122	12.116	1.065	2097464	86.27	ng/uL	96	
80) Fluoranthene	202	12.892	12.881	1.132	1965730	87.59	ng/uL	95	
82) Pyrene	202	13.170	13.159	0.889	1933717	83.11	ng/uL	96	
84) Butylbenzylphthalate	149	13.983	13.972	0.944	1036822	92.09	ng/uL	98	

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Data File : s1i2909.D
Acq On : 29 Sep 2016 13:26
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-02|ICAL|1|SVM|1|M7
Misc : |MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 29 15:28:44 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

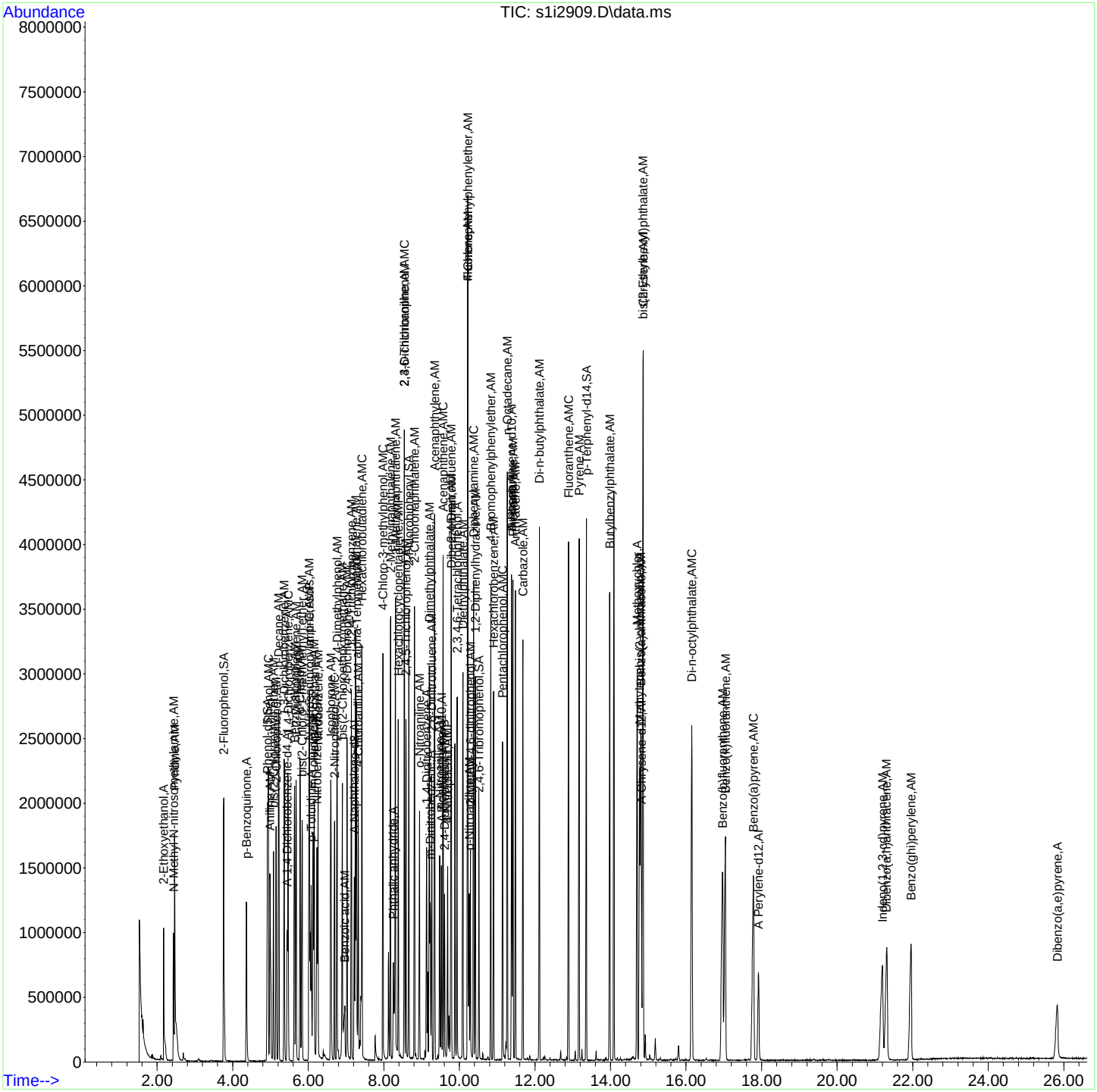
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
85) bis(2-Ethylhexyl)phtha...	149	14.860	14.855	1.003	1213472	96.28	ng/uL	97	
86) Benzo(a)anthracene	228	14.802	14.785	0.999	1634682	89.75	ng/uL	96	
87) Chrysene	228	14.866	14.850	1.003	1442985	95.06	ng/uL	99	
88) Methoxychlor	227	14.705	14.689	0.992	1512862	90.67	ng/uL	96	
89) Methylenebis(2-chloroa...	231	14.769	14.753	0.997	350682	100.82	ng/uL	99	
90) Di-n-octylphthalate	149	16.155	16.139	1.090	2404237	99.82	ng/uL	99	
92) Benzo(b)fluoranthene	252	16.968	16.941	0.947	1817529	90.03	ng/uL	98	
93) Benzo(k)fluoranthene	252	17.043	17.010	0.951	1580312	90.56	ng/uL	99	
94) Benzo(a)pyrene	252	17.786	17.754	0.993	1644161	94.16	ng/uL	99	
95) Indeno(1,2,3-cd)pyrene	276	21.198	21.161	1.183	1272094	95.82	ng/uL	99	
96) Dibenzo(a,h)anthracene	278	21.303	21.274	1.189	1155671	93.58	ng/uL	98	
97) Benzo(ghi)perylene	276	21.958	21.926	1.225	1210689	89.71	ng/uL	100	
98) Dibenzo(a,e)pyrene	302	25.830	25.804	1.441	617064	93.50	ng/uL	96	A

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2909.D
Acq On : 29 Sep 2016 13:26
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-02|ICAL|1|SVM|1|M7
Misc : |MIX[A]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 29 15:28:44 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2910.D
Acq On : 29 Sep 2016 14:01
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-01|ICAL|1|SVM|1|M8
Misc : |MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 29 15:28:49 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)	
Internal Standards									
1) A 1,4-Dichlorobenzene-d4	152	5.442	5.436	1.000	176939	40.00	ng/uL	# 0.00	
24) A Naphthalene-d8	136	7.217	7.212	1.000	607180	40.00	ng/uL	0.00	
42) A Acenaphthene-d10	164	9.528	9.522	1.000	337522	40.00	ng/uL	0.00	
67) A Phenanthrene-d10	188	11.389	11.384	1.000	640620	40.00	ng/uL	0.00	
81) A Chrysene-d12	240	14.818	14.807	1.000	565465	40.00	ng/uL	0.01	
91) A Perylene-d12	264	17.920	17.904	1.000	518314	40.00	ng/uL	0.02	
99) B 1,4-Dichlorobenzene-d4	152	5.442	5.436	1.000	0m	40.00	ng/uL	0.00	
114) B Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00	
122) B Acenaphthene-d10	164	9.528	9.517	1.000	0m	40.00	ng/uL	0.01	
131) B Phenanthrene-d10	188	11.389	11.379	1.000	0m	40.00	ng/uL	0.01	
144) B Chrysene-d12	240	14.818	14.807	1.000	0m	40.00	ng/uL	0.01	
151) B Perylene-d12	264	17.920	17.904	1.000	0m	40.00	ng/uL	0.02	
154) D Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00	
156) D Acenaphthene-d10	164	9.528	9.517	1.000	0m	40.00	ng/uL	0.01	
159) D Phenanthrene-d10	188	11.389	11.379	1.000	0m	40.00	ng/uL	0.01	
166) D Chrysene-d12	240	14.818	14.807	1.000	0m	40.00	ng/uL	0.01	
168) E Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00	
170) E Perylene-d12	264	17.920	17.904	1.000	0m	40.00	ng/uL	0.02	
172) F 1,4-Dichlorobenzene-d4	152	5.442	5.436	1.000	0m	40.00	ng/uL	0.00	
174) J Phenanthrene-d10	188	11.389	11.379	1.000	0m	40.00	ng/uL	0.01	
176) J Chrysene-d12	240	14.818	14.807	1.000	0m	40.00	ng/uL	0.01	
System Monitoring Compounds								Dev(Min)	
5) 2-Fluorophenol	112	3.762	3.757	0.691	754937	115.11	ng/uL	0.00	
8) Phenol-d5	99	4.928	4.906	0.906	904415	112.40	ng/uL	0.02	
25) Nitrobenzene-d5	82	6.233	6.222	0.864	801343	112.78	ng/uL	0.01	
47) 2-Fluorobiphenyl	172	8.667	8.656	0.910	1268973	106.69	ng/uL	0.01	
66) 2,4,6-Tribromophenol	330	10.523	10.512	1.104	265950	121.10	ng/uL	0.01	A
83) p-Terphenyl-d14	244	13.363	13.357	0.902	1560904	105.19	ng/uL	0.00	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue	
2) 2-Ethoxyethanol	59	2.174	2.173	0.399	602297	120.80	ng/uL	99	A
3) N-Methyl-N-nitrosometh...	74	2.436	2.425	0.448	492366	118.19	ng/uL	98	
4) Pyridine	79	2.462	2.467	0.453	769975	112.57	ng/uL	98	
6) p-Benzoquinone	54	4.367	4.361	0.802	590284	122.44	ng/uL	98	A
7) Aniline	93	4.992	4.987	0.917	916608	110.04	ng/uL	100	
9) Phenol	94	4.950	4.928	0.910	779350	107.93	ng/uL	99	
10) bis(2-Chloroethyl) ether	93	5.083	5.067	0.934	660524	113.24	ng/uL	97	
11) 2-Chlorophenol	128	5.153	5.142	0.947	636908	113.29	ng/uL	99	
12) n-Decane	43	5.222	5.217	0.960	908853	102.17	ng/uL	99	
13) 1,3-Dichlorobenzene	146	5.367	5.361	0.986	691442	111.27	ng/uL	97	
14) 1,4-Dichlorobenzene	146	5.468	5.463	1.005	654278	115.27	ng/uL	99	
15) 1,2-Dichlorobenzene	146	5.682	5.671	1.044	628478	110.50	ng/uL	100	
16) bis(2-Chloro-1-methyle...	45	5.843	5.832	1.074	1212474	106.31	ng/uL	95	
17) Benzyl alcohol	108	5.640	5.629	1.036	471635	120.85	ng/uL	96	A
18) o-Cresol	107	5.789	5.773	1.064	529322	116.20	ng/uL	98	
19) m,p-Cresols	107	6.030	6.008	1.108	694271	117.55	ng/uL	99	
20) N-Nitrosodipropylamine	70	6.041	6.019	1.110	369385	82.49	ng/uL	97	
21) p-Toluidine	106	6.078	6.067	1.117	651622	96.51	ng/uL	98	
22) m-Toluidine	106	6.132	6.115	1.127	750373	113.91	ng/uL	99	
23) Hexachloroethane	117	6.158	6.153	1.132	288518	110.45	ng/uL	97	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2910.D
Acq On : 29 Sep 2016 14:01
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-01|ICAL|1|SVM|1|M8
Misc : |MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 29 15:28:49 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
26) Nitrobenzene	77	6.265	6.249	0.868	722379	110.81	ng/uL	98	
27) Isophorone	82	6.602	6.586	0.915	1510109	109.40	ng/uL	97	
28) 2-Nitrophenol	139	6.699	6.688	0.928	353660	117.43	ng/uL	100	
29) 2,4-Dimethylphenol	122	6.768	6.752	0.938	548240	111.91	ng/uL	95	
30) bis(2-Chloroethoxy)met...	93	6.907	6.891	0.957	801256	110.00	ng/uL	99	
31) 2,4-Dichlorophenol	162	7.036	7.019	0.975	540932	111.22	ng/uL	97	
32) Benzoic acid	105	6.987	6.891	0.968	435790	123.65	ng/uL	90	A
33) 1,2,4-Trichlorobenzene	180	7.143	7.137	0.990	641457	108.26	ng/uL	99	
34) alpha-Terpineol	59	7.282	7.265	1.009	691191	111.27	ng/uL	97	
35) Naphthalene	128	7.250	7.244	1.004	1526720	106.19	ng/uL	95	
36) 4-Chloroaniline	127	7.330	7.319	1.016	511450	97.40	ng/uL	99	
37) Hexachlorobutadiene	225	7.421	7.415	1.028	436958	106.95	ng/uL	99	
38) 4-Chloro-3-methylphenol	107	7.982	7.966	1.106	700406	112.38	ng/uL	99	
39) 2-Methylnaphthalene	142	8.180	8.169	1.133	1119459	100.86	ng/uL	100	
40) Phthalic anhydride	104	8.255	8.244	1.144	648726	135.58	ng/uL	84	A
41) 1-Methylnaphthalene	142	8.309	8.303	1.151	1028899	102.43	ng/uL	97	
43) Hexachlorocyclopentadiene	237	8.383	8.383	0.880	493470	125.51	ng/uL	99	A
44) 2,3-Dichloroaniline	161	8.544	8.538	0.897	541380	100.90	ng/uL	98	
45) 2,4,6-Trichlorophenol	196	8.549	8.538	0.897	434994	115.52	ng/uL	98	
46) 2,4,5-Trichlorophenol	196	8.592	8.581	0.902	430230	117.58	ng/uL	97	
48) 2-Chloronaphthalene	162	8.817	8.806	0.925	1117369	105.19	ng/uL	97	
49) o-Nitroaniline	65	8.950	8.934	0.939	483531	114.94	ng/uL	98	
50) 1,4-Dinitrobenzene	168	9.138	9.121	0.959	247944	121.78	ng/uL	95	A
51) m-Nitroaniline	138	9.485	9.464	0.996	262341	106.23	ng/uL	97	
52) Dimethylphthalate	163	9.212	9.191	0.967	1309831	101.20	ng/uL	96	
53) m-Dinitrobenzene	168	9.234	9.217	0.969	232657	116.66	ng/uL	77	
54) 2,6-Dinitrotoluene	165	9.277	9.260	0.974	319740	115.61	ng/uL	95	
55) 2,4-Dinitrotoluene	165	9.785	9.763	1.027	436570	114.31	ng/uL	93	
56) Acenaphthylene	152	9.352	9.341	0.981	1628163	102.29	ng/uL	96	
57) Acenaphthene	154	9.571	9.560	1.004	1036670	113.67	ng/uL	98	
58) 2,4-Dinitrophenol	184	9.614	9.597	1.009	204235	145.80	ng/uL	96	A
59) Dibenzofuran	168	9.790	9.779	1.028	1487487	107.05	ng/uL	97	
60) 2,3,4,6-Tetrachlorophenol	232	9.940	9.934	1.043	394075	119.86	ng/uL	98	
61) Diethylphthalate	149	10.095	10.084	1.060	1507945	103.83	ng/uL	97	
62) 4-Nitrophenol	139	9.699	9.672	1.018	251337	122.56	ng/uL	93	A
63) Fluorene	166	10.223	10.212	1.073	1305007	107.82	ng/uL	100	
64) 4-Chlorophenylphenylether	204	10.223	10.218	1.073	758903	112.26	ng/uL	97	
65) p-Nitroaniline	138	10.266	10.234	1.077	287726	124.12	ng/uL	96	A
68) 2-Methyl-4,6-dinitroph...	198	10.298	10.277	0.904	259338	139.62	ng/uL	94	A
69) Diphenylamine	169	10.378	10.362	0.911	1118510	109.60	ng/uL	97	
70) 1,2-Diphenylhydrazine	77	10.427	10.416	0.915	1339818	106.36	ng/uL	97	
71) 4-Bromophenylphenylether	248	10.838	10.827	0.952	504354	109.94	ng/uL	99	
72) Hexachlorobenzene	284	10.908	10.897	0.958	497904	107.70	ng/uL	99	
73) Pentachlorophenol	266	11.149	11.138	0.979	339577	119.68	ng/uL	98	
74) n-Octadecane	57	11.272	11.261	0.990	1167765	99.74	ng/uL	96	
75) Dinoseb	211	11.384	11.373	1.000	418761	119.71	ng/uL	96	
76) Phenanthrene	178	11.421	11.410	1.003	1600062	108.05	ng/uL	94	
77) Anthracene	178	11.491	11.475	1.009	1677557	108.04	ng/uL	95	
78) Carbazole	167	11.684	11.672	1.026	1650898	111.77	ng/uL	95	
79) Di-n-butylphthalate	149	12.122	12.116	1.064	2377533	100.26	ng/uL	95	
80) Fluoranthene	202	12.892	12.881	1.132	2241673	102.41	ng/uL	94	
82) Pyrene	202	13.176	13.159	0.889	2218030	98.55	ng/uL	95	
84) Butylbenzylphthalate	149	13.983	13.972	0.944	1196668	109.87	ng/uL	98	

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2910.D
Acq On : 29 Sep 2016 14:01
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-01|ICAL|1|SVM|1|M8
Misc : |MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 29 15:28:49 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE

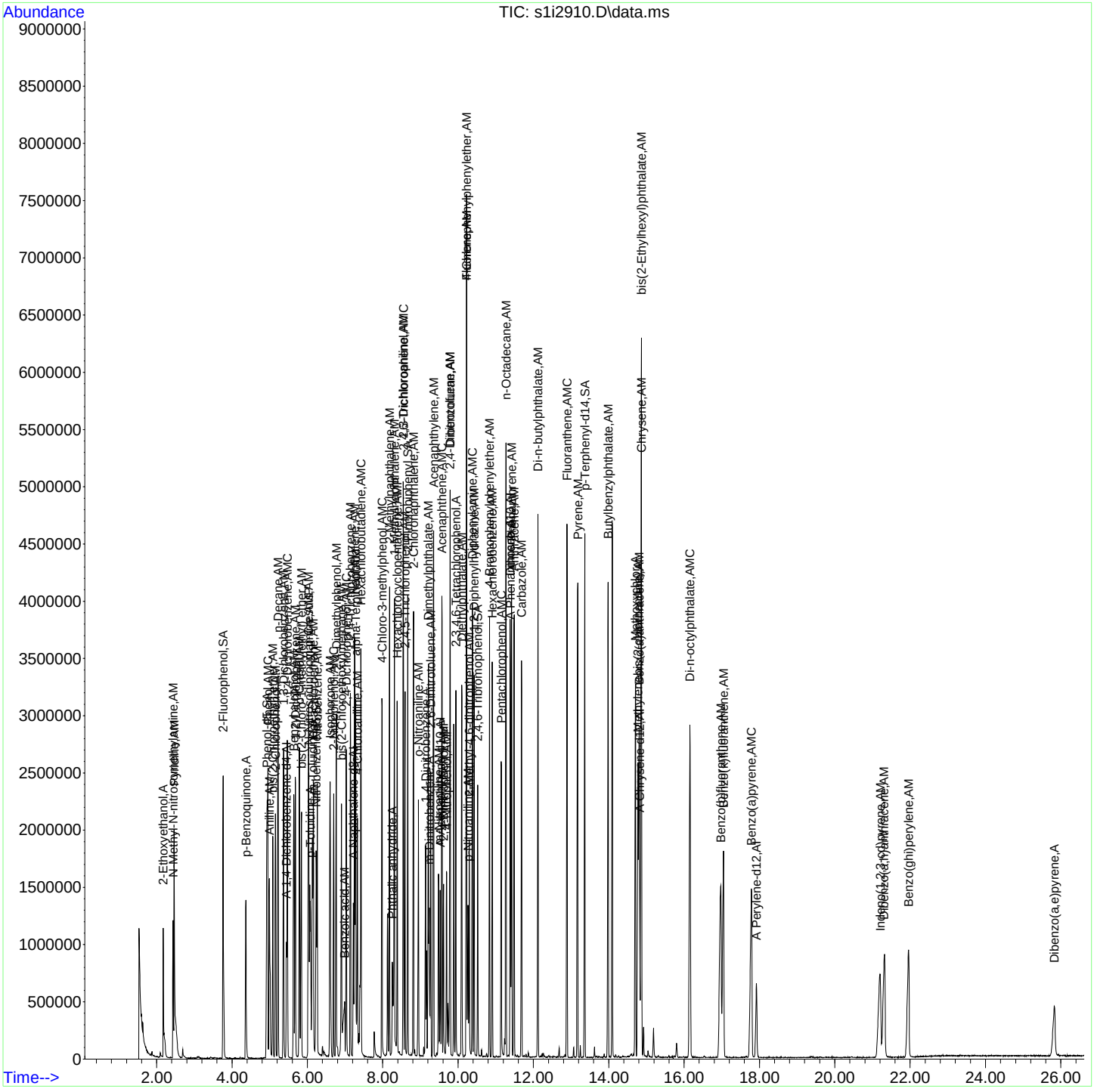
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
85) bis(2-Ethylhexyl)phtha...	149	14.866	14.855	1.003	1421648	116.61	ng/uL	97	
86) Benzo(a)anthracene	228	14.802	14.785	0.999	1885880	107.04	ng/uL	96	
87) Chrysene	228	14.871	14.850	1.004	1625337	110.68	ng/uL	97	
88) Methoxychlor	227	14.706	14.689	0.992	1704710	105.62	ng/uL	95	
89) Methylenebis(2-chloroa...	231	14.770	14.753	0.997	393335	116.90	ng/uL	97	
90) Di-n-octylphthalate	149	16.155	16.139	1.090	2704992	116.55	ng/uL	98	
92) Benzo(b)fluoranthene	252	16.973	16.941	0.947	2012847	109.67	ng/uL	98	
93) Benzo(k)fluoranthene	252	17.048	17.010	0.951	1708428	107.69	ng/uL	98	
94) Benzo(a)pyrene	252	17.786	17.754	0.993	1763655	111.10	ng/uL	98	
95) Indeno(1,2,3-cd)pyrene	276	21.204	21.161	1.183	1389967	115.16	ng/uL	99	
96) Dibenzo(a,h)anthracene	278	21.305	21.274	1.189	1236957	110.17	ng/uL	99	
97) Benzo(ghi)perylene	276	21.958	21.926	1.225	1283356	104.61	ng/uL	99	
98) Dibenzo(a,e)pyrene	302	25.825	25.804	1.441	647133	107.85	ng/uL	97	A

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2910.D
Acq On : 29 Sep 2016 14:01
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-01|ICAL|1|SVM|1|M8
Misc : |MIX[A]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 29 15:28:49 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:27:48 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2913.D
Acq On : 29 Sep 2016 15:44
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-05.1|ICAL|1|SVM|1|M4
Misc : |MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 30 08:20:57 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:56:47 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	218164	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.217	7.212	1.000	724992	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.523	9.522	1.000	405660	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	718571	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.807	14.807	1.000	490286	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	418853	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
114) B Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
122) B Acenaphthene-d10	164	9.523	9.517	1.000	0m	40.00	ng/uL	0.00
131) B Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
144) B Chrysene-d12	240	14.807	14.807	1.000	0m	40.00	ng/uL	0.00
151) B Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
154) D Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
156) D Acenaphthene-d10	164	9.523	9.517	1.000	0m	40.00	ng/uL	0.00
159) D Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
166) D Chrysene-d12	240	14.807	14.807	1.000	0m	40.00	ng/uL	0.00
168) E Naphthalene-d8	136	7.217	7.212	1.000	0m	40.00	ng/uL	0.00
170) E Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
172) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
174) J Phenanthrene-d10	188	11.384	11.379	1.000	0m	40.00	ng/uL	0.00
176) J Chrysene-d12	240	14.807	14.807	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.757	3.757	0.691	338681	41.88	ng/uL	0.00
8) Phenol-d5	99	4.907	4.906	0.903	405873	40.91	ng/uL	0.00
25) Nitrobenzene-d5	82	6.223	6.222	0.862	347559	40.97	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.656	8.656	0.909	576191	40.31	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.512	10.512	1.104	106420	40.34	ng/uL	0.00
83) p-Terphenyl-d14	244	13.358	13.357	0.902	598633	46.53	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.174	2.173	0.400	254313	41.51	ng/uL	100
3) N-Methyl-N-nitrosometh...	74	2.430	2.425	0.447	211618	41.20	ng/uL	97
4) Pyridine	79	2.468	2.467	0.454	341649	40.51	ng/uL	99
6) p-Benzoquinone	54	4.361	4.361	0.802	258631	43.51	ng/uL	97
7) Aniline	93	4.987	4.987	0.917	414007	40.28	ng/uL	100
9) Phenol	94	4.928	4.928	0.907	357155	40.12	ng/uL	99
10) bis(2-Chloroethyl) ether	93	5.073	5.067	0.933	290200	40.35	ng/uL	99
11) 2-Chlorophenol	128	5.142	5.142	0.946	281615	40.62	ng/uL	100
12) n-Decane	43	5.217	5.217	0.960	440742	40.18	ng/uL	99
13) 1,3-Dichlorobenzene	146	5.362	5.361	0.986	313211	40.88	ng/uL	100
14) 1,4-Dichlorobenzene	146	5.463	5.463	1.005	281160	40.17	ng/uL	99
15) 1,2-Dichlorobenzene	146	5.677	5.671	1.044	282152	40.24	ng/uL	99
16) bis(2-Chloro-1-methyle...	45	5.832	5.832	1.073	569510	40.50	ng/uL	99
17) Benzyl alcohol	108	5.629	5.629	1.035	192367	39.97	ng/uL	98
18) o-Cresol	107	5.779	5.773	1.063	224585	39.99	ng/uL	97
19) m,p-Cresols	107	6.009	6.008	1.105	295117	40.53	ng/uL	98
20) N-Nitrosodipropylamine	70	6.019	6.019	1.107	227558	41.21	ng/uL	97
21) p-Toluidine	106	6.068	6.067	1.116	338172	40.62	ng/uL	97
22) m-Toluidine	106	6.121	6.115	1.126	315658	38.86	ng/uL	98
23) Hexachloroethane	117	6.153	6.153	1.132	131443	40.81	ng/uL	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2913.D
Acq On : 29 Sep 2016 15:44
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-05.1|ICAL|1|SVM|1|M4
Misc : |MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 30 08:20:57 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:56:47 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
26) Nitrobenzene	77	6.249	6.249	0.866	312880	40.20	ng/uL	99
27) Isophorone	82	6.586	6.586	0.913	662835	40.20	ng/uL	99
28) 2-Nitrophenol	139	6.688	6.688	0.927	153074	42.57	ng/uL	97
29) 2,4-Dimethylphenol	122	6.752	6.752	0.936	238268	40.73	ng/uL	97
30) bis(2-Chloroethoxy)met...	93	6.897	6.891	0.956	352245	40.50	ng/uL	100
31) 2,4-Dichlorophenol	162	7.020	7.019	0.973	240051	41.34	ng/uL	98
32) Benzoic acid	105	6.907	6.891	0.957	125340	41.20	ng/uL	93
33) 1,2,4-Trichlorobenzene	180	7.137	7.137	0.989	288272	40.75	ng/uL	99
34) alpha-Terpineol	59	7.266	7.265	1.007	305249	41.15	ng/uL	99
35) Naphthalene	128	7.244	7.244	1.004	682180	39.74	ng/uL	99
36) 4-Chloroaniline	127	7.319	7.319	1.014	253943	40.50	ng/uL	98
37) Hexachlorobutadiene	225	7.421	7.415	1.028	203586	41.73	ng/uL	98
38) 4-Chloro-3-methylphenol	107	7.966	7.966	1.104	304447	40.91	ng/uL	98
39) 2-Methylnaphthalene	142	8.175	8.169	1.133	525152	39.62	ng/uL	100
40) Phthalic anhydride	104	8.244	8.244	1.142	222587	38.91	ng/uL	96
41) 1-Methylnaphthalene	142	8.303	8.303	1.150	466383	38.89	ng/uL	98
43) Hexachlorocyclopentadiene	237	8.378	8.383	0.880	205039	43.39	ng/uL	99
44) 2,3-Dichloroaniline	161	8.539	8.538	0.897	263246	40.80	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.539	8.538	0.897	186977	41.31	ng/uL	99
46) 2,4,5-Trichlorophenol	196	8.581	8.581	0.901	173876	39.54	ng/uL	96
48) 2-Chloronaphthalene	162	8.806	8.806	0.925	499175	39.10	ng/uL	98
49) o-Nitroaniline	65	8.934	8.934	0.938	198631	39.29	ng/uL	99
50) 1,4-Dinitrobenzene	168	9.122	9.121	0.958	97188	39.73	ng/uL	97
51) m-Nitroaniline	138	9.464	9.464	0.994	112920	38.26	ng/uL	98
52) Dimethylphthalate	163	9.191	9.191	0.965	611289	39.30	ng/uL	98
53) m-Dinitrobenzene	168	9.218	9.217	0.968	93986	39.21	ng/uL	97
54) 2,6-Dinitrotoluene	165	9.261	9.260	0.972	133380	40.08	ng/uL	100
55) 2,4-Dinitrotoluene	165	9.769	9.763	1.026	177448	38.66	ng/uL	98
56) Acenaphthylene	152	9.341	9.341	0.981	730626	38.19	ng/uL	99
57) Acenaphthene	154	9.560	9.560	1.004	436108	39.81	ng/uL	99
58) 2,4-Dinitrophenol	184	9.598	9.597	1.008	60258	37.58	ng/uL	93
59) Dibenzofuran	168	9.779	9.779	1.027	662389	39.66	ng/uL	99
60) 2,3,4,6-Tetrachlorophenol	232	9.935	9.934	1.043	161781	40.94	ng/uL	99
61) Diethylphthalate	149	10.084	10.084	1.059	686044	39.30	ng/uL	99
62) 4-Nitrophenol	139	9.678	9.672	1.016	83005	37.30	ng/uL	96
63) Fluorene	166	10.213	10.212	1.072	568010	39.05	ng/uL	98
64) 4-Chlorophenylphenylether	204	10.218	10.218	1.073	324494	39.94	ng/uL	97
65) p-Nitroaniline	138	10.239	10.234	1.075	92711	33.28	ng/uL	95
68) 2-Methyl-4,6-dinitroph...	198	10.277	10.277	0.903	86384	39.91	ng/uL	94
69) Diphenylamine	169	10.368	10.362	0.911	480109	41.94	ng/uL	99
70) 1,2-Diphenylhydrazine	77	10.416	10.416	0.915	600980	42.53	ng/uL	99
71) 4-Bromophenylphenylether	248	10.828	10.827	0.951	218931	42.54	ng/uL	98
72) Hexachlorobenzene	284	10.897	10.897	0.957	214130	41.29	ng/uL	99
73) Pentachlorophenol	266	11.138	11.138	0.978	122694	41.26	ng/uL	99
74) n-Octadecane	57	11.261	11.261	0.989	558192	42.50	ng/uL	99
75) Dinoseb	211	11.373	11.373	0.999	141680	39.99	ng/uL	96
76) Phenanthrene	178	11.411	11.410	1.002	665251	40.05	ng/uL	99
77) Anthracene	178	11.475	11.475	1.008	688103	39.51	ng/uL	99
78) Carbazole	167	11.673	11.672	1.025	653377	39.44	ng/uL	99
79) Di-n-butylphthalate	149	12.117	12.116	1.064	1096470	41.22	ng/uL	99
80) Fluoranthene	202	12.882	12.881	1.132	937998	38.20	ng/uL	100
82) Pyrene	202	13.160	13.159	0.889	906250	46.44	ng/uL	99
84) Butylbenzylphthalate	149	13.973	13.972	0.944	429814	45.51	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2913.D
Acq On : 29 Sep 2016 15:44
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-05.1|ICAL|1|SVM|1|M4
Misc : |MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 30 08:20:57 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:56:47 2016
Response via : Initial Calibration
Integrator: RTE

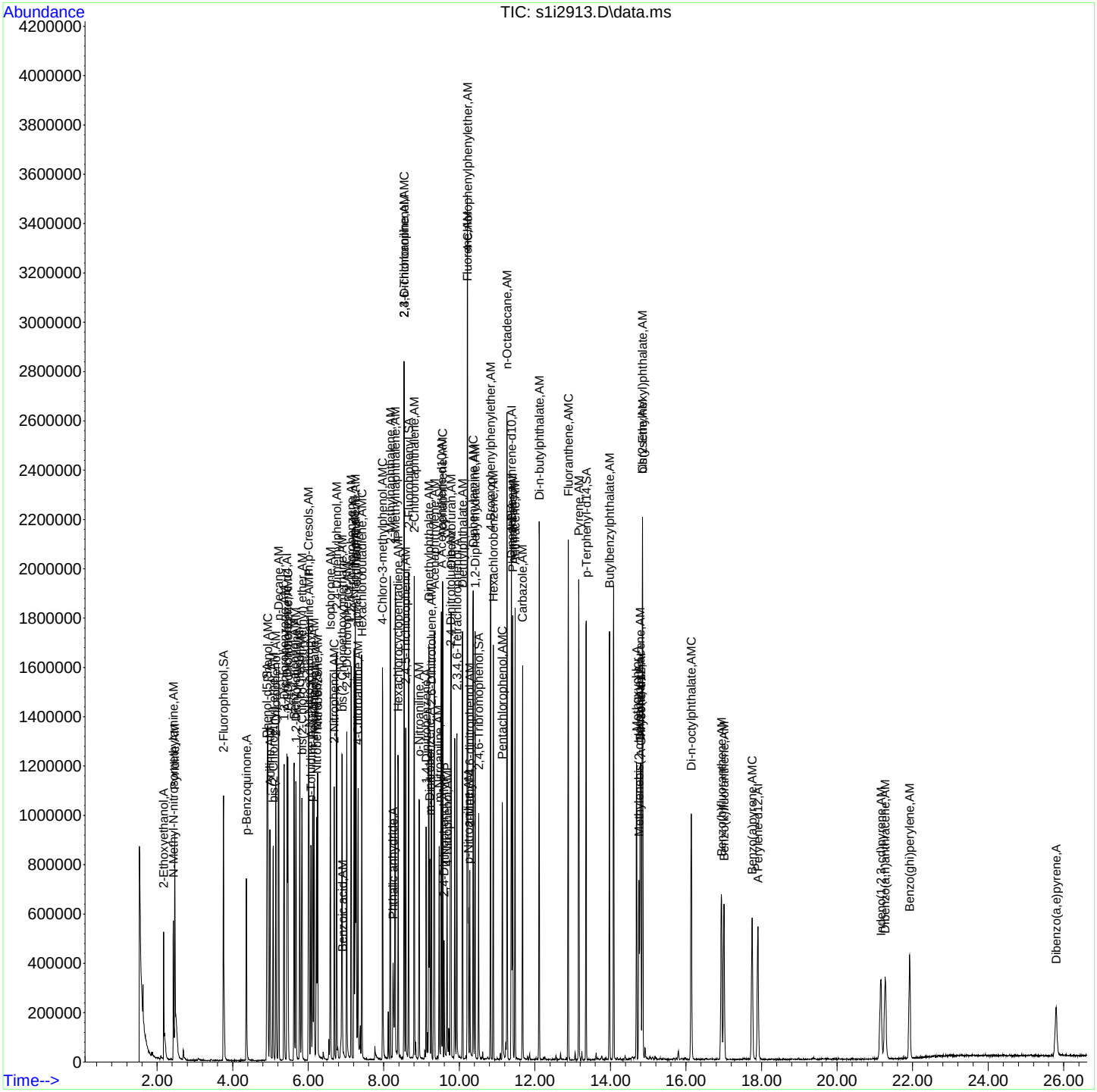
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
85)	bis(2-Ethylhexyl)phtha...	149	14.850	14.855	1.003	454820	43.03	ng/uL	98
86)	Benzo(a)anthracene	228	14.786	14.785	0.999	609099	39.87	ng/uL	99
87)	Chrysene	228	14.850	14.850	1.003	511324	40.13	ng/uL	99
88)	Methoxychlor	227	14.695	14.689	0.992	581313	41.54	ng/uL	99
89)	Methylenebis(2-chloroa...	231	14.754	14.753	0.996	114510	39.25	ng/uL	99
90)	Di-n-octylphthalate	149	16.139	16.139	1.090	842246	40.05	ng/uL	99
92)	Benzo(b)fluoranthene	252	16.941	16.941	0.946	601488	40.55	ng/uL	100
93)	Benzo(k)fluoranthene	252	17.005	17.010	0.950	526561	41.07	ng/uL	98
94)	Benzo(a)pyrene	252	17.749	17.754	0.991	539718	42.07	ng/uL	99
95)	Indeno(1,2,3-cd)pyrene	276	21.161	21.161	1.182	451600	46.36	ng/uL	98
96)	Dibenzo(a,h)anthracene	278	21.275	21.274	1.188	406127	44.75	ng/uL	98
97)	Benzo(ghi)perylene	276	21.921	21.926	1.224	450909	45.47	ng/uL	100
98)	Dibenzo(a,e)pyrene	302	25.799	25.804	1.441	241959	50.94	ng/uL	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2913.D
Acq On : 29 Sep 2016 15:44
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-05.1|ICAL|1|SVM|1|M4
Misc : |MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 30 08:20:57 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Thu Sep 29 15:56:47 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD1.I **Injection Date:** 29-SEP-16 16:19

Data File: s092916.B\s1i2914.D **Init. Cal. Date(s)** 29-SEP-16 10:05 - 30-SEP-16 07:50

Lab Sample ID WBN160920-09.1 **Method:** s092916.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD **Method Update:** 30-SEP-16 09:55

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	2-Fluorophenol	1.4846	1.30883		.01		-11.83955	30		Averaged
S	Phenol-d5	1.8177	1.7169		.01		-5.54547	30		Averaged
S	Nitrobenzene-d5	0.4682	0.43633		.01		-6.80692	30		Averaged
S	2-Fluorobiphenyl	1.4097	1.32043		.01		-6.33255	30		Averaged
S	2,4,6-Tribromophenol	0.2609	0.23898		.01		-8.40169	30		Averaged
S	p-Terphenyl-d14	1.068	1.04809		.01		-1.86423	30		Averaged
	Phenol	1.6271	1.41005		.8		-13.33968	30		Averaged
	bis(2-Chloroethyl) ether	1.3182	1.1448		.7		-13.1543	30		Averaged
	2-Chlorophenol	1.2697	1.02539		.8		-19.24155	30		Averaged
	o-Cresol	1.026	0.91804		.7		-10.52242	30		Averaged
	bis(2-Chloro-1-methylethyl)eth	2.5727	2.39304		.01		-6.98332	30		Averaged
	m,p-Cresols	1.3334	1.23027		.6		-7.73436	30		Averaged
	N-Nitrosodipropylamine	1.0082	0.9045		.5		-10.28566	30		Averaged
	Hexachloroethane	0.591	0.52713		.3		-10.80711	30		Averaged
	Nitrobenzene	0.4285	0.40806		.2		-4.77013	30		Averaged
	Isophorone	0.9079	0.84976		.4		-6.40379	30		Averaged
	2-Nitrophenol	0.1995	0.18916		.1		-5.18296	30		Averaged
	2,4-Dimethylphenol	0.3236	0.30014		.2		-7.24969	30		Averaged
	bis(2-Chloroethoxy)methane	0.4812	0.40635		.3		-15.55486	30		Averaged
	2,4-Dichlorophenol	0.3205	0.29254		.2		-8.72387	30		Averaged
	Naphthalene	0.9466	0.84998		.7		-10.20706	30		Averaged
	4-Chloroaniline	0.3468	0.36041		.01		3.92445	30		Averaged
	Hexachlorobutadiene	0.2703	0.25588		.01		-5.33481	30		Averaged
	4-Chloro-3-methylphenol	0.411	0.38542		.2		-6.22384	30		Averaged
	2-Methylnaphthalene	0.7312	0.66225		.4		-9.4297	30		Averaged
	1-Methylnaphthalene	0.6612	0.58811		.4		-11.05414	30		Averaged
	Hexachlorocyclopentadiene	0.4705	0.41143		.05		-12.55473	30		Averaged
	2,4,6-Trichlorophenol	0.4473	0.40132		.2		-10.27945	30		Averaged
	2,4,5-Trichlorophenol	0.4317	0.40271		.2		-6.71531	30		Averaged
	2-Chloronaphthalene	1.2583	1.1047		.8		-12.20695	30		Averaged
	o-Nitroaniline	0.497	0.47248		.01		-4.9336	30		Averaged
	Dimethylphthalate	1.5318	1.39803		.01		-8.73286	30		Averaged
	2,6-Dinitrotoluene	0.329	0.29883		.2		-9.17021	30		Averaged
	Acenaphthylene	1.8811	1.65373		.9		-12.08708	30		Averaged
	m-Nitroaniline	0.2905	0.28861		.01		-0.6506	30		Averaged
	Acenaphthene	1.081	1.01406		.9		-6.19241	30		Averaged
	2,4-Dinitrophenol	40	37.64	40			-5.9	30		Linear

Continuing Calibration Summary

Instrument ID: MSD1.I **Injection Date:** 29-SEP-16 16:19

Data File: s092916.B\s1i2914.D **Init. Cal. Date(s)** 29-SEP-16 10:05 30-SEP-16 07:50

Lab Sample ID WBN160920-09.1 **Method:** s092916.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
4-Nitrophenol	40	36.42	40			-8.95	30		Linear
2,4-Dinitrotoluene	0.4523	0.41491		.2		-8.26664	30		Averaged
Dibenzofuran	1.6454	1.44871		.8		-11.95393	30		Averaged
2,3,4,6-Tetrachlorophenol	0.3915	0.38778		.01		-0.95019	30		Averaged
Diethylphthalate	1.724	1.54623		.01		-10.31148	30		Averaged
Fluorene	1.4357	1.28659		.9		-10.38587	30		Averaged
4-Chlorophenylphenylether	0.8049	0.73784		.4		-8.33147	30		Averaged
p-Nitroaniline	0.272	0.24622		.01		-9.47794	30		Averaged
2-Methyl-4,6-dinitrophenol	40	38.47	40			-3.825	30		Linear
Diphenylamine	0.6392	0.58448		.01		-8.5607	30		Averaged
4-Bromophenylphenylether	0.2867	0.26694		.1		-6.89222	30		Averaged
Hexachlorobenzene	0.2892	0.26625		.1		-7.93568	30		Averaged
Pentachlorophenol	40	38.23	40			-4.425	30		Linear
Phenanthrene	0.9221	0.8532		.7		-7.47207	30		Averaged
Anthracene	0.9651	0.90382		.7		-6.3496	30		Averaged
Carbazole	0.9193	0.88795		.01		-3.4102	30		Averaged
Di-n-butylphthalate	1.4744	1.42742		.01		-3.18638	30		Averaged
Fluoranthene	1.3571	1.29203		.6		-4.79478	30		Averaged
Pyrene	1.6191	1.39856		.6		-13.62115	30		Averaged
Butylbenzylphthalate	0.7754	0.72348		.01		-6.6959	30		Averaged
Benzo(a)anthracene	1.2469	1.09025		.8		-12.56316	30		Averaged
Chrysene	1.0377	0.97783		.7		-5.76949	30		Averaged
bis(2-Ethylhexyl)phthalate	0.8639	0.80104		.01		-7.27631	30		Averaged
Di-n-octylphthalate	40	38.01	40			-4.975	30		Linear
Benzo(b)fluoranthene	1.4151	1.24005		.7		-12.37015	30		Averaged
Benzo(k)fluoranthene	1.2245	1.08908		.7		-11.05921	30		Averaged
Benzo(a)pyrene	1.2239	1.15358		.7		-5.74557	30		Averaged
Indeno(1,2,3-cd)pyrene	0.936	0.95074		.5		1.57479	30		Averaged
Dibenzo(a,h)anthracene	0.8716	0.86383		.4		-0.89146	30		Averaged
Benzo(ghi)perylene	0.9551	0.97881		.5		2.48246	30		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2914.D
Acq On : 29 Sep 2016 16:19
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-09.1|ICV|1|SVM|1|MICV
Misc : |MIX[A]
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 30 10:30:48 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	234259	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.217	7.212	1.000	753535	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.522	9.522	1.000	427835	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	783542	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.807	14.807	1.000	727099	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.914	17.904	1.000	718855	40.00	ng/uL	0.01
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	234254	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.217	7.212	1.000	753535	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.522	9.517	1.000	427835	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.384	11.384	1.000	783542	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.807	14.802	1.000	727099	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.914	17.904	1.000	688271	40.00	ng/uL	0.01
155) D Naphthalene-d8	136	7.217	7.212	1.000	753535	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.522	9.517	1.000	427835	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.384	11.378	1.000	783542	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.807	14.796	1.000	727047	40.00	ng/uL	0.01
169) E Naphthalene-d8	136	7.217	7.212	1.000	753535	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.914	17.914	1.000	680080	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	234254	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.384	11.378	1.000	783542	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.807	14.801	1.000	727099	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.757	3.757	0.691	306605	35.26	ng/uL	0.00
8) Phenol-d5	99	4.912	4.906	0.904	402200	37.78	ng/uL	0.00
25) Nitrobenzene-d5	82	6.222	6.222	0.862	328787	37.27	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.656	8.656	0.909	564928	37.47	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.512	10.512	1.104	102246	36.64	ng/uL	0.00
83) p-Terphenyl-d14	244	13.357	13.357	0.902	762068	39.25	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.173	2.173	0.400	219734	33.33	ng/uL	99
3) N-Methyl-N-nitrosometh...	74	2.425	2.425	0.446	194606	35.33	ng/uL	98
4) Pyridine	79	2.468	2.467	0.454	338524	37.55	ng/uL	98
6) p-Benzoquinone	54	4.356	4.361	0.801	266861	41.59	ng/uL	99
7) Aniline	93	4.981	4.987	0.916	395538	35.81	ng/uL	99
9) Phenol	94	4.928	4.928	0.907	330316	34.67	ng/uL	98
10) bis(2-Chloroethyl) ether	93	5.072	5.067	0.933	268180	34.74	ng/uL	99
11) 2-Chlorophenol	128	5.142	5.142	0.946	240206	32.30	ng/uL	93
12) n-Decane	43	5.217	5.217	0.960	406301	34.59	ng/uL	98
13) 1,3-Dichlorobenzene	146	5.361	5.361	0.986	298436	36.25	ng/uL	99
14) 1,4-Dichlorobenzene	146	5.463	5.463	1.005	262933	34.95	ng/uL	99
15) 1,2-Dichlorobenzene	146	5.677	5.671	1.044	247368	32.88	ng/uL	98
16) bis(2-Chloro-1-methyle...	45	5.827	5.832	1.072	560591	37.21	ng/uL	99
17) Benzyl alcohol	108	5.629	5.629	1.035	191679	37.24	ng/uL	98
18) o-Cresol	107	5.778	5.773	1.063	215058	35.79	ng/uL	100
19) m,p-Cresols	107	6.008	6.008	1.105	288201	36.91	ng/uL	98
20) N-Nitrosodipropylamine	70	6.019	6.019	1.107	211888	35.88	ng/uL	98
21) p-Toluidine	106	6.073	6.067	1.117	376654	42.26	ng/uL	98
22) m-Toluidine	106	6.121	6.115	1.126	337029	39.01	ng/uL	97
23) Hexachloroethane	117	6.153	6.153	1.132	123484	35.67	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2914.D
Acq On : 29 Sep 2016 16:19
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-09.1|ICV|1|SVM|1|MICV
Misc : |MIX[A]
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 30 10:30:48 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
26) Nitrobenzene	77	6.249	6.249	0.866	307484	38.09	ng/uL	98
27) Isophorone	82	6.586	6.586	0.913	640327	37.44	ng/uL	99
28) 2-Nitrophenol	139	6.688	6.688	0.927	142542	37.92	ng/uL	97
29) 2,4-Dimethylphenol	122	6.752	6.752	0.936	226169	37.10	ng/uL	95
30) bis(2-Chloroethoxy)met...	93	6.891	6.891	0.955	306202	33.78	ng/uL	98
31) 2,4-Dichlorophenol	162	7.019	7.019	0.973	220439	36.51	ng/uL	97
32) Benzoic acid	105	6.902	6.891	0.956	133971	40.91	ng/uL	94
33) 1,2,4-Trichlorobenzene	180	7.137	7.137	0.989	270508	36.70	ng/uL	98
34) alpha-Terpineol	59	7.265	7.265	1.007	280051	36.27	ng/uL	96
35) Naphthalene	128	7.244	7.244	1.004	640488	35.92	ng/uL	99
36) 4-Chloroaniline	127	7.319	7.319	1.014	271580	41.57	ng/uL	100
37) Hexachlorobutadiene	225	7.420	7.415	1.028	192814	37.87	ng/uL	98
38) 4-Chloro-3-methylphenol	107	7.966	7.966	1.104	290429	37.51	ng/uL	99
39) 2-Methylnaphthalene	142	8.169	8.169	1.132	499030	36.23	ng/uL	100
40) Phthalic anhydride	104	8.244	8.244	1.142	207479	34.94	ng/uL	99
41) 1-Methylnaphthalene	142	8.303	8.303	1.150	443163	35.58	ng/uL	100
43) Hexachlorocyclopentadiene	237	8.383	8.383	0.880	176026	34.98	ng/uL	99
44) 2,3-Dichloroaniline	161	8.538	8.538	0.897	259014	38.17	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.538	8.538	0.897	171697	35.89	ng/uL	96
46) 2,4,5-Trichlorophenol	196	8.581	8.581	0.901	172293	37.32	ng/uL	96
48) 2-Chloronaphthalene	162	8.806	8.806	0.925	472629	35.12	ng/uL	98
49) o-Nitroaniline	65	8.939	8.934	0.939	202145	38.03	ng/uL	98
50) 1,4-Dinitrobenzene	168	9.121	9.121	0.958	106542	41.20	ng/uL	97
51) m-Nitroaniline	138	9.469	9.464	0.994	123476	39.74	ng/uL	97
52) Dimethylphthalate	163	9.191	9.191	0.965	598126	36.51	ng/uL	99
53) m-Dinitrobenzene	168	9.218	9.217	0.968	101481	40.11	ng/uL	99
54) 2,6-Dinitrotoluene	165	9.260	9.260	0.972	127851	36.33	ng/uL	97
55) 2,4-Dinitrotoluene	165	9.763	9.763	1.025	177514	36.70	ng/uL	99
56) Acenaphthylene	152	9.341	9.341	0.981	707525	35.17	ng/uL	99
57) Acenaphthene	154	9.565	9.560	1.004	433851	37.52	ng/uL	98
58) 2,4-Dinitrophenol	184	9.597	9.597	1.008	62048	37.64	ng/uL	99
59) Dibenzofuran	168	9.779	9.779	1.027	619808	35.22	ng/uL	99
60) 2,3,4,6-Tetrachlorophenol	232	9.929	9.934	1.043	165906	39.62	ng/uL	98
61) Diethylphthalate	149	10.084	10.084	1.059	661533	35.87	ng/uL	99
62) 4-Nitrophenol	139	9.678	9.672	1.016	85807	36.42	ng/uL	95
63) Fluorene	166	10.212	10.212	1.072	550448	35.84	ng/uL	99
64) 4-Chlorophenylphenylether	204	10.218	10.218	1.073	315674	36.67	ng/uL	97
65) p-Nitroaniline	138	10.239	10.234	1.075	105343	36.21	ng/uL	98
68) 2-Methyl-4,6-dinitroph...	198	10.277	10.277	0.903	91196	38.47	ng/uL	99
69) Diphenylamine	169	10.368	10.362	0.911	457968	36.58	ng/uL	100
70) 1,2-Diphenylhydrazine	77	10.416	10.416	0.915	583262	37.65	ng/uL	99
71) 4-Bromophenylphenylether	248	10.827	10.827	0.951	209159	37.24	ng/uL	99
72) Hexachlorobenzene	284	10.897	10.897	0.957	208621	36.83	ng/uL	97
73) Pentachlorophenol	266	11.138	11.138	0.978	124437	38.23	ng/uL	97
74) n-Octadecane	57	11.261	11.261	0.989	513970	35.91	ng/uL	98
75) Dinoseb	211	11.378	11.373	1.000	160529	41.01	ng/uL	97
76) Phenanthrene	178	11.416	11.410	1.003	668517	37.01	ng/uL	100
77) Anthracene	178	11.475	11.475	1.008	708181	37.46	ng/uL	99
78) Carbazole	167	11.673	11.672	1.025	695747	38.64	ng/uL	99
79) Di-n-butylphthalate	149	12.117	12.116	1.064	1118440	38.73	ng/uL	99
80) Fluoranthene	202	12.881	12.881	1.132	1012356	38.08	ng/uL	98
82) Pyrene	202	13.165	13.159	0.889	1016889	34.55	ng/uL	99
84) Butylbenzylphthalate	149	13.972	13.972	0.944	526040	37.32	ng/uL	98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2914.D
Acq On : 29 Sep 2016 16:19
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-09.1|ICV|1|SVM|1|MICV
Misc : |MIX[A]
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 30 10:30:48 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

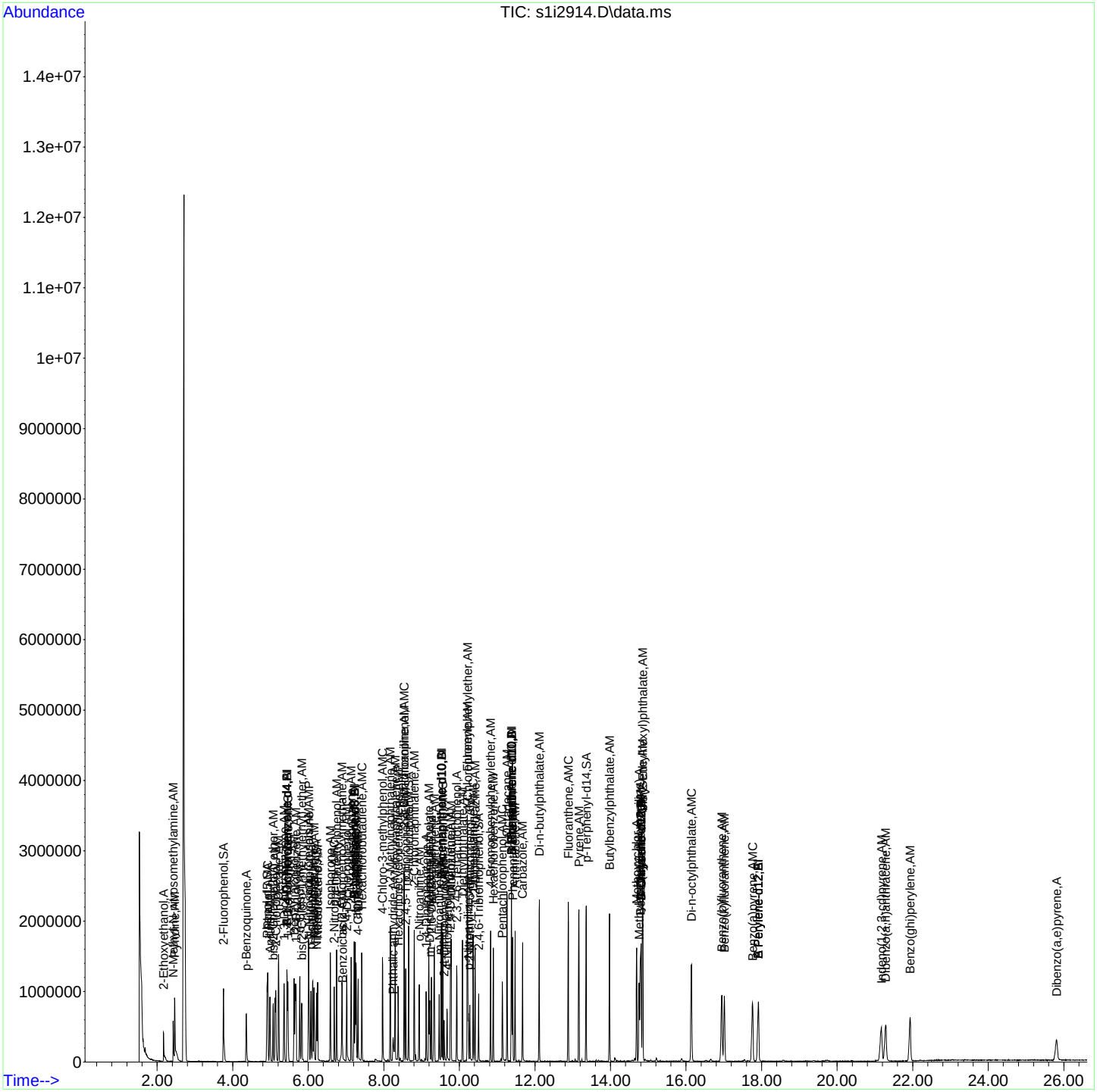
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
85)	bis(2-Ethylhexyl)phtha...	149	14.855	14.855	1.003	582435	37.09	ng/uL	99
86)	Benzo(a)anthracene	228	14.791	14.785	0.999	792717	34.97	ng/uL	99
87)	Chrysene	228	14.850	14.850	1.003	710978	37.69	ng/uL	100
88)	Methoxychlor	227	14.695	14.689	0.992	754340	36.46	ng/uL	99
89)	Methylenebis(2-chloroa...	231	14.759	14.753	0.997	179626	41.56	ng/uL	98
90)	Di-n-octylphthalate	149	16.144	16.139	1.090	1194383	38.01	ng/uL	98
92)	Benzo(b)fluoranthene	252	16.946	16.941	0.946	891413	35.05	ng/uL	100
93)	Benzo(k)fluoranthene	252	17.016	17.010	0.950	782892	35.58	ng/uL	98
94)	Benzo(a)pyrene	252	17.765	17.754	0.992	829254	37.70	ng/uL	99
95)	Indeno(1,2,3-cd)pyrene	276	21.172	21.161	1.182	683442	40.63	ng/uL	98
96)	Dibenzo(a,h)anthracene	278	21.283	21.274	1.188	620969	39.64	ng/uL	98
97)	Benzo(ghi)perylene	276	21.931	21.926	1.224	703622	40.99	ng/uL	99
98)	Dibenzo(a,e)pyrene	302	25.809	25.804	1.441	416965	49.67	ng/uL	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2914.D
Acq On : 29 Sep 2016 16:19
Operator : JLD1
InstName : MSD1
Sample : |WBN160920-09.1|ICV|1|SVM|1|MICV
Misc : |MIX[A]
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 30 10:30:48 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2917.D
Acq On : 29 Sep 2016 17:40
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-17|ICAL|1|SVM|1|A2
Misc : |MIX[B]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 30 10:04:24 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.379	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	229065	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	764475	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	429164	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.379	11.384	1.000	751358	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.802	1.000	729988	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	666188	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.379	11.378	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.796	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	0.000	17.957	1.000	0	0.00	ng/uL	-17.96
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.379	11.378	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.801	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.174	2.163	0.400	34185	11.14	ng/uL	88
101) Methyl methacrylate	100	2.174	2.168	0.400	15802	10.62	ng/uL#	21
102) Ethyl methacrylate	69	2.826	2.821	0.520	71462	10.73	ng/uL	91
103) 2-Picoline	93	3.158	3.152	0.581	95090	11.32	ng/uL	96
104) N-Nitrosomethylethylamine	88	3.265	3.249	0.601	37946	11.69	ng/uL	86
105) Methyl methanesulfonate	80	3.575	3.575	0.658	62279	11.40	ng/uL	95
106) N-Nitrosodiethylamine	102	4.040	4.040	0.743	37002	10.21	ng/uL	95
107) 2-Butoxyethanol	57	4.121	4.121	0.758	106467	11.29	ng/uL	97
108) Ethyl methanesulfonate	79	4.399	4.399	0.809	60535	10.65	ng/uL	92
109) Benzaldehyde	77	4.843	4.843	0.891	76906	11.64	ng/uL	94
110) Pentachloroethane	167	5.051	5.051	0.929	37216	11.04	ng/uL	98
111) N-Nitrosopyrrolidine	100	5.960	5.971	1.096	37495	9.87	ng/uL	90
112) Acetophenone	105	6.003	6.003	1.104	108652	11.59	ng/uL	97
113) N-Nitrosomorpholine	56	6.019	6.030	1.107	70083	12.05	ng/uL	98
114) o-Toluidine	106	6.046	6.051	1.112	111698	12.10	ng/uL	96
116) N-Nitrosopiperidine	114	6.447	6.453	0.894	40798	10.53	ng/uL	96
117) a,a-Dimethylphenethyla...	58	6.977	6.977	0.967	280861	10.56	ng/uL	98
118) 2,6-Dichlorophenol	162	7.324	7.324	1.016	47611	9.72	ng/uL	92
119) Hexachloropropene	213	7.362	7.362	1.021	47482	11.02	ng/uL	99
120) Caprolactam	113	7.747	7.763	1.074	21154	9.94	ng/uL#	62

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2917.D
Acq On : 29 Sep 2016 17:40
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-17|ICAL|1|SVM|1|A2
Misc : |MIX[B]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 30 10:04:24 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

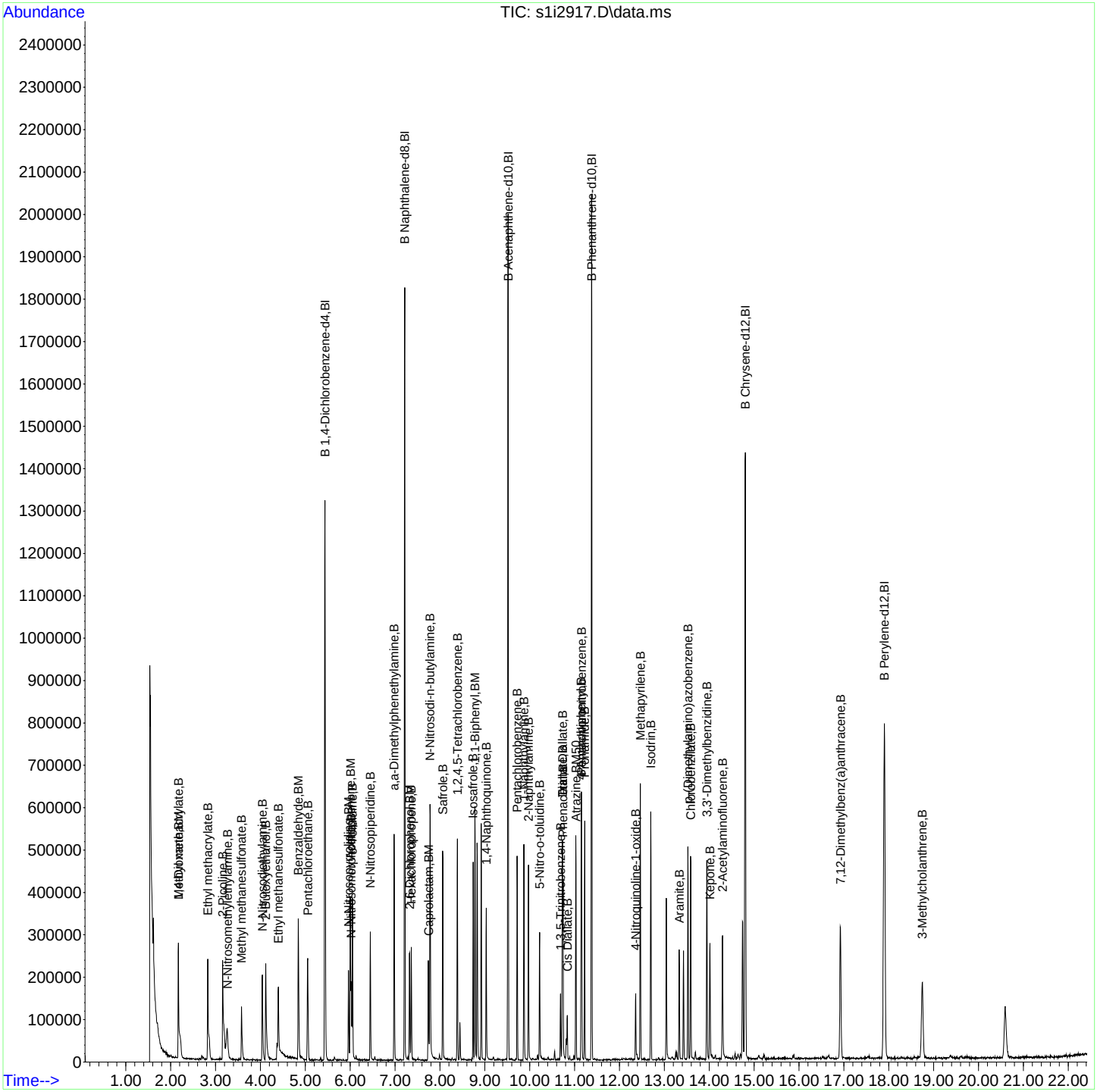
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121) N-Nitrosodi-n-butylamine	84	7.779	7.784	1.079	65262	10.48	ng/uL	97
122) Safrole	162	8.062	8.063	1.118	60556	11.12	ng/uL	98
124) 1,2,4,5-Tetrachloroben...	216	8.389	8.389	0.881	88715	11.87	ng/uL	98
125) 1,1-Biphenyl	154	8.779	8.785	0.922	180322	9.44	ng/uL	97
126) Isosafrole	162	8.736	8.742	0.918	60078	11.29	ng/uL	99
127) 1,4-Naphthoquinone	158	9.031	9.031	0.949	47876	10.91	ng/uL	96
128) Pentachlorobenzene	250	9.721	9.726	1.021	74387	11.32	ng/uL	98
129) 1-Naphthylamine	143	9.870	9.876	1.037	137342	12.12	ng/uL	94
130) 2-Naphthylamine	143	9.972	9.972	1.048	125775	11.67	ng/uL	99
131) 5-Nitro-o-toluidine	152	10.218	10.223	1.074	37254	9.78	ng/uL	94
133) 1,3,5-Trinitrobenzene	75	10.683	10.683	0.939	38518	8.65	ng/uL	94
134) Phenacetin	108	10.742	10.753	0.944	75936	11.22	ng/uL	98
135) Diallate	86	10.726	10.726	0.943	71060	11.88	ng/uL	100
136) Cis Diallate	86	10.838	10.838	0.953	14341	1.77	ng/uL	96
137) Trans Diallate	86	10.726	10.726	0.943	71060	10.10	ng/uL	100
138) Atrazine	200	11.031	11.036	0.969	53142	11.56	ng/uL	91
139) 4-Aminobiphenyl	169	11.143	11.149	0.979	158166	12.53	ng/uL	99
140) Pentachloronitrobenzene	237	11.154	11.159	0.980	27614	11.73	ng/uL	96
141) Pronamide	173	11.224	11.229	0.986	80106	11.76	ng/uL	99
142) 4-Nitroquinoline-1-oxide	190	12.363	12.363	1.086	8088	9.86	ng/uL#	1
143) Methapyrilene	58	12.464	12.464	1.095	185309	12.35	ng/uL	99
144) Isodrin	193	12.694	12.694	1.116	37662	11.77	ng/uL	93
146) Aramite	185	13.336	13.336	0.901	18436	9.77	ng/uL	89
147) Kepone	272	14.015	14.016	0.947	27845	10.52	ng/uL	97
148) p-(Dimethylamino)azobe...	120	13.523	13.529	0.914	73512	10.66	ng/uL	98
149) Chlorobenzilate	251	13.588	13.588	0.918	79776	10.65	ng/uL	96
150) 3,3'-Dimethylbenzidine	212	13.946	13.951	0.942	163759	11.35	ng/uL	100
151) 2-Acetylaminofluorene	181	14.294	14.299	0.966	77050	9.25	ng/uL	96
153) 7,12-Dimethylbenz(a)an...	256	16.925	16.931	0.945	123899	11.16	ng/uL	99
154) 3-Methylcholanthrene	269	18.744	18.760	1.047	24210	10.89	ng/uL	91

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2917.D
Acq On : 29 Sep 2016 17:40
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-17|ICAL|1|SVM|1|A2
Misc : |MIX[B]
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 30 10:04:24 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2918.D
Acq On : 29 Sep 2016 18:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-16|ICAL|1|SVM|1|A3
Misc : |MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 30 09:57:20 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.801	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	260461	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	847464	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	481155	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.384	11.384	1.000	815111	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.801	14.802	1.000	728087	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	632570	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.801	14.796	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.979	17.957	1.000	0m	40.00	ng/uL	0.02
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.801	14.801	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.168	2.163	0.399	74961	21.48	ng/uL	72
101) Methyl methacrylate	100	2.168	2.168	0.399	35267	20.84	ng/uL#	48
102) Ethyl methacrylate	69	2.826	2.821	0.520	162481	21.46	ng/uL	98
103) 2-Picoline	93	3.152	3.152	0.580	206899	21.66	ng/uL	99
104) N-Nitrosomethylethylamine	88	3.254	3.249	0.599	79263	21.48	ng/uL	94
105) Methyl methanesulfonate	80	3.575	3.575	0.658	134217	21.61	ng/uL	97
106) N-Nitrosodiethylamine	102	4.040	4.040	0.743	89477	21.70	ng/uL	95
107) 2-Butoxyethanol	57	4.120	4.121	0.758	237942	22.19	ng/uL	98
108) Ethyl methanesulfonate	79	4.398	4.399	0.809	139965	21.65	ng/uL	100
109) Benzaldehyde	77	4.842	4.843	0.891	167137	22.25	ng/uL	96
110) Pentachloroethane	167	5.051	5.051	0.929	82234	21.46	ng/uL	96
111) N-Nitrosopyrrolidine	100	5.965	5.971	1.097	89063	20.61	ng/uL	92
112) Acetophenone	105	6.003	6.003	1.104	236456	22.19	ng/uL	98
113) N-Nitrosomorpholine	56	6.024	6.030	1.108	146850	22.20	ng/uL	100
114) o-Toluidine	106	6.051	6.051	1.113	235078	22.40	ng/uL	98
116) N-Nitrosopiperidine	114	6.452	6.453	0.895	89195	20.77	ng/uL	92
117) a,a-Dimethylphenethyla...	58	6.976	6.977	0.967	641102	21.74	ng/uL	100
118) 2,6-Dichlorophenol	162	7.324	7.324	1.016	113023	20.81	ng/uL	98
119) Hexachloropropene	213	7.361	7.362	1.021	110317	23.10	ng/uL	98
120) Caprolactam	113	7.757	7.763	1.076	51466	21.81	ng/uL#	63

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2918.D
Acq On : 29 Sep 2016 18:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-16|ICAL|1|SVM|1|A3
Misc : |MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 30 09:57:20 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

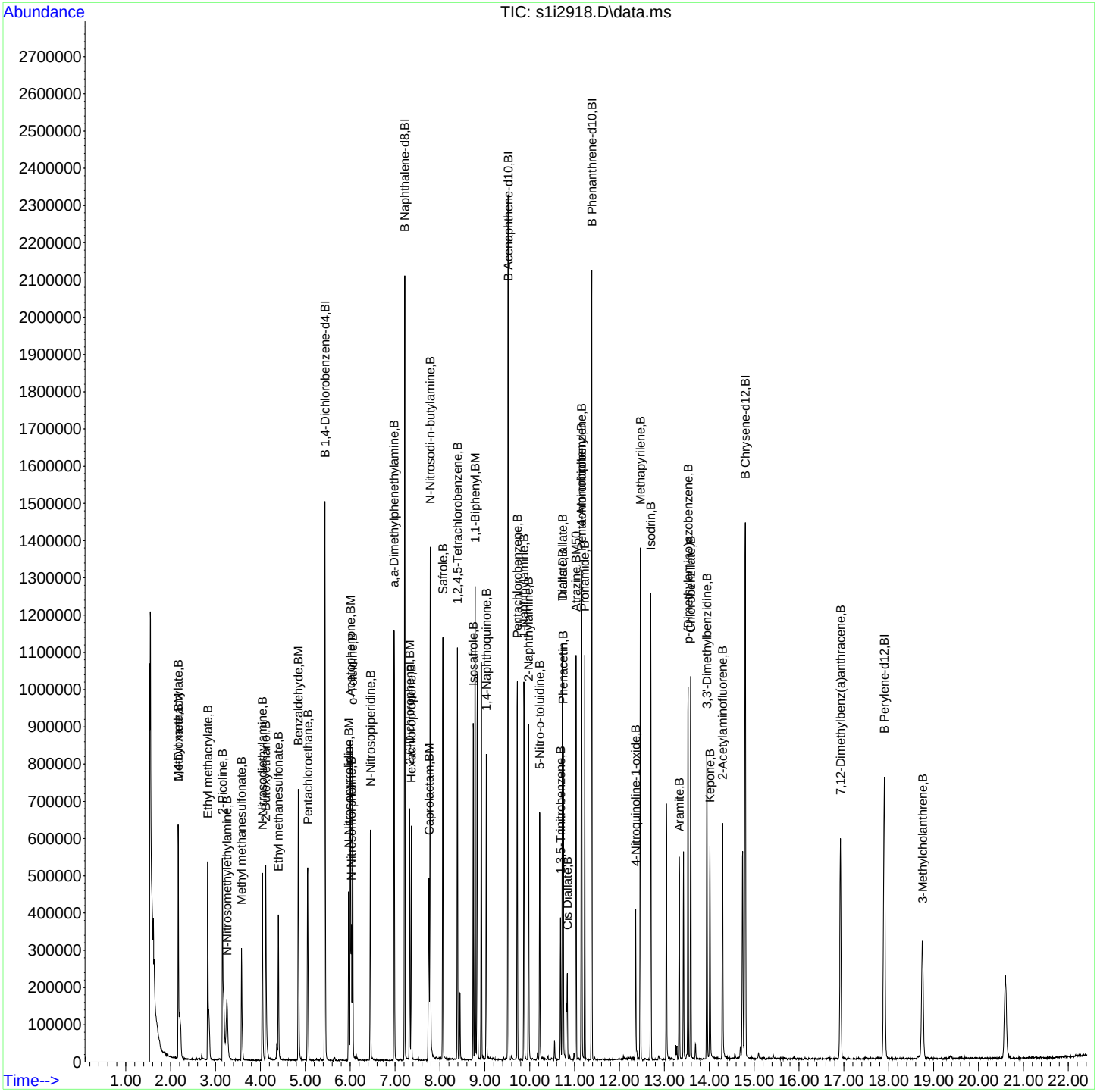
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121)	N-Nitrosodi-n-butylamine	84	7.784	7.784	1.079	139010	20.13	ng/uL	95
122)	Safrole	162	8.062	8.063	1.118	131909	21.85	ng/uL	100
124)	1,2,4,5-Tetrachloroben...	216	8.388	8.389	0.881	189504	22.62	ng/uL	97
125)	1,1-Biphenyl	154	8.784	8.785	0.923	367512	21.83	ng/uL	97
126)	Isosafrole	162	8.741	8.742	0.919	133234	22.34	ng/uL	100
127)	1,4-Naphthoquinone	158	9.030	9.031	0.949	112483	22.87	ng/uL	95
128)	Pentachlorobenzene	250	9.726	9.726	1.022	161294	21.90	ng/uL	99
129)	1-Naphthylamine	143	9.870	9.876	1.037	285236	22.45	ng/uL	100
130)	2-Naphthylamine	143	9.972	9.972	1.048	273288	22.62	ng/uL	100
131)	5-Nitro-o-toluidine	152	10.218	10.223	1.074	90527	21.20	ng/uL	97
133)	1,3,5-Trinitrobenzene	75	10.683	10.683	0.938	97281	20.14	ng/uL	99
134)	Phenacetin	108	10.747	10.753	0.944	162471	22.12	ng/uL	98
135)	Diallate	86	10.726	10.726	0.942	152534	23.51	ng/uL	99
136)	Cis Diallate	86	10.838	10.838	0.952	29190	3.32	ng/uL	91
137)	Trans Diallate	86	10.726	10.726	0.942	152534	19.99	ng/uL	99
138)	Atrazine	200	11.031	11.036	0.969	117733	23.60	ng/uL	99
139)	4-Aminobiphenyl	169	11.148	11.149	0.979	299321	21.86	ng/uL	99
140)	Pentachloronitrobenzene	237	11.154	11.159	0.980	59299	23.21	ng/uL	97
141)	Pronamide	173	11.223	11.229	0.986	167969	22.73	ng/uL	98
142)	4-Nitroquinoline-1-oxide	190	12.362	12.363	1.086	28067	18.73	ng/uL	63
143)	Methapyrilene	58	12.464	12.464	1.095	387535	23.80	ng/uL	100
144)	Isodrin	193	12.694	12.694	1.115	78564	22.64	ng/uL	98
146)	Aramite	185	13.336	13.336	0.901	39372	20.91	ng/uL	91
147)	Kepone	272	14.015	14.016	0.947	60003	22.73	ng/uL	95
148)	p-(Dimethylamino)azobe...	120	13.528	13.529	0.914	152694	22.21	ng/uL	100
149)	Chlorobenzilate	251	13.587	13.588	0.918	167224	22.39	ng/uL	98
150)	3,3'-Dimethylbenzidine	212	13.946	13.951	0.942	327060	22.73	ng/uL	99
151)	2-Acetylaminofluorene	181	14.293	14.299	0.966	155730	18.74	ng/uL	96
153)	7,12-Dimethylbenz(a)an...	256	16.925	16.931	0.945	238543	22.62	ng/uL	98
154)	3-Methylcholanthrene	269	18.754	18.760	1.048	45501	21.55	ng/uL	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2918.D
Acq On : 29 Sep 2016 18:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-16|ICAL|1|SVM|1|A3
Misc : |MIX[B]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 30 09:57:20 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2919.D
Acq On : 29 Sep 2016 18:39
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-15.1|ICAL|1|SVM|1|A4
Misc : |MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 30 09:56:02 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:57 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	189578	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	619791	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	360911	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.384	11.384	1.000	638024	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.802	1.000	619211	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	607965	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.796	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	0.000	17.957	1.000	0	0.00	ng/uL	-17.96
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.801	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.163	2.163	0.398	98862	38.91	ng/uL	100
101) Methyl methacrylate	100	2.168	2.168	0.399	48365	39.27	ng/uL	100
102) Ethyl methacrylate	69	2.821	2.821	0.519	222236	40.32	ng/uL	100
103) 2-Picoline	93	3.152	3.152	0.580	275649	39.64	ng/uL	100
104) N-Nitrosomethylethylamine	88	3.249	3.249	0.598	103414	38.50	ng/uL	100
105) Methyl methanesulfonate	80	3.575	3.575	0.658	184196	40.74	ng/uL	100
106) N-Nitrosodiethylamine	102	4.040	4.040	0.743	120168	40.05	ng/uL	100
107) 2-Butoxyethanol	57	4.121	4.121	0.758	320635	41.08	ng/uL	100
108) Ethyl methanesulfonate	79	4.399	4.399	0.809	191577	40.72	ng/uL	100
109) Benzaldehyde	77	4.843	4.843	0.891	215061	39.33	ng/uL	100
110) Pentachloroethane	167	5.051	5.051	0.929	112238	40.23	ng/uL	100
111) N-Nitrosopyrrolidine	100	5.971	5.971	1.098	128953	41.00	ng/uL	100
112) Acetophenone	105	6.003	6.003	1.104	320078	41.27	ng/uL	100
113) N-Nitrosomorpholine	56	6.030	6.030	1.109	198760	41.29	ng/uL	100
114) o-Toluidine	106	6.051	6.051	1.113	310609	40.67	ng/uL	100
116) N-Nitrosopiperidine	114	6.453	6.453	0.895	127869	40.72	ng/uL	100
117) a,a-Dimethylphenethyla...	58	6.977	6.977	0.967	873616	40.51	ng/uL	100
118) 2,6-Dichlorophenol	162	7.324	7.324	1.016	160389	40.37	ng/uL	100
119) Hexachloropropene	213	7.362	7.362	1.021	156362	44.76	ng/uL	100
120) Caprolactam	113	7.763	7.763	1.076	69100	40.03	ng/uL	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2919.D
Acq On : 29 Sep 2016 18:39
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-15.1|ICAL|1|SVM|1|A4
Misc : |MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 30 09:56:02 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:57 2016
Response via : Initial Calibration
Integrator: RTE

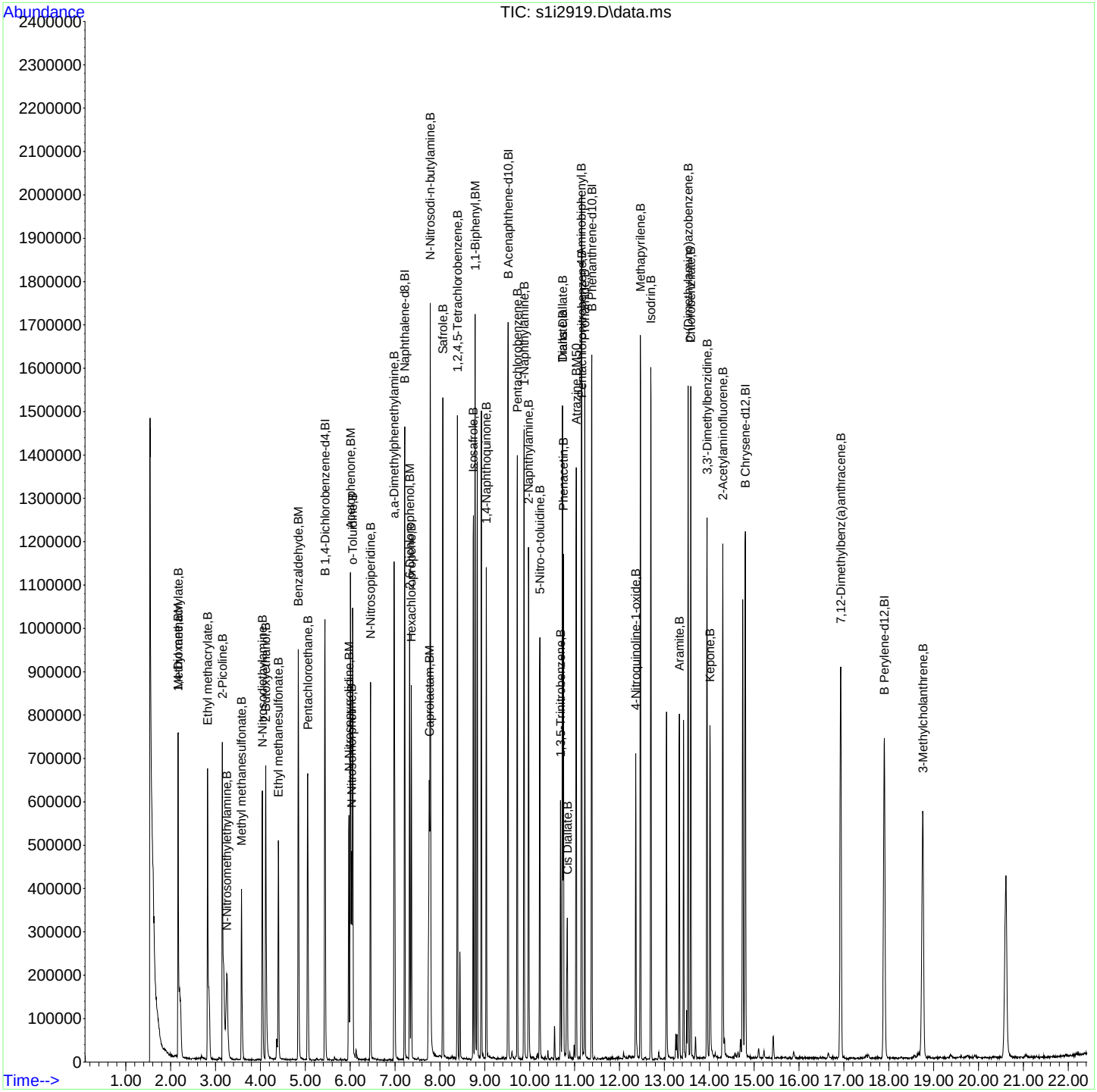
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121) N-Nitrosodi-n-butylamine	84	7.784	7.784	1.079	191941	38.01	ng/uL	100
122) Safrole	162	8.063	8.063	1.118	178180	40.36	ng/uL	100
124) 1,2,4,5-Tetrachloroben...	216	8.389	8.389	0.881	255659	40.69	ng/uL	100
125) 1,1-Biphenyl	154	8.785	8.785	0.923	483996	42.66	ng/uL	100
126) Isosafrole	162	8.742	8.742	0.919	178305	39.85	ng/uL	100
127) 1,4-Naphthoquinone	158	9.031	9.031	0.949	160988	43.64	ng/uL	100
128) Pentachlorobenzene	250	9.726	9.726	1.022	227395	41.16	ng/uL	100
129) 1-Naphthylamine	143	9.876	9.876	1.038	400144	41.98	ng/uL	100
130) 2-Naphthylamine	143	9.972	9.972	1.048	378158	41.73	ng/uL	100
131) 5-Nitro-o-toluidine	152	10.223	10.223	1.074	134589	42.03	ng/uL	100
133) 1,3,5-Trinitrobenzene	75	10.683	10.683	0.938	156012	41.26	ng/uL	100
134) Phenacetin	108	10.753	10.753	0.945	233014	40.53	ng/uL	100
135) Diallate	86	10.726	10.726	0.942	202329	39.85	ng/uL	100
136) Cis Diallate	86	10.838	10.838	0.952	38045	5.52	ng/uL	100
137) Trans Diallate	86	10.726	10.726	0.942	202329	33.87	ng/uL	100
138) Atrazine	200	11.036	11.036	0.969	162151	41.52	ng/uL	100
139) 4-Aminobiphenyl	169	11.149	11.149	0.979	426559	39.79	ng/uL	100
140) Pentachloronitrobenzene	237	11.159	11.159	0.980	77894	38.96	ng/uL	100
141) Pronamide	173	11.229	11.229	0.986	228968	39.59	ng/uL	100
142) 4-Nitroquinoline-1-oxide	190	12.363	12.363	1.086	59843	40.99	ng/uL	100
143) Methapyrilene	58	12.464	12.464	1.095	522872	41.03	ng/uL	100
144) Isodrin	193	12.694	12.694	1.115	109651	40.36	ng/uL	100
146) Aramite	185	13.336	13.336	0.901	63296	39.53	ng/uL	100
147) Kepone	272	14.016	14.016	0.947	86047	38.33	ng/uL	100
148) p-(Dimethylamino)azobe...	120	13.529	13.529	0.914	229792	39.30	ng/uL	100
149) Chlorobenzilate	251	13.588	13.588	0.918	245562	38.65	ng/uL	100
150) 3,3'-Dimethylbenzidine	212	13.951	13.951	0.943	467817	38.24	ng/uL	100
151) 2-Acetylaminofluorene	181	14.299	14.299	0.966	294747	41.71	ng/uL	100
153) 7,12-Dimethylbenz(a)an...	256	16.931	16.931	0.946	406342	40.10	ng/uL	100
154) 3-Methylcholanthrene	269	18.760	18.760	1.048	82414	40.62	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2919.D
Acq On : 29 Sep 2016 18:39
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-15.1|ICAL|1|SVM|1|A4
Misc : |MIX[B]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 30 09:56:02 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:57 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2920.D
Acq On : 29 Sep 2016 19:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-14|ICAL|1|SVM|1|A5
Misc : |MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 30 09:58:05 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	222341	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	722255	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	414991	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.384	11.384	1.000	675519	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.802	1.000	563989	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	555826	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.796	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	0.000	17.957	1.000	0	0.00	ng/uL	-17.96
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.801	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.168	2.163	0.399	146643	49.21	ng/uL	67
101) Methyl methacrylate	100	2.168	2.168	0.399	72385	50.12	ng/uL#	33
102) Ethyl methacrylate	69	2.826	2.821	0.520	321148	49.68	ng/uL	99
103) 2-Picoline	93	3.152	3.152	0.580	411332	50.44	ng/uL	98
104) N-Nitrosomethylethylamine	88	3.259	3.249	0.600	153248	48.65	ng/uL	92
105) Methyl methanesulfonate	80	3.580	3.575	0.659	262479	49.50	ng/uL	97
106) N-Nitrosodiethylamine	102	4.046	4.040	0.744	177279	50.37	ng/uL	96
107) 2-Butoxyethanol	57	4.120	4.121	0.758	452951	49.48	ng/uL	99
108) Ethyl methanesulfonate	79	4.404	4.399	0.810	273949	49.64	ng/uL	97
109) Benzaldehyde	77	4.848	4.843	0.892	316762	49.39	ng/uL	98
110) Pentachloroethane	167	5.051	5.051	0.929	164044	50.14	ng/uL	99
111) N-Nitrosopyrrolidine	100	5.976	5.971	1.099	186064	50.44	ng/uL	100
112) Acetophenone	105	6.009	6.003	1.105	446760	49.12	ng/uL	100
113) N-Nitrosomorpholine	56	6.035	6.030	1.110	275612	48.82	ng/uL	96
114) o-Toluidine	106	6.057	6.051	1.114	432050	48.23	ng/uL	98
116) N-Nitrosopiperidine	114	6.458	6.453	0.895	180843	49.42	ng/uL	98
117) a,a-Dimethylphenethyla...	58	6.977	6.977	0.967	1185656	47.18	ng/uL	98
118) 2,6-Dichlorophenol	162	7.324	7.324	1.016	229129	49.49	ng/uL	99
119) Hexachloropropene	213	7.362	7.362	1.021	209906	51.57	ng/uL	99
120) Caprolactam	113	7.774	7.763	1.078	101869	50.65	ng/uL	91

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2920.D
Acq On : 29 Sep 2016 19:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-14|ICAL|1|SVM|1|A5
Misc : |MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 30 09:58:05 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

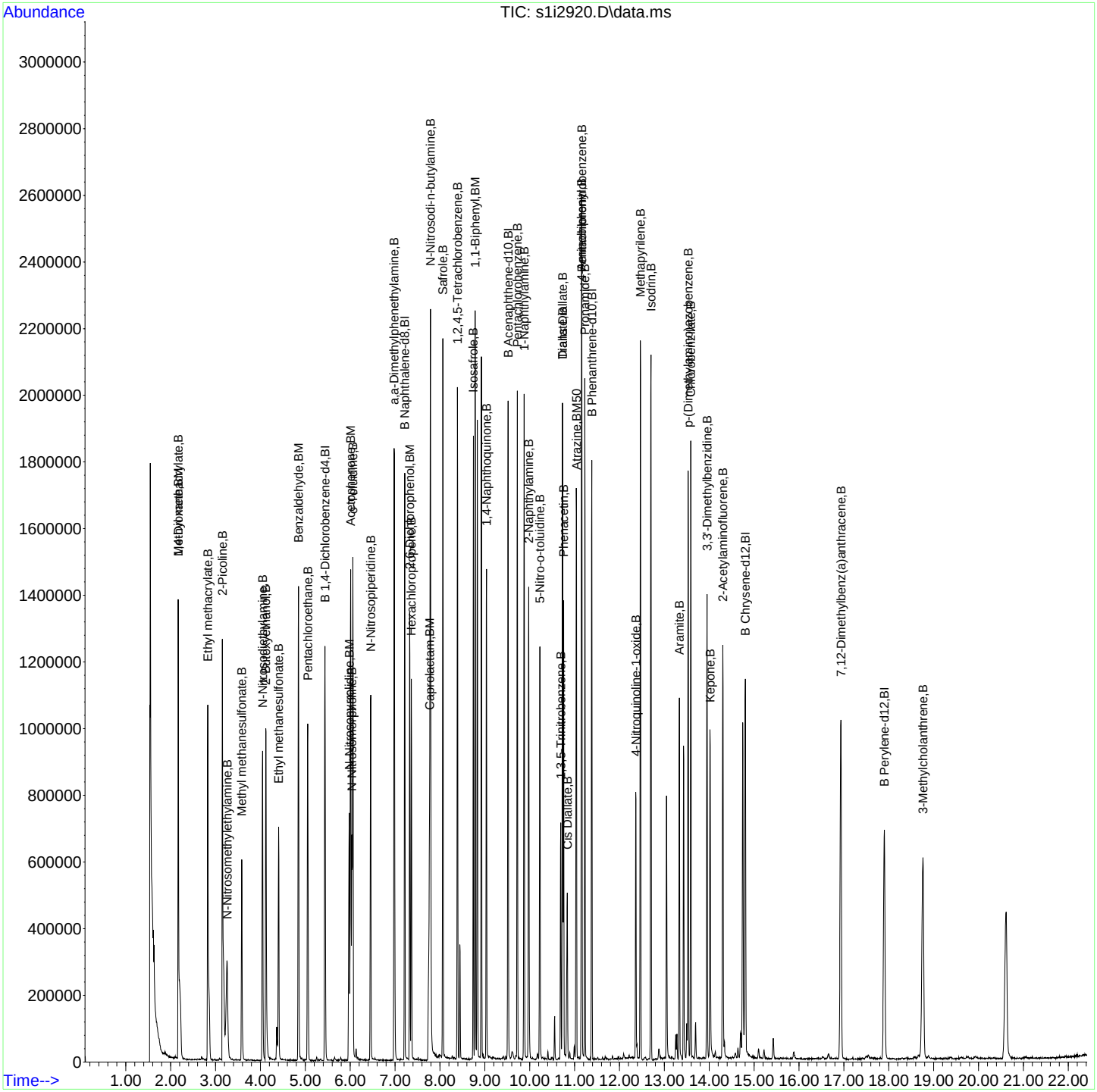
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121) N-Nitrosodi-n-butylamine	84	7.790	7.784	1.080	292374	49.69	ng/uL	95
122) Safrole	162	8.062	8.063	1.118	253508	49.28	ng/uL	100
124) 1,2,4,5-Tetrachloroben...	216	8.389	8.389	0.881	360500	49.89	ng/uL	98
125) 1,1-Biphenyl	154	8.784	8.785	0.923	658315	51.50	ng/uL	99
126) Isosafrole	162	8.742	8.742	0.919	252971	49.17	ng/uL	99
127) 1,4-Naphthoquinone	158	9.036	9.031	0.949	219201	51.67	ng/uL	96
128) Pentachlorobenzene	250	9.726	9.726	1.022	314818	49.55	ng/uL	99
129) 1-Naphthylamine	143	9.876	9.876	1.038	524523	47.86	ng/uL	99
130) 2-Naphthylamine	143	9.977	9.972	1.048	503624	48.33	ng/uL	98
131) 5-Nitro-o-toluidine	152	10.223	10.223	1.074	173600	47.15	ng/uL	97
133) 1,3,5-Trinitrobenzene	75	10.689	10.683	0.939	203391	50.80	ng/uL	100
134) Phenacetin	108	10.758	10.753	0.945	295282	48.51	ng/uL	99
135) Diallate	86	10.726	10.726	0.942	282806	52.60	ng/uL	99
136) Cis Diallate	86	10.838	10.838	0.952	56256	7.71	ng/uL	98
137) Trans Diallate	86	10.726	10.726	0.942	282806	44.71	ng/uL	99
138) Atrazine	200	11.042	11.036	0.970	218576	52.86	ng/uL	98
139) 4-Aminobiphenyl	169	11.154	11.149	0.980	520892	45.89	ng/uL	97
140) Pentachloronitrobenzene	237	11.159	11.159	0.980	111669	52.75	ng/uL	96
141) Pronamide	173	11.229	11.229	0.986	309729	50.59	ng/uL	99
142) 4-Nitroquinoline-1-oxide	190	12.368	12.363	1.086	80029	50.25	ng/uL	89
143) Methapyrilene	58	12.464	12.464	1.095	669903	49.65	ng/uL	98
144) Isodrin	193	12.700	12.694	1.116	146049	50.77	ng/uL	98
146) Aramite	185	13.336	13.336	0.901	82432	56.52	ng/uL	95
147) Kepone	272	14.021	14.016	0.947	115893	56.68	ng/uL	98
148) p-(Dimethylamino)azobe...	120	13.529	13.529	0.914	278094	52.22	ng/uL	100
149) Chlorobenzilate	251	13.588	13.588	0.918	311786	53.88	ng/uL	98
150) 3,3'-Dimethylbenzidine	212	13.951	13.951	0.943	518298	46.51	ng/uL	99
151) 2-Acetylaminofluorene	181	14.299	14.299	0.966	336993	52.36	ng/uL	98
153) 7,12-Dimethylbenz(a)an...	256	16.936	16.931	0.946	451214	48.70	ng/uL	98
154) 3-Methylcholanthrene	269	18.760	18.760	1.048	91996	49.60	ng/uL	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2920.D
Acq On : 29 Sep 2016 19:09
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-14|ICAL|1|SVM|1|A5
Misc : |MIX[B]
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Sep 30 09:58:05 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2921.D
Acq On : 29 Sep 2016 19:38
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-13|ICAL|1|SVM|1|A6
Misc : |MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Sep 30 09:58:33 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.909	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	221383	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	720556	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	426081	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.384	11.384	1.000	740682	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.802	1.000	654442	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.909	17.904	1.000	630599	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.796	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	0.000	17.957	1.000	0	0.00	ng/uL	-17.96
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.801	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.168	2.163	0.399	231259	77.95	ng/uL	99
101) Methyl methacrylate	100	2.168	2.168	0.399	114022	79.29	ng/uL	94
102) Ethyl methacrylate	69	2.821	2.821	0.519	502663	78.10	ng/uL	96
103) 2-Picoline	93	3.152	3.152	0.580	617666	76.06	ng/uL	98
104) N-Nitrosomethylethylamine	88	3.259	3.249	0.600	242615	77.36	ng/uL	90
105) Methyl methanesulfonate	80	3.586	3.575	0.660	404562	76.62	ng/uL	96
106) N-Nitrosodiethylamine	102	4.051	4.040	0.745	275303	78.57	ng/uL	96
107) 2-Butoxyethanol	57	4.126	4.121	0.759	691491	75.87	ng/uL	99
108) Ethyl methanesulfonate	79	4.415	4.399	0.812	429588	78.18	ng/uL	99
109) Benzaldehyde	77	4.848	4.843	0.892	465642	72.92	ng/uL	98
110) Pentachloroethane	167	5.051	5.051	0.929	253379	77.78	ng/uL	99
111) N-Nitrosopyrrolidine	100	5.987	5.971	1.101	298636	81.31	ng/uL	97
112) Acetophenone	105	6.014	6.003	1.106	677227	74.78	ng/uL	98
113) N-Nitrosomorpholine	56	6.046	6.030	1.112	415678	73.95	ng/uL	94
114) o-Toluidine	106	6.067	6.051	1.116	656380	73.59	ng/uL	99
116) N-Nitrosopiperidine	114	6.463	6.453	0.896	284598	77.95	ng/uL	98
117) a,a-Dimethylphenethyla...	58	7.019	6.977	0.973	1969155	78.55	ng/uL	91
118) 2,6-Dichlorophenol	162	7.330	7.324	1.016	373393	80.84	ng/uL	95
119) Hexachloropropene	213	7.367	7.362	1.022	314119	77.35	ng/uL	99
120) Caprolactam	113	7.800	7.763	1.082	158959	79.21	ng/uL	85

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2921.D
Acq On : 29 Sep 2016 19:38
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-13|ICAL|1|SVM|1|A6
Misc : |MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Sep 30 09:58:33 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

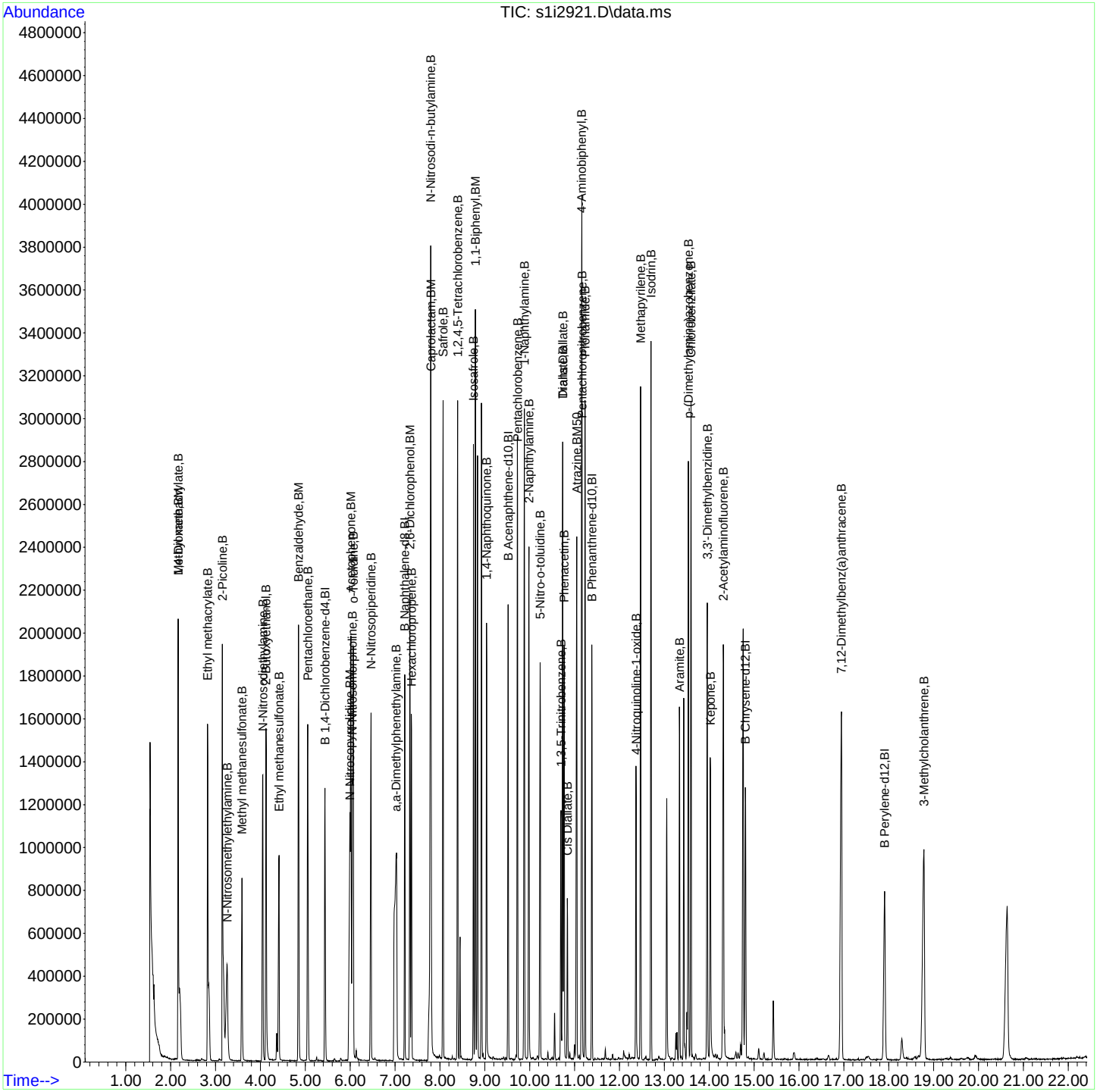
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121) N-Nitrosodi-n-butylamine	84	7.795	7.784	1.081	470146	80.09	ng/uL	93
122) Safrole	162	8.068	8.063	1.119	392509	76.48	ng/uL	100
124) 1,2,4,5-Tetrachloroben...	216	8.394	8.389	0.882	546376	73.65	ng/uL	100
125) 1,1-Biphenyl	154	8.790	8.785	0.924	1001393	79.06	ng/uL	98
126) Isosafrole	162	8.747	8.742	0.919	400963	75.91	ng/uL	100
127) 1,4-Naphthoquinone	158	9.036	9.031	0.949	325181	74.66	ng/uL	97
128) Pentachlorobenzene	250	9.731	9.726	1.022	493114	75.60	ng/uL	99
129) 1-Naphthylamine	143	9.881	9.876	1.038	837177	74.40	ng/uL	99
130) 2-Naphthylamine	143	9.982	9.972	1.049	797275	74.52	ng/uL	98
131) 5-Nitro-o-toluidine	152	10.229	10.223	1.075	308222	81.53	ng/uL	99
133) 1,3,5-Trinitrobenzene	75	10.694	10.683	0.939	367695	83.76	ng/uL	99
134) Phenacetin	108	10.769	10.753	0.946	495502	74.24	ng/uL	95
135) Diallate	86	10.731	10.726	0.943	424873	72.07	ng/uL	96
136) Cis Diallate	86	10.838	10.838	0.952	92707	11.59	ng/uL	98
137) Trans Diallate	86	10.731	10.726	0.943	424873	61.26	ng/uL	96
138) Atrazine	200	11.047	11.036	0.970	333114	73.48	ng/uL	98
139) 4-Aminobiphenyl	169	11.154	11.149	0.980	932383	74.92	ng/uL	96
140) Pentachloronitrobenzene	237	11.165	11.159	0.981	170604	73.50	ng/uL	99
141) Pronamide	173	11.234	11.229	0.987	500558	74.56	ng/uL	99
142) 4-Nitroquinoline-1-oxide	190	12.373	12.363	1.087	150665	82.10	ng/uL	72
143) Methapyrilene	58	12.470	12.464	1.095	944263	63.83	ng/uL	96
144) Isodrin	193	12.700	12.694	1.116	233011	73.88	ng/uL	100
146) Aramite	185	13.341	13.336	0.901	133210	78.72	ng/uL	93
147) Kepone	272	14.026	14.016	0.948	177251	74.70	ng/uL	98
148) p-(Dimethylamino)azobe...	120	13.534	13.529	0.914	469351	75.95	ng/uL	97
149) Chlorobenzilate	251	13.593	13.588	0.918	508671	75.76	ng/uL	99
150) 3,3'-Dimethylbenzidine	212	13.957	13.951	0.943	870899	67.35	ng/uL	99
151) 2-Acetylaminofluorene	181	14.310	14.299	0.967	621793	83.25	ng/uL	99
153) 7,12-Dimethylbenz(a)an...	256	16.941	16.931	0.946	803859	76.48	ng/uL	98
154) 3-Methylcholanthrene	269	18.781	18.760	1.049	163914	77.89	ng/uL	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2921.D
Acq On : 29 Sep 2016 19:38
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-13|ICAL|1|SVM|1|A6
Misc : |MIX[B]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Sep 30 09:58:33 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2922.D
Acq On : 29 Sep 2016 20:08
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-12.1|ICAL|1|SVM|1|A7
Misc : |MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Sep 30 09:58:52 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.909	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	200492	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	657162	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	389027	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.384	11.384	1.000	685775	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.802	1.000	632483	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.909	17.904	1.000	601300	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.796	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	0.000	17.957	1.000	0	0.00	ng/uL	-17.96
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.384	11.378	1.000	0m	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.801	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.163	2.163	0.398	259857	96.71	ng/uL	71
101) Methyl methacrylate	100	2.168	2.168	0.399	126084	96.81	ng/uL	95
102) Ethyl methacrylate	69	2.821	2.821	0.519	554864	95.19	ng/uL	96
103) 2-Picoline	93	3.152	3.152	0.580	690622	93.91	ng/uL	99
104) N-Nitrosomethylethylamine	88	3.259	3.249	0.600	264860	93.25	ng/uL	90
105) Methyl methanesulfonate	80	3.585	3.575	0.660	447229	93.53	ng/uL	96
106) N-Nitrosodiethylamine	102	4.051	4.040	0.745	308445	97.20	ng/uL	94
107) 2-Butoxyethanol	57	4.131	4.121	0.760	758643	91.91	ng/uL	99
108) Ethyl methanesulfonate	79	4.414	4.399	0.812	471301	94.71	ng/uL	100
109) Benzaldehyde	77	4.848	4.843	0.892	486307	84.09	ng/uL	99
110) Pentachloroethane	167	5.051	5.051	0.929	276052	93.57	ng/uL	99
111) N-Nitrosopyrrolidine	100	5.992	5.971	1.102	326365	98.12	ng/uL	97
112) Acetophenone	105	6.014	6.003	1.106	740737	90.31	ng/uL	100
113) N-Nitrosomorpholine	56	6.051	6.030	1.113	454722	89.32	ng/uL	93
114) o-Toluidine	106	6.067	6.051	1.116	726556	89.95	ng/uL	99
116) N-Nitrosopiperidine	114	6.463	6.453	0.896	315107	94.63	ng/uL	98
117) a,a-Dimethylphenethyla...	58	7.035	6.977	0.976	2185346	95.58	ng/uL	81
118) 2,6-Dichlorophenol	162	7.335	7.324	1.017	412578	97.94	ng/uL	96
119) Hexachloropropene	213	7.367	7.362	1.022	320587	86.56	ng/uL	98
120) Caprolactam	113	7.805	7.763	1.082	173594	94.85	ng/uL	86

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2922.D
Acq On : 29 Sep 2016 20:08
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-12.1|ICAL|1|SVM|1|A7
Misc : |MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Sep 30 09:58:52 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

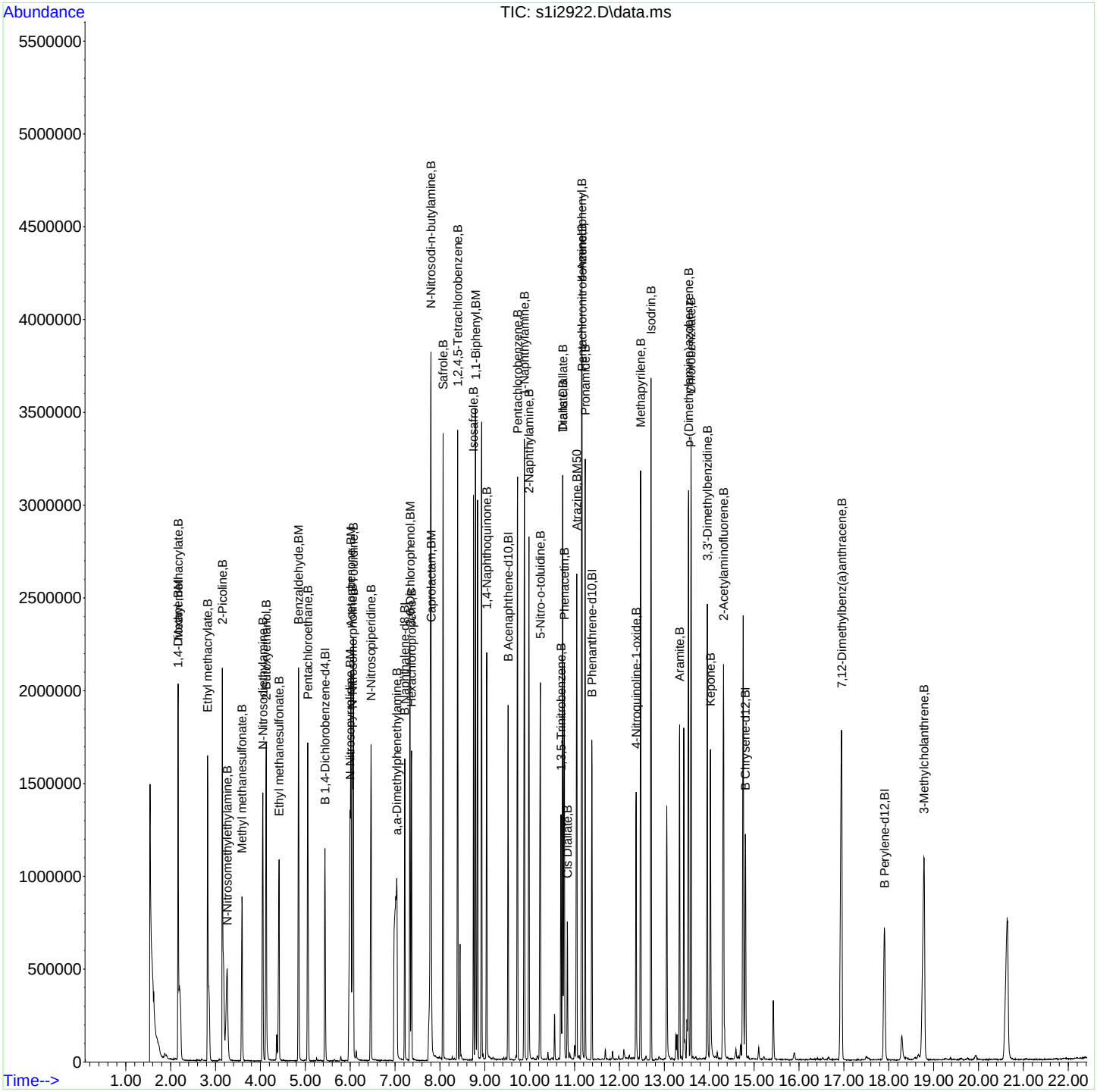
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121) N-Nitrosodi-n-butylamine	84	7.800	7.784	1.082	526240	98.29	ng/uL	91
122) Safrole	162	8.068	8.063	1.119	433322	92.57	ng/uL	100
124) 1,2,4,5-Tetrachloroben...	216	8.394	8.389	0.882	602360	88.93	ng/uL	100
125) 1,1-Biphenyl	154	8.795	8.785	0.924	1086820	95.05	ng/uL	97
126) Isosafrole	162	8.747	8.742	0.919	446787	92.64	ng/uL	99
127) 1,4-Naphthoquinone	158	9.041	9.031	0.950	353387	88.86	ng/uL	98
128) Pentachlorobenzene	250	9.731	9.726	1.022	546263	91.72	ng/uL	99
129) 1-Naphthylamine	143	9.881	9.876	1.038	912795	88.85	ng/uL	98
130) 2-Naphthylamine	143	9.982	9.972	1.049	888736	90.98	ng/uL	99
131) 5-Nitro-o-toluidine	152	10.234	10.223	1.075	344186	99.71	ng/uL	98
133) 1,3,5-Trinitrobenzene	75	10.694	10.683	0.939	423301	104.15	ng/uL	97
134) Phenacetin	108	10.774	10.753	0.946	586372	94.89	ng/uL	97
135) Diallate	86	10.731	10.726	0.943	459832	84.25	ng/uL	98
136) Cis Diallate	86	10.838	10.838	0.952	100025	13.50	ng/uL	99
137) Trans Diallate	86	10.731	10.726	0.943	459832	71.61	ng/uL	98
138) Atrazine	200	11.047	11.036	0.970	356540	84.94	ng/uL	96
139) 4-Aminobiphenyl	169	11.159	11.149	0.980	1067172	92.62	ng/uL	95
140) Pentachloronitrobenzene	237	11.164	11.159	0.981	188386	87.66	ng/uL	99
141) Pronamide	173	11.239	11.229	0.987	545253	87.72	ng/uL	99
142) 4-Nitroquinoline-1-oxide	190	12.373	12.363	1.087	168701	98.07	ng/uL	70
143) Methapyrilene	58	12.470	12.464	1.095	1038454	75.82	ng/uL	96
144) Isodrin	193	12.699	12.694	1.116	255692	87.56	ng/uL	99
146) Aramite	185	13.341	13.336	0.901	153489	93.85	ng/uL	96
147) Kepone	272	14.026	14.016	0.948	201970	88.08	ng/uL	98
148) p-(Dimethylamino)azobe...	120	13.539	13.529	0.915	549338	91.98	ng/uL	99
149) Chlorobenzilate	251	13.593	13.588	0.918	587423	90.52	ng/uL	99
150) 3,3'-Dimethylbenzidine	212	13.956	13.951	0.943	987511	79.02	ng/uL	98
151) 2-Acetylaminofluorene	181	14.315	14.299	0.967	725043	100.45	ng/uL	98
153) 7,12-Dimethylbenz(a)an...	256	16.952	16.931	0.947	928409	92.63	ng/uL	99
154) 3-Methylcholanthrene	269	18.781	18.760	1.049	189655	94.51	ng/uL	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2922.D
Acq On : 29 Sep 2016 20:08
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-12.1|ICAL|1|SVM|1|A7
Misc : |MIX[B]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Sep 30 09:58:52 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2923.D
Acq On : 29 Sep 2016 20:38
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-11|ICAL|1|SVM|1|A8
Misc : |MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Sep 30 09:59:15 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.389	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.801	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.909	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	218530	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	686227	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	418348	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.389	11.384	1.000	729032	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.801	14.802	1.000	631696	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.909	17.904	1.000	605977	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.389	11.378	1.000	0m	40.00	ng/uL	0.01
167) D Chrysene-d12	240	14.801	14.796	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	0.000	17.957	1.000	0	0.00	ng/uL	-17.96
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.389	11.378	1.000	0m	40.00	ng/uL	0.01
177) J Chrysene-d12	240	14.801	14.801	1.000	0m	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	6.147	6.222	0.852	0d	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.163	2.163	0.398	321243	109.69	ng/uL	70
101) Methyl methacrylate	100	2.168	2.168	0.399	162273	114.31	ng/uL#	65
102) Ethyl methacrylate	69	2.820	2.821	0.519	704784	110.93	ng/uL	94
103) 2-Picoline	93	3.152	3.152	0.580	861773	107.51	ng/uL	99
104) N-Nitrosomethylethylamine	88	3.259	3.249	0.600	342385	110.59	ng/uL	87
105) Methyl methanesulfonate	80	3.591	3.575	0.661	549160	105.37	ng/uL	94
106) N-Nitrosodiethylamine	102	4.056	4.040	0.746	386627	111.78	ng/uL	94
107) 2-Butoxyethanol	57	4.136	4.121	0.761	947603	105.32	ng/uL	99
108) Ethyl methanesulfonate	79	4.420	4.399	0.813	597077	110.09	ng/uL	100
109) Benzaldehyde	77	4.848	4.843	0.892	553365	87.79	ng/uL	98
110) Pentachloroethane	167	5.051	5.051	0.929	349731	108.76	ng/uL	98
111) N-Nitrosopyrrolidine	100	6.003	5.971	1.104	413752	114.13	ng/uL	93
112) Acetophenone	105	6.019	6.003	1.107	943056	105.49	ng/uL	98
113) N-Nitrosomorpholine	56	6.056	6.030	1.114	571709	103.03	ng/uL	93
114) o-Toluidine	106	6.072	6.051	1.117	918155	104.28	ng/uL	99
116) N-Nitrosopiperidine	114	6.468	6.453	0.897	409413	117.75	ng/uL	94
117) a,a-Dimethylphenethyla...	58	7.024	6.977	0.974	2757717	115.51	ng/uL	100
118) 2,6-Dichlorophenol	162	7.335	7.324	1.017	527426	119.90	ng/uL	97
119) Hexachloropropene	213	7.367	7.362	1.022	352692	91.20	ng/uL	100
120) Caprolactam	113	7.821	7.763	1.085	220986	115.63	ng/uL#	84

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2923.D
Acq On : 29 Sep 2016 20:38
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-11|ICAL|1|SVM|1|A8
Misc : |MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Sep 30 09:59:15 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

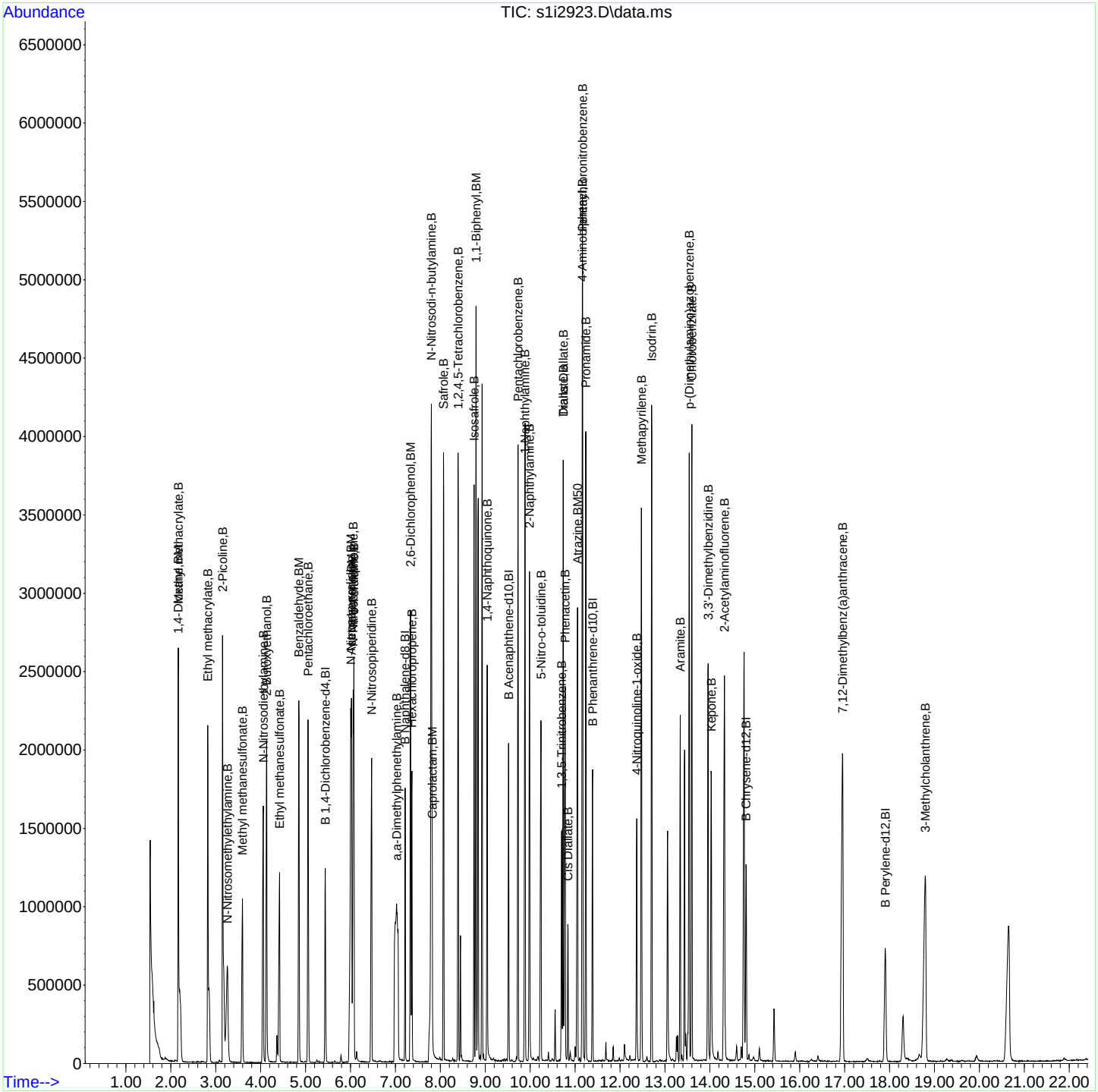
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units		
121) N-Nitrosodi-n-butylamine	84	7.800	7.784	1.082	682643	122.10	ng/uL	91	A
122) Safrole	162	8.067	8.063	1.119	538975	110.27	ng/uL	99	
124) 1,2,4,5-Tetrachloroben...	216	8.394	8.389	0.882	748812	102.80	ng/uL	100	
125) 1,1-Biphenyl	154	8.795	8.785	0.924	1359584	111.51	ng/uL	96	
126) Isosafrole	162	8.752	8.742	0.920	559705	107.91	ng/uL	97	
127) 1,4-Naphthoquinone	158	9.041	9.031	0.950	420269	98.28	ng/uL	99	
128) Pentachlorobenzene	250	9.731	9.726	1.022	684512	106.88	ng/uL	98	
129) 1-Naphthylamine	143	9.881	9.876	1.038	1114025	100.84	ng/uL	100	
130) 2-Naphthylamine	143	9.982	9.972	1.049	1072646	102.11	ng/uL	98	
131) 5-Nitro-o-toluidine	152	10.239	10.223	1.076	423807	114.18	ng/uL	96	
133) 1,3,5-Trinitrobenzene	75	10.694	10.683	0.939	514271	119.03	ng/uL	99	
134) Phenacetin	108	10.779	10.753	0.946	719010	109.45	ng/uL	96	
135) Diallate	86	10.731	10.726	0.942	587922	101.33	ng/uL	98	
136) Cis Diallate	86	10.838	10.838	0.952	128079	16.26	ng/uL	98	
137) Trans Diallate	86	10.731	10.726	0.942	587922	86.13	ng/uL	98	
138) Atrazine	200	11.052	11.036	0.970	429042	96.15	ng/uL	96	
139) 4-Aminobiphenyl	169	11.159	11.149	0.980	1292056	105.48	ng/uL	93	
140) Pentachloronitrobenzene	237	11.164	11.159	0.980	230978	101.10	ng/uL	97	
141) Pronamide	173	11.239	11.229	0.987	694834	105.15	ng/uL	99	
142) 4-Nitroquinoline-1-oxide	190	12.373	12.363	1.086	178047	97.40	ng/uL	68	
143) Methapyrilene	58	12.475	12.464	1.095	1251258	85.93	ng/uL	96	
144) Isodrin	193	12.699	12.694	1.115	323095	104.08	ng/uL	98	
146) Aramite	185	13.341	13.336	0.901	183581	112.39	ng/uL	98	
147) Kepone	272	14.031	14.016	0.948	248738	108.61	ng/uL	95	
148) p-(Dimethylamino)azobe...	120	13.539	13.529	0.915	663622	111.25	ng/uL	99	
149) Chlorobenzilate	251	13.598	13.588	0.919	715176	110.34	ng/uL	97	
150) 3,3'-Dimethylbenzidine	212	13.962	13.951	0.943	1131355	90.64	ng/uL	100	A
151) 2-Acetylaminofluorene	181	14.320	14.299	0.967	867676	120.36	ng/uL	98	A
153) 7,12-Dimethylbenz(a)an...	256	16.957	16.931	0.947	1083670	107.29	ng/uL	98	
154) 3-Methylcholanthrene	269	18.791	18.760	1.049	220170	108.87	ng/uL	99	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2923.D
Acq On : 29 Sep 2016 20:38
Operator : JLD1
InstName : MSD1
Sample : |WBN160921-11|ICAL|1|SVM|1|A8
Misc : |MIX[B]
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Sep 30 09:59:15 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2941.D
Acq On : 30 Sep 2016 05:21
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-43|ICAL|1|SVM|1|B2
Misc : |MIX[J]
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Sep 30 10:11:29 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

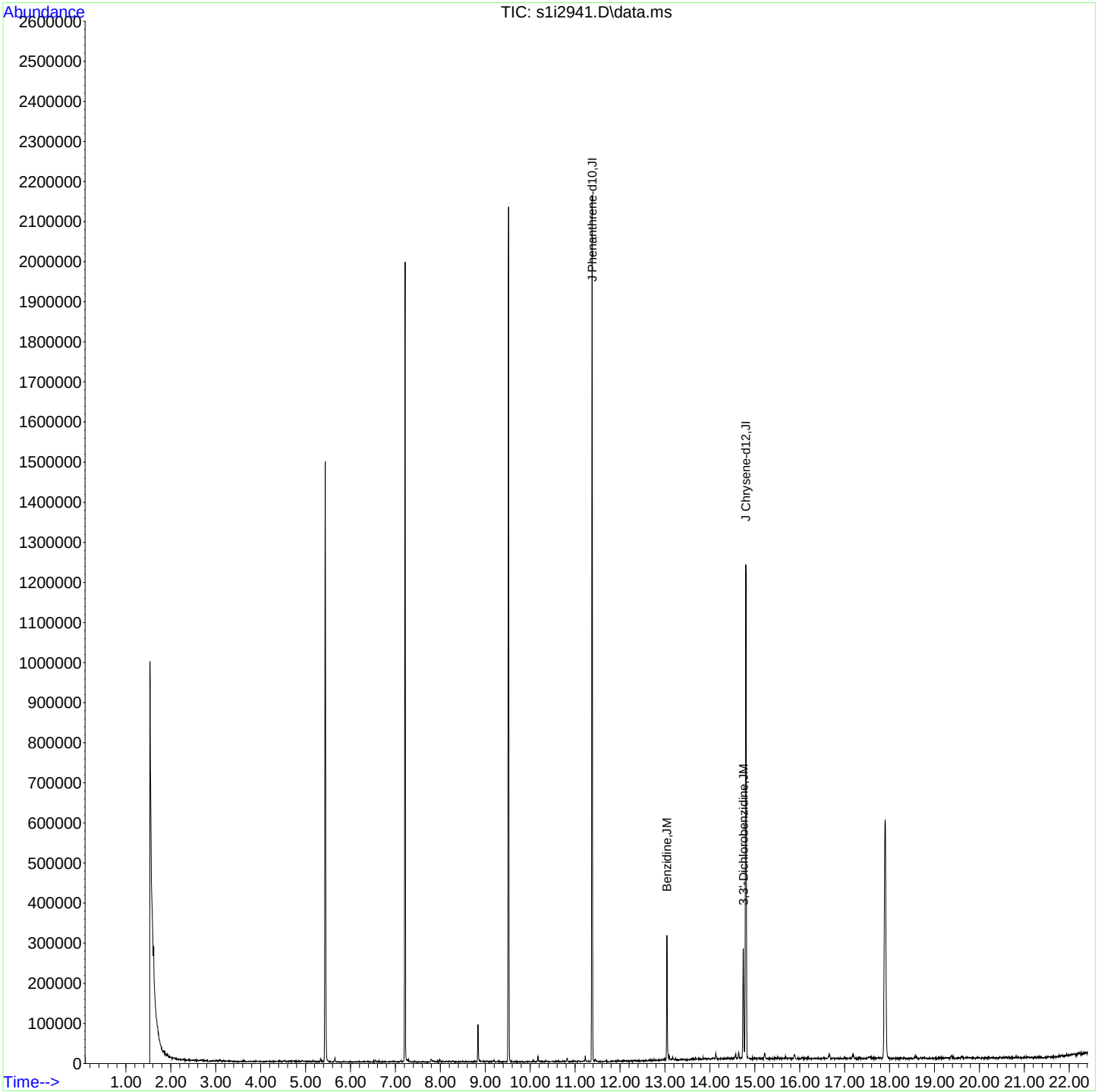
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.378	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.796	14.807	1.000	0m	40.00	ng/uL	-0.01
91) A Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.378	11.384	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.796	14.802	1.000	0m	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.378	11.378	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.796	14.796	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.973	17.957	1.000	0m	40.00	ng/uL	0.02
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.378	11.378	1.000	824518	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.796	14.801	1.000	625237	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
176) Benzidine	184	13.042	13.047	1.146	122037	9.99	ng/uL	97
178) 3,3'-Dichlorobenzidine	252	14.743	14.743	0.996	79111	10.07	ng/uL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2941.D
Acq On : 30 Sep 2016 05:21
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-43|ICAL|1|SVM|1|B2
Misc : |MIX[J]
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Sep 30 10:11:29 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2942.D
Acq On : 30 Sep 2016 05:51
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-44|ICAL|1|SVM|1|B3
Misc : |MIX[J]
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Sep 30 09:17:36 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:17:11 2016
Response via : Initial Calibration
Integrator: RTE

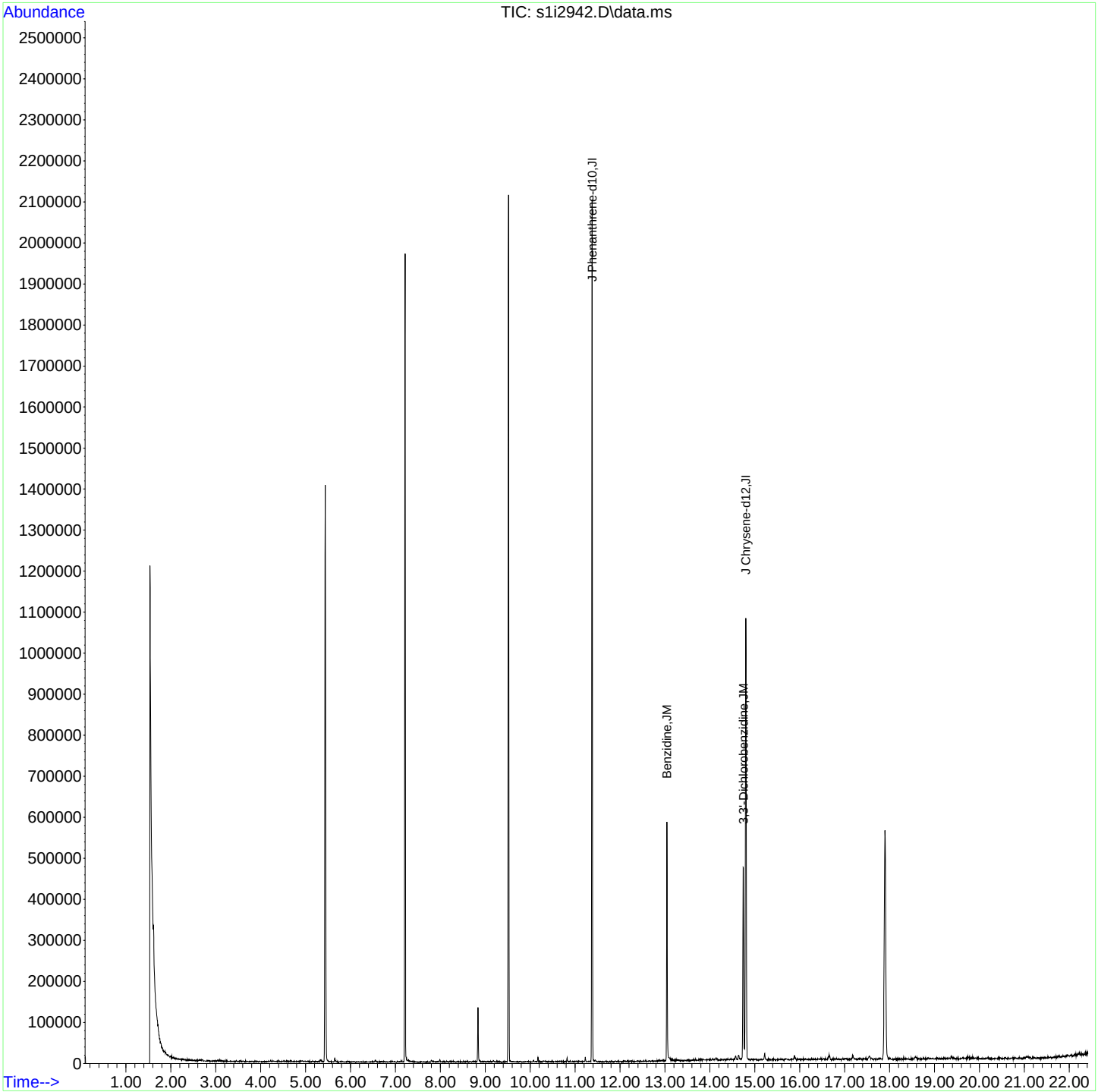
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.378	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.796	14.807	1.000	0m	40.00	ng/uL	-0.01
91) A Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.378	11.384	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.796	14.802	1.000	0m	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.378	11.379	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.796	14.807	1.000	0m	40.00	ng/uL	-0.01
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.378	11.378	1.000	792572	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.796	14.801	1.000	548090	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
176) Benzidine	184	13.042	13.047	1.146	223105	12.21	ng/uL	99
178) 3,3'-Dichlorobenzidine	252	14.743	14.743	0.996	133281	21.07	ng/uL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2942.D
Acq On : 30 Sep 2016 05:51
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-44|ICAL|1|SVM|1|B3
Misc : |MIX[J]
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Sep 30 09:17:36 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:17:11 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2943.D
Acq On : 30 Sep 2016 06:20
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-45.1|ICAL|1|SVM|1|B4
Misc : |MIX[J]
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Sep 30 09:15:58 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:15:22 2016
Response via : Initial Calibration
Integrator: RTE

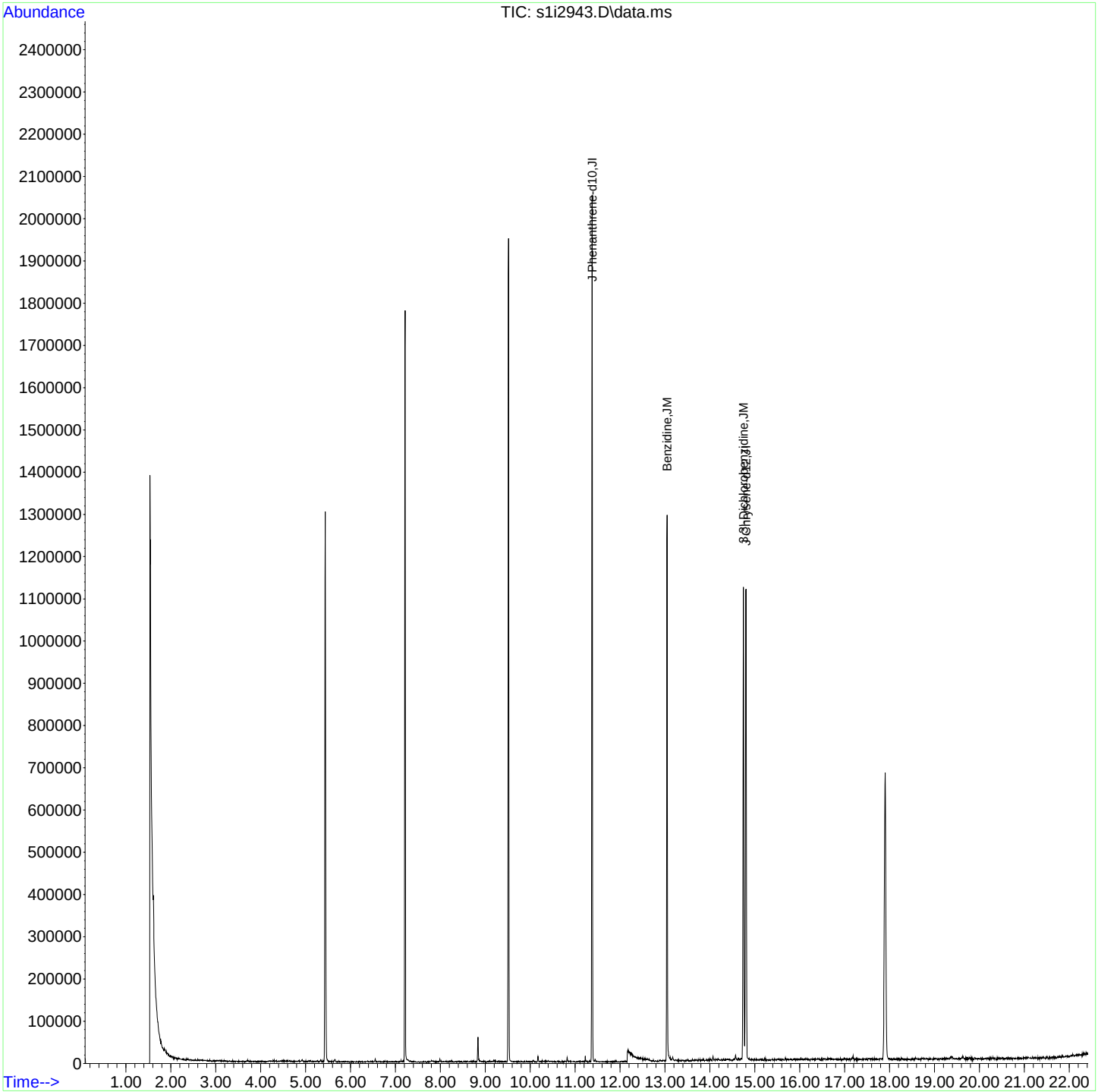
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.512	9.522	1.000	0m	40.00	ng/uL	-0.01
67) A Phenanthrene-d10	188	11.378	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.801	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.512	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.378	11.384	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.801	14.802	1.000	0m	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.512	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.378	11.379	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.801	14.807	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.378	11.378	1.000	784373	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.801	14.801	1.000	589827	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
176) Benzidine	184	13.047	13.047	1.147	517587	63.38	ng/uL	100
178) 3,3'-Dichlorobenzidine	252	14.743	14.743	0.996	309073	45.40	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2943.D
Acq On : 30 Sep 2016 06:20
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-45.1|ICAL|1|SVM|1|B4
Misc : |MIX[J]
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Sep 30 09:15:58 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:15:22 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2944.D
Acq On : 30 Sep 2016 06:50
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-46|ICAL|1|SVM|1|B5
Misc : |MIX[J]
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Sep 30 09:17:41 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:17:11 2016
Response via : Initial Calibration
Integrator: RTE

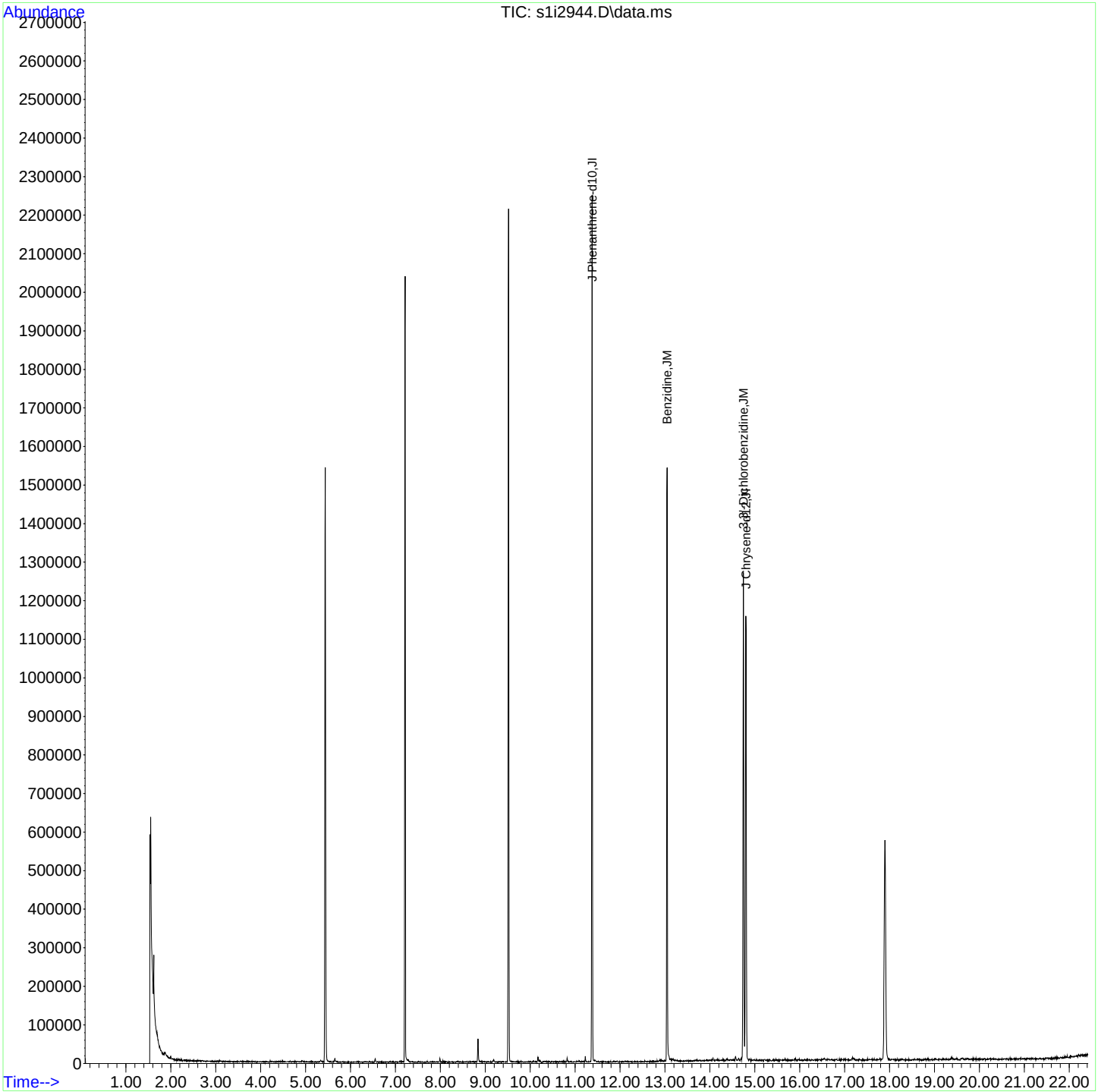
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	0m	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.379	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.899	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.379	11.384	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.802	1.000	0m	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.899	17.904	1.000	0m	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.379	11.379	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.899	17.904	1.000	0m	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.379	11.378	1.000	854748	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.801	1.000	578062	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
176) Benzidine	184	13.047	13.047	1.147	607480	70.26	ng/uL	99
178) 3,3'-Dichlorobenzidine	252	14.743	14.743	0.996	345686	51.82	ng/uL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2944.D
Acq On : 30 Sep 2016 06:50
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-46|ICAL|1|SVM|1|B5
Misc : |MIX[J]
ALS Vial : 37 Sample Multiplier: 1

Quant Time: Sep 30 09:17:41 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:17:11 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2945.D
Acq On : 30 Sep 2016 07:20
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-48|ICAL|1|SVM|1|B7
Misc : |MIX[J]
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 30 09:17:46 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:17:11 2016
Response via : Initial Calibration
Integrator: RTE

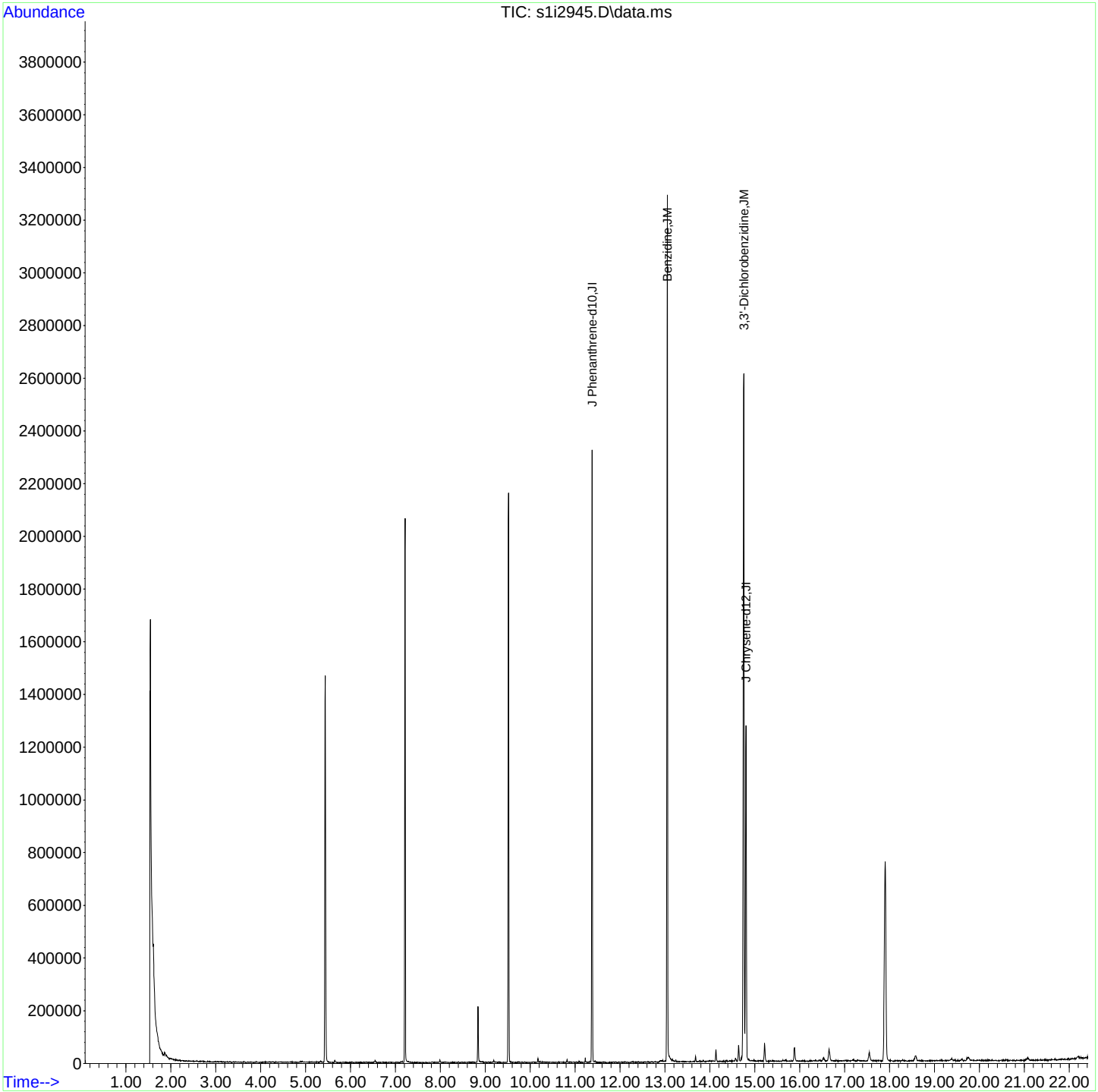
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.512	9.522	1.000	0m	40.00	ng/uL	-0.01
67) A Phenanthrene-d10	188	11.379	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.512	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.379	11.384	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.802	1.000	0m	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.512	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.379	11.379	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.904	17.904	1.000	0m	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.379	11.378	1.000	881640	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.801	1.000	644853	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
176) Benzidine	184	13.053	13.047	1.147	1355911	182.14	ng/uL	97 A
178) 3,3'-Dichlorobenzidine	252	14.754	14.743	0.997	823716	110.68	ng/uL	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2945.D
Acq On : 30 Sep 2016 07:20
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-48|ICAL|1|SVM|1|B7
Misc : |MIX[J]
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Sep 30 09:17:46 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:17:11 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2946.D
Acq On : 30 Sep 2016 07:50
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-49|ICAL|1|SVM|1|B8
Misc : |MIX[J]
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Sep 30 09:17:51 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:17:11 2016
Response via : Initial Calibration
Integrator: RTE

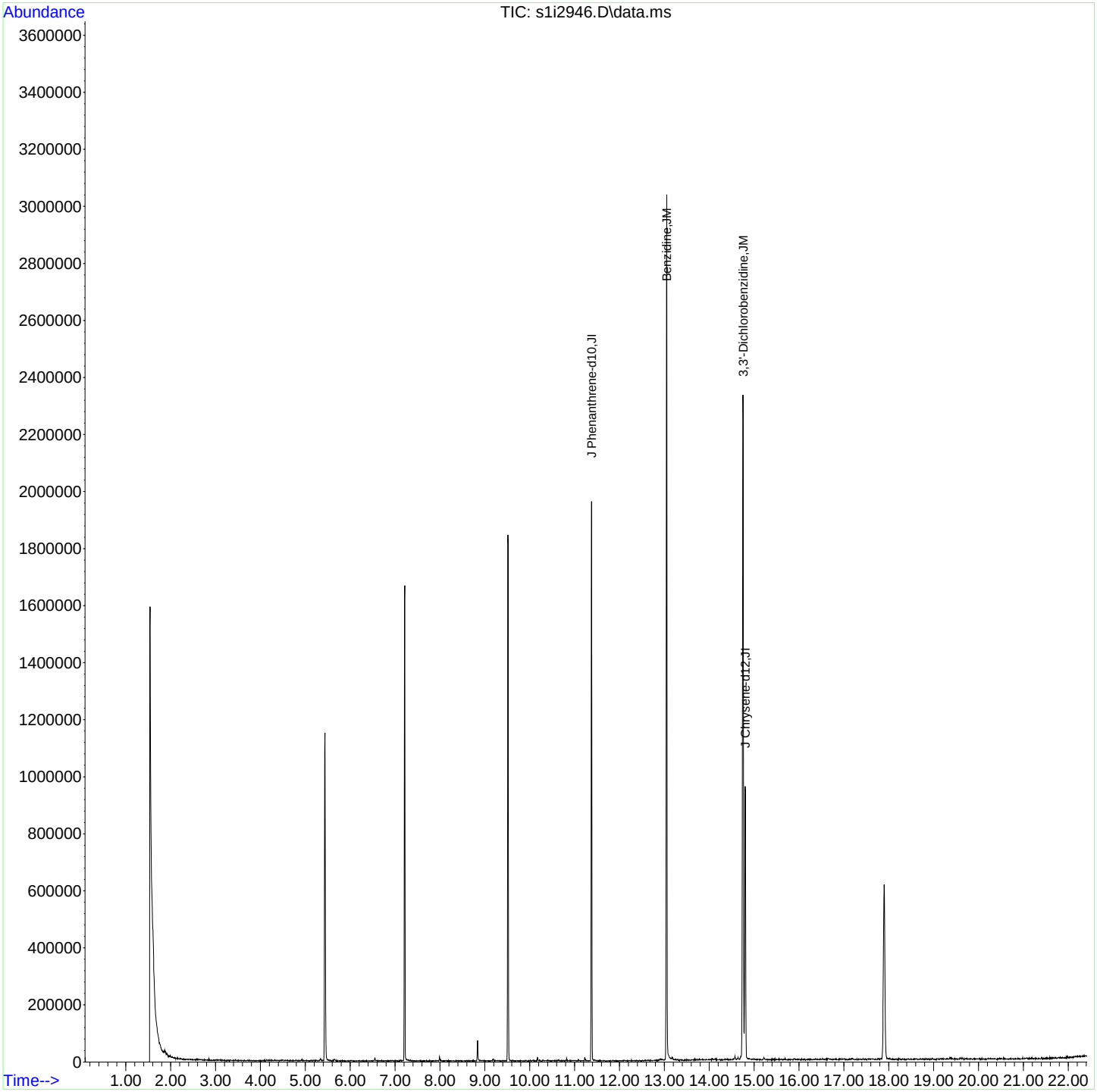
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.512	9.522	1.000	0m	40.00	ng/uL	-0.01
67) A Phenanthrene-d10	188	11.379	11.384	1.000	0m	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.899	17.904	1.000	0m	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.512	9.517	1.000	0m	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.379	11.384	1.000	0m	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.802	14.802	1.000	0m	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.899	17.904	1.000	0m	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.512	9.517	1.000	0m	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.379	11.379	1.000	0m	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.802	14.807	1.000	0m	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.212	7.212	1.000	0m	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.899	17.904	1.000	0m	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	0m	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.379	11.378	1.000	754209	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.802	14.801	1.000	487715	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
176) Benzidine	184	13.053	13.047	1.147	1261081	200.28	ng/uL	98 A
178) 3,3'-Dichlorobenzidine	252	14.754	14.743	0.997	746655	132.65	ng/uL	96 A

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2946.D
Acq On : 30 Sep 2016 07:50
Operator : JLD1
InstName : MSD1
Sample : |WBN160801-49|ICAL|1|SVM|1|B8
Misc : |MIX[J]
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Sep 30 09:17:51 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:17:11 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD1.I

Injection Date: 30-SEP-16 09:49

Data File: s092916.B\s1i2948.D

Init. Cal. Date(s) 29-SEP-16 10:05 - 30-SEP-16 07:50

Lab Sample ID WBN160922-18.2

Method: s092916.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD

Method Update: 30-SEP-16 09:55

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
Benzaldehyde	1.1537	1.06723		.01		-7.49502	30		Averaged
Acetophenone	1.6364	1.70608		.01		4.25813	30		Averaged
Caprolactam	0.1114	0.1129		.01		1.3465	30		Averaged
1,2,4,5-Tetrachlorobenzene	0.6964	0.69087		.01		-0.79408	30		Averaged
1,1'-Biphenyl	40	41.51	40			3.775	30		Linear
Atrazine	0.2448	0.25701		.01		4.98775	30		Averaged
3,3'-Dichlorobenzidine	0.5027	0.48146		.01		-4.22518	30		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2948.D
Acq On : 30 Sep 2016 09:49
Operator : JLD1
InstName : MSD1
Sample : |WBN160922-18.2|ICV|1|SVM|1|AICV
Misc : |MIX[B,J]
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Sep 30 11:27:30 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	219003	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.212	7.212	1.000	725283	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.517	9.522	1.000	414218	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.384	11.384	1.000	720966	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.807	14.807	1.000	696170	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.914	17.914	1.000	672870	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	219001	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.212	7.212	1.000	725283	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.517	9.517	1.000	414218	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.384	11.384	1.000	720966	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.807	14.807	1.000	696170	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.914	17.920	1.000	661322	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.212	7.212	1.000	725283	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.517	9.517	1.000	414218	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.384	11.378	1.000	720966	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.807	14.796	1.000	696105	40.00	ng/uL	0.01
169) E Naphthalene-d8	136	7.212	7.212	1.000	725283	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.914	17.914	1.000	672870	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.436	5.436	1.000	219001	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.384	11.378	1.000	720966	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.807	14.801	1.000	696170	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.757	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.906	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.222	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.656	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.512	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.357	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.168	2.163	0.399	121312	41.33	ng/uL	73
101) Methyl methacrylate	100	2.168	2.168	0.399	63998	44.99	ng/uL	98
102) Ethyl methacrylate	69	2.820	2.821	0.519	272606	42.81	ng/uL	98
103) 2-Picoline	93	3.152	3.152	0.580	333399	41.50	ng/uL	99
104) N-Nitrosomethylethylamine	88	3.254	3.249	0.599	133946	43.17	ng/uL	85
105) Methyl methanesulfonate	80	3.575	3.575	0.658	216681	41.49	ng/uL	96
106) N-Nitrosodiethylamine	102	4.040	4.040	0.743	148036	42.71	ng/uL	96
107) 2-Butoxyethanol	57	4.040	4.121	0.743	97277	10.79	ng/uL#	50
108) Ethyl methanesulfonate	79	4.404	4.399	0.810	238335	43.85	ng/uL	97
109) Benzaldehyde	77	4.842	4.843	0.891	233724	37.00	ng/uL	98
110) Pentachloroethane	167	5.051	5.051	0.929	131469	40.80	ng/uL	99
111) N-Nitrosopyrrolidine	100	5.971	5.971	1.098	152110	41.87	ng/uL	99
112) Acetophenone	105	6.008	6.003	1.105	373634	41.70	ng/uL	99
113) N-Nitrosomorpholine	56	6.030	6.030	1.109	224002	40.28	ng/uL	94
114) o-Toluidine	106	6.056	6.051	1.114	364531	41.31	ng/uL	99
116) N-Nitrosopiperidine	114	6.452	6.453	0.895	140077	38.12	ng/uL	96
117) a,a-Dimethylphenethyla...	58	6.982	6.977	0.968	920197	36.47	ng/uL	100
118) 2,6-Dichlorophenol	162	7.324	7.324	1.016	198452	42.69	ng/uL	96
119) Hexachloropropene	213	7.361	7.362	1.021	181477	44.40	ng/uL	99
120) Caprolactam	113	7.773	7.763	1.078	81883	40.54	ng/uL#	88

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2948.D
Acq On : 30 Sep 2016 09:49
Operator : JLD1
InstName : MSD1
Sample : |WBN160922-18.2|ICV|1|SVM|1|AICV
Misc : |MIX[B,J]
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Sep 30 11:27:30 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

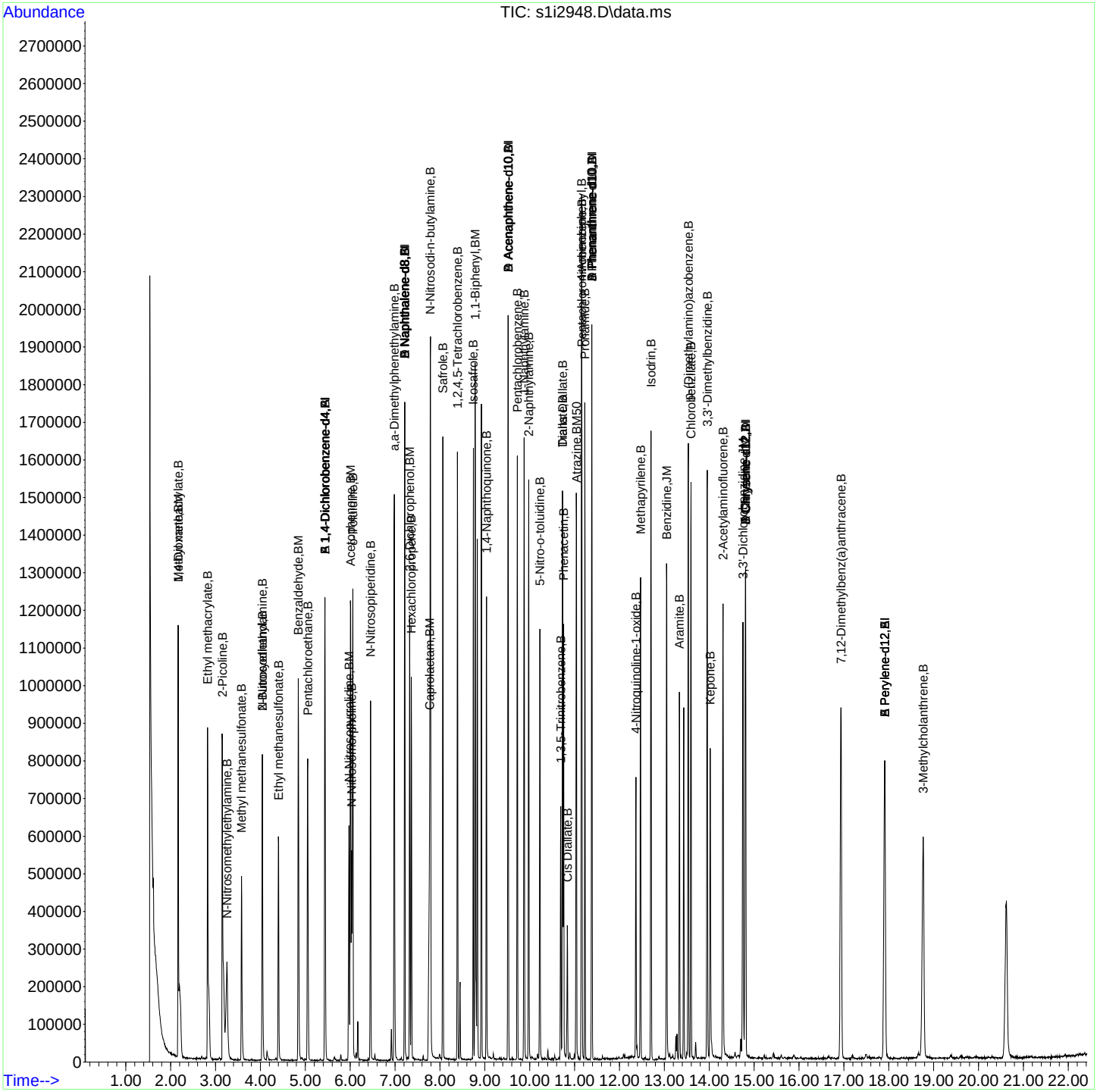
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121) N-Nitrosodi-n-butylamine	84	7.784	7.784	1.079	238394	40.34	ng/uL	94
122) Safrole	162	8.062	8.063	1.118	198594	38.44	ng/uL	96
124) 1,2,4,5-Tetrachloroben...	216	8.388	8.389	0.881	286171	39.68	ng/uL	99
125) 1,1-Biphenyl	154	8.784	8.785	0.923	542388	41.51	ng/uL	100
126) Isosafrole	162	8.741	8.742	0.919	219537	42.75	ng/uL	98
127) 1,4-Naphthoquinone	158	9.036	9.031	0.949	178246	42.10	ng/uL	98
128) Pentachlorobenzene	250	9.725	9.726	1.022	245633	38.74	ng/uL	100
129) 1-Naphthylamine	143	9.875	9.876	1.038	434814	39.75	ng/uL	98
130) 2-Naphthylamine	143	9.977	9.972	1.048	452459	43.50	ng/uL	98
131) 5-Nitro-o-toluidine	152	10.223	10.223	1.074	159432	43.38	ng/uL	98
133) 1,3,5-Trinitrobenzene	75	10.688	10.683	0.939	184060	43.08	ng/uL	99
134) Phenacetin	108	10.758	10.753	0.945	254766	39.22	ng/uL	99
135) Diallate	86	10.726	10.726	0.942	223000	38.86	ng/uL	99
136) Cis Diallate	86	10.838	10.838	0.952	45398	5.83	ng/uL	94
137) Trans Diallate	86	10.726	10.726	0.942	223000	33.03	ng/uL	99
138) Atrazine	200	11.041	11.036	0.970	185293	41.99	ng/uL	98
139) 4-Aminobiphenyl	169	11.154	11.149	0.980	535407	44.20	ng/uL	99
140) Pentachloronitrobenzene	237	11.159	11.159	0.980	85607	37.89	ng/uL	98
141) Pronamide	173	11.228	11.229	0.986	264389	40.46	ng/uL	100
142) 4-Nitroquinoline-1-oxide	190	12.368	12.363	1.086	69880	42.17	ng/uL	97
143) Methapyrilene	58	12.469	12.464	1.095	388663	26.99	ng/uL	99
144) Isodrin	193	12.699	12.694	1.116	114868	37.42	ng/uL	98
146) Aramite	185	13.336	13.341	0.901	74155	41.19	ng/uL	97
147) Kepone	272	14.020	14.020	0.947	90483	35.85	ng/uL	97
148) p-(Dimethylamino)azobe...	120	13.534	13.533	0.914	261878	39.84	ng/uL	99
149) Chlorobenzilate	251	13.593	13.592	0.918	260492	36.47	ng/uL	99
150) 3,3'-Dimethylbenzidine	212	13.956	13.956	0.943	614303	44.66	ng/uL	100
151) 2-Acetylaminofluorene	181	14.304	14.304	0.966	325516	40.97	ng/uL	99
153) 7,12-Dimethylbenz(a)an...	256	16.935	16.945	0.945	417150	37.84	ng/uL	99
154) 3-Methylcholanthrene	269	18.765	18.776	1.047	86308	39.11	ng/uL	95
176) Benzidine	184	13.052	13.047	1.147	542905	50.82	ng/uL	99
178) 3,3'-Dichlorobenzidine	252	14.748	14.743	0.996	335178	38.31	ng/uL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2948.D
Acq On : 30 Sep 2016 09:49
Operator : JLD1
InstName : MSD1
Sample : |WBN160922-18.2|ICV|1|SVM|1|AICV
Misc : |MIX[B,J]
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Sep 30 11:27:30 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD1.I **Injection Date:** 10-NOV-16 12:09

Data File: s111016.B\s1k1005.D **Init. Cal. Date(s)** 29-SEP-16 10:05 - 30-SEP-16 07:50

Lab Sample ID WBN161004-18.4 **Method:** s111016.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD **Method Update:** 30-SEP-16 09:55

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
Benzaldehyde	1.1537	1.03516		.01		-10.27477	20		Averaged
Acetophenone	1.6364	1.65716		.01		1.26864	20		Averaged
Caprolactam	0.1114	0.12111		.01		8.71634	20		Averaged
1,2,4,5-Tetrachlorobenzene	0.6964	0.68334		.01		-1.87536	20		Averaged
1,1'-Biphenyl	40	41.62	40			4.05	20		Linear
Atrazine	0.2448	0.2594		.01		5.96405	20		Averaged

JMB 11/10/2016

JCB 11/11/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1005.D
Acq On : 10 Nov 2016 12:09
Operator : JMB3
InstName : MSD1
Sample : |WBN161004-18.4|CCV|1|SVM|1|A-CCV
Misc : |MIX[B]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 10 14:58:18 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	242096	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.099	7.105	1.000	795525	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.410	9.415	1.000	467843	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.271	11.271	1.000	766902	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.657	14.662	1.000	691425	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.658	17.668	1.000	722665	40.00	ng/uL	-0.01
99) B 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	242094	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.099	7.105	1.000	795525	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.410	9.415	1.000	467843	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.271	11.271	1.000	766902	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.657	14.662	1.000	691425	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.658	17.668	1.000	722665	40.00	ng/uL	-0.01
155) D Naphthalene-d8	136	7.099	7.105	1.000	795525	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.410	9.415	1.000	467843	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.271	11.271	1.000	766902	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.657	14.662	1.000	693208	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.099	7.105	1.000	795525	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.658	17.668	1.000	722665	40.00	ng/uL	-0.01
173) F 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	242094	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.271	11.271	1.000	766902	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.657	14.662	1.000	691425	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.660	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.810	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.110	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.554	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.405	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	13.245	13.245	0.904	519	0.03	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.077	2.077	0.390	141656	43.66	ng/uL	84
101) Methyl methacrylate	100	2.077	2.077	0.390	68427	43.51	ng/uL#	54
102) Ethyl methacrylate	69	2.730	2.730	0.513	300176	42.65	ng/uL	82
103) 2-Picoline	93	3.056	3.056	0.574	360097	40.55	ng/uL	100
104) N-Nitrosomethylethylamine	88	3.168	3.168	0.595	135783	39.59	ng/uL	97
105) Methyl methanesulfonate	80	3.489	3.489	0.655	229320	39.72	ng/uL	98
106) N-Nitrosodiethylamine	102	3.944	3.944	0.741	164262	42.87	ng/uL	100
107) 2-Butoxyethanol	57	4.024	4.024	0.756	394267	39.56	ng/uL	96
108) Ethyl methanesulfonate	79	4.307	4.307	0.809	246367	41.00	ng/uL	99
109) Benzaldehyde	77	4.735	4.735	0.889	250607	35.89	ng/uL	98
110) Pentachloroethane	167	4.939	4.939	0.928	141040	39.59	ng/uL	100
111) N-Nitrosopyrrolidine	100	5.869	5.869	1.102	171408	42.68	ng/uL	93
112) Acetophenone	105	5.896	5.896	1.108	401189	40.51	ng/uL	100
113) N-Nitrosomorpholine	56	5.928	5.928	1.114	266566	43.36	ng/uL	96
114) o-Toluidine	106	5.949	5.949	1.118	393555	40.35	ng/uL	99
116) N-Nitrosopiperidine	114	6.345	6.345	0.894	164188	40.73	ng/uL	87
117) a,a-Dimethylphenethyla...	58	6.869	6.869	0.968	1154585	41.72	ng/uL	98
118) 2,6-Dichlorophenol	162	7.222	7.222	1.017	198086	38.84	ng/uL	95
119) Hexachloropropene	213	7.254	7.254	1.022	144294	32.18	ng/uL	100
120) Caprolactam	113	7.677	7.677	1.081	96348	43.49	ng/uL	94

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1005.D
Acq On : 10 Nov 2016 12:09
Operator : JMB3
InstName : MSD1
Sample : |WBN161004-18.4|CCV|1|SVM|1|A-CCV
Misc : |MIX[B]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 10 14:58:18 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

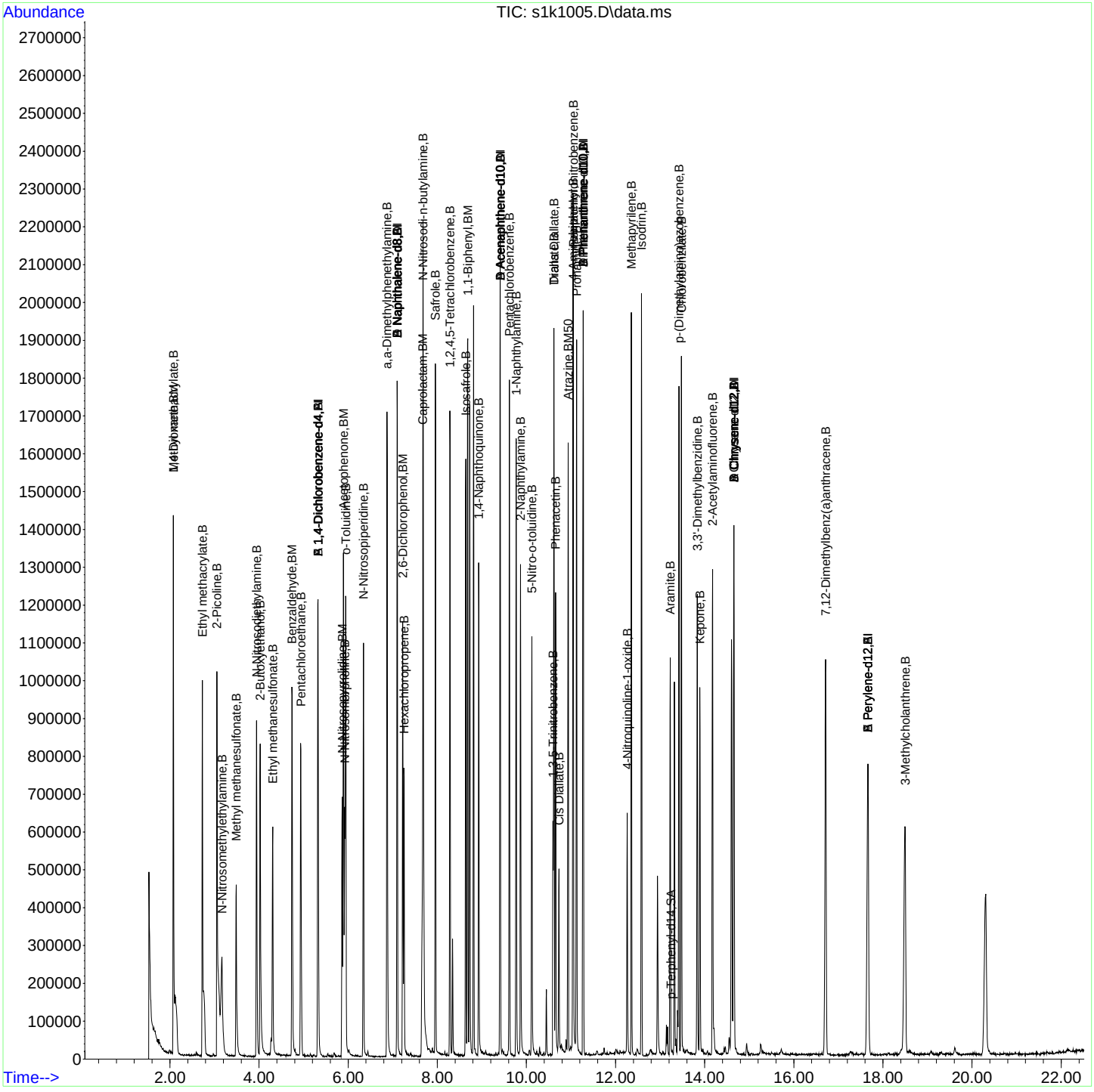
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121) N-Nitrosodi-n-butylamine	84	7.682	7.682	1.082	283214	43.70	ng/uL	91
122) Safrole	162	7.955	7.955	1.121	229966	40.58	ng/uL	90
124) 1,2,4,5-Tetrachloroben...	216	8.281	8.281	0.880	319697	39.25	ng/uL	99
125) 1,1-Biphenyl	154	8.683	8.683	0.923	613908	41.62	ng/uL	99
126) Isosafrole	162	8.640	8.640	0.918	234085	40.36	ng/uL	99
127) 1,4-Naphthoquinone	158	8.929	8.929	0.949	201781	42.19	ng/uL	99
128) Pentachlorobenzene	250	9.619	9.619	1.022	281734	39.34	ng/uL	99
129) 1-Naphthylamine	143	9.768	9.768	1.038	473729	38.34	ng/uL	93
130) 2-Naphthylamine	143	9.870	9.870	1.049	448791	38.20	ng/uL	99
131) 5-Nitro-o-toluidine	152	10.121	10.121	1.076	159187	38.35	ng/uL	96
133) 1,3,5-Trinitrobenzene	75	10.597	10.597	0.940	191975	42.24	ng/uL	99
134) Phenacetin	108	10.656	10.656	0.945	271092	39.23	ng/uL	99
135) Diallate	86	10.619	10.619	0.942	261438	42.83	ng/uL	99
136) Cis Diallate	86	10.731	10.731	0.952	52708	6.36	ng/uL	99
137) Trans Diallate	86	10.619	10.619	0.942	261438	36.41	ng/uL	99
138) Atrazine	200	10.934	10.934	0.970	198934	42.38	ng/uL	99
139) 4-Aminobiphenyl	169	11.047	11.047	0.980	451804	35.06	ng/uL	99
140) Pentachloronitrobenzene	237	11.052	11.052	0.981	103264	42.97	ng/uL	97
141) Pronamide	173	11.127	11.127	0.987	289881	41.70	ng/uL	97
142) 4-Nitroquinoline-1-oxide	190	12.261	12.261	1.088	60001	35.16	ng/uL	91
143) Methapyrilene	58	12.357	12.357	1.096	604596	39.47	ng/uL	95
144) Isodrin	193	12.582	12.582	1.116	136097	41.68	ng/uL	99
146) Aramite	185	13.229	13.229	0.903	79446	44.43	ng/uL	98
147) Kepone	272	13.892	13.892	0.948	100773	40.20	ng/uL	96
148) p-(Dimethylamino)azobe...	120	13.421	13.421	0.916	265142	40.61	ng/uL	99
149) Chlorobenzilate	251	13.480	13.480	0.920	316752	44.65	ng/uL	98
150) 3,3'-Dimethylbenzidine	212	13.839	13.839	0.944	493955	36.16	ng/uL	98
151) 2-Acetylaminofluorene	181	14.181	14.181	0.968	346467	43.91	ng/uL	99
153) 7,12-Dimethylbenz(a)an...	256	16.716	16.716	0.947	457343	37.97	ng/uL	98
154) 3-Methylcholanthrene	269	18.497	18.497	1.048	89170	36.97	ng/uL	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1005.D
Acq On : 10 Nov 2016 12:09
Operator : JMB3
InstName : MSD1
Sample : |WBN161004-18.4|CCV|1|SVM|1|A-CCV
Misc : |MIX[B]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 10 14:58:18 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD1.I **Injection Date:** 10-NOV-16 12:40

Data File: s111016.B\s1k1006.D **Init. Cal. Date(s)** 29-SEP-16 10:05 - 30-SEP-16 07:50

Lab Sample ID WBN161025-05.4 **Method:** s111016.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD **Method Update:** 30-SEP-16 09:55

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	2-Fluorophenol	1.4846	1.47567		.01		-0.60151	20		Averaged
S	Phenol-d5	1.8177	1.83149		.01		0.75865	20		Averaged
S	Nitrobenzene-d5	0.4682	0.4693		.01		0.23494	20		Averaged
S	2-Fluorobiphenyl	1.4097	1.43554		.01		1.83301	20		Averaged
S	2,4,6-Tribromophenol	0.2609	0.26299		.01		0.80107	20		Averaged
S	p-Terphenyl-d14	1.068	1.13696		.01		6.45693	20		Averaged
	Phenol	1.6271	1.79747		.8		10.47078	20		Averaged
	bis(2-Chloroethyl) ether	1.3182	1.31503		.7		-0.24048	20		Averaged
	2-Chlorophenol	1.2697	1.29759		.8		2.19658	20		Averaged
	o-Cresol	1.026	1.0619		.7		3.49903	20		Averaged
	bis(2-Chloro-1-methylethyl)eth	2.5727	2.8728		.01		11.66479	20		Averaged
	N-Nitrosodipropylamine	1.0082	1.11365		.5		10.45923	20		Averaged
	m,p-Cresols	1.3334	1.26712		.6		-4.97075	20		Averaged
	Hexachloroethane	0.591	0.57355		.3		-2.95262	20		Averaged
	Nitrobenzene	0.4285	0.43839		.2		2.30805	20		Averaged
	Isophorone	0.9079	0.93344		.4		2.81309	20		Averaged
	2-Nitrophenol	0.1995	0.21278		.1		6.65664	20		Averaged
	2,4-Dimethylphenol	0.3236	0.33852		.2		4.61063	20		Averaged
	bis(2-Chloroethoxy)methane	0.4812	0.49392		.3		2.64339	20		Averaged
	2,4-Dichlorophenol	0.3205	0.34214		.2		6.75195	20		Averaged
	Naphthalene	0.9466	0.96436		.7		1.87619	20		Averaged
	4-Chloroaniline	0.3468	0.33728		.01		-2.7451	20		Averaged
	Hexachlorobutadiene	0.2703	0.26922		.01		-0.39956	20		Averaged
	4-Chloro-3-methylphenol	0.411	0.4374		.2		6.42336	20		Averaged
	2-Methylnaphthalene	0.7312	0.74973		.4		2.53419	20		Averaged
	1-Methylnaphthalene	0.6612	0.66605		.4		0.73351	20		Averaged
	Hexachlorocyclopentadiene	0.4705	0.37677		.05		-19.92136	20		Averaged
	2,4,6-Trichlorophenol	0.4473	0.45504		.2		1.73038	20		Averaged
	2,4,5-Trichlorophenol	0.4317	0.43988		.2		1.89483	20		Averaged
	2-Chloronaphthalene	1.2583	1.28577		.8		2.1831	20		Averaged
	o-Nitroaniline	0.497	0.52405		.01		5.44266	20		Averaged
	Dimethylphthalate	1.5318	1.56041		.01		1.86774	20		Averaged
	2,6-Dinitrotoluene	0.329	0.34414		.2		4.60182	20		Averaged
	Acenaphthylene	1.8811	1.91854		.9		1.99032	20		Averaged
	m-Nitroaniline	0.2905	0.29552		.01		1.72806	20		Averaged
	Acenaphthene	1.081	1.11115		.9		2.78908	20		Averaged
	2,4-Dinitrophenol	40	42.78	40			6.95	20		Linear

Continuing Calibration Summary

Instrument ID: MSD1.I **Injection Date:** 10-NOV-16 12:40

Data File: s111016.B\s1k1006.D **Init. Cal. Date(s)** 29-SEP-16 10:05 30-SEP-16 07:50

Lab Sample ID WBN161025-05.4 **Method:** s111016.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
4-Nitrophenol	40	38.11	40			-4.725	20		Linear
2,4-Dinitrotoluene	0.4523	0.46516		.2		2.84325	20		Averaged
Dibenzofuran	1.6454	1.69682		.8		3.12508	20		Averaged
2,3,4,6-Tetrachlorophenol	0.3915	0.40002		.01		2.17625	20		Averaged
Diethylphthalate	1.724	1.7556		.01		1.83295	20		Averaged
4-Chlorophenylphenylether	0.8049	0.81188		.4		0.86719	20		Averaged
Fluorene	1.4357	1.47839		.9		2.97346	20		Averaged
p-Nitroaniline	0.272	0.27218		.01		0.06618	20		Averaged
2-Methyl-4,6-dinitrophenol	40	42.25	40			5.625	20		Linear
Diphenylamine	0.6392	0.63903		.01		-0.0266	20		Averaged
4-Bromophenylphenylether	0.2867	0.29102		.1		1.5068	20		Averaged
Hexachlorobenzene	0.2892	0.29194		.1		0.94744	20		Averaged
Pentachlorophenol	40	33.98	40			-15.05	20		Linear
Phenanthrene	0.9221	0.93343		.7		1.22872	20		Averaged
Anthracene	0.9651	0.99001		.7		2.58108	20		Averaged
Carbazole	0.9193	0.97485		.01		6.04264	20		Averaged
Di-n-butylphthalate	1.4744	1.55288		.01		5.32284	20		Averaged
Fluoranthene	1.3571	1.43429		.6		5.68786	20		Averaged
Pyrene	1.6191	1.67588		.6		3.50689	20		Averaged
Butylbenzylphthalate	0.7754	0.8657		.01		11.6456	20		Averaged
Benzo(a)anthracene	1.2469	1.25862		.8		0.93993	20		Averaged
bis(2-Ethylhexyl)phthalate	0.8639	0.93313		.01		8.01366	20		Averaged
Chrysene	1.0377	1.06917		.7		3.03267	20		Averaged
Di-n-octylphthalate	40	42.41	40			6.025	20		Linear
Benzo(b)fluoranthene	1.4151	1.32355		.7		-6.46951	20		Averaged
Benzo(k)fluoranthene	1.2245	1.1262		.7		-8.02777	20		Averaged
Benzo(a)pyrene	1.2239	1.20842		.7		-1.26481	20		Averaged
Indeno(1,2,3-cd)pyrene	0.936	1.05522		.5		12.73718	20		Averaged
Dibenzo(a,h)anthracene	0.8716	0.9988		.4		14.59385	20		Averaged
Benzo(ghi)perylene	0.9551	1.13329		.5		18.65669	20		Averaged

JMB 11/10/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1006.D
Acq On : 10 Nov 2016 12:40
Operator : JMB3
InstName : MSD1
Sample : |WBN161025-05.4|CCV|1|SVM|1|M-CCV
Misc : |MIX[A]
ALS Vial : 2 Sample Multiplier: 1

JCB 11/11/2016

Quant Time: Nov 10 15:03:12 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	192132	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.105	7.105	1.000	631767	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.415	9.415	1.000	354895	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.271	11.271	1.000	689318	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.662	14.662	1.000	564283	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.668	17.668	1.000	586549	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	191499	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.105	7.105	1.000	631767	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.415	9.415	1.000	354895	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.271	11.271	1.000	689318	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.662	14.662	1.000	564283	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.668	17.668	1.000	586549	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.105	7.105	1.000	631767	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.415	9.415	1.000	354895	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.271	11.271	1.000	689318	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.662	14.662	1.000	564295	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.105	7.105	1.000	631767	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.668	17.668	1.000	586549	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	191499	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.271	11.271	1.000	689318	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.662	14.662	1.000	564283	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.660	3.660	0.688	283524	39.76	ng/uL	0.00
8) Phenol-d5	99	4.810	4.810	0.904	351887	40.30	ng/uL	0.00
25) Nitrobenzene-d5	82	6.110	6.110	0.860	296489	40.09	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.554	8.554	0.909	509465	40.73	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.405	10.405	1.105	93335	40.32	ng/uL	0.00
83) p-Terphenyl-d14	244	13.245	13.245	0.903	641565	42.58	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.077	2.077	0.390	170946	31.62	ng/uL	97
3) N-Methyl-N-nitrosometh...	74	2.334	2.334	0.438	147292	32.60	ng/uL#	65
4) Pyridine	79	2.366	2.366	0.444	277230	37.49	ng/uL	76
6) p-Benzoquinone	54	4.254	4.254	0.799	162595	30.90	ng/uL	97
7) Aniline	93	4.874	4.874	0.916	323343	35.69	ng/uL	95
9) Phenol	94	4.832	4.832	0.908	345352	44.19	ng/uL	93
10) bis(2-Chloroethyl) ether	93	4.960	4.960	0.932	252659	39.91	ng/uL	98
11) 2-Chlorophenol	128	5.035	5.035	0.946	249309	40.88	ng/uL	98
12) n-Decane	43	5.099	5.099	0.958	433334	44.98	ng/uL	94
13) 1,3-Dichlorobenzene	146	5.243	5.243	0.985	272458	40.35	ng/uL	100
14) 1,4-Dichlorobenzene	146	5.345	5.345	1.004	249933	40.51	ng/uL	99
15) 1,2-Dichlorobenzene	146	5.559	5.559	1.044	250481	40.59	ng/uL	99
16) bis(2-Chloro-1-methyle...	45	5.719	5.719	1.074	551957	44.67	ng/uL	98
17) Benzyl alcohol	108	5.516	5.516	1.036	161395	38.23	ng/uL	95
18) o-Cresol	107	5.671	5.671	1.065	204025	41.40	ng/uL	98
19) m,p-Cresols	107	5.907	5.907	1.110	243455	38.01	ng/uL	99
20) N-Nitrosodipropylamine	70	5.907	5.907	1.110	213968	44.18	ng/uL	94
21) p-Toluidine	106	5.960	5.960	1.120	259621	35.51	ng/uL	98
22) m-Toluidine	106	6.008	6.008	1.129	259341	36.60	ng/uL	100
23) Hexachloroethane	117	6.035	6.035	1.134	110197	38.82	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1006.D
Acq On : 10 Nov 2016 12:40
Operator : JMB3
InstName : MSD1
Sample : |WBN161025-05.4|CCV|1|SVM|1|M-CCV
Misc : |MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 15:03:12 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
26) Nitrobenzene	77	6.137	6.137	0.864	276958	40.93	ng/uL	98
27) Isophorone	82	6.474	6.474	0.911	589714	41.13	ng/uL	97
28) 2-Nitrophenol	139	6.581	6.581	0.926	134429	42.66	ng/uL	98
29) 2,4-Dimethylphenol	122	6.650	6.650	0.936	213868	41.84	ng/uL	95
30) bis(2-Chloroethoxy)met...	93	6.784	6.784	0.955	312042	41.06	ng/uL	98
31) 2,4-Dichlorophenol	162	6.918	6.918	0.974	216151	42.70	ng/uL	99
32) Benzoic acid	105	6.816	6.816	0.959	79278	32.92	ng/uL	92
33) 1,2,4-Trichlorobenzene	180	7.030	7.030	0.989	253340	41.00	ng/uL	99
34) alpha-Terpineol	59	7.158	7.158	1.008	284744	43.98	ng/uL	96
35) Naphthalene	128	7.131	7.131	1.004	609249	40.75	ng/uL	99
36) 4-Chloroaniline	127	7.212	7.212	1.015	213082	38.90	ng/uL	99
37) Hexachlorobutadiene	225	7.308	7.308	1.029	170082	39.85	ng/uL	98
38) 4-Chloro-3-methylphenol	107	7.880	7.880	1.109	276336	42.57	ng/uL	98
39) 2-Methylnaphthalene	142	8.062	8.062	1.135	473653	41.01	ng/uL	99
40) Phthalic anhydride	104	8.142	8.142	1.146	187118	37.58	ng/uL	89
41) 1-Methylnaphthalene	142	8.191	8.191	1.153	420791	40.29	ng/uL	98
43) Hexachlorocyclopentadiene	237	8.271	8.271	0.878	133714	32.03	ng/uL	100
44) 2,3-Dichloroaniline	161	8.431	8.431	0.895	241472	42.90	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.442	8.442	0.897	161493	40.69	ng/uL	100
46) 2,4,5-Trichlorophenol	196	8.490	8.490	0.902	156111	40.76	ng/uL	97
48) 2-Chloronaphthalene	162	8.699	8.699	0.924	456312	40.87	ng/uL	99
49) o-Nitroaniline	65	8.838	8.838	0.939	185984	42.18	ng/uL	100
50) 1,4-Dinitrobenzene	168	9.025	9.025	0.959	91155	42.50	ng/uL	95
51) m-Nitroaniline	138	9.367	9.367	0.995	104879	40.69	ng/uL	98
52) Dimethylphthalate	163	9.089	9.089	0.965	553783	40.75	ng/uL	99
53) m-Dinitrobenzene	168	9.116	9.116	0.968	88667	42.25	ng/uL	94
54) 2,6-Dinitrotoluene	165	9.159	9.159	0.973	122134	41.84	ng/uL	99
55) 2,4-Dinitrotoluene	165	9.667	9.667	1.027	165083	41.14	ng/uL	98
56) Acenaphthylene	152	9.228	9.228	0.980	680882	40.80	ng/uL	99
57) Acenaphthene	154	9.453	9.453	1.004	394340	41.12	ng/uL	100
58) 2,4-Dinitrophenol	184	9.501	9.501	1.009	61645	42.78	ng/uL	90
59) Dibenzofuran	168	9.672	9.672	1.027	602192	41.25	ng/uL	97
60) 2,3,4,6-Tetrachlorophenol	232	9.833	9.833	1.044	141964	40.87	ng/uL	97
61) Diethylphthalate	149	9.977	9.977	1.060	623055	40.73	ng/uL	100
62) 4-Nitrophenol	139	9.603	9.603	1.020	74954	38.11	ng/uL	94
63) Fluorene	166	10.105	10.105	1.073	524672	41.19	ng/uL	100
64) 4-Chlorophenylphenylether	204	10.111	10.111	1.074	288132	40.35	ng/uL	99
65) p-Nitroaniline	138	10.137	10.137	1.077	96595	40.03	ng/uL	99
68) 2-Methyl-4,6-dinitroph...	198	10.180	10.180	0.903	89313	42.25	ng/uL	97
69) Diphenylamine	169	10.260	10.260	0.910	440495	39.99	ng/uL	99
70) 1,2-Diphenylhydrazine	77	10.309	10.309	0.915	540433	39.65	ng/uL	99
71) 4-Bromophenylphenylether	248	10.720	10.720	0.951	200602	40.60	ng/uL	99
72) Hexachlorobenzene	284	10.790	10.790	0.957	201238	40.38	ng/uL	97
73) Pentachlorophenol	266	11.041	11.041	0.980	96171	33.98	ng/uL	96
74) n-Octadecane	57	11.159	11.159	0.990	538524	42.76	ng/uL	96
75) Dinoseb	211	11.271	11.271	1.000	148680	42.90	ng/uL	92
76) Phenanthrene	178	11.303	11.303	1.003	643429	40.49	ng/uL	99
77) Anthracene	178	11.368	11.368	1.009	682435	41.03	ng/uL	100
78) Carbazole	167	11.566	11.566	1.026	671980	42.42	ng/uL	100
79) Di-n-butylphthalate	149	12.009	12.009	1.065	1070429	42.13	ng/uL	99
80) Fluoranthene	202	12.774	12.774	1.133	988681	42.28	ng/uL	99
82) Pyrene	202	13.052	13.052	0.890	945669	41.40	ng/uL	99
84) Butylbenzylphthalate	149	13.860	13.860	0.945	488501	44.66	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1006.D
Acq On : 10 Nov 2016 12:40
Operator : JMB3
InstName : MSD1
Sample : |WBN161025-05.4|CCV|1|SVM|1|M-CCV
Misc : |MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 15:03:12 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

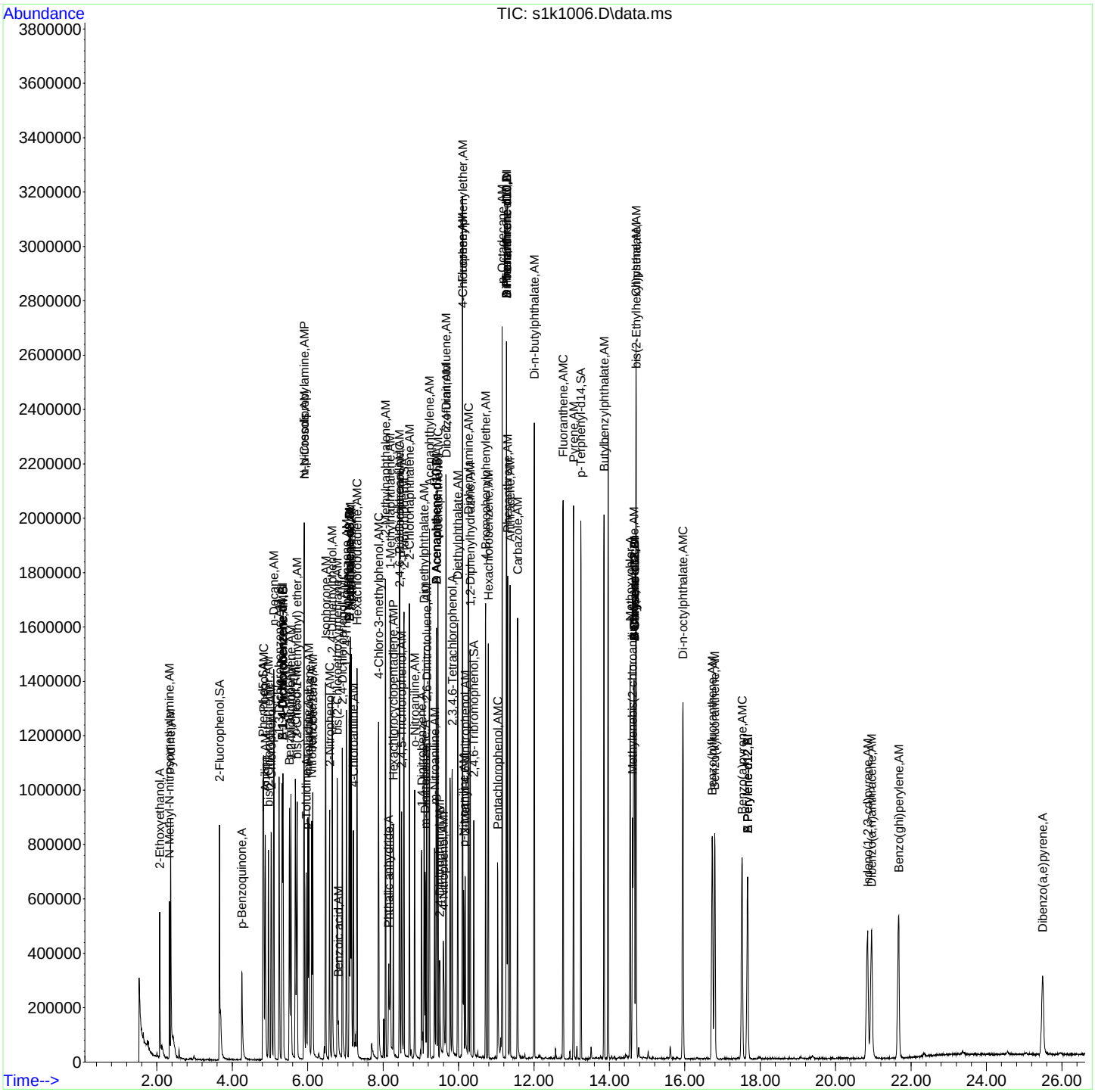
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
85) bis(2-Ethylhexyl)phtha...	149	14.711	14.711	1.003	526548	43.21	ng/uL	99
86) Benzo(a)anthracene	228	14.646	14.646	0.999	710220	40.38	ng/uL	99
87) Chrysene	228	14.705	14.705	1.003	603315	41.21	ng/uL	99
88) Methoxychlor	227	14.555	14.555	0.993	688430	42.88	ng/uL	99
89) Methylenebis(2-chloroa...	231	14.614	14.614	0.997	138848	41.40	ng/uL	98
90) Di-n-octylphthalate	149	15.951	15.951	1.088	1035507	42.41	ng/uL	97
92) Benzo(b)fluoranthene	252	16.727	16.727	0.947	776326	37.41	ng/uL	100
93) Benzo(k)fluoranthene	252	16.796	16.796	0.951	660572	36.79	ng/uL	99
94) Benzo(a)pyrene	252	17.519	17.519	0.992	708800	39.49	ng/uL	99
95) Indeno(1,2,3-cd)pyrene	276	20.851	20.851	1.180	618941	45.09	ng/uL	96
96) Dibenzo(a,h)anthracene	278	20.958	20.958	1.186	585843	45.84	ng/uL	100
97) Benzo(ghi)perylene	276	21.674	21.674	1.227	664731	47.46	ng/uL	97
98) Dibenzo(a,e)pyrene	302	25.488	25.488	1.443	395814	57.78	ng/uL	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1006.D
Acq On : 10 Nov 2016 12:40
Operator : JMB3
InstName : MSD1
Sample : |WBN161025-05.4|CCV|1|SVM|1|M-CCV
Misc : |MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 15:03:12 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD1.I **Injection Date:** 10-NOV-16 14:07

Data File: s111016.B\s1k1009.D **Init. Cal. Date(s)** 29-SEP-16 10:05 - 30-SEP-16 07:50

Lab Sample ID WBN160801-45.2 **Method:** s111016.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD **Method Update:** 30-SEP-16 09:55

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
3,3'-Dichlorobenzidine	0.5027	0.51975		.01		3.39168	20		Averaged

JMB 11/10/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1009.D
Acq On : 10 Nov 2016 14:07
Operator : JMB3
InstName : MSD1
Sample : |WBN160801-45.2|CCV|1|SVM|1|B-CCV
Misc : |MIX[J]
ALS Vial : 6 Sample Multiplier: 1

JCB 11/11/2016

Quant Time: Nov 10 14:59:00 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

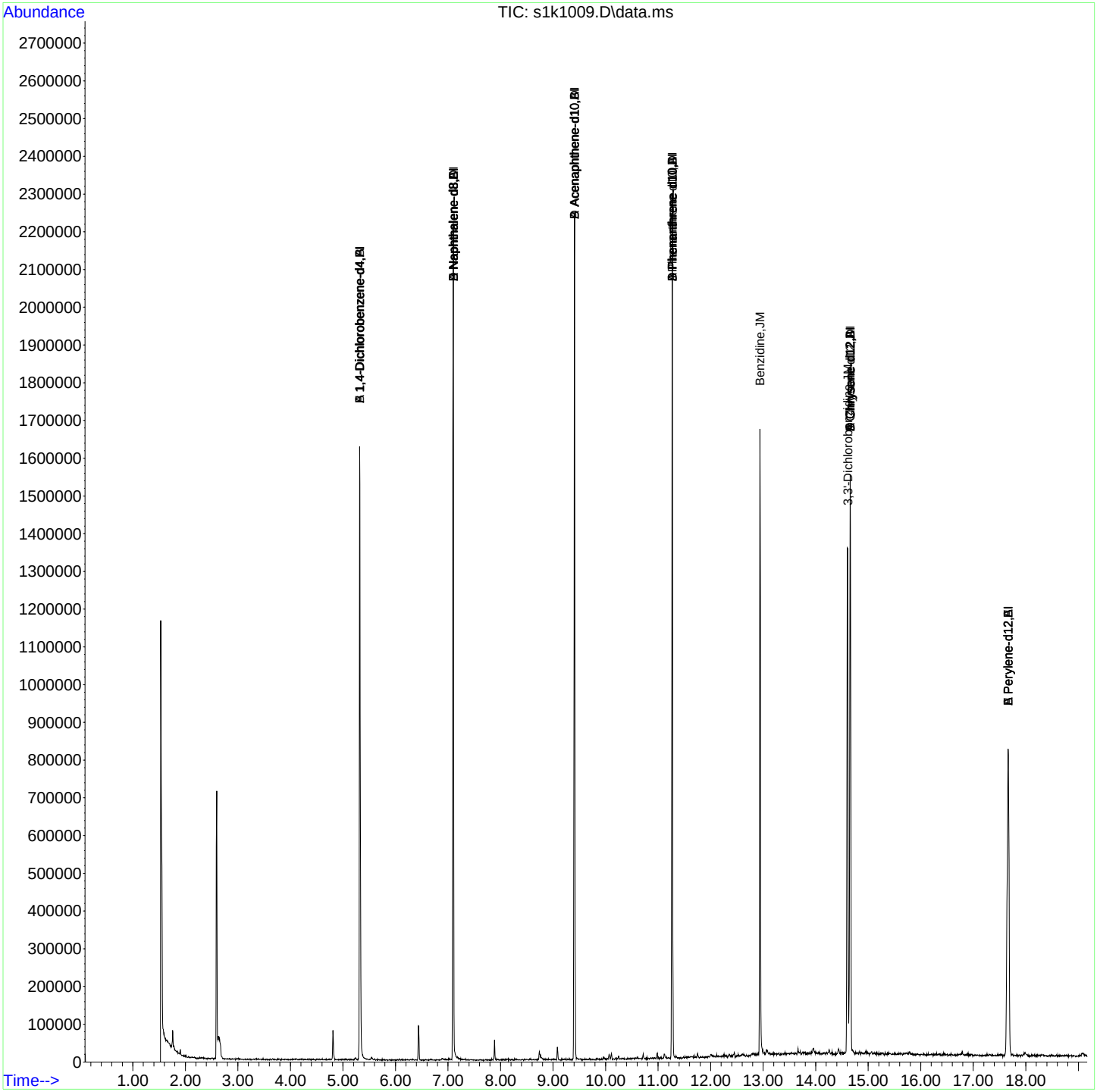
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.318	5.324	1.000	307846	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.099	7.105	1.000	951882	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.405	9.415	1.000	505351	40.00	ng/uL	-0.01
67) A Phenanthrene-d10	188	11.271	11.271	1.000	909713	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.657	14.662	1.000	761954	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.663	17.668	1.000	775495	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.318	5.324	1.000	305802	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.099	7.105	1.000	951882	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.405	9.415	1.000	505351	40.00	ng/uL	-0.01
132) B Phenanthrene-d10	188	11.271	11.271	1.000	909713	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.657	14.662	1.000	761954	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.663	17.668	1.000	775495	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.099	7.105	1.000	951882	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.405	9.415	1.000	505351	40.00	ng/uL	-0.01
160) D Phenanthrene-d10	188	11.271	11.271	1.000	909713	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.657	14.662	1.000	761954	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.099	7.105	1.000	951882	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.663	17.668	1.000	775495	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.318	5.324	1.000	305802	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.271	11.271	1.000	909713	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.657	14.662	1.000	761954	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.660	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.810	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.110	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.554	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.405	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.245	0.000	0d	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
176) Benzidine	184	12.940	12.940	1.148	646502	47.96	ng/uL	99
178) 3,3'-Dichlorobenzidine	252	14.609	14.604	0.997	396027	41.36	ng/uL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1009.D
Acq On : 10 Nov 2016 14:07
Operator : JMB3
InstName : MSD1
Sample : |WBN160801-45.2|CCV|1|SVM|1|B-CCV
Misc : |MIX[J]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 14:59:00 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD1.I **Injection Date:** 11-NOV-16 11:27

Data File: s111116.B\s1k1103.D **Init. Cal. Date(s)** 29-SEP-16 10:05 - 30-SEP-16 07:50

Lab Sample ID WBN161004-18.4 **Method:** s111116.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD **Method Update:** 30-SEP-16 09:55

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
Benzaldehyde	1.1537	1.186		.01		2.79969	20		Averaged
Acetophenone	1.6364	1.7262		.01		5.48766	20		Averaged
Caprolactam	0.1114	0.11639		.01		4.47935	20		Averaged
1,2,4,5-Tetrachlorobenzene	0.6964	0.73319		.01		5.28288	20		Averaged
1,1'-Biphenyl	40	43.78	40			9.45	20		Linear
Atrazine	0.2448	0.26149		.01		6.81781	20		Averaged

JMB 11/11/2016

HM 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1103.D
Acq On : 11 Nov 2016 11:27
Operator : JMB3
InstName : MSD1
Sample : |WBN161004-18.4|CCV|1|SVM|1|A-CCV
Misc : |MIX[B]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 11 13:01:39 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	207441	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.148	7.153	1.000	680079	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.458	9.458	1.000	381014	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.325	11.319	1.000	614875	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.721	14.732	1.000	486858	40.00	ng/uL	-0.01
91) A Perylene-d12	264	17.781	17.786	1.000	369798	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	205643	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.148	7.153	1.000	680079	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.458	9.458	1.000	381014	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.325	11.319	1.000	614875	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.721	14.732	1.000	486858	40.00	ng/uL	-0.01
152) B Perylene-d12	264	17.781	17.786	1.000	369798	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.148	7.153	1.000	680079	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.458	9.458	1.000	381014	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.325	11.319	1.000	614875	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.721	14.732	1.000	486858	40.00	ng/uL	-0.01
169) E Naphthalene-d8	136	7.148	7.153	1.000	680079	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.781	17.786	1.000	369798	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	205643	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.325	11.319	1.000	614875	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.721	14.732	1.000	486858	40.00	ng/uL	-0.01
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.714	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.864	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.158	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.597	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.453	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.298	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
100) 1,4-Dioxane	88	2.125	2.125	0.396	119204	43.25	ng/uL	86
101) Methyl methacrylate	100	2.125	2.125	0.396	59490	44.53	ng/uL#	62
102) Ethyl methacrylate	69	2.778	2.778	0.517	198583	33.21	ng/uL	89
103) 2-Picoline	93	3.109	3.109	0.579	270144	35.81	ng/uL	97
104) N-Nitrosomethylethylamine	88	3.216	3.216	0.599	100242	34.41	ng/uL	94
105) Methyl methanesulfonate	80	3.532	3.532	0.657	210330	42.89	ng/uL	99
106) N-Nitrosodiethylamine	102	3.992	3.992	0.743	117160	35.99	ng/uL	96
107) 2-Butoxyethanol	57	4.072	4.072	0.758	332450	39.27	ng/uL	98
108) Ethyl methanesulfonate	79	4.350	4.350	0.810	216955	42.51	ng/uL	100
109) Benzaldehyde	77	4.789	4.789	0.891	243892	41.12	ng/uL	96
110) Pentachloroethane	167	4.987	4.987	0.928	132439	43.77	ng/uL	98
111) N-Nitrosopyrrolidine	100	5.912	5.912	1.101	120074	35.20	ng/uL	84
112) Acetophenone	105	5.944	5.944	1.107	354981	42.20	ng/uL	100
113) N-Nitrosomorpholine	56	5.971	5.971	1.112	203157	38.91	ng/uL	99
114) o-Toluidine	106	5.992	5.992	1.115	290693	35.09	ng/uL	100
116) N-Nitrosopiperidine	114	6.393	6.393	0.894	119674	34.73	ng/uL#	83
117) a,a-Dimethylphenethyla...	58	6.918	6.918	0.968	894657	37.81	ng/uL	99
118) 2,6-Dichlorophenol	162	7.271	7.271	1.017	178659	40.98	ng/uL	99
119) Hexachloropropene	213	7.303	7.303	1.022	166090	43.33	ng/uL	100
120) Caprolactam	113	7.725	7.725	1.081	79151	41.79	ng/uL	98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1103.D
Acq On : 11 Nov 2016 11:27
Operator : JMB3
InstName : MSD1
Sample : |WBN161004-18.4|CCV|1|SVM|1|A-CCV
Misc : |MIX[B]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 11 13:01:39 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

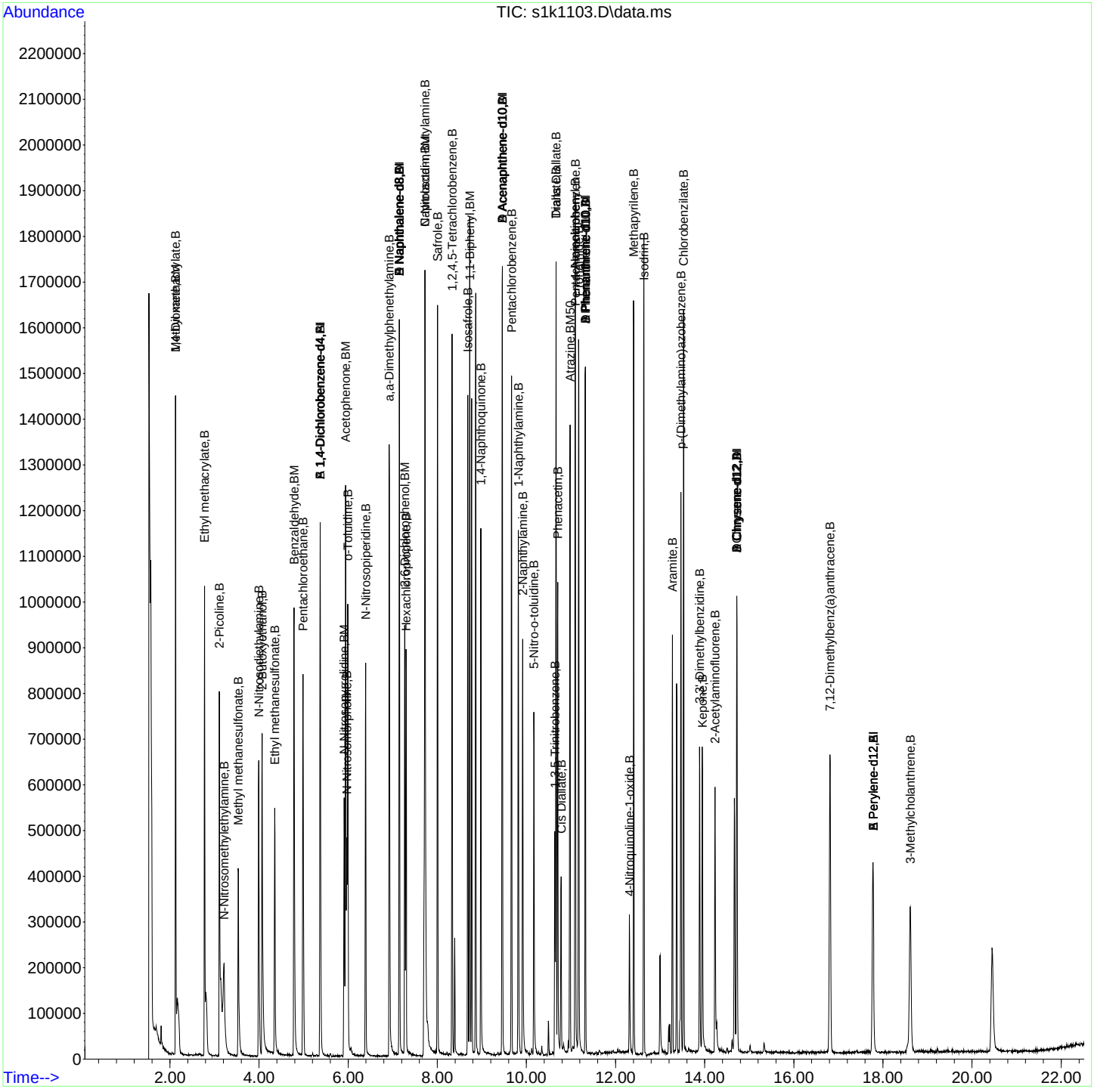
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
121) N-Nitrosodi-n-butylamine	84	7.725	7.725	1.081	224495	40.52	ng/uL	87
122) Safrole	162	8.003	8.003	1.120	192477	39.74	ng/uL	92
124) 1,2,4,5-Tetrachloroben...	216	8.330	8.330	0.881	279355	42.11	ng/uL	97
125) 1,1-Biphenyl	154	8.725	8.725	0.923	522786	43.78	ng/uL	99
126) Isosafrole	162	8.683	8.683	0.918	193912	41.05	ng/uL	99
127) 1,4-Naphthoquinone	158	8.977	8.977	0.949	162610	41.75	ng/uL	95
128) Pentachlorobenzene	250	9.667	9.667	1.022	240137	41.17	ng/uL	98
129) 1-Naphthylamine	143	9.817	9.817	1.038	324127	32.21	ng/uL	93
130) 2-Naphthylamine	143	9.918	9.918	1.049	319963	33.44	ng/uL	98
131) 5-Nitro-o-toluidine	152	10.164	10.164	1.075	112352	33.23	ng/uL	96
133) 1,3,5-Trinitrobenzene	75	10.640	10.640	0.940	156273	42.88	ng/uL	98
134) Phenacetin	108	10.704	10.704	0.945	225096	40.63	ng/uL	100
135) Diallate	86	10.667	10.667	0.942	228717	46.74	ng/uL	98
136) Cis Diallate	86	10.779	10.779	0.952	44364	6.68	ng/uL	97
137) Trans Diallate	86	10.667	10.667	0.942	228717	39.73	ng/uL	98
138) Atrazine	200	10.983	10.983	0.970	160781	42.72	ng/uL	100
139) 4-Aminobiphenyl	169	11.095	11.095	0.980	316963	30.68	ng/uL	99
140) Pentachloronitrobenzene	237	11.100	11.100	0.980	90725	47.08	ng/uL	98
141) Pronamide	173	11.170	11.170	0.986	245926	44.13	ng/uL	99
142) 4-Nitroquinoline-1-oxide	190	12.314	12.314	1.087	27053	22.32	ng/uL	82
143) Methapyrilene	58	12.405	12.405	1.095	542469	44.17	ng/uL	95
144) Isodrin	193	12.635	12.635	1.116	119481	45.64	ng/uL	97
146) Aramite	185	13.277	13.277	0.902	66380	52.73	ng/uL	99
147) Kepone	272	13.951	13.951	0.948	72497	41.07	ng/uL	94
148) p-(Dimethylamino)azobe...	120	13.470	13.470	0.915	182202	39.63	ng/uL	97
149) Chlorobenzilate	251	13.529	13.529	0.919	261719	52.39	ng/uL	99
150) 3,3'-Dimethylbenzidine	212	13.887	13.887	0.943	262151	27.25	ng/uL	99
151) 2-Acetylaminofluorene	181	14.235	14.235	0.967	158375	28.50	ng/uL	96
153) 7,12-Dimethylbenz(a)an...	256	16.813	16.813	0.946	261582	42.44	ng/uL	99
154) 3-Methylcholanthrene	269	18.615	18.615	1.047	42292	34.27	ng/uL	90

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1103.D
Acq On : 11 Nov 2016 11:27
Operator : JMB3
InstName : MSD1
Sample : |WBN161004-18.4|CCV|1|SVM|1|A-CCV
Misc : |MIX[B]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 11 13:01:39 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD1.I **Injection Date:** 11-NOV-16 12:50

Data File: s111116.B\s1k1106.D **Init. Cal. Date(s)** 29-SEP-16 10:05 - 30-SEP-16 07:50

Lab Sample ID WBN160801-45.2 **Method:** s111116.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD **Method Update:** 30-SEP-16 09:55

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
3,3'-Dichlorobenzidine	0.5027	0.48752		.01		-3.01969	20		Averaged

JMB 11/11/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1106.D
Acq On : 11 Nov 2016 12:50
Operator : JMB3
InstName : MSD1
Sample : |WBN160801-45.2|CCV|1|SVM|1|B-CCV
Misc : |MIX[J]
ALS Vial : 6 Sample Multiplier: 1

HM 11/14/2016

Quant Time: Nov 11 13:45:52 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

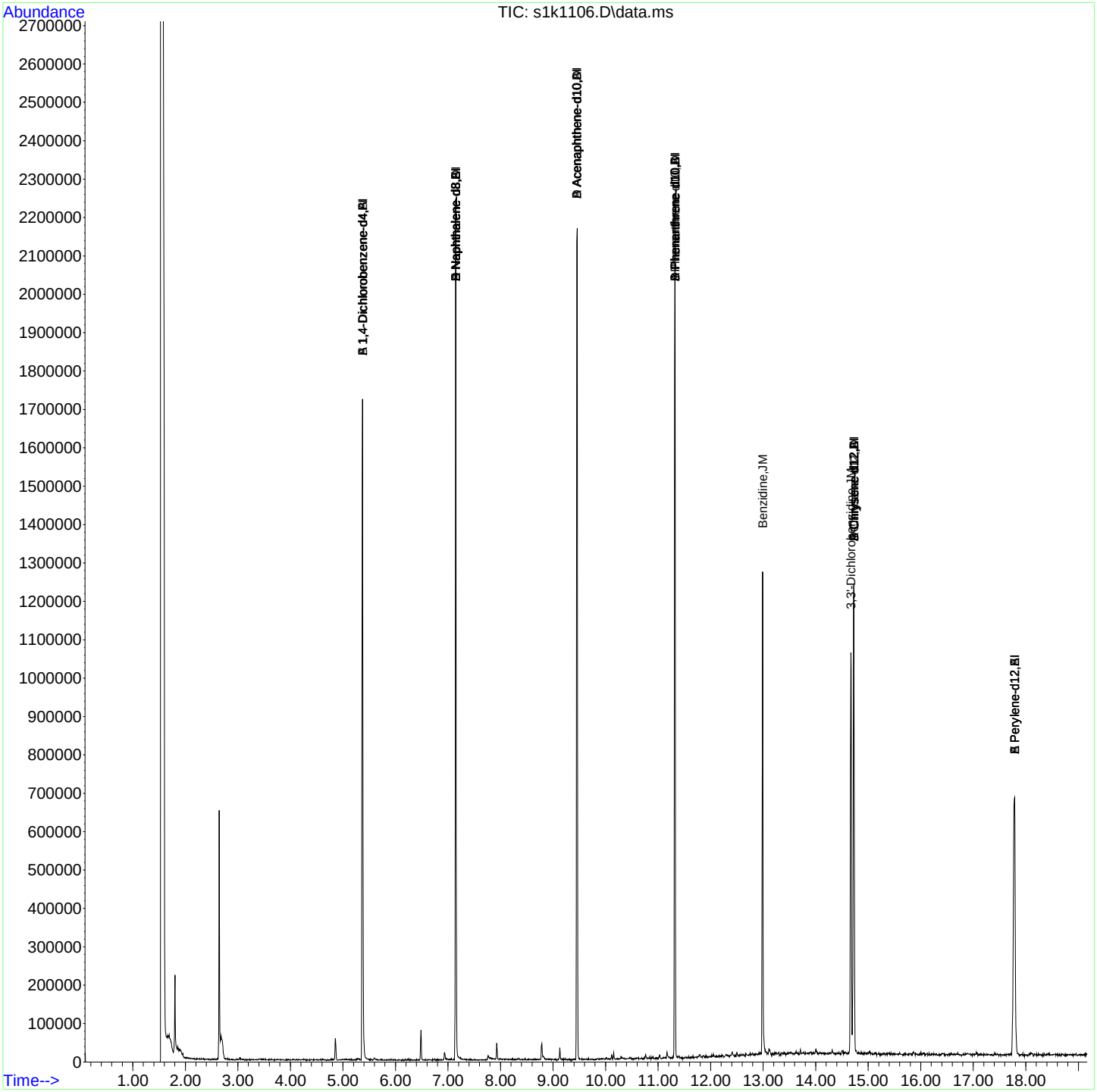
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	296357	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.148	7.153	1.000	956324	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.453	9.458	1.000	497317	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.319	11.319	1.000	840842	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.727	14.732	1.000	619660	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.786	17.786	1.000	641512	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	296279	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.148	7.153	1.000	956324	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.453	9.458	1.000	497317	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.319	11.319	1.000	840842	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.727	14.732	1.000	619660	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.786	17.786	1.000	641512	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.148	7.153	1.000	956324	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.453	9.458	1.000	497317	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.319	11.319	1.000	840842	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.727	14.732	1.000	619660	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.148	7.153	1.000	956324	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.786	17.786	1.000	641512	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.372	5.372	1.000	296279	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.319	11.319	1.000	840842	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.727	14.732	1.000	619660	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	0.000	3.714	0.000	0	0.00	ng/uL	
8) Phenol-d5	99	0.000	4.864	0.000	0	0.00	ng/uL	
25) Nitrobenzene-d5	82	0.000	6.158	0.000	0	0.00	ng/uL	
47) 2-Fluorobiphenyl	172	0.000	8.597	0.000	0	0.00	ng/uL	
66) 2,4,6-Tribromophenol	330	0.000	10.453	0.000	0	0.00	ng/uL	
83) p-Terphenyl-d14	244	0.000	13.298	0.000	0	0.00	ng/uL	
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
176) Benzidine	184	12.988	12.995	1.147	483393	38.80	ng/uL	99
178) 3,3'-Dichlorobenzidine	252	14.668	14.673	0.996	302097	38.79	ng/uL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1106.D
Acq On : 11 Nov 2016 12:50
Operator : JMB3
InstName : MSD1
Sample : |WBN160801-45.2|CCV|1|SVM|1|B-CCV
Misc : |MIX[J]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 11 13:45:52 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD1.I **Injection Date:** 11-NOV-16 13:48

Data File: s111116.B\s1k1107.D **Init. Cal. Date(s)** 29-SEP-16 10:05 - 30-SEP-16 07:50

Lab Sample ID WBN161025-05.4 **Method:** s111116.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD **Method Update:** 30-SEP-16 09:55

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	2-Fluorophenol	1.4846	1.53322		.01		3.27496	20		Averaged
S	Phenol-d5	1.8177	1.90443		.01		4.77141	20		Averaged
S	Nitrobenzene-d5	0.4682	0.49632		.01		6.00598	20		Averaged
S	2-Fluorobiphenyl	1.4097	1.43229		.01		1.60247	20		Averaged
S	2,4,6-Tribromophenol	0.2609	0.2678		.01		2.64469	20		Averaged
S	p-Terphenyl-d14	1.068	1.17622		.01		10.13296	20		Averaged
	Phenol	1.6271	1.61343		.8		-0.84015	20		Averaged
	bis(2-Chloroethyl) ether	1.3182	1.33196		.7		1.04385	20		Averaged
	2-Chlorophenol	1.2697	1.31362		.8		3.45908	20		Averaged
	o-Cresol	1.026	1.03252		.7		0.63548	20		Averaged
	bis(2-Chloro-1-methylethyl)eth	2.5727	2.97099		.01		15.4814	20		Averaged
	m,p-Cresols	1.3334	1.29805		.6		-2.65112	20		Averaged
	N-Nitrosodipropylamine	1.0082	1.12643		.5		11.72684	20		Averaged
	Hexachloroethane	0.591	0.58325		.3		-1.31134	20		Averaged
	Nitrobenzene	0.4285	0.45588		.2		6.38973	20		Averaged
	Isophorone	0.9079	0.95261		.4		4.92455	20		Averaged
	2-Nitrophenol	0.1995	0.22103		.1		10.79198	20		Averaged
	2,4-Dimethylphenol	0.3236	0.33669		.2		4.04512	20		Averaged
	bis(2-Chloroethoxy)methane	0.4812	0.4964		.3		3.15877	20		Averaged
	2,4-Dichlorophenol	0.3205	0.34246		.2		6.85179	20		Averaged
	Naphthalene	0.9466	0.9631		.7		1.74308	20		Averaged
	4-Chloroaniline	0.3468	0.33342		.01		-3.85813	20		Averaged
	Hexachlorobutadiene	0.2703	0.28373		.01		4.96855	20		Averaged
	4-Chloro-3-methylphenol	0.411	0.43266		.2		5.27007	20		Averaged
	2-Methylnaphthalene	0.7312	0.74243		.4		1.53583	20		Averaged
	1-Methylnaphthalene	0.6612	0.65896		.4		-0.33878	20		Averaged
	Hexachlorocyclopentadiene	0.4705	0.38068		.05		-19.09033	20		Averaged
	2,4,6-Trichlorophenol	0.4473	0.45852		.2		2.50838	20		Averaged
	2,4,5-Trichlorophenol	0.4317	0.4386		.2		1.59833	20		Averaged
	2-Chloronaphthalene	1.2583	1.2284		.8		-2.37622	20		Averaged
	o-Nitroaniline	0.497	0.52542		.01		5.71831	20		Averaged
	Dimethylphthalate	1.5318	1.5084		.01		-1.52761	20		Averaged
	2,6-Dinitrotoluene	0.329	0.34028		.2		3.42857	20		Averaged
	Acenaphthylene	1.8811	1.87918		.9		-0.10207	20		Averaged
	m-Nitroaniline	0.2905	0.25955		.01		-10.65404	20		Averaged
	Acenaphthene	1.081	1.09501		.9		1.29602	20		Averaged
	2,4-Dinitrophenol	40	43.92	40			9.8	20		Linear

Continuing Calibration Summary

Instrument ID: MSD1.I **Injection Date:** 11-NOV-16 13:48

Data File: s111116.B\s1k1107.D **Init. Cal. Date(s)** 29-SEP-16 10:05 30-SEP-16 07:50

Lab Sample ID WBN161025-05.4 **Method:** s111116.B\MSD1_8270C_8270D_092916.M

Quant Type ISTD

Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
4-Nitrophenol	40	36.12	40			-9.7	20		Linear
2,4-Dinitrotoluene	0.4523	0.44401		.2		-1.83285	20		Averaged
Dibenzofuran	1.6454	1.63956		.8		-0.35493	20		Averaged
2,3,4,6-Tetrachlorophenol	0.3915	0.39387		.01		0.60536	20		Averaged
Diethylphthalate	1.724	1.67182		.01		-3.02668	20		Averaged
Fluorene	1.4357	1.40519		.9		-2.1251	20		Averaged
4-Chlorophenylphenylether	0.8049	0.79557		.4		-1.15915	20		Averaged
p-Nitroaniline	0.272	0.22735		.01		-16.41544	20		Averaged
2-Methyl-4,6-dinitrophenol	40	45.81	40			14.525	20		Linear
Diphenylamine	0.6392	0.66272		.01		3.6796	20		Averaged
4-Bromophenylphenylether	0.2867	0.29948		.1		4.45762	20		Averaged
Hexachlorobenzene	0.2892	0.30021		.1		3.80705	20		Averaged
Pentachlorophenol	40	41.98	40			4.95	20		Linear
Phenanthrene	0.9221	0.96121		.7		4.24141	20		Averaged
Anthracene	0.9651	1.00143		.7		3.76438	20		Averaged
Carbazole	0.9193	0.96251		.01		4.70032	20		Averaged
Di-n-butylphthalate	1.4744	1.55279		.01		5.31674	20		Averaged
Fluoranthene	1.3571	1.36321		.6		0.45022	20		Averaged
Pyrene	1.6191	1.74406		.6		7.71787	20		Averaged
Butylbenzylphthalate	0.7754	0.85812		.01		10.66804	20		Averaged
Benzo(a)anthracene	1.2469	1.26905		.8		1.77641	20		Averaged
bis(2-Ethylhexyl)phthalate	0.8639	0.93846		.01		8.63063	20		Averaged
Chrysene	1.0377	1.03523		.7		-0.23803	20		Averaged
Di-n-octylphthalate	40	40.81	40			2.025	20		Linear
Benzo(b)fluoranthene	1.4151	1.35353		.7		-4.35093	20		Averaged
Benzo(k)fluoranthene	1.2245	1.22279		.7		-0.13965	20		Averaged
Benzo(a)pyrene	1.2239	1.19057		.7		-2.72326	20		Averaged
Indeno(1,2,3-cd)pyrene	0.936	0.89974		.5		-3.87393	20		Averaged
Dibenzo(a,h)anthracene	0.8716	0.83613		.4		-4.06953	20		Averaged
Benzo(ghi)perylene	0.9551	0.87397		.5		-8.4944	20		Averaged

JMB 11/11/2016

HM 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1107.D
Acq On : 11 Nov 2016 13:48
Operator : JMB3
InstName : MSD1
Sample : |WBN161025-05.4|CCV|1|SVM|1|M-CCV
Misc : |MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 11 14:17:46 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	241123	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.153	7.153	1.000	790182	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.463	9.458	1.000	442603	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.325	11.319	1.000	785711	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.737	14.732	1.000	593459	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.786	17.786	1.000	511459	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	239981	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.153	7.153	1.000	790182	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.463	9.458	1.000	442603	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.325	11.319	1.000	785711	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.737	14.732	1.000	593459	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.786	17.786	1.000	511459	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.153	7.153	1.000	790182	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.463	9.458	1.000	442603	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.325	11.319	1.000	785711	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.737	14.732	1.000	593463	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.153	7.153	1.000	790182	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.786	17.786	1.000	511459	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.377	5.372	1.000	239981	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.325	11.319	1.000	785711	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.737	14.732	1.000	593459	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.714	3.714	0.691	369695	41.31	ng/uL	0.00
8) Phenol-d5	99	4.864	4.864	0.905	459202	41.91	ng/uL	0.00
25) Nitrobenzene-d5	82	6.163	6.158	0.862	392183	42.40	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.602	8.597	0.909	633937	40.64	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.458	10.453	1.105	118527	41.06	ng/uL	0.00
83) p-Terphenyl-d14	244	13.298	13.298	0.902	698038	44.05	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) 2-Ethoxyethanol	59	2.141	2.136	0.398	299914	44.20	ng/uL	86
3) N-Methyl-N-nitrosometh...	74	2.398	2.392	0.446	249133	43.94	ng/uL	91
4) Pyridine	79	2.430	2.430	0.452	360855	38.89	ng/uL	81
6) p-Benzoquinone	54	4.307	4.313	0.801	200937	30.43	ng/uL	94
7) Aniline	93	4.928	4.928	0.916	420223	36.96	ng/uL	95
9) Phenol	94	4.885	4.880	0.908	389034	39.66	ng/uL	96
10) bis(2-Chloroethyl) ether	93	5.013	5.008	0.932	321167	40.42	ng/uL	99
11) 2-Chlorophenol	128	5.088	5.083	0.946	316744	41.38	ng/uL	96
12) n-Decane	43	5.152	5.152	0.958	557228	46.09	ng/uL	93
13) 1,3-Dichlorobenzene	146	5.297	5.297	0.985	350630	41.38	ng/uL	98
14) 1,4-Dichlorobenzene	146	5.404	5.398	1.005	322391	41.64	ng/uL	100
15) 1,2-Dichlorobenzene	146	5.612	5.607	1.044	317696	41.02	ng/uL	99
16) bis(2-Chloro-1-methyle...	45	5.773	5.767	1.074	716375	46.19	ng/uL	99
17) Benzyl alcohol	108	5.570	5.570	1.036	209099	39.47	ng/uL	97
18) o-Cresol	107	5.725	5.719	1.065	248965	40.25	ng/uL	98
19) m,p-Cresols	107	5.960	5.955	1.108	312989	38.94	ng/uL	99
20) N-Nitrosodipropylamine	70	5.965	5.955	1.109	271607	44.69	ng/uL	91
21) p-Toluidine	106	6.014	6.008	1.118	319886	34.87	ng/uL	100
22) m-Toluidine	106	6.062	6.056	1.127	326312	36.70	ng/uL	99
23) Hexachloroethane	117	6.088	6.088	1.132	140635	39.47	ng/uL	98

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1107.D
Acq On : 11 Nov 2016 13:48
Operator : JMB3
InstName : MSD1
Sample : |WBN161025-05.4|CCV|1|SVM|1|M-CCV
Misc : |MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 11 14:17:46 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
26) Nitrobenzene	77	6.190	6.185	0.865	360232	42.56	ng/uL	97
27) Isophorone	82	6.532	6.527	0.913	752739	41.97	ng/uL	97
28) 2-Nitrophenol	139	6.629	6.629	0.927	174656	44.31	ng/uL	98
29) 2,4-Dimethylphenol	122	6.704	6.698	0.937	266044	41.61	ng/uL	97
30) bis(2-Chloroethoxy)met...	93	6.837	6.832	0.956	392245	41.26	ng/uL	99
31) 2,4-Dichlorophenol	162	6.971	6.966	0.975	270604	42.74	ng/uL	99
32) Benzoic acid	105	6.891	6.869	0.963	141003	41.01	ng/uL	99
33) 1,2,4-Trichlorobenzene	180	7.078	7.078	0.990	317921	41.13	ng/uL	99
34) alpha-Terpineol	59	7.212	7.206	1.008	362205	44.73	ng/uL	97
35) Naphthalene	128	7.185	7.180	1.004	761027	40.70	ng/uL	99
36) 4-Chloroaniline	127	7.265	7.260	1.016	263464	38.46	ng/uL	99
37) Hexachlorobutadiene	225	7.356	7.356	1.028	224201	42.00	ng/uL	99
38) 4-Chloro-3-methylphenol	107	7.923	7.918	1.108	341881	42.11	ng/uL	98
39) 2-Methylnaphthalene	142	8.116	8.110	1.135	586655	40.61	ng/uL	99
40) Phthalic anhydride	104	8.196	8.196	1.146	227366	36.51	ng/uL	84
41) 1-Methylnaphthalene	142	8.244	8.239	1.153	520700	39.86	ng/uL	99
43) Hexachlorocyclopentadiene	237	8.324	8.319	0.880	168490	32.36	ng/uL	97
44) 2,3-Dichloroaniline	161	8.485	8.479	0.897	295712	42.13	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.490	8.485	0.897	202944	41.01	ng/uL	99
46) 2,4,5-Trichlorophenol	196	8.533	8.533	0.902	194126	40.64	ng/uL	97
48) 2-Chloronaphthalene	162	8.747	8.747	0.924	543694	39.05	ng/uL	98
49) o-Nitroaniline	65	8.886	8.880	0.939	232554	42.29	ng/uL	98
50) 1,4-Dinitrobenzene	168	9.073	9.068	0.959	107888	40.33	ng/uL	95
51) m-Nitroaniline	138	9.415	9.410	0.995	114877	35.73	ng/uL	97
52) Dimethylphthalate	163	9.142	9.137	0.966	667623	39.39	ng/uL	98
53) m-Dinitrobenzene	168	9.169	9.164	0.969	103151	39.41	ng/uL	92
54) 2,6-Dinitrotoluene	165	9.212	9.207	0.973	150610	41.37	ng/uL	97
55) 2,4-Dinitrotoluene	165	9.715	9.709	1.027	196522	39.27	ng/uL	98
56) Acenaphthylene	152	9.282	9.276	0.981	831732	39.96	ng/uL	100
57) Acenaphthene	154	9.506	9.501	1.005	484656	40.52	ng/uL	99
58) 2,4-Dinitrophenol	184	9.554	9.549	1.010	79691	43.92	ng/uL	85
59) Dibenzofuran	168	9.725	9.720	1.028	725675	39.86	ng/uL	98
60) 2,3,4,6-Tetrachlorophenol	232	9.881	9.875	1.044	174328	40.24	ng/uL	97
61) Diethylphthalate	149	10.030	10.025	1.060	739952	38.79	ng/uL	98
62) 4-Nitrophenol	139	9.640	9.640	1.019	87930	36.12	ng/uL	97
63) Fluorene	166	10.153	10.153	1.073	621940	39.15	ng/uL	100
64) 4-Chlorophenylphenylether	204	10.159	10.153	1.073	352122	39.54	ng/uL	99
65) p-Nitroaniline	138	10.191	10.185	1.077	100627	33.44	ng/uL	94
68) 2-Methyl-4,6-dinitroph...	198	10.228	10.223	0.903	111563	45.81	ng/uL	96
69) Diphenylamine	169	10.308	10.308	0.910	520705	41.47	ng/uL	98
70) 1,2-Diphenylhydrazine	77	10.362	10.357	0.915	653845	42.09	ng/uL	99
71) 4-Bromophenylphenylether	248	10.768	10.768	0.951	235302	41.78	ng/uL	96
72) Hexachlorobenzene	284	10.843	10.838	0.957	235881	41.53	ng/uL	99
73) Pentachlorophenol	266	11.089	11.084	0.979	138158	41.98	ng/uL	97
74) n-Octadecane	57	11.207	11.202	0.990	641215	44.67	ng/uL	95
75) Dinoseb	211	11.325	11.319	1.000	184308	46.21	ng/uL	95
76) Phenanthrene	178	11.357	11.351	1.003	755234	41.69	ng/uL	97
77) Anthracene	178	11.421	11.416	1.009	786834	41.51	ng/uL	99
78) Carbazole	167	11.619	11.614	1.026	756254	41.88	ng/uL	99
79) Di-n-butylphthalate	149	12.057	12.057	1.065	1220048	42.13	ng/uL	99
80) Fluoranthene	202	12.828	12.822	1.133	1071088	40.18	ng/uL	99
82) Pyrene	202	13.106	13.100	0.889	1035030	43.09	ng/uL	99
84) Butylbenzylphthalate	149	13.913	13.908	0.944	509261	44.27	ng/uL	100

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1107.D
Acq On : 11 Nov 2016 13:48
Operator : JMB3
InstName : MSD1
Sample : |WBN161025-05.4|CCV|1|SVM|1|M-CCV
Misc : |MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 11 14:17:46 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

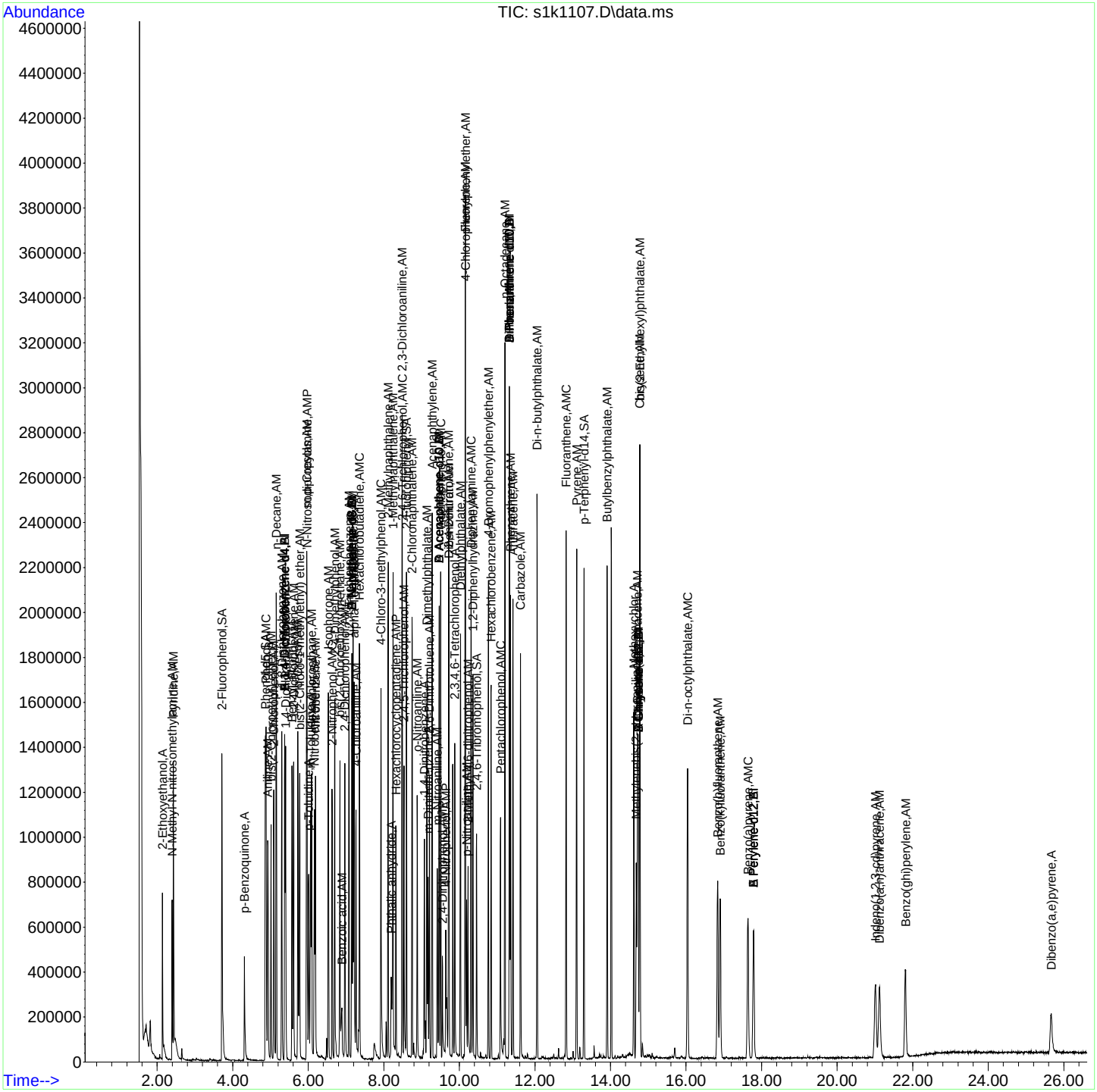
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
85) bis(2-Ethylhexyl)phtha...	149	14.780	14.775	1.003	556940	43.45	ng/uL	99
86) Benzo(a)anthracene	228	14.716	14.710	0.999	753131	40.71	ng/uL	99
87) Chrysene	228	14.775	14.769	1.003	614364	39.90	ng/uL	99
88) Methoxychlor	227	14.619	14.614	0.992	662666	39.24	ng/uL	100
89) Methylenebis(2-chloroa...	231	14.684	14.678	0.996	135991	38.55	ng/uL	98
90) Di-n-octylphthalate	149	16.042	16.037	1.089	1047559	40.81	ng/uL	95
92) Benzo(b)fluoranthene	252	16.839	16.828	0.947	692277	38.26	ng/uL	99
93) Benzo(k)fluoranthene	252	16.903	16.898	0.950	625407	39.95	ng/uL	99
94) Benzo(a)pyrene	252	17.641	17.636	0.992	608926	38.91	ng/uL	99
95) Indeno(1,2,3-cd)pyrene	276	21.016	21.000	1.182	460182	38.45	ng/uL	100
96) Dibenzo(a,h)anthracene	278	21.123	21.118	1.188	427647	38.37	ng/uL	88
97) Benzo(ghi)perylene	276	21.813	21.797	1.226	446998	36.60	ng/uL	97
98) Dibenzo(a,e)pyrene	302	25.670	25.659	1.443	233998	39.17	ng/uL	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1107.D
Acq On : 11 Nov 2016 13:48
Operator : JMB3
InstName : MSD1
Sample : |WBN161025-05.4|CCV|1|SVM|1|M-CCV
Misc : |MIX[A]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 11 14:17:46 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Calibration History Report MSD4
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Last Update : Thu Oct 13 14:32:32 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

Cal Lvl:1 Amt:0.10 Last Updated with: C:\msdchem\1\DATA\s101316.B\s4j1303.D

Injection Date	Mix	Calibration File
13 Oct 2016 11:06	A	C:\msdchem\1\DATA\s101316.B\s4j1303.D
13 Oct 2016 11:06	B	C:\msdchem\1\DATA\s101316.B\s4j1303.D

Cal Lvl:2 Amt:0.20 Last Updated with: C:\msdchem\1\DATA\s101316.B\s4j1304.D

Injection Date	Mix	Calibration File
13 Oct 2016 11:34	A	C:\msdchem\1\DATA\s101316.B\s4j1304.D
13 Oct 2016 11:34	B	C:\msdchem\1\DATA\s101316.B\s4j1304.D

Cal Lvl:3 Amt:0.50 Last Updated with: C:\msdchem\1\DATA\s101316.B\s4j1305.D

Injection Date	Mix	Calibration File
13 Oct 2016 12:02	A	C:\msdchem\1\DATA\s101316.B\s4j1305.D
13 Oct 2016 12:02	B	C:\msdchem\1\DATA\s101316.B\s4j1305.D

Cal Lvl:4 Amt:1.00 Last Updated with: C:\msdchem\1\DATA\s101316.B\s4j1306.D

Injection Date	Mix	Calibration File
13 Oct 2016 12:31	A	C:\msdchem\1\DATA\s101316.B\s4j1306.D
13 Oct 2016 12:31	B	C:\msdchem\1\DATA\s101316.B\s4j1306.D

Cal Lvl:5 Amt:2.00 Last Updated with: C:\msdchem\1\DATA\s101316.B\s4j1307.D

Injection Date	Mix	Calibration File
13 Oct 2016 12:59	A	C:\msdchem\1\DATA\s101316.B\s4j1307.D
13 Oct 2016 12:59	B	C:\msdchem\1\DATA\s101316.B\s4j1307.D

Cal Lvl:6 Amt:5.00 Last Updated with: C:\msdchem\1\DATA\s101316.B\s4j1302.D

Injection Date	Mix	Calibration File
13 Oct 2016 10:29	A	C:\msdchem\1\DATA\s101316.B\s4j1302.D
13 Oct 2016 10:29	B	C:\msdchem\1\DATA\s101316.B\s4j1302.D

Cal Lvl:7 Amt:10.00 Last Updated with: C:\msdchem\1\DATA\s101316.B\s4j1308.D

Injection Date	Mix	Calibration File
13 Oct 2016 13:27	A	C:\msdchem\1\DATA\s101316.B\s4j1308.D
13 Oct 2016 13:27	B	C:\msdchem\1\DATA\s101316.B\s4j1308.D

Cal Lvl:8 Amt:20.00 Last Updated with: C:\msdchem\1\DATA\s101316.B\s4j1309.D

Injection Date	Mix	Calibration File
13 Oct 2016 13:56	A	C:\msdchem\1\DATA\s101316.B\s4j1309.D
13 Oct 2016 13:56	B	C:\msdchem\1\DATA\s101316.B\s4j1309.D

Response Factor Report MSD4
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Last Update : Thu Oct 13 14:32:32 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5	6	Avg	Curve	Exp	%RSD/r2
b m1 m2	7	8								
2)AM N-Methyl-N-nitrosomethyl	0.7316918	0.7124514	0.7164934	0.7048517	0.7601937	0.7393063				
	0.7144917	0.7064045					0.7232	AVRG		2.6417
3)AM bis(2-Chloroethyl) ether	1.3285168	1.2832059	1.2518506	1.2388250	1.2561431	1.1944111				
	1.1339326	1.1114494					1.2248	AVRG		6.0242
4)AM N-Nitrosodipropylamine	0.8616756	0.8262404	0.8014444	0.8144556	0.8208618	0.8129702				
	0.7481424	0.7524866					0.8048	AVRG		4.7130
6)AM Naphthalene	1.2380335	1.2145612	1.1974043	1.1616167	1.1832900	1.0978126				
	0.9367508	0.8789245					1.1135	AVRG		12.0703
7)AM 2-Methylnaphthalene	0.8722291	0.8310334	0.7965694	0.7974133	0.8057490	0.7583017				
	0.5739995	0.5455074					0.7476	AVRG		16.1345
8)AM 1-Methylnaphthalene	0.7483744	0.7162345	0.6898314	0.6819017	0.6912243	0.6380105				
	0.4855433	0.4601742					0.6389	AVRG		16.7958
10)AM 2-Chloronaphthalene	2.2903900	2.0033334	1.9594057	1.9303836	1.9265854	1.8212299				
	1.5759496	1.4688559					1.8720	AVRG		13.6799
11)AM Acenaphthylene	3.1102073	2.6881677	2.6096853	2.6665085	2.7197536	2.6682596				
	2.4261580	2.2432721					2.6415	AVRG		9.4405
12)AM Acenaphthene	1.4789898	1.6022969	1.5876758	1.3932777	1.3888778	1.2695028				
	1.3821953	1.2888031					1.4240	AVRG		8.7099
13)AM Fluorene	1.8439275	1.8841916	1.7943637	1.6460279	1.6156926	1.4359956				
	1.5810649	1.4689755					1.6588	AVRG		10.1182
15)AM Phenanthrene	1.5199732	1.4988919	1.4631615	1.4331228	1.4713019	1.3353007				
	1.1706226	1.1134672					1.3757	AVRG		11.2787
16)AM Anthracene	1.3847571	1.3234226	1.3166538	1.3393789	1.3917604	1.2483304				
	1.1445855	1.0706937					1.2774	AVRG		9.0383
17)SA 5-alpha-Androstane	0.1399509	0.1284359	0.1215147	0.1246861	0.1295520	0.1253533				
	0.1198983	0.1119868					0.1252	AVRG		6.5012
18)AM Fluoranthene	1.4202843	1.3037650	1.2866228	1.3246011	1.3867833	1.2745764				
	1.1202099	1.0437779					1.2701	AVRG		10.0591
20)AM Pyrene	2.8626325	2.9037015	2.9170725	2.7287442	2.6775814	2.5357031				
	2.5006705	2.2156296					2.6677	AVRG		9.0653

Response Factor Report MSD4
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Last Update : Thu Oct 13 14:32:32 2016
Integrator : (RTE Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	1 / 7	2 / 8	3	4	5	6	Avg	Curve	Exp	%RSD/r2
21)AM Benzo(a)anthracene	1.7983877	1.5895880	1.5434289	1.5409483	1.6194865	1.6290958				
	1.6134965	1.5258077					1.6075	AVRG		5.3931
22)AM Chrysene	1.6252365	1.5505500	1.5411531	1.5241116	1.5754411	1.4796692				
	1.4542237	1.4356263					1.5233	AVRG		4.1914
24)AM Benzo(b)fluoranthene	1.8719094	1.7965651	1.6825142	1.7368604	1.7988748	1.8401236				
	1.8428448	1.8130902					1.7978	AVRG		3.4258
25)AM Benzo(k)fluoranthene	1.7780248	1.7580805	1.6819019	1.7206332	1.8180428	1.8057523				
	1.8148309	1.7822474					1.7699	AVRG		2.7139
26)AM Benzo(a)pyrene	1.5575450	1.4033035	1.3608628	1.4156793	1.5177583	1.5389222				
	1.5366661	1.5251336					1.4820	AVRG		5.1225
27)AM Indeno(1,2,3-cd)pyrene	1.1175794	1.0161995	1.0302464	0.9505615	0.9788614	0.9930675				
	0.9078057	0.8390593					0.9792	AVRG		8.5335
28)AM Dibenzo(a,h)anthracene	0.9820386	0.8942802	0.9079270	0.8167625	0.8734501	0.8271965				
	0.6878199	0.6235758					0.8266	AVRG		14.3230
29)AM Benzo(ghi)perylene	1.2750779	1.1567966	1.1704522	1.0693712	1.0735333	1.0385416				
	0.7799238	0.7339782					1.0372	AVRG		18.1888
31)BM N-Nitrosodiethylamine	0.6405656	0.6022813	0.5803471	0.5772405	0.5976772	0.5859299				
	0.5583719	0.5478652					0.5863	AVRG		4.8691
32)BM N-Nitrosopyrrolidine	0.6147064	0.5990103	0.5820054	0.5969133	0.6072366	0.6304542				
	0.5944907	0.6003595					0.6031	AVRG		2.4121
34)BM N-Nitrosodi-n-butylamine	0.2309662	0.2173212	0.2078769	0.2161710	0.2274830	0.2306298				
	0.1884071	0.1808448					0.2125	AVRG		8.9565
36)BM Benzidine			0.3299054	0.4189819	0.5017142	0.4790461				
	0.4746448	0.4767608					0.4468	AVRG		14.2127
38)BM 3,3'-Dichlorobenzidine	0.5677960	0.4397475	0.4394055	0.4531775	0.5353837	0.5926232				
	0.6516129	0.6295383					0.5387	AVRG		15.9592

(#) = Out of Range ($) = Individual RF Out of Range
AVRG = Average, LINR = Linear Regression, 1/x = the inverse of concentration, 1/x^2 = the inverse square of concentration

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1302.D
Acq On : 13 Oct 2016 10:29
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-83.1|ICAL|1|SVM|1|S-6
Misc : |MIX[A,B]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 13 14:32:54 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

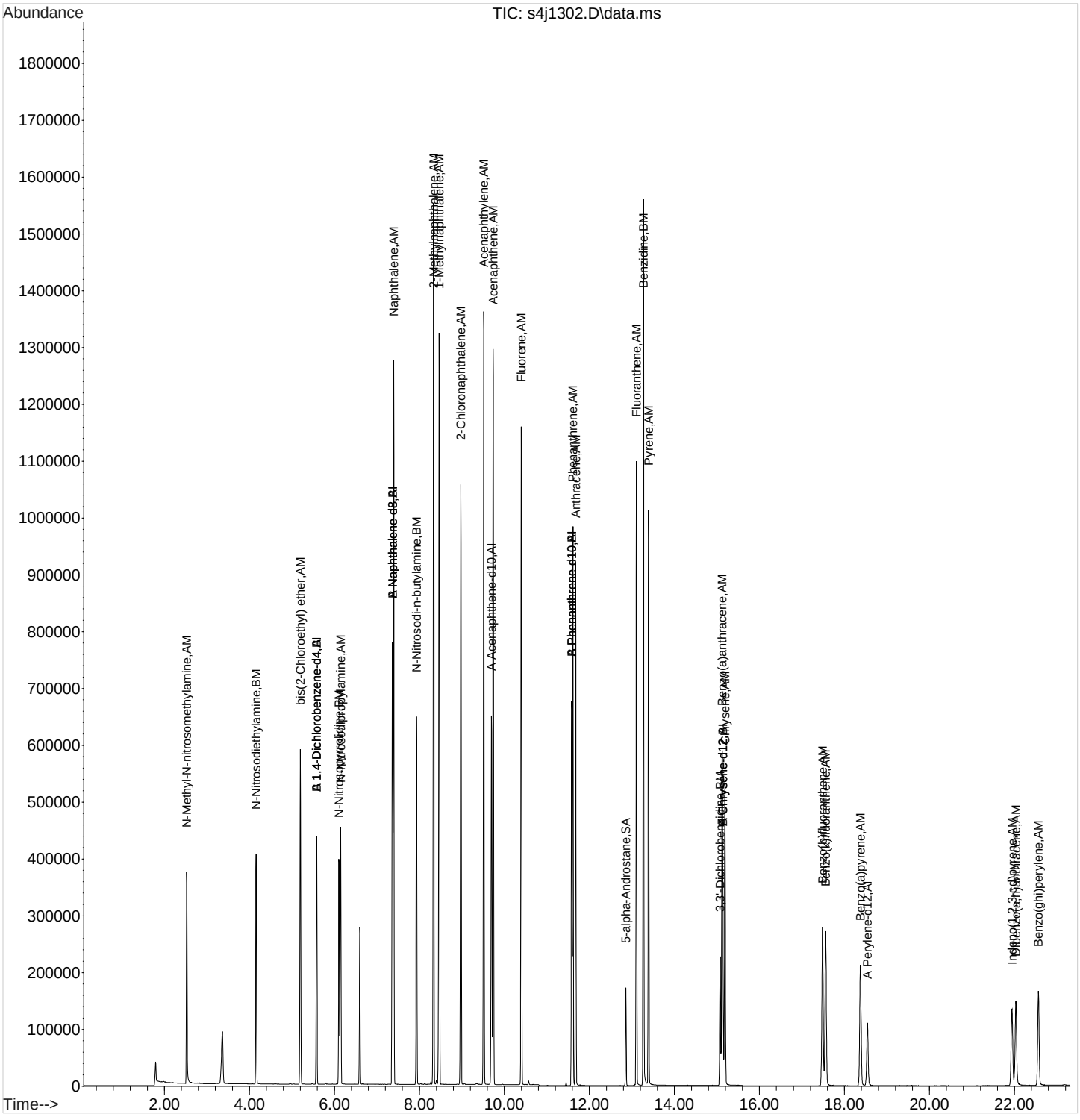
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.578	5.578	1.000	290574	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.367	7.367	1.000	903481	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.693	9.693	1.000	363600	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.581	11.581	1.000	571607	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.139	15.139	1.000	268327	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.539	18.539	1.000	221999	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.578	5.578	1.000	290574	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.367	7.367	1.000	903481	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.581	11.581	1.000	571607	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.139	15.139	1.000	268327	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.859	12.859	1.110	89566	5.01	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.522	2.522	0.452	268529	5.11	ng/uL	100
3) bis(2-Chloroethyl) ether	93	5.198	5.198	0.932	433831	4.88	ng/uL	100
4) N-Nitrosodipropylamine	70	6.147	6.147	1.102	295285	5.05	ng/uL	100
6) Naphthalene	128	7.393	7.393	1.004	1239816	4.93	ng/uL	100
7) 2-Methylnaphthalene	142	8.332	8.332	1.131	856389	5.07	ng/uL	100
8) 1-Methylnaphthalene	142	8.462	8.462	1.149	720538	4.99	ng/uL	100
10) 2-Chloronaphthalene	162	8.974	8.974	0.926	827749	4.86	ng/uL	100
11) Acenaphthylene	152	9.511	9.511	0.981	1212724	5.05	ng/uL	100
12) Acenaphthene	154	9.735	9.735	1.004	576989	4.46	ng/uL	100
13) Fluorene	166	10.397	10.397	1.073	652660	4.33	ng/uL	100
15) Phenanthrene	178	11.613	11.613	1.003	954084	4.85	ng/uL	100
16) Anthracene	178	11.677	11.677	1.008	891943	4.89	ng/uL	100
18) Fluoranthene	202	13.104	13.104	1.132	910696	5.02	ng/uL	100
20) Pyrene	202	13.390	13.390	0.884	850497	4.75	ng/uL	100
21) Benzo(a)anthracene	228	15.122	15.122	0.999	546413	5.07	ng/uL	100
22) Chrysene	228	15.187	15.187	1.003	496294	4.86	ng/uL	100
24) Benzo(b)fluoranthene	252	17.486	17.486	0.943	510632	5.12	ng/uL	100
25) Benzo(k)fluoranthene	252	17.556	17.556	0.947	501094	5.10	ng/uL	100
26) Benzo(a)pyrene	252	18.374	18.374	0.991	427049	5.19	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.941	21.941	1.183	275575	5.07	ng/uL	100
28) Dibenzo(a,h)anthracene	278	22.032	22.032	1.188	229546	5.00	ng/uL	100
29) Benzo(ghi)perylene	276	22.564	22.564	1.217	288194	5.01	ng/uL	100
31) N-Nitrosodiethylamine	102	4.160	4.160	0.746	212820	5.00	ng/uL	100
32) N-Nitrosopyrrolidine	100	6.110	6.110	1.095	228992	5.23	ng/uL	100
34) N-Nitrosodi-n-butylamine	84	7.931	7.931	1.076	260462	5.43	ng/uL	100
36) Benzidine	184	13.273	13.273	1.146	1711413	26.80	ng/uL	100
38) 3,3'-Dichlorobenzidine	252	15.074	15.074	0.996	198771	5.50	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1302.D
Acq On : 13 Oct 2016 10:29
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-83.1|ICAL|1|SVM|1|S-6
Misc : |MIX[A,B]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 13 14:32:54 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1303.D
Acq On : 13 Oct 2016 11:06
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-88|ICAL|1|SVM|1|S-1
Misc : |MIX[A,B]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 13 14:32:59 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

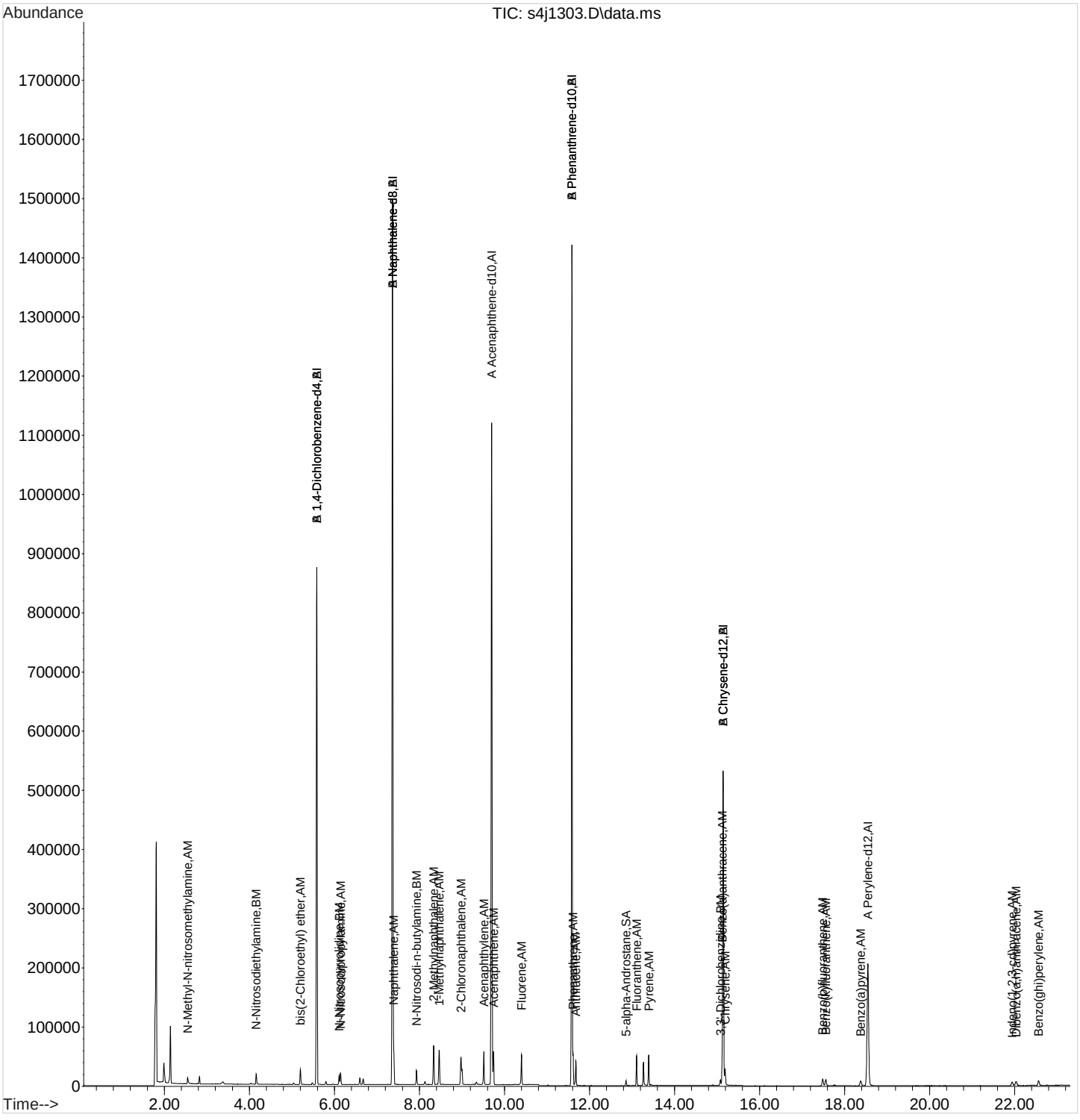
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	581611	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.367	7.367	1.000	1791777	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.699	9.693	1.000	665319	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.585	11.581	1.000	1241864	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.143	15.139	1.000	617264	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.548	18.539	1.000	442671	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	581611	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.367	7.367	1.000	1791777	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.585	11.581	1.000	1241864	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.143	15.139	1.000	617264	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.859	12.859	1.110	4345	0.11	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.548	2.522	0.456	10639	0.10	ng/uL	99
3) bis(2-Chloroethyl) ether	93	5.198	5.198	0.931	19317	0.11	ng/uL	99
4) N-Nitrosodipropylamine	70	6.147	6.147	1.101	12529	0.11	ng/uL	99
6) Naphthalene	128	7.393	7.393	1.004	55457	0.11	ng/uL	100
7) 2-Methylnaphthalene	142	8.332	8.332	1.131	39071	0.12	ng/uL	99
8) 1-Methylnaphthalene	142	8.463	8.462	1.149	33523	0.12	ng/uL	98
10) 2-Chloronaphthalene	162	8.979	8.974	0.926	38096	0.12	ng/uL	99
11) Acenaphthylene	152	9.516	9.511	0.981	51732	0.12	ng/uL	99
12) Acenaphthene	154	9.740	9.735	1.004	24600	0.10	ng/uL	96
13) Fluorene	166	10.397	10.397	1.072	30670	0.11	ng/uL	100
15) Phenanthrene	178	11.613	11.613	1.002	47190	0.11	ng/uL	96
16) Anthracene	178	11.677	11.677	1.008	42992	0.11	ng/uL	98
18) Fluoranthene	202	13.108	13.104	1.132	44095	0.11	ng/uL	99
20) Pyrene	202	13.394	13.390	0.885	44175	0.11	ng/uL	100
21) Benzo(a)anthracene	228	15.127	15.122	0.999	27752	0.11	ng/uL	98
22) Chrysene	228	15.191	15.187	1.003	25080	0.11	ng/uL	100
24) Benzo(b)fluoranthene	252	17.486	17.486	0.943	20716	0.10	ng/uL	100
25) Benzo(k)fluoranthene	252	17.560	17.556	0.947	19677	0.10	ng/uL	99
26) Benzo(a)pyrene	252	18.380	18.374	0.991	17237	0.11	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.941	21.941	1.183	12368	0.11	ng/uL	98
28) Dibenzo(a,h)anthracene	278	22.038	22.032	1.188	10868	0.12	ng/uL	97
29) Benzo(ghi)perylene	276	22.564	22.564	1.217	14111	0.12	ng/uL	99
31) N-Nitrosodiethylamine	102	4.160	4.160	0.745	9314	0.11	ng/uL	99
32) N-Nitrosopyrrolidine	100	6.110	6.110	1.094	8938	0.10	ng/uL	96
34) N-Nitrosodi-n-butylamine	84	7.931	7.931	1.076	10346	0.11	ng/uL	99
36) Benzidine		0.000	13.273	0.000	0m	N.D.	d	
38) 3,3'-Dichlorobenzidine	252	15.078	15.074	0.996	8762	0.11	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1303.D
Acq On : 13 Oct 2016 11:06
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-88|ICAL|1|SVM|1|S-1
Misc : |MIX[A,B]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 13 14:32:59 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1304.D
Acq On : 13 Oct 2016 11:34
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-87|ICAL|1|SVM|1|S-2
Misc : |MIX[A,B]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 13 14:33:01 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

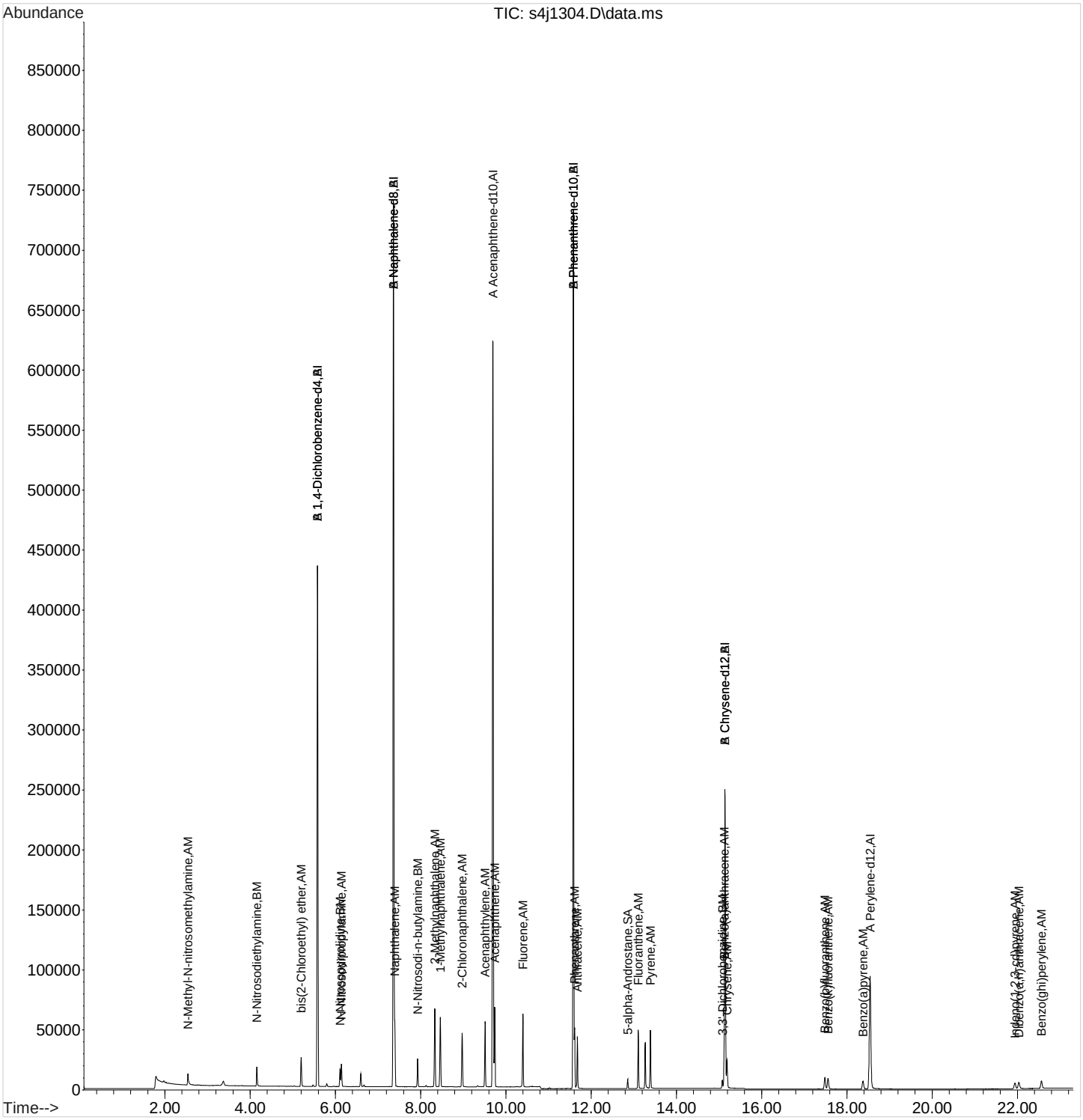
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.578	5.578	1.000	287374	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.362	7.367	1.000	886246	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.698	9.693	1.000	367797	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.585	11.581	1.000	634869	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.138	15.139	1.000	280752	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.545	18.539	1.000	194883	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.578	5.578	1.000	287374	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.362	7.367	1.000	886246	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.585	11.581	1.000	634869	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.138	15.139	1.000	280752	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.859	12.859	1.110	4077	0.21	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.543	2.522	0.456	10237	0.20	ng/uL	99
3) bis(2-Chloroethyl) ether	93	5.198	5.198	0.932	18438	0.21	ng/uL	99
4) N-Nitrosodipropylamine	70	6.142	6.147	1.101	11872	0.21	ng/uL	96
6) Naphthalene	128	7.393	7.393	1.004	53820	0.22	ng/uL	100
7) 2-Methylnaphthalene	142	8.332	8.332	1.132	36825	0.22	ng/uL	98
8) 1-Methylnaphthalene	142	8.462	8.462	1.149	31738	0.22	ng/uL	98
10) 2-Chloronaphthalene	162	8.973	8.974	0.925	36841	0.21	ng/uL	98
11) Acenaphthylene	152	9.511	9.511	0.981	49435	0.20	ng/uL	99
12) Acenaphthene	154	9.735	9.735	1.004	29466	0.23	ng/uL	97
13) Fluorene	166	10.397	10.397	1.072	34650	0.23	ng/uL	99
15) Phenanthrene	178	11.613	11.613	1.002	47580	0.22	ng/uL	99
16) Anthracene	178	11.677	11.677	1.008	42010	0.21	ng/uL	99
18) Fluoranthene	202	13.104	13.104	1.131	41386	0.21	ng/uL	99
20) Pyrene	202	13.390	13.390	0.884	40761	0.22	ng/uL	100
21) Benzo(a)anthracene	228	15.122	15.122	0.999	22314	0.20	ng/uL	99
22) Chrysene	228	15.187	15.187	1.003	21766	0.20	ng/uL	99
24) Benzo(b)fluoranthene	252	17.483	17.486	0.943	17506	0.20	ng/uL	99
25) Benzo(k)fluoranthene	252	17.556	17.556	0.947	17131	0.20	ng/uL	98
26) Benzo(a)pyrene	252	18.377	18.374	0.991	13674	0.19	ng/uL	98
27) Indeno(1,2,3-cd)pyrene	276	21.941	21.941	1.183	9902	0.21	ng/uL	99
28) Dibenzo(a,h)anthracene	278	22.035	22.032	1.188	8714	0.22	ng/uL	98
29) Benzo(ghi)perylene	276	22.564	22.564	1.217	11272	0.22	ng/uL	99
31) N-Nitrosodiethylamine	102	4.160	4.160	0.746	8654	0.21	ng/uL	99
32) N-Nitrosopyrrolidine	100	6.110	6.110	1.095	8607	0.20	ng/uL	96
34) N-Nitrosodi-n-butylamine	84	7.930	7.931	1.077	9630	0.20	ng/uL	98
36) Benzidine		0.000	13.273	0.000	0m	N.D.	d	
38) 3,3'-Dichlorobenzidine	252	15.078	15.074	0.996	6173	0.16	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1304.D
Acq On : 13 Oct 2016 11:34
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-87|ICAL|1|SVM|1|S-2
Misc : |MIX[A,B]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 13 14:33:01 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1305.D
Acq On : 13 Oct 2016 12:02
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-86|ICAL|1|SVM|1|S-3
Misc : |MIX[A,B]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 13 14:33:03 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

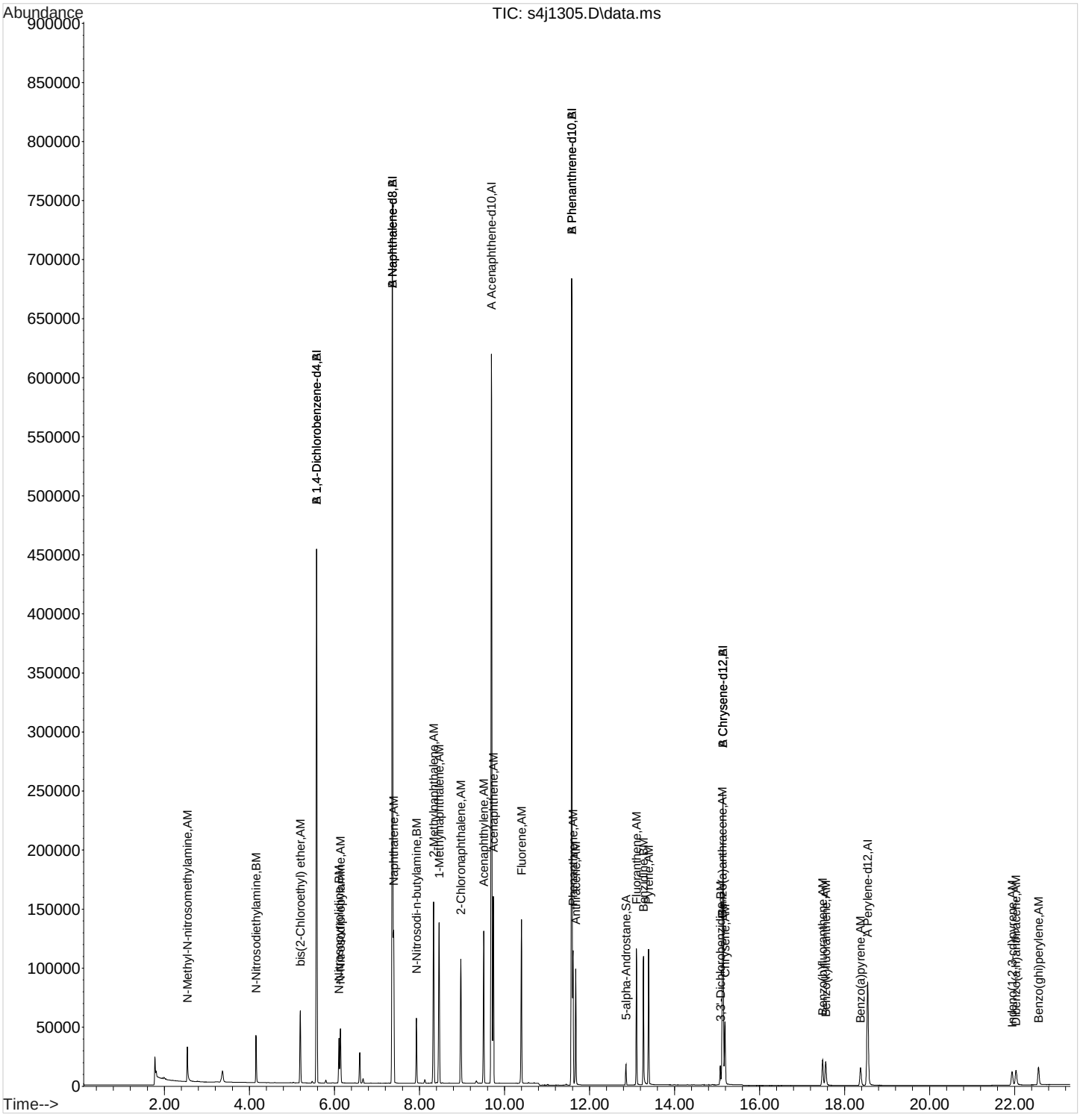
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.578	5.578	1.000	299090	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.362	7.367	1.000	898724	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.693	9.693	1.000	363253	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.581	11.581	1.000	609770	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.138	15.139	1.000	267161	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.542	18.539	1.000	182931	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.578	5.578	1.000	299090	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.362	7.367	1.000	898724	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.581	11.581	1.000	609770	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.138	15.139	1.000	267161	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.859	12.859	1.110	9262	0.49	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.538	2.522	0.455	26787	0.50	ng/uL	99
3) bis(2-Chloroethyl) ether	93	5.198	5.198	0.932	46802	0.51	ng/uL	99
4) N-Nitrosodipropylamine	70	6.142	6.147	1.101	29963	0.50	ng/uL	98
6) Naphthalene	128	7.393	7.393	1.004	134517	0.54	ng/uL	99
7) 2-Methylnaphthalene	142	8.332	8.332	1.132	89487	0.53	ng/uL	99
8) 1-Methylnaphthalene	142	8.462	8.462	1.149	77496	0.54	ng/uL	98
10) 2-Chloronaphthalene	162	8.974	8.974	0.926	88970	0.52	ng/uL	99
11) Acenaphthylene	152	9.511	9.511	0.981	118497	0.49	ng/uL	100
12) Acenaphthene	154	9.735	9.735	1.004	72091	0.56	ng/uL	99
13) Fluorene	166	10.397	10.397	1.073	81476	0.54	ng/uL	99
15) Phenanthrene	178	11.613	11.613	1.003	111524	0.53	ng/uL	100
16) Anthracene	178	11.677	11.677	1.008	100357	0.52	ng/uL	99
18) Fluoranthene	202	13.104	13.104	1.132	98068	0.51	ng/uL	98
20) Pyrene	202	13.390	13.390	0.884	97416	0.55	ng/uL	100
21) Benzo(a)anthracene	228	15.122	15.122	0.999	51543	0.48	ng/uL	100
22) Chrysene	228	15.187	15.187	1.003	51467	0.51	ng/uL	100
24) Benzo(b)fluoranthene	252	17.483	17.486	0.943	38473	0.47	ng/uL	99
25) Benzo(k)fluoranthene	252	17.556	17.556	0.947	38459	0.48	ng/uL	98
26) Benzo(a)pyrene	252	18.374	18.374	0.991	31118	0.46	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.941	21.941	1.183	23558	0.53	ng/uL	98
28) Dibenzo(a,h)anthracene	278	22.032	22.032	1.188	20761	0.55	ng/uL	98
29) Benzo(ghi)perylene	276	22.561	22.564	1.217	26764	0.56	ng/uL	99
31) N-Nitrosodiethylamine	102	4.160	4.160	0.746	21697	0.49	ng/uL	99
32) N-Nitrosopyrrolidine	100	6.105	6.110	1.094	21759	0.48	ng/uL	100
34) N-Nitrosodi-n-butylamine	84	7.930	7.931	1.077	23353	0.49	ng/uL	98
36) Benzidine	184	13.269	13.273	1.146	125729	1.85	ng/uL	98
38) 3,3'-Dichlorobenzidine	252	15.078	15.074	0.996	14674	0.41	ng/uL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1305.D
Acq On : 13 Oct 2016 12:02
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-86|ICAL|1|SVM|1|S-3
Misc : |MIX[A,B]
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 13 14:33:03 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1306.D
Acq On : 13 Oct 2016 12:31
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-85|ICAL|1|SVM|1|S-4
Misc : |MIX[A,B]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 13 14:33:05 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

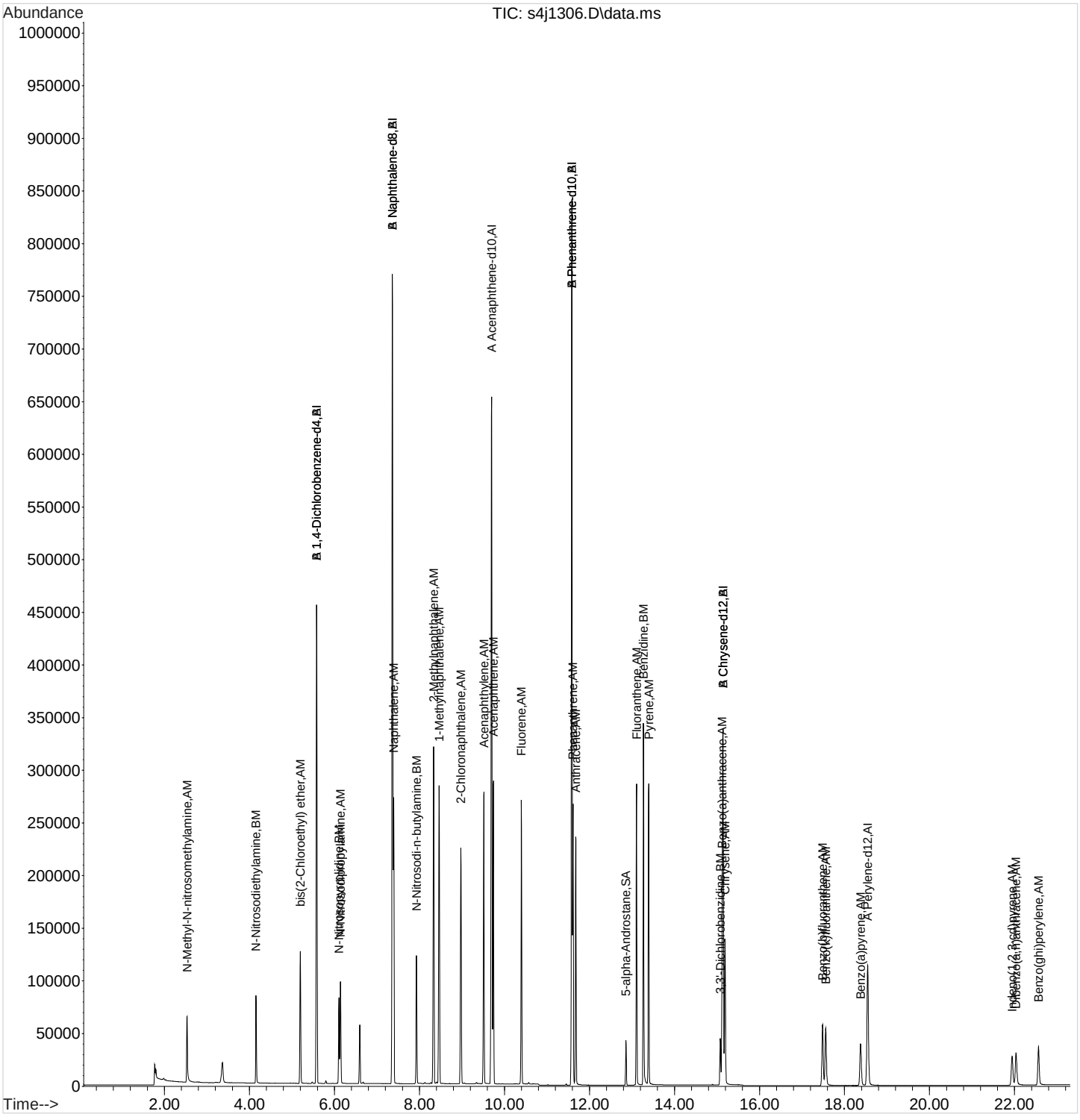
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.579	5.578	1.000	304989	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.362	7.367	1.000	940200	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.699	9.693	1.000	387782	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.583	11.581	1.000	724058	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.141	15.139	1.000	353751	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.543	18.539	1.000	239105	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.579	5.578	1.000	304989	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.362	7.367	1.000	940200	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.583	11.581	1.000	724058	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.141	15.139	1.000	353751	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.858	12.859	1.110	22570	1.00	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.533	2.522	0.454	53743	0.97	ng/uL	98
3) bis(2-Chloroethyl) ether	93	5.198	5.198	0.932	94457	1.01	ng/uL	100
4) N-Nitrosodipropylamine	70	6.142	6.147	1.101	62100	1.01	ng/uL	97
6) Naphthalene	128	7.393	7.393	1.004	273038	1.04	ng/uL	99
7) 2-Methylnaphthalene	142	8.332	8.332	1.132	187432	1.07	ng/uL	99
8) 1-Methylnaphthalene	142	8.463	8.462	1.149	160281	1.07	ng/uL	99
10) 2-Chloronaphthalene	162	8.974	8.974	0.925	187142	1.03	ng/uL	99
11) Acenaphthylene	152	9.516	9.511	0.981	258506	1.01	ng/uL	100
12) Acenaphthene	154	9.740	9.735	1.004	135072	0.98	ng/uL	100
13) Fluorene	166	10.397	10.397	1.072	159575	0.99	ng/uL	100
15) Phenanthrene	178	11.612	11.613	1.002	259416	1.04	ng/uL	100
16) Anthracene	178	11.676	11.677	1.008	242447	1.05	ng/uL	99
18) Fluoranthene	202	13.107	13.104	1.132	239772	1.04	ng/uL	99
20) Pyrene	202	13.393	13.390	0.885	241324	1.02	ng/uL	100
21) Benzo(a)anthracene	228	15.121	15.122	0.999	136278	0.96	ng/uL	100
22) Chrysene	228	15.190	15.187	1.003	134789	1.00	ng/uL	100
24) Benzo(b)fluoranthene	252	17.484	17.486	0.943	103823	0.97	ng/uL	99
25) Benzo(k)fluoranthene	252	17.558	17.556	0.947	102853	0.97	ng/uL	99
26) Benzo(a)pyrene	252	18.378	18.374	0.991	84624	0.96	ng/uL	99
27) Indeno(1,2,3-cd)pyrene	276	21.942	21.941	1.183	56821	0.97	ng/uL	99
28) Dibenzo(a,h)anthracene	278	22.033	22.032	1.188	48823	0.99	ng/uL	98
29) Benzo(ghi)perylene	276	22.562	22.564	1.217	63923	1.03	ng/uL	99
31) N-Nitrosodiethylamine	102	4.155	4.160	0.745	44013	0.98	ng/uL	99
32) N-Nitrosopyrrolidine	100	6.105	6.110	1.094	45513	0.99	ng/uL	99
34) N-Nitrosodi-n-butylamine	84	7.931	7.931	1.077	50811	1.02	ng/uL	99
36) Benzidine	184	13.268	13.273	1.145	379209	4.69	ng/uL	98
38) 3,3'-Dichlorobenzidine	252	15.077	15.074	0.996	40078	0.84	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1306.D
Acq On : 13 Oct 2016 12:31
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-85|ICAL|1|SVM|1|S-4
Misc : |MIX[A,B]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 13 14:33:05 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1307.D
Acq On : 13 Oct 2016 12:59
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-84|ICAL|1|SVM|1|S-5
Misc : |MIX[A,B]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 13 14:33:07 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

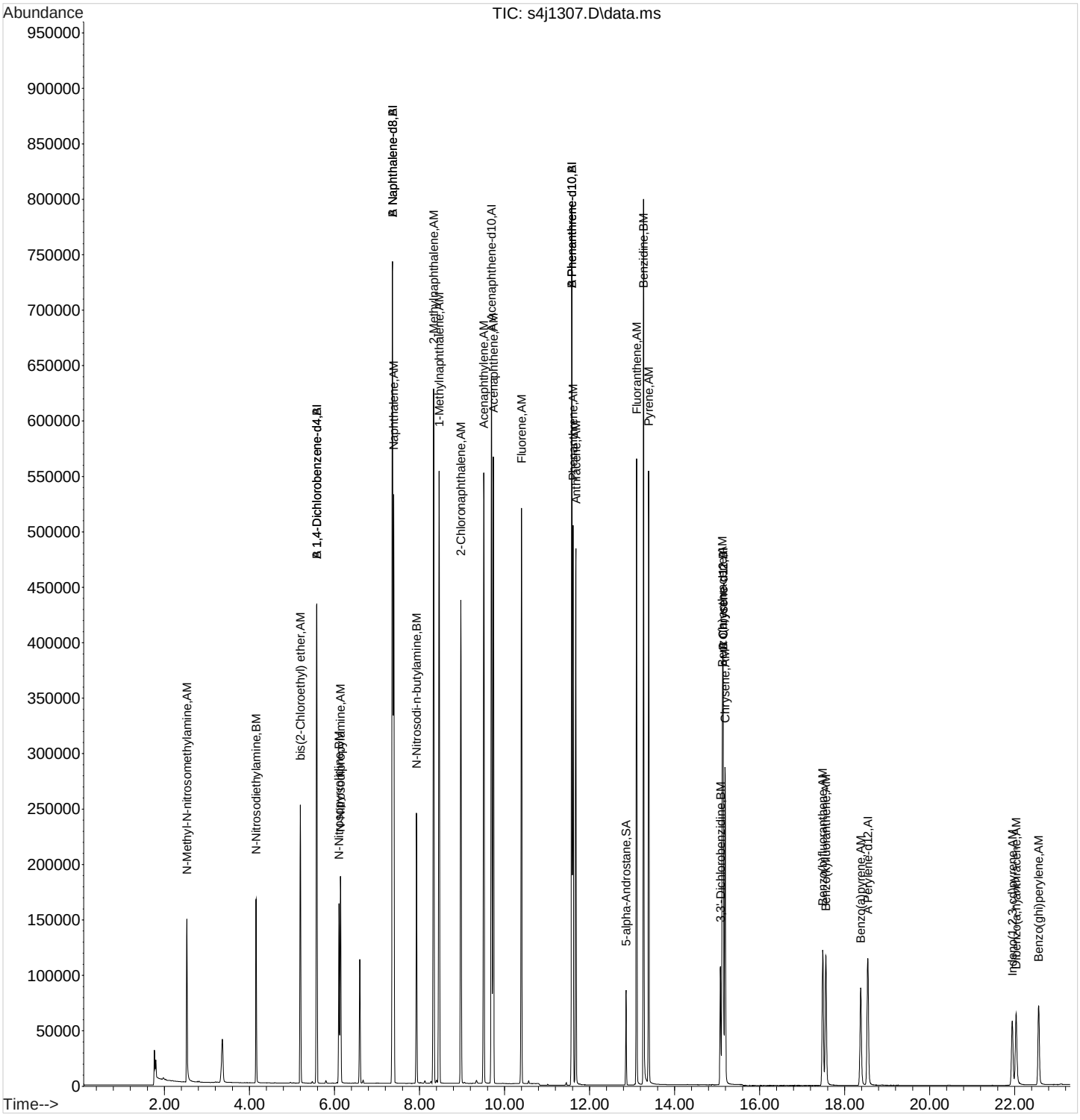
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	298345	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.367	7.367	1.000	907769	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.693	9.693	1.000	374367	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.582	11.581	1.000	686736	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.144	15.139	1.000	350048	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.546	18.539	1.000	238001	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	298345	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.367	7.367	1.000	907769	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.582	11.581	1.000	686736	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.144	15.139	1.000	350048	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.860	12.859	1.110	44484	2.07	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.528	2.522	0.453	113400	2.10	ng/uL	99
3) bis(2-Chloroethyl) ether	93	5.198	5.198	0.931	187382	2.05	ng/uL	100
4) N-Nitrosodipropylamine	70	6.142	6.147	1.100	122450	2.04	ng/uL	97
6) Naphthalene	128	7.393	7.393	1.004	537077	2.13	ng/uL	99
7) 2-Methylnaphthalene	142	8.332	8.332	1.131	365717	2.16	ng/uL	99
8) 1-Methylnaphthalene	142	8.463	8.462	1.149	313736	2.16	ng/uL	99
10) 2-Chloronaphthalene	162	8.974	8.974	0.926	360625	2.06	ng/uL	100
11) Acenaphthylene	152	9.511	9.511	0.981	509093	2.06	ng/uL	100
12) Acenaphthene	154	9.735	9.735	1.004	259975	1.95	ng/uL	100
13) Fluorene	166	10.397	10.397	1.073	302431	1.95	ng/uL	100
15) Phenanthrene	178	11.614	11.613	1.003	505198	2.14	ng/uL	100
16) Anthracene	178	11.678	11.677	1.008	477886	2.18	ng/uL	100
18) Fluoranthene	202	13.106	13.104	1.132	476177	2.18	ng/uL	99
20) Pyrene	202	13.391	13.390	0.884	468641	2.01	ng/uL	100
21) Benzo(a)anthracene	228	15.124	15.122	0.999	283449	2.01	ng/uL	100
22) Chrysene	228	15.188	15.187	1.003	275740	2.07	ng/uL	100
24) Benzo(b)fluoranthene	252	17.487	17.486	0.943	214067	2.00	ng/uL	100
25) Benzo(k)fluoranthene	252	17.558	17.556	0.947	216348	2.05	ng/uL	100
26) Benzo(a)pyrene	252	18.379	18.374	0.991	180614	2.05	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.945	21.941	1.183	116485	2.00	ng/uL	99
28) Dibenzo(a,h)anthracene	278	22.036	22.032	1.188	103941	2.11	ng/uL	98
29) Benzo(ghi)perylene	276	22.563	22.564	1.217	127751	2.07	ng/uL	100
31) N-Nitrosodiethylamine	102	4.160	4.160	0.745	89157	2.04	ng/uL	99
32) N-Nitrosopyrrolidine	100	6.105	6.110	1.093	90583	2.01	ng/uL	96
34) N-Nitrosodi-n-butylamine	84	7.931	7.931	1.076	103251	2.14	ng/uL	99
36) Benzidine	184	13.270	13.273	1.146	861363	11.23	ng/uL	99
38) 3,3'-Dichlorobenzidine	252	15.080	15.074	0.996	93705	1.99	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1307.D
Acq On : 13 Oct 2016 12:59
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-84|ICAL|1|SVM|1|S-5
Misc : |MIX[A,B]
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 13 14:33:07 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1308.D
Acq On : 13 Oct 2016 13:27
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-82|ICAL|1|SVM|1|S-7
Misc : |MIX[A,B]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 13 14:33:09 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

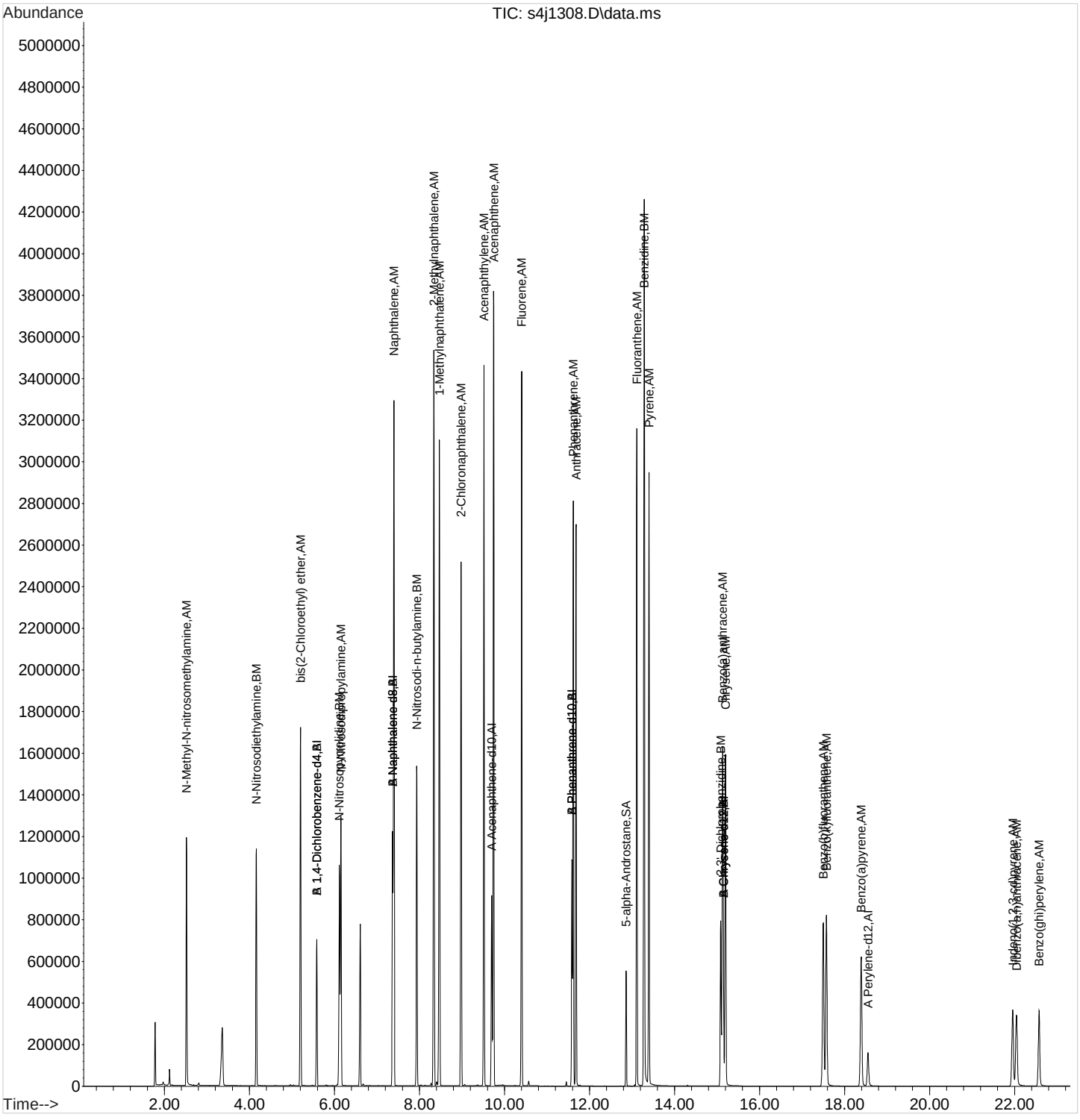
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	465143	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.367	7.367	1.000	1410229	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.698	9.693	1.000	509763	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.585	11.581	1.000	976301	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.151	15.139	1.000	425622	4.00	ng/uL	0.01
23) A Perylene-d12	264	18.551	18.539	1.000	327452	4.00	ng/uL	0.01
30) B 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	465143	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.367	7.367	1.000	1410229	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.585	11.581	1.000	976301	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.151	15.139	1.000	425622	4.00	ng/uL	0.01
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.863	12.859	1.110	292642	9.58	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.517	2.522	0.451	830852	9.88	ng/uL	99
3) bis(2-Chloroethyl) ether	93	5.203	5.198	0.932	1318602	9.26	ng/uL	100
4) N-Nitrosodipropylamine	70	6.152	6.147	1.102	869983	9.30	ng/uL	99
6) Naphthalene	128	7.398	7.393	1.004	3302583	8.41	ng/uL	98
7) 2-Methylnaphthalene	142	8.337	8.332	1.132	2023677	7.68	ng/uL	99
8) 1-Methylnaphthalene	142	8.468	8.462	1.149	1711818	7.60	ng/uL	100
10) 2-Chloronaphthalene	162	8.979	8.974	0.926	2008402	8.42	ng/uL	100
11) Acenaphthylene	152	9.516	9.511	0.981	3091914	9.18	ng/uL	100
12) Acenaphthene	154	9.745	9.735	1.005	1761480	9.71	ng/uL	99
13) Fluorene	166	10.402	10.397	1.073	2014921	9.53	ng/uL	99
15) Phenanthrene	178	11.617	11.613	1.003	2857200	8.51	ng/uL	99
16) Anthracene	178	11.685	11.677	1.009	2793650	8.96	ng/uL	99
18) Fluoranthene	202	13.112	13.104	1.132	2734155	8.82	ng/uL	98
20) Pyrene	202	13.398	13.390	0.884	2660851	9.37	ng/uL	99
21) Benzo(a)anthracene	228	15.130	15.122	0.999	1716849	10.04	ng/uL	99
22) Chrysene	228	15.199	15.187	1.003	1547374	9.55	ng/uL	99
24) Benzo(b)fluoranthene	252	17.501	17.486	0.943	1508608	10.25	ng/uL	99
25) Benzo(k)fluoranthene	252	17.574	17.556	0.947	1485675	10.25	ng/uL	99
26) Benzo(a)pyrene	252	18.392	18.374	0.991	1257961	10.37	ng/uL	99
27) Indeno(1,2,3-cd)pyrene	276	21.955	21.941	1.184	743157	9.27	ng/uL	100
28) Dibenzo(a,h)anthracene	278	22.046	22.032	1.188	563070	8.32	ng/uL	100
29) Benzo(ghi)perylene	276	22.576	22.564	1.217	638469	7.52	ng/uL	99
31) N-Nitrosodiethylamine	102	4.165	4.160	0.746	649307	9.52	ng/uL	100
32) N-Nitrosopyrrolidine	100	6.116	6.110	1.095	691308	9.86	ng/uL	95
34) N-Nitrosodi-n-butylamine	84	7.941	7.931	1.078	664243	8.87	ng/uL	100
36) Benzidine	184	13.289	13.273	1.147	5792452	53.11	ng/uL	98
38) 3,3'-Dichlorobenzidine	252	15.086	15.074	0.996	693352	12.10	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1308.D
Acq On : 13 Oct 2016 13:27
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-82|ICAL|1|SVM|1|S-7
Misc : |MIX[A,B]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 13 14:33:09 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1309.D
Acq On : 13 Oct 2016 13:56
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-81|ICAL|1|SVM|1|S-8
Misc : |MIX[A,B]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 13 14:33:11 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

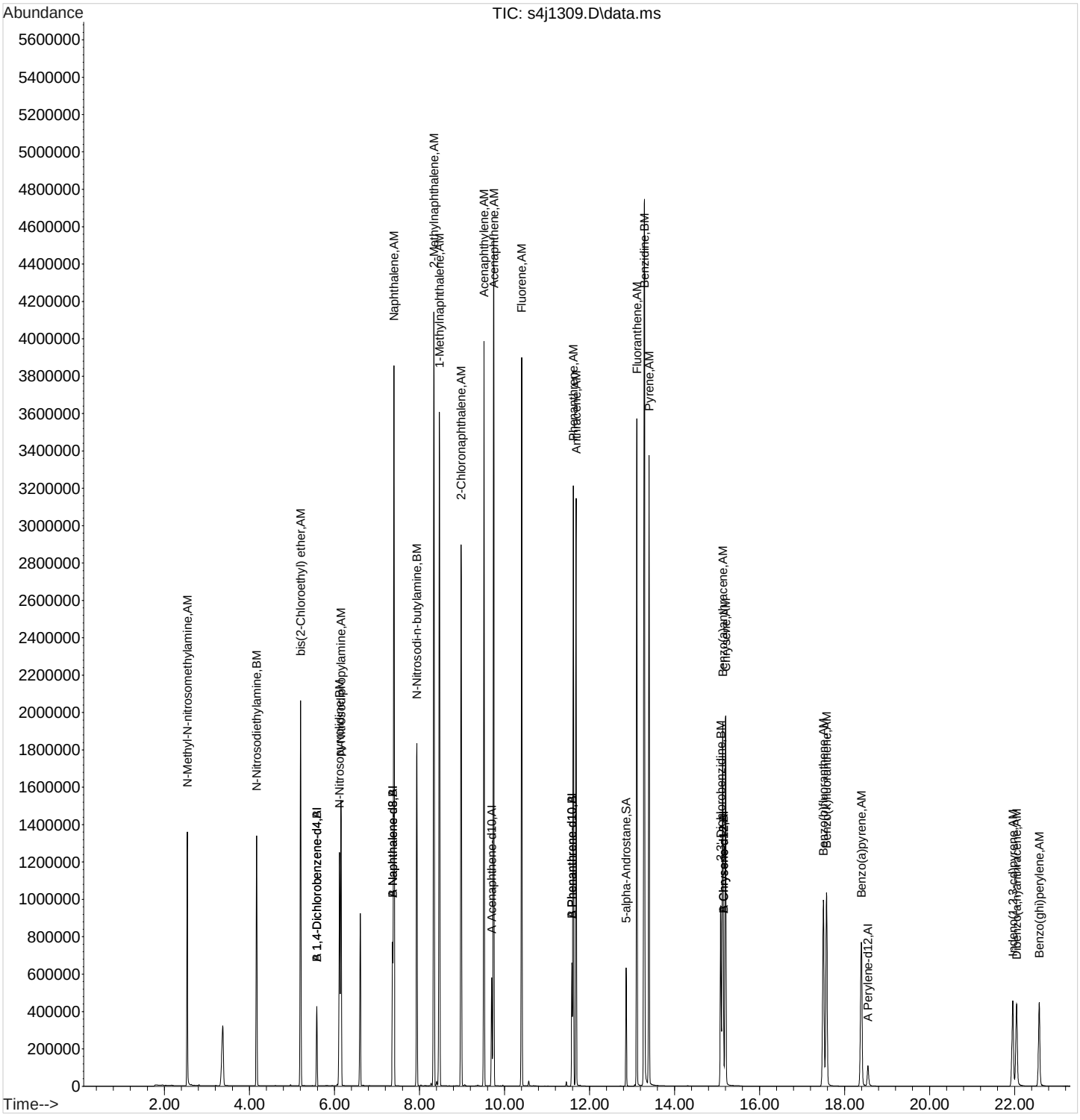
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) A 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	274293	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.367	7.367	1.000	869373	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.698	9.693	1.000	317678	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.585	11.581	1.000	593518	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.151	15.139	1.000	273225	4.00	ng/uL	0.01
23) A Perylene-d12	264	18.548	18.539	1.000	214008	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	274293	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.367	7.367	1.000	869373	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.585	11.581	1.000	593518	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.151	15.139	1.000	273225	4.00	ng/uL	0.01
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.863	12.859	1.110	332331	17.89	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.538	2.522	0.455	968809	19.53	ng/uL	99
3) bis(2-Chloroethyl) ether	93	5.203	5.198	0.932	1524314	18.15	ng/uL	99
4) N-Nitrosodipropylamine	70	6.152	6.147	1.102	1032009	18.70	ng/uL	96
6) Naphthalene	128	7.399	7.393	1.004	3820566	15.79	ng/uL	97
7) 2-Methylnaphthalene	142	8.337	8.332	1.132	2371247	14.59	ng/uL	99
8) 1-Methylnaphthalene	142	8.468	8.462	1.149	2000315	14.40	ng/uL	99
10) 2-Chloronaphthalene	162	8.979	8.974	0.926	2333116	15.69	ng/uL	99
11) Acenaphthylene	152	9.521	9.511	0.982	3563191	16.98	ng/uL	99
12) Acenaphthene	154	9.745	9.735	1.005	2047122	18.10	ng/uL	99
13) Fluorene	166	10.403	10.397	1.073	2333306	17.71	ng/uL	100
15) Phenanthrene	178	11.621	11.613	1.003	3304314	16.19	ng/uL	98
16) Anthracene	178	11.685	11.677	1.009	3177380	16.76	ng/uL	99
18) Fluoranthene	202	13.112	13.104	1.132	3097505	16.44	ng/uL	98
20) Pyrene	202	13.402	13.390	0.885	3026827	16.61	ng/uL	98
21) Benzo(a)anthracene	228	15.134	15.122	0.999	2084444	18.98	ng/uL	99
22) Chrysene	228	15.203	15.187	1.003	1961245	18.85	ng/uL	99
24) Benzo(b)fluoranthene	252	17.504	17.486	0.944	1940079	20.17	ng/uL	99 A
25) Benzo(k)fluoranthene	252	17.577	17.556	0.948	1907076	20.14	ng/uL	99 A
26) Benzo(a)pyrene	252	18.395	18.374	0.992	1631954	20.58	ng/uL	99 A
27) Indeno(1,2,3-cd)pyrene	276	21.958	21.941	1.184	897827	17.14	ng/uL	100
28) Dibenzo(a,h)anthracene	278	22.046	22.032	1.189	667251	15.09	ng/uL	99
29) Benzo(ghi)perylene	276	22.579	22.564	1.217	785386	14.15	ng/uL	100
31) N-Nitrosodiethylamine	102	4.170	4.160	0.747	751378	18.69	ng/uL	100
32) N-Nitrosopyrrolidine	100	6.121	6.110	1.096	823372	19.91	ng/uL	98
34) N-Nitrosodi-n-butylamine	84	7.941	7.931	1.078	786108	17.02	ng/uL	100
36) Benzidine	184	13.293	13.273	1.147	7074153	106.70	ng/uL	97 A
38) 3,3'-Dichlorobenzidine	252	15.086	15.074	0.996	860028	23.37	ng/uL	100 A

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1309.D
Acq On : 13 Oct 2016 13:56
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-81|ICAL|1|SVM|1|S-8
Misc : |MIX[A,B]
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 13 14:33:11 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD4.I **Injection Date:** 13-OCT-16 14:24

Data File: s101316.B\s4j1310.D **Init. Cal. Date(s)** 13-OCT-16 10:29 - 13-OCT-16 13:5

Lab Sample ID WBN160804-89.1 **Method:** s101316.B\MSD4_SIMPAHPLUS_8270d_101316.

Quant Type ISTD **Method Update:** 13-OCT-16 14:32

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	5-alpha-Androstane	0.1252	0.12257		.01		-2.10064	30		Averaged
	bis(2-Chloroethyl) ether	1.2248	1.26616		.7		3.37688	30		Averaged
	N-Nitrosodipropylamine	0.8048	0.80921		.5		0.54796	30		Averaged
	Naphthalene	1.1135	1.11279		.7		-0.06376	30		Averaged
	2-Methylnaphthalene	0.7476	0.75413		.4		0.87346	30		Averaged
	1-Methylnaphthalene	0.6389	0.68537		.01		7.27344	30		Averaged
	2-Chloronaphthalene	1.872	1.71808		.8		-8.22222	30		Averaged
	Acenaphthylene	2.6415	2.59083		.9		-1.91823	30		Averaged
	Acenaphthene	1.424	1.41362		.9		-0.72893	30		Averaged
	Fluorene	1.6588	1.44856		.9		-12.67422	30		Averaged
	Phenanthrene	1.3757	1.34308		.7		-2.37116	30		Averaged
	Anthracene	1.2774	1.35393		.7		5.99108	30		Averaged
	Fluoranthene	1.2701	1.25903		.6		-0.87158	30		Averaged
	Pyrene	2.6677	2.49805		.6		-6.35941	30		Averaged
	3,3'-Dichlorobenzidine	0.5387	0.52321		.01		-2.87544	30		Averaged
	Benzo(a)anthracene	1.6075	1.58822		.8		-1.19938	30		Averaged
	Chrysene	1.5233	1.501		.7		-1.46393	30		Averaged
	Benzo(b)fluoranthene	1.7978	1.80409		.7		0.34987	30		Averaged
	Benzo(k)fluoranthene	1.7699	1.83939		.7		3.92621	30		Averaged
	Benzo(a)pyrene	1.482	1.50035		.7		1.23819	30		Averaged
	Indeno(1,2,3-cd)pyrene	0.9792	0.93286		.5		-4.73243	30		Averaged
	Dibenzo(a,h)anthracene	0.8266	0.81968		.4		-0.83716	30		Averaged
	Benzo(ghi)perylene	1.0372	0.99937		.5		-3.64732	30		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1310.D
Acq On : 13 Oct 2016 14:24
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-89.1|ICV|1|SVM|1|S-ICV
Misc : |MIX[A,B]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 13 14:51:24 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

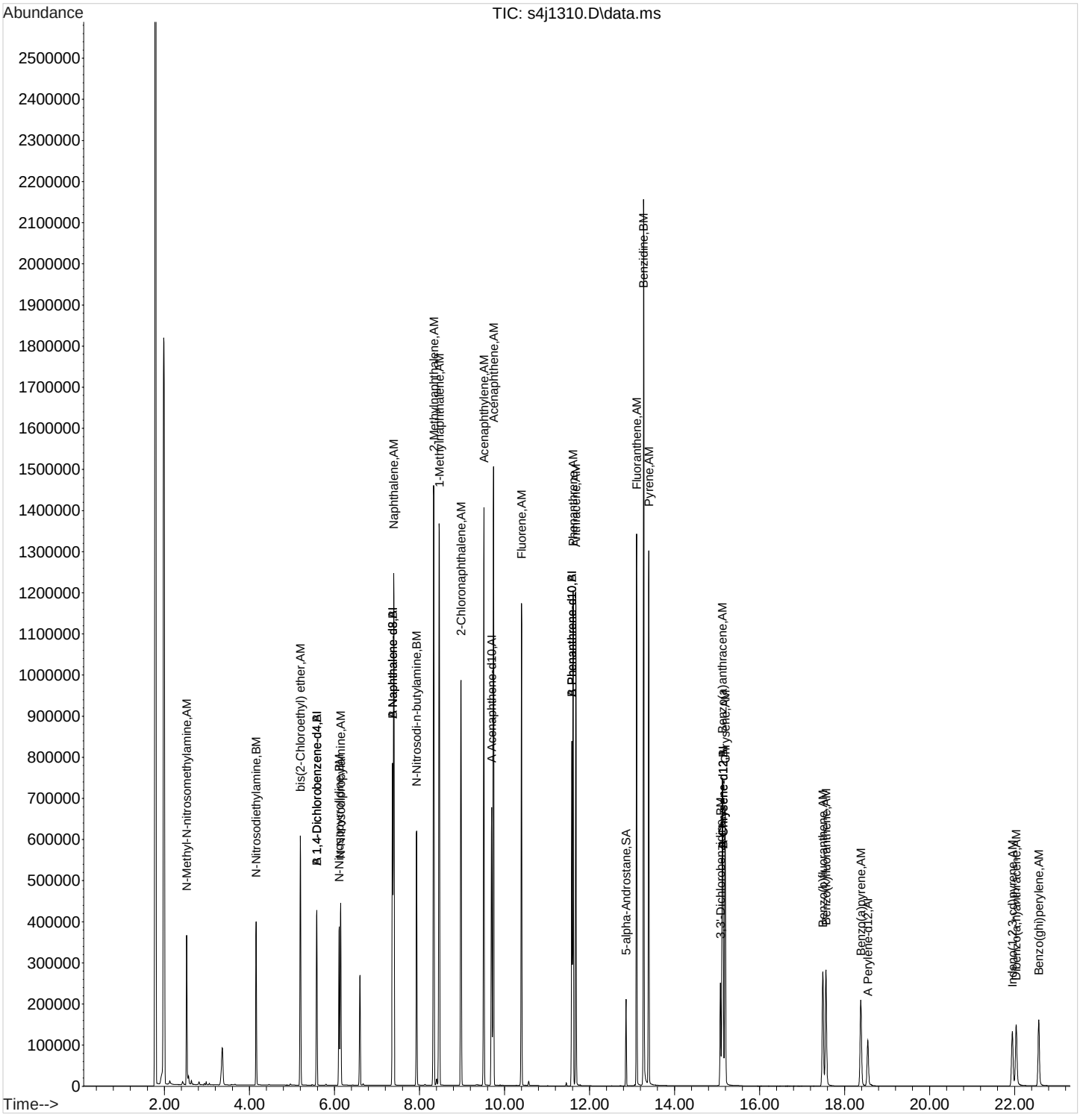
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) A 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	286657	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.367	7.367	1.000	902532	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.699	9.693	1.000	378962	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.585	11.581	1.000	709640	4.00	ng/uL	0.00
19) A Chrysene-d12	240	15.143	15.139	1.000	348379	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.545	18.539	1.000	227015	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.584	5.578	1.000	286657	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.367	7.367	1.000	902532	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.585	11.581	1.000	709640	4.00	ng/uL	0.00
37) B Chrysene-d12	240	15.143	15.139	1.000	348379	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.859	12.859	1.110	108725	4.90	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.522	2.522	0.452	257237	4.96	ng/uL	100
3) bis(2-Chloroethyl) ether	93	5.198	5.198	0.931	453693	5.17	ng/uL	100
4) N-Nitrosodipropylamine	70	6.147	6.147	1.101	289956	5.03	ng/uL	100
6) Naphthalene	128	7.394	7.393	1.004	1255409	5.00	ng/uL	100
7) 2-Methylnaphthalene	142	8.337	8.332	1.132	850781	5.04	ng/uL	100
8) 1-Methylnaphthalene	142	8.468	8.462	1.149	773215	5.36	ng/uL	99
10) 2-Chloronaphthalene	162	8.979	8.974	0.926	813858	4.59	ng/uL	100
11) Acenaphthylene	152	9.516	9.511	0.981	1227283	4.90	ng/uL	100
12) Acenaphthene	154	9.740	9.735	1.004	669635	4.96	ng/uL	99
13) Fluorene	166	10.398	10.397	1.072	686186	4.37	ng/uL	100
15) Phenanthrene	178	11.613	11.613	1.002	1191382	4.88	ng/uL	100
16) Anthracene	178	11.677	11.677	1.008	1201008	5.30	ng/uL	100
18) Fluoranthene	202	13.108	13.104	1.132	1116820	4.96	ng/uL	100
20) Pyrene	202	13.394	13.390	0.885	1087836	4.68	ng/uL	100
21) Benzo(a)anthracene	228	15.127	15.122	0.999	691629	4.94	ng/uL	100
22) Chrysene	228	15.191	15.187	1.003	653646	4.93	ng/uL	100
24) Benzo(b)fluoranthene	252	17.489	17.486	0.943	511944	5.02	ng/uL	100
25) Benzo(k)fluoranthene	252	17.563	17.556	0.947	521961	5.20	ng/uL	100
26) Benzo(a)pyrene	252	18.383	18.374	0.991	425752	5.06	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.947	21.941	1.183	264717	4.76	ng/uL	99
28) Dibenzo(a,h)anthracene	278	22.038	22.032	1.188	232600	4.96	ng/uL	99
29) Benzo(ghi)perylene	276	22.567	22.564	1.217	283590	4.82	ng/uL	99
31) N-Nitrosodiethylamine	102	4.160	4.160	0.745	208761	4.97	ng/uL	99
32) N-Nitrosopyrrolidine	100	6.111	6.110	1.094	222684	5.15	ng/uL	100
34) N-Nitrosodi-n-butylamine	84	7.936	7.931	1.077	260550	5.44	ng/uL	100
36) Benzidine	184	13.273	13.273	1.146	2374295	29.95	ng/uL	100
38) 3,3'-Dichlorobenzidine	252	15.078	15.074	0.996	227846	4.86	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1310.D
Acq On : 13 Oct 2016 14:24
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-89.1|ICV|1|SVM|1|S-ICV
Misc : |MIX[A,B]
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 13 14:51:24 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Continuing Calibration Summary

Client SDG: 409254

Instrument ID: MSD4.I **Injection Date:** 07-NOV-16 08:29

Data File: s110716.B\s4k0702.D **Init. Cal. Date(s)** 13-OCT-16 10:29 - 13-OCT-16 13:5

Lab Sample ID WBN160804-83.4 **Method:** s110716.B\MSD4_SIMPAHPLUS_8270d_101316.

Quant Type ISTD **Method Update:** 13-OCT-16 14:32

	Compound	AVERF / Amount	RF CCV	Nominal CCV	Min RF	RF Q	%D / %Drift	Max	Drift Q	Curve Type
S	5-alpha-Androstane	0.1252	0.12961		.01		3.52236	20		Averaged
	bis(2-Chloroethyl) ether	1.2248	1.17256		.7		-4.26519	20		Averaged
	N-Nitrosodipropylamine	0.8048	0.78065		.5		-3.00075	20		Averaged
	Naphthalene	1.1135	1.12712		.7		1.22317	20		Averaged
	2-Methylnaphthalene	0.7476	0.78166		.4		4.55591	20		Averaged
	1-Methylnaphthalene	0.6389	0.67158		.01		5.11504	20		Averaged
	2-Chloronaphthalene	1.872	1.7591		.8		-6.03098	20		Averaged
	Acenaphthylene	2.6415	2.61796		.9		-0.89116	20		Averaged
	Acenaphthene	1.424	1.48424		.9		4.23034	20		Averaged
	Fluorene	1.6588	1.65532		.9		-0.20979	20		Averaged
	Phenanthrene	1.3757	1.38328		.7		0.55099	20		Averaged
	Anthracene	1.2774	1.36067		.7		6.51871	20		Averaged
	Fluoranthene	1.2701	1.29108		.6		1.65184	20		Averaged
	Pyrene	2.6677	2.70336		.6		1.33673	20		Averaged
	3,3'-Dichlorobenzidine	0.5387	0.59962		.01		11.30871	20		Averaged
	Benzo(a)anthracene	1.6075	1.62026		.8		0.79378	20		Averaged
	Chrysene	1.5233	1.49003		.7		-2.18407	20		Averaged
	Benzo(b)fluoranthene	1.7978	1.98828		.7		10.59517	20		Averaged
	Benzo(k)fluoranthene	1.7699	1.99821		.7		12.8996	20		Averaged
	Benzo(a)pyrene	1.482	1.6209		.7		9.37247	20		Averaged
	Indeno(1,2,3-cd)pyrene	0.9792	0.84895		.5		-13.30167	20		Averaged
	Dibenzo(a,h)anthracene	0.8266	0.78736		.4		-4.74716	20		Averaged
	Benzo(ghi)perylene	1.0372	0.83085		.5		-19.89491	20		Averaged

JMB 11/07/2016

JCB 11/08/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0702.D
Acq On : 07 Nov 2016 08:29
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-83.4|CCV|1|SVM|1|S-CCV
Misc : |MIX[A,B]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 07 08:53:17 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

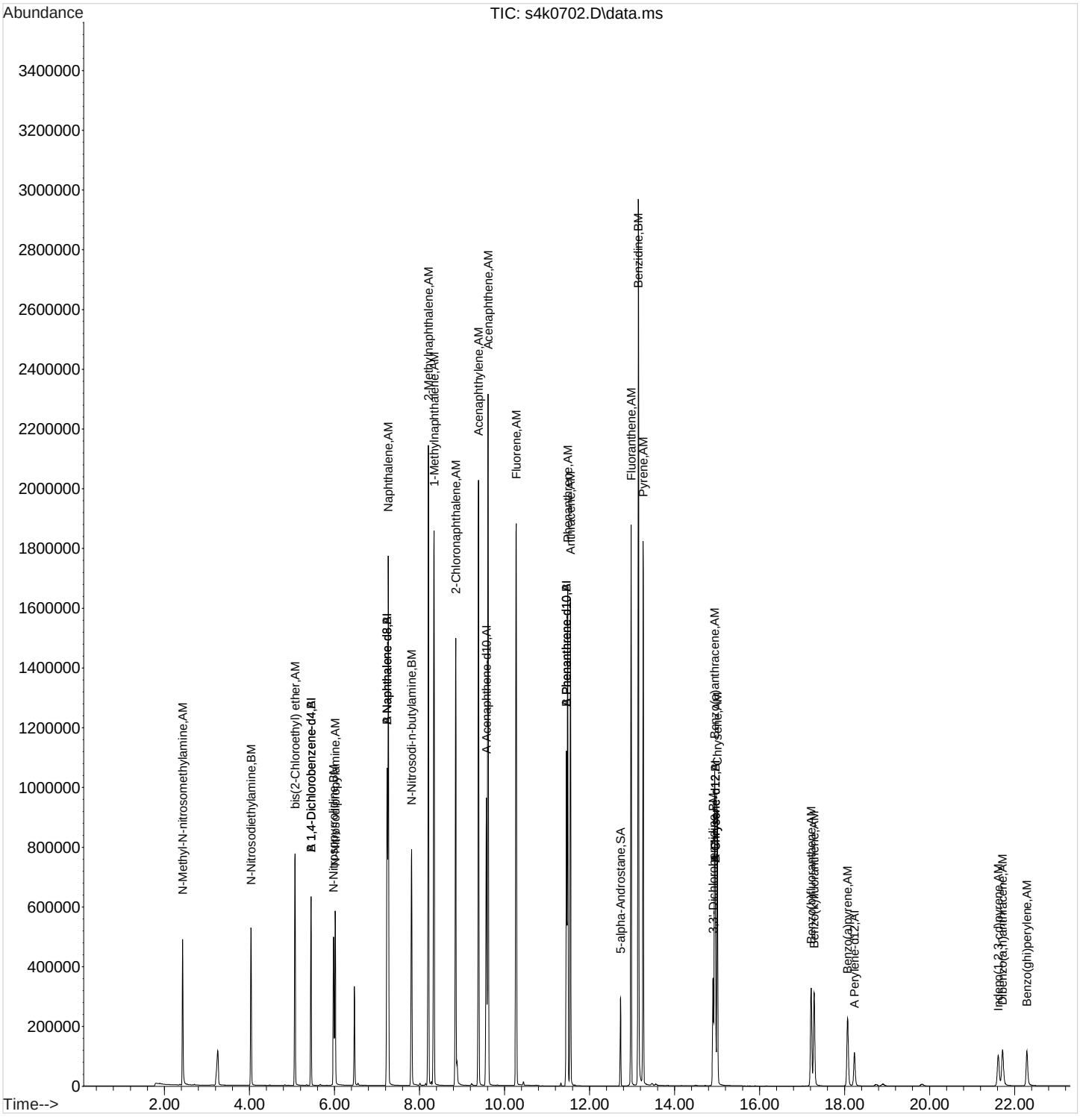
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.448	5.448	1.000	421327	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1325711	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.573	9.573	1.000	584621	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.457	11.457	1.000	1033083	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.963	14.963	1.000	468782	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.231	18.231	1.000	239758	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.448	5.448	1.000	421327	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1325711	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.457	11.457	1.000	1033083	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.963	14.963	1.000	468782	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.731	12.731	1.111	167371	5.18	ng/uL	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) N-Methyl-N-nitrosometh...	74	2.428	2.428	0.446	360345	4.73	ng/uL	92
3) bis(2-Chloroethyl) ether	93	5.072	5.072	0.931	617538	4.79	ng/uL	98
4) N-Nitrosodipropylamine	70	6.016	6.016	1.104	411137	4.85	ng/uL	96
6) Naphthalene	128	7.268	7.268	1.004	1867801	5.06	ng/uL	100
7) 2-Methylnaphthalene	142	8.212	8.212	1.135	1295317	5.23	ng/uL	100
8) 1-Methylnaphthalene	142	8.342	8.342	1.153	1112906	5.26	ng/uL	100
10) 2-Chloronaphthalene	162	8.853	8.853	0.925	1285505	4.70	ng/uL	100
11) Acenaphthylene	152	9.391	9.391	0.981	1913145	4.96	ng/uL	100
12) Acenaphthene	154	9.615	9.615	1.004	1084644	5.21	ng/uL	100
13) Fluorene	166	10.277	10.277	1.074	1209671	4.99	ng/uL	100
15) Phenanthrene	178	11.489	11.489	1.003	1786300	5.03	ng/uL	100
16) Anthracene	178	11.553	11.553	1.008	1757108	5.33	ng/uL	100
18) Fluoranthene	202	12.981	12.981	1.133	1667242	5.08	ng/uL	100
20) Pyrene	202	13.262	13.262	0.886	1584106	5.07	ng/uL	100
21) Benzo(a)anthracene	228	14.943	14.943	0.999	949436	5.04	ng/uL	98
22) Chrysene	228	15.007	15.007	1.003	873122	4.89	ng/uL	100
24) Benzo(b)fluoranthene	252	17.213	17.213	0.944	595884	5.53	ng/uL	100
25) Benzo(k)fluoranthene	252	17.284	17.284	0.948	598859	5.64	ng/uL	100
26) Benzo(a)pyrene	252	18.072	18.072	0.991	485780	5.47	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.615	21.615	1.186	254427	4.34	ng/uL	97
28) Dibenzo(a,h)anthracene	278	21.718	21.718	1.191	235971	4.76	ng/uL	96
29) Benzo(ghi)perylene	276	22.289	22.289	1.223	249005	4.01	ng/uL	96
31) N-Nitrosodiethylamine	102	4.040	4.040	0.742	303436	4.91	ng/uL	93
32) N-Nitrosopyrrolidine	100	5.980	5.980	1.098	326006	5.13	ng/uL	92
34) N-Nitrosodi-n-butylamine	84	7.816	7.816	1.080	374830	5.32	ng/uL	94
36) Benzidine	184	13.150	13.150	1.148	3479149	30.15	ng/uL	99
38) 3,3'-Dichlorobenzidine	252	14.906	14.906	0.996	351361	5.57	ng/uL	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0702.D
Acq On : 07 Nov 2016 08:29
Operator : JMB3
InstName : MSD4
Sample : |WBN160804-83.4|CCV|1|SVM|1|S-CCV
Misc : |MIX[A,B]
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 07 08:53:17 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



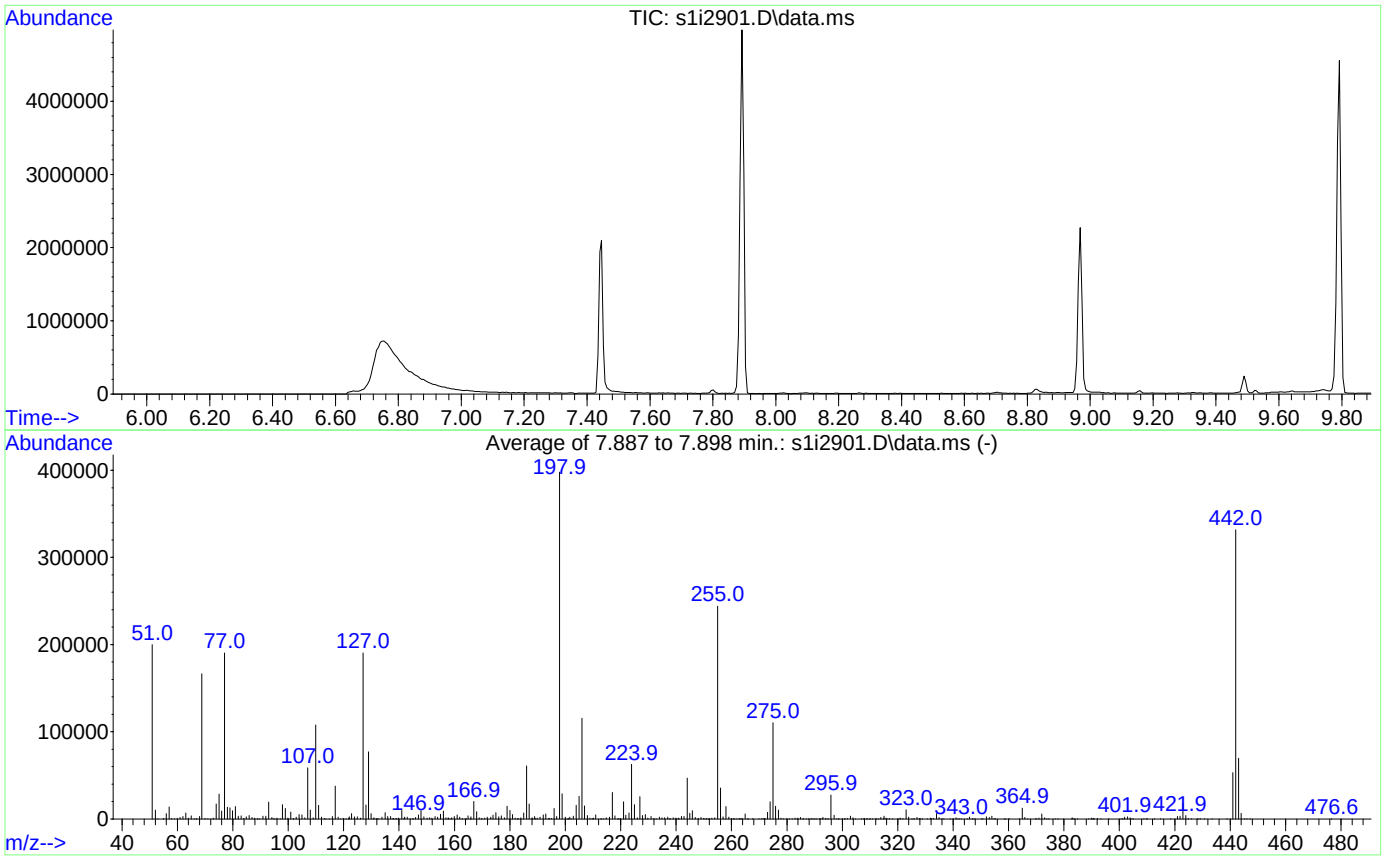
Quality Control Data

DFTPP Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2901.D
Acq On : 29 Sep 2016 09:17
Operator : JLD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Title : dftpp / endrin / ddt SubList :
Last Update : Tue Dec 04 12:26:44 2012



AutoFind: Scans 1364, 1365, 1366; Background Corrected with Scan 1358

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	50.2	199762	PASS
68	69	0.00	2	1.7	2782	PASS
69	198	0.00	100	41.9	166571	PASS
70	69	0.00	2	0.3	536	PASS
127	198	10	80	47.8	190336	PASS
197	198	0.00	2	0.7	2741	PASS
198	198	50	100	100.0	397952	PASS
199	198	5	9	7.3	28971	PASS
275	198	10	60	27.7	110296	PASS
365	198	1	100	3.1	12329	PASS
441	442	0.01	24	16.0	53259	PASS
442	198	50	100	83.4	331904	PASS
443	442	15	24	21.0	69539	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2901.D
Acq On : 29 Sep 2016 09:17
Operator : JLD1
InstName : MSD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 30 09:14:05 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

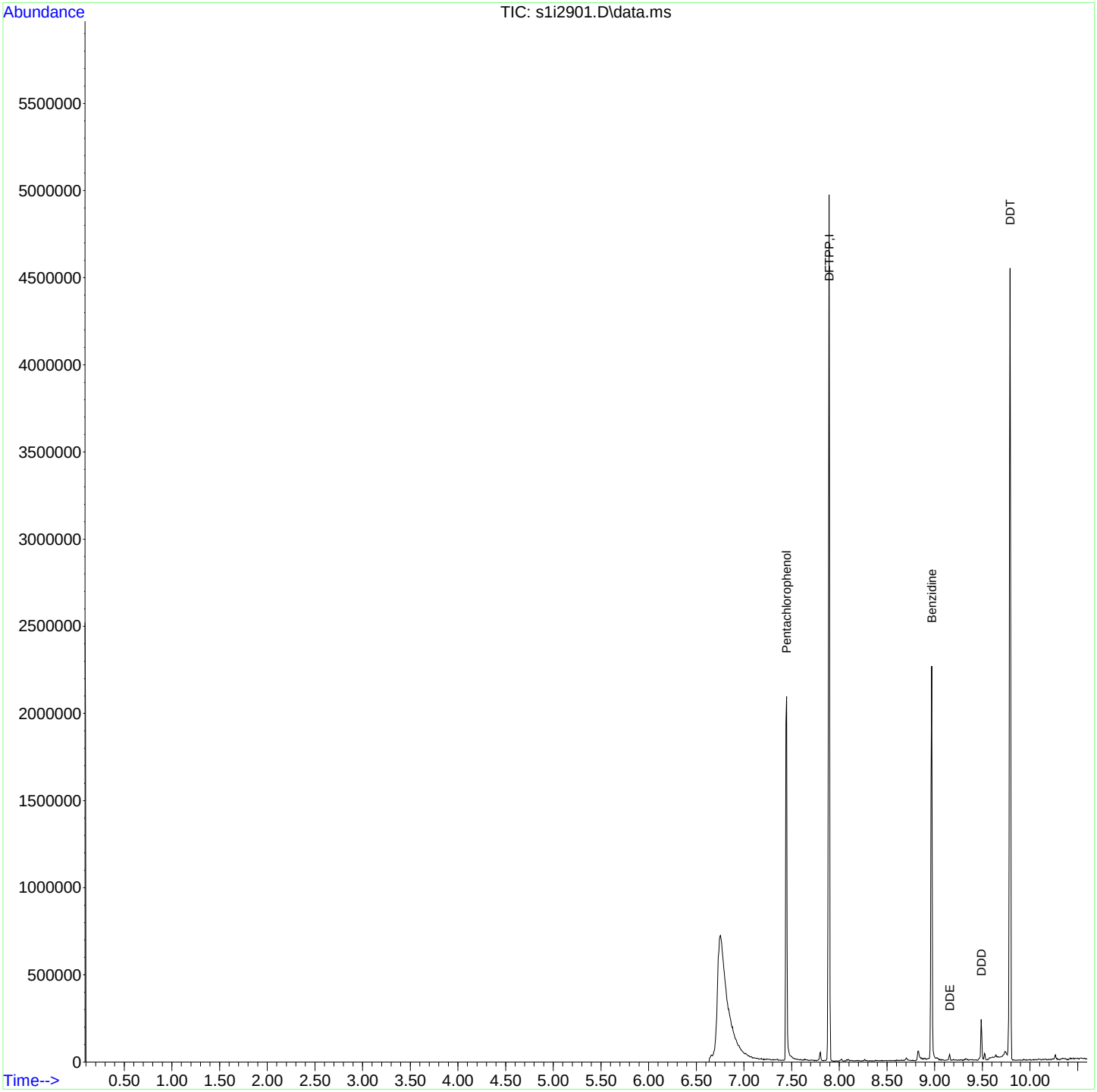
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) DFTPP	TIC	7.892	7.893	1.000	4211725	5.00	ug/l	# 0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) Pentachlorophenol	266	7.446	7.447	0.943	234010	3.10	ug/l	99
4) Benzidine	184	8.968	8.965	1.136	777465	2.82	ug/l	99
5) DDE	246	9.157	9.153	1.160	3348	4.75	ug/l	87
6) DDD	235	9.489	9.484	1.202	35489	6.86	ug/l	98
7) DDT	235	9.792	9.787	1.241	752487	4.06	ug/l	99

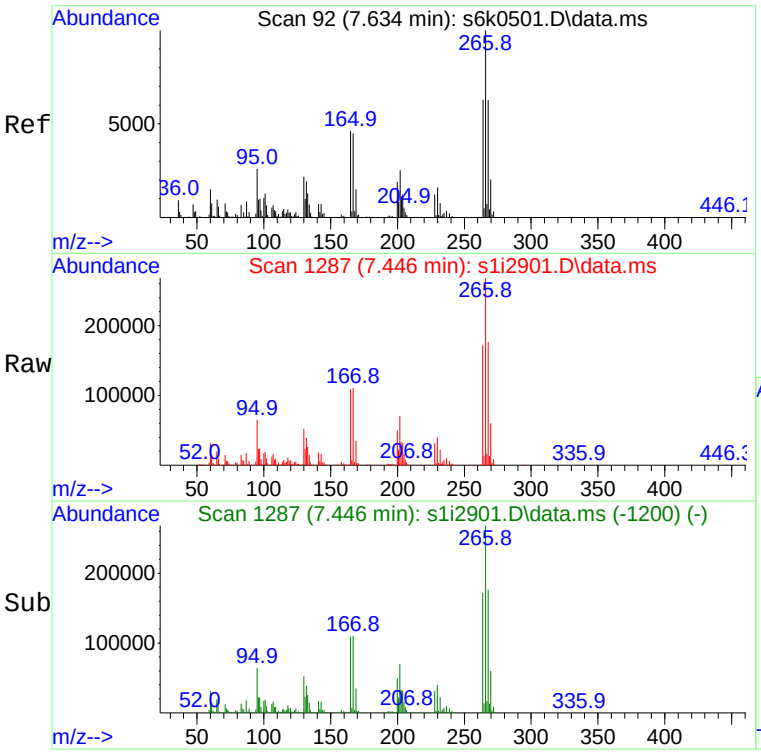
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2901.D
Acq On : 29 Sep 2016 09:17
Operator : JLD1
InstName : MSD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 30 09:14:05 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

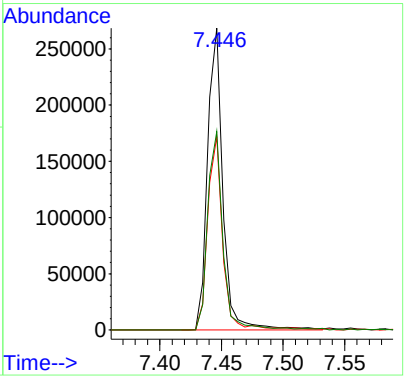


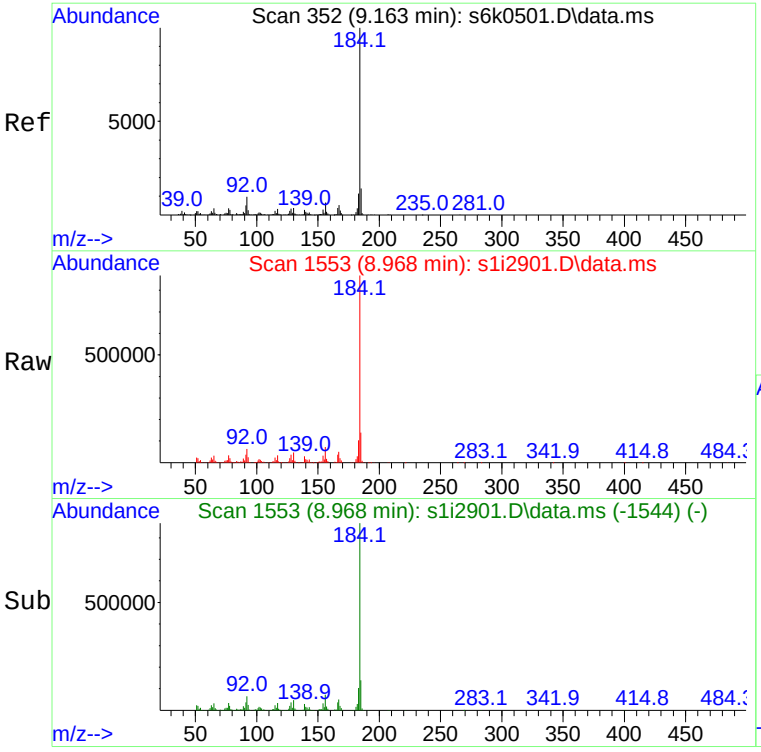


#3
Pentachlorophenol
Concen: 3.10 ug/l
RT: 7.446 min Scan# 1287
Delta R.T. -0.001 min
Lab File: s1i2901.D
Acq: 29 Sep 2016 09:17

Tgt Ion:266 Resp: 234010

Ion	Ratio	Lower	Upper
266	100		
264	62.9	0.0	163.7
268	64.8	0.0	164.1

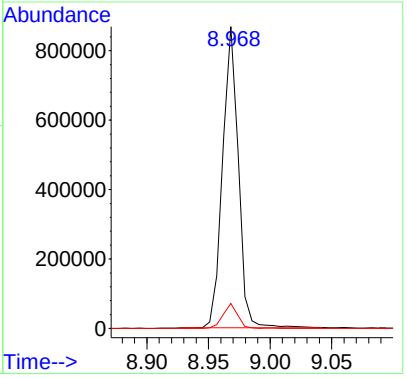


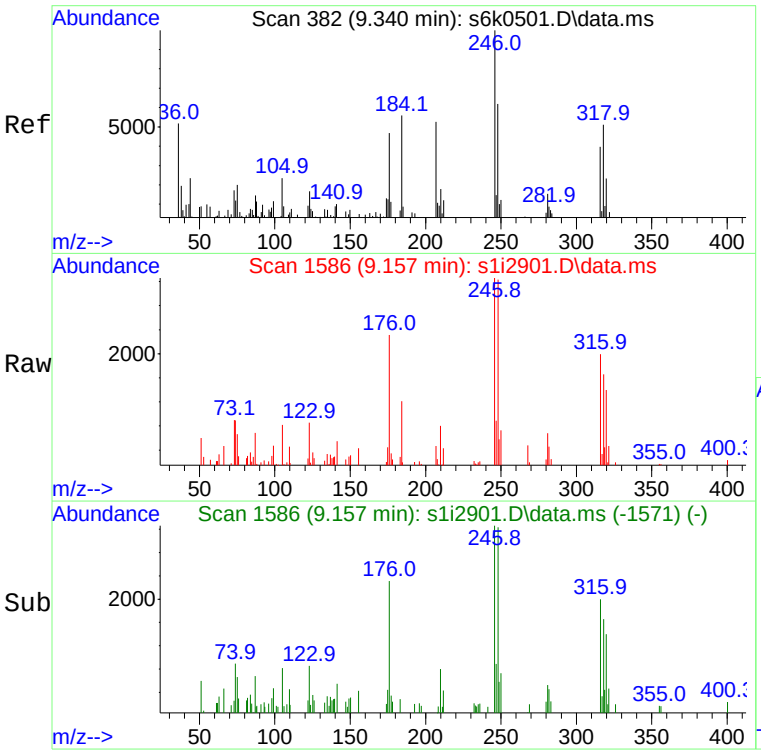


#4
Benzidine
Concen: 2.82 ug/l
RT: 8.968 min Scan# 1553
Delta R.T. 0.003 min
Lab File: s1i2901.D
Acq: 29 Sep 2016 09:17

Tgt Ion:184 Resp: 777465

Ion	Ratio	Lower	Upper
184	100		
156	7.8	0.0	108.2

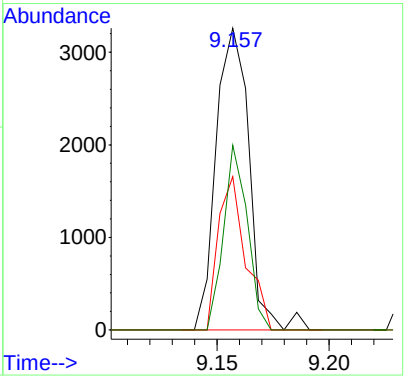


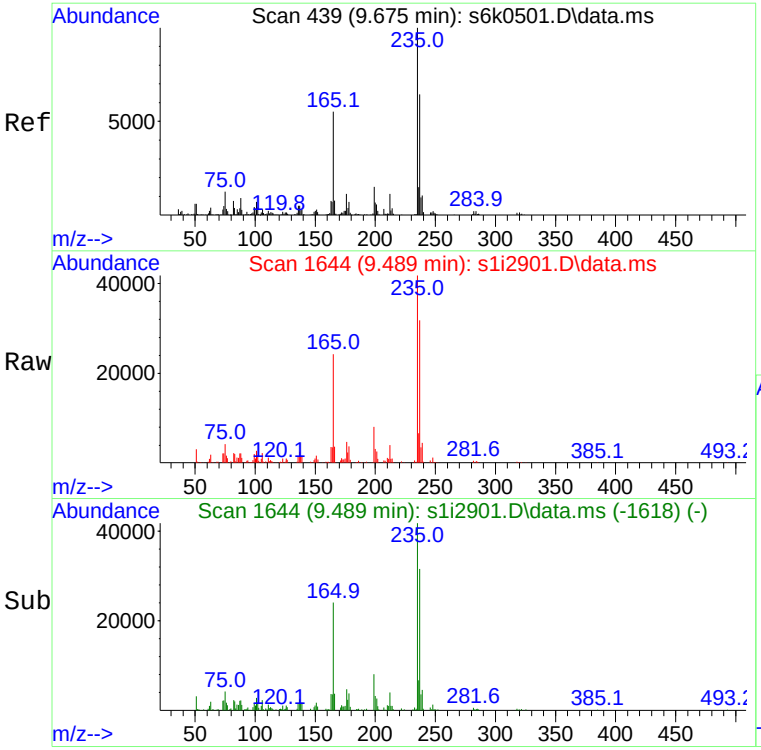


#5
DDE
Concen: 4.75 ug/l
RT: 9.157 min Scan# 1586
Delta R.T. 0.004 min
Lab File: s1i2901.D
Acq: 29 Sep 2016 09:17

Tgt Ion:246 Resp: 3348

Ion	Ratio	Lower	Upper
246	100		
318	42.3	0.0	151.5
316	43.9	0.0	136.1

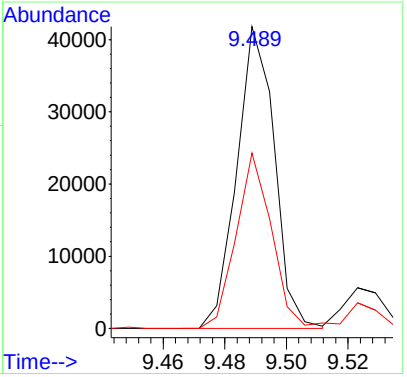


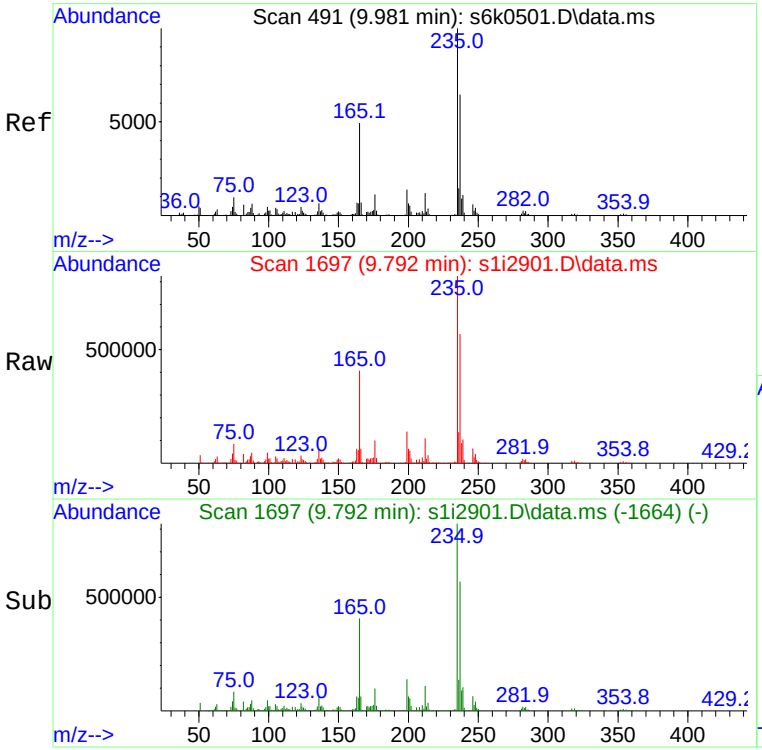


#6
DDD
Concen: 6.86 ug/l
RT: 9.489 min Scan# 1644
Delta R.T. 0.004 min
Lab File: s1i2901.D
Acq: 29 Sep 2016 09:17

Tgt Ion:235 Resp: 35489

Ion	Ratio	Lower	Upper
235	100		
165	55.8	0.0	154.1

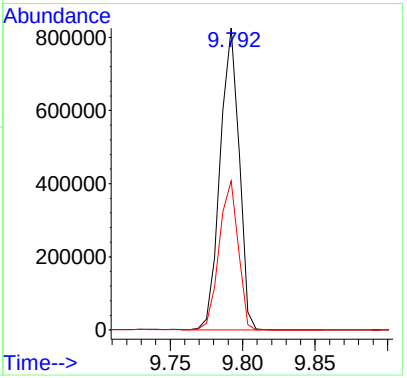




#7
DDT
Concen: 4.06 ug/l
RT: 9.792 min Scan# 1697
Delta R.T. 0.005 min
Lab File: s1i2901.D
Acq: 29 Sep 2016 09:17

Tgt Ion:235 Resp: 752487

Ion	Ratio	Lower	Upper
235	100		
165	49.5	0.0	149.9



8270 Breakdown Report

Data File : C:\msdchem\1\DATA\s092916.B\s1i2901.D Vial: 1
Acq On : 29 Sep 2016 09:17 Operator: JLD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP Inst : MSD1
Misc : Multiplr: 1.00
IntFile : rteint.p

Compounds	Area/%Breakdown	8270C	8270D
DDE	3348		
DDD	35489		
DDT	752487		
Breakdown	4.91%	Pass(<20)	Pass(<20)

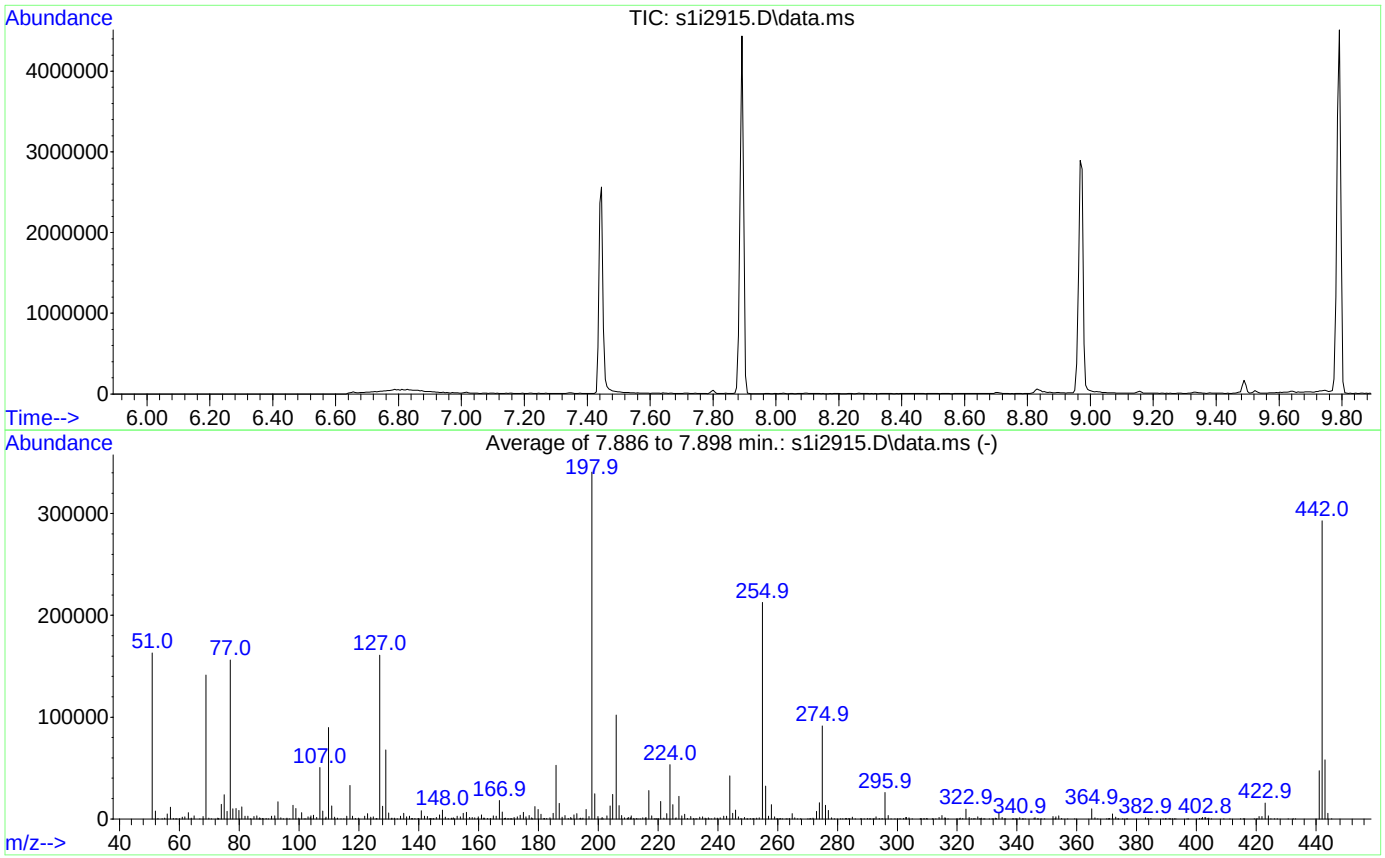
Compounds	Tailing Factor	8270C	8270D
Benzidine	0.83	Pass(<3)	Pass(<2)
Pentachlorophenol	0.82	Pass(<5)	Pass(<2)

DFTPP Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2915.D
Acq On : 29 Sep 2016 16:52
Operator : JLD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Title : dftpp / endrin / ddt SubList :
Last Update : Tue Dec 04 12:26:44 2012



AutoFind: Scans 1364, 1365, 1366; Background Corrected with Scan 1357

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	47.8	162931	PASS
68	69	0.00	2	1.7	2434	PASS
69	198	0.00	100	41.5	141376	PASS
70	69	0.00	2	0.5	760	PASS
127	198	10	80	47.2	160752	PASS
197	198	0.00	2	0.7	2493	PASS
198	198	50	100	100.0	340800	PASS
199	198	5	9	7.2	24706	PASS
275	198	10	60	26.8	91491	PASS
365	198	1	100	2.9	9907	PASS
441	442	0.01	24	16.2	47387	PASS
442	198	50	100	86.0	293077	PASS
443	442	15	24	19.8	57965	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2915.D
Acq On : 29 Sep 2016 16:52
Operator : JLD1
InstName : MSD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 30 09:14:17 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

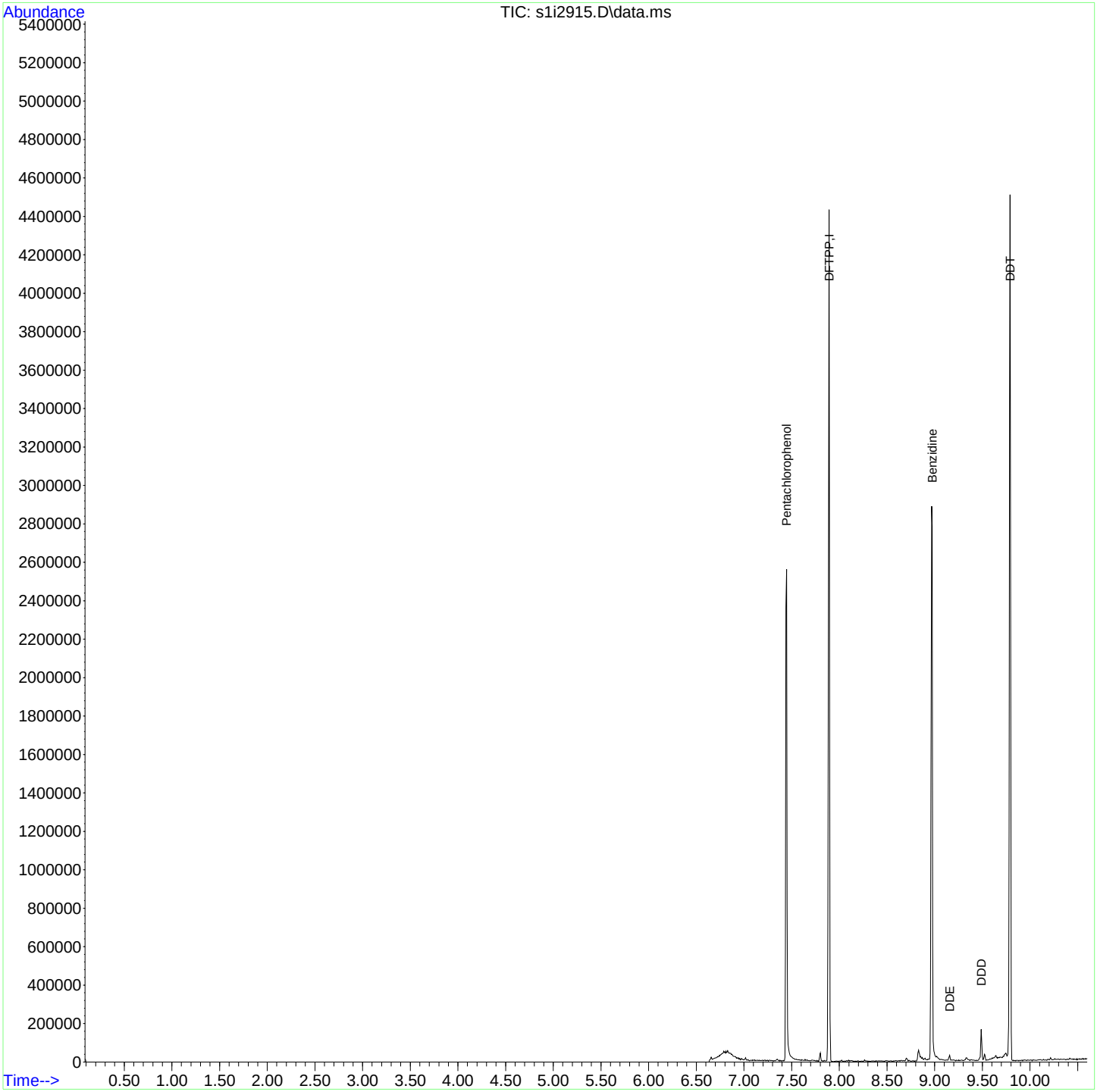
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) DFTPP	TIC	7.892	7.893	1.000	3592516	5.00	ug/l	# 0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) Pentachlorophenol	266	7.446	7.447	0.943	289123	4.50	ug/l	97
4) Benzidine	184	8.974	8.965	1.137	1096921	4.66	ug/l	100
5) DDE	246	9.157	9.153	1.160	2785	4.63	ug/l	92
6) DDD	235	9.489	9.484	1.202	24070	5.45	ug/l	99
7) DDT	235	9.792	9.787	1.241	708523	4.48	ug/l	99

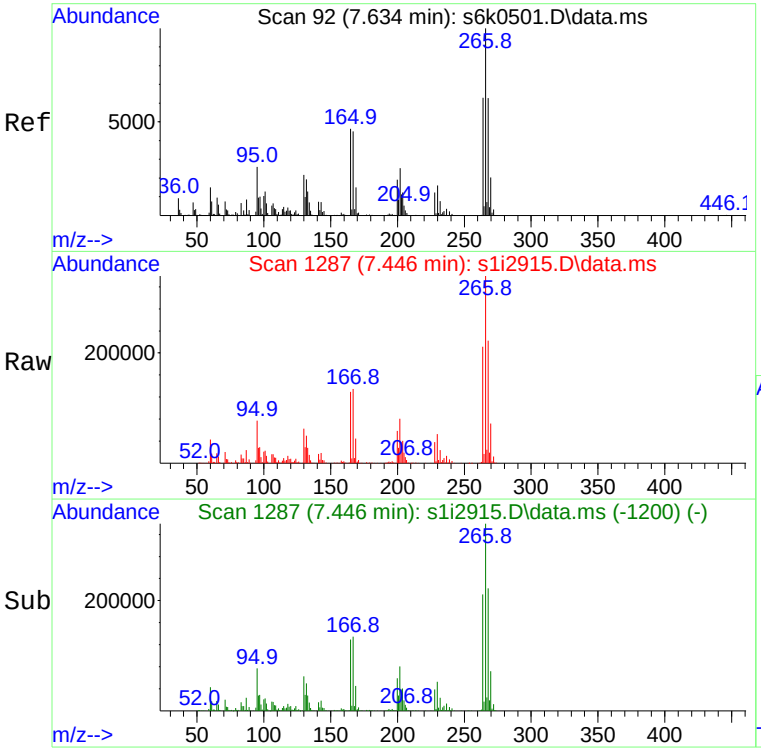
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2915.D
Acq On : 29 Sep 2016 16:52
Operator : JLD1
InstName : MSD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 30 09:14:17 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

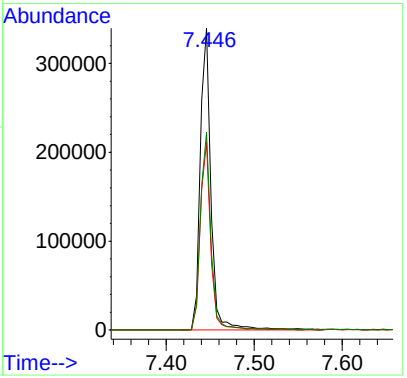


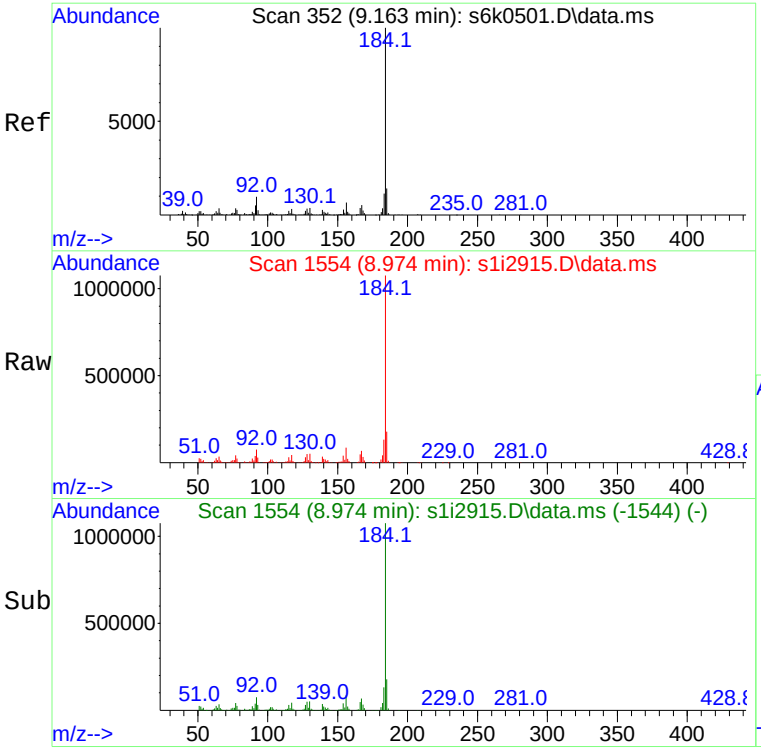


#3
Pentachlorophenol
Concen: 4.50 ug/l
RT: 7.446 min Scan# 1287
Delta R.T. -0.002 min
Lab File: s1i2915.D
Acq: 29 Sep 2016 16:52

Tgt Ion:266 Resp: 289123

Ion	Ratio	Lower	Upper
266	100		
264	59.8	0.0	163.7
268	64.5	0.0	164.1

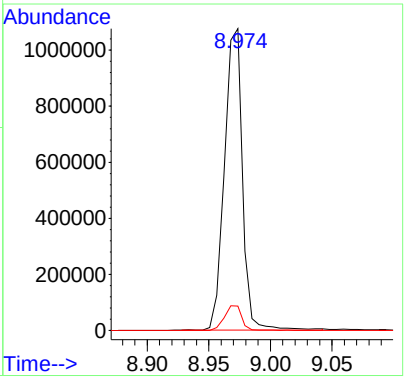


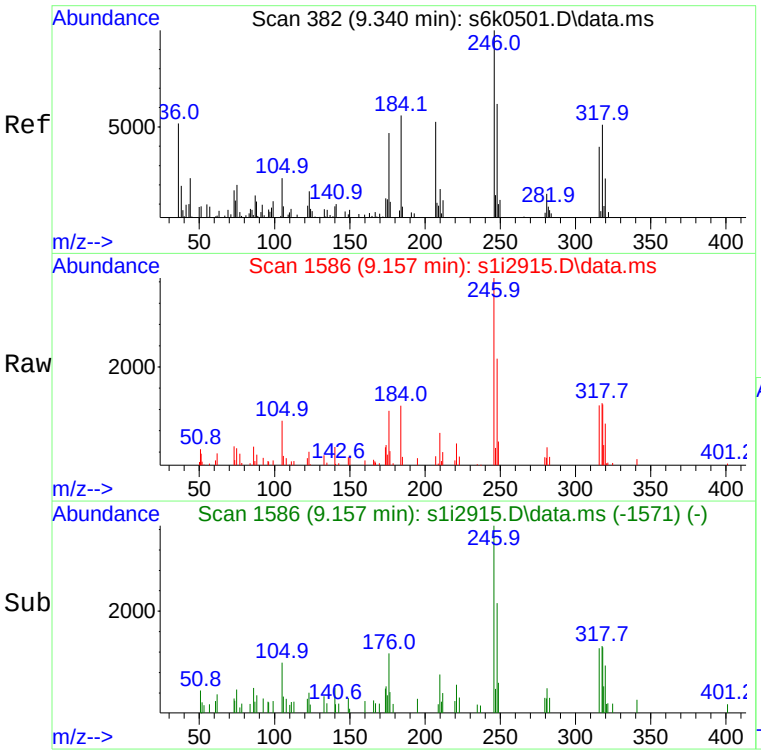


#4
Benzidine
Concen: 4.66 ug/l
RT: 8.974 min Scan# 1554
Delta R.T. 0.008 min
Lab File: s1i2915.D
Acq: 29 Sep 2016 16:52

Tgt Ion:184 Resp: 1096921

Ion	Ratio	Lower	Upper
184	100		
156	8.0	0.0	108.2

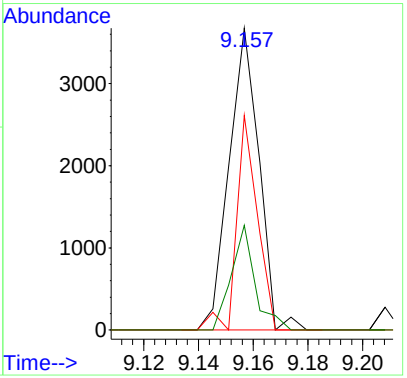


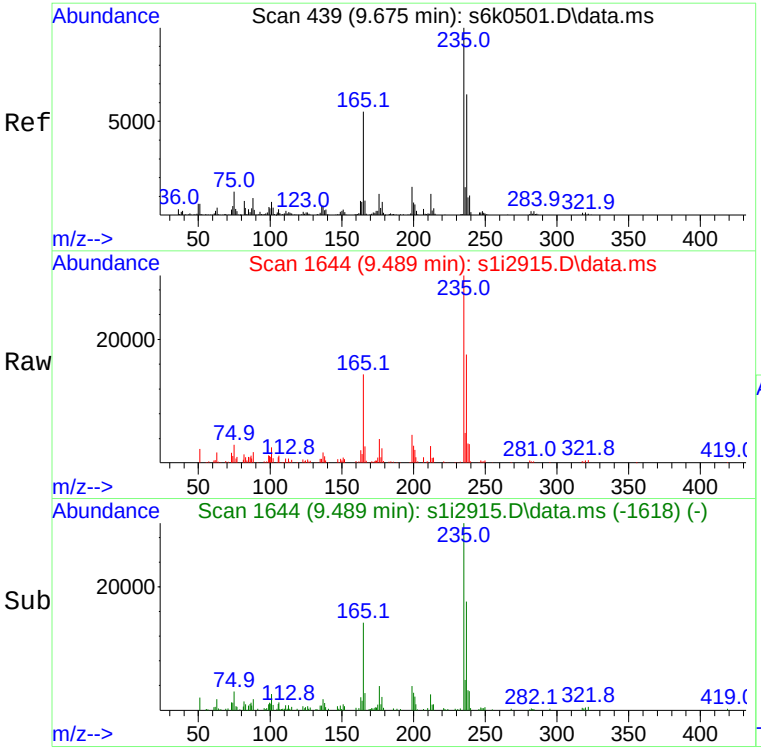


#5
DDE
Concen: 4.63 ug/l
RT: 9.157 min Scan# 1586
Delta R.T. 0.003 min
Lab File: s1i2915.D
Acq: 29 Sep 2016 16:52

Tgt Ion:246 Resp: 2785

Ion	Ratio	Lower	Upper
246	100		
318	49.3	0.0	151.5
316	27.6	0.0	136.1

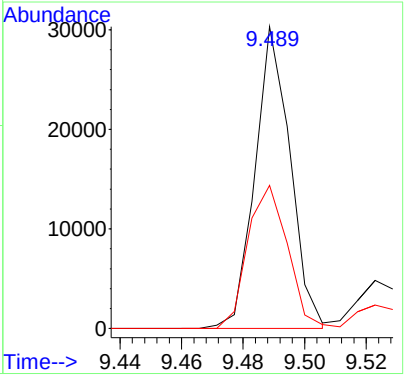


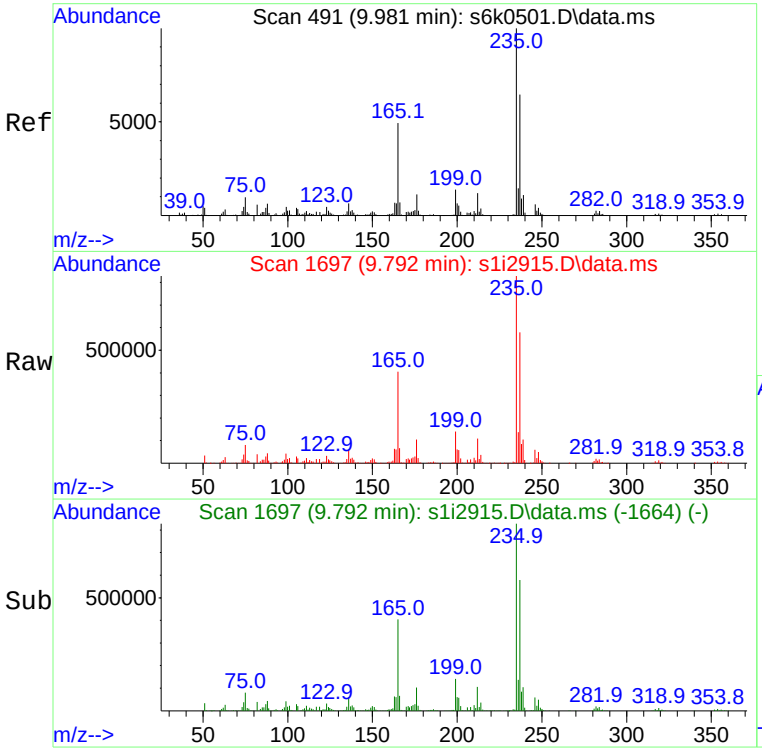


#6
DDD
Concen: 5.45 ug/l
RT: 9.489 min Scan# 1644
Delta R.T. 0.004 min
Lab File: s1i2915.D
Acq: 29 Sep 2016 16:52

Tgt Ion:235 Resp: 24070

Ion	Ratio	Lower	Upper
235	100		
165	53.7	0.0	154.1

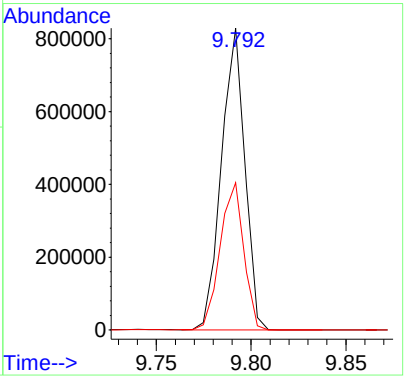




#7
DDT
Concen: 4.48 ug/l
RT: 9.792 min Scan# 1697
Delta R.T. 0.005 min
Lab File: s1i2915.D
Acq: 29 Sep 2016 16:52

Tgt Ion:235 Resp: 708523

Ion	Ratio	Lower	Upper
235	100		
165	49.5	0.0	149.9



8270 Breakdown Report

Data File : C:\msdchem\1\DATA\s092916.B\s1i2915.D Vial: 1
Acq On : 29 Sep 2016 16:52 Operator: JLD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP Inst : MSD1
Misc : Multiplr: 1.00
IntFile : rteint.p

Compounds	Area/%Breakdown	8270C	8270D
DDE	2785		
DDD	24070		
DDT	708523		
Breakdown	3.65%	Pass(<20)	Pass(<20)

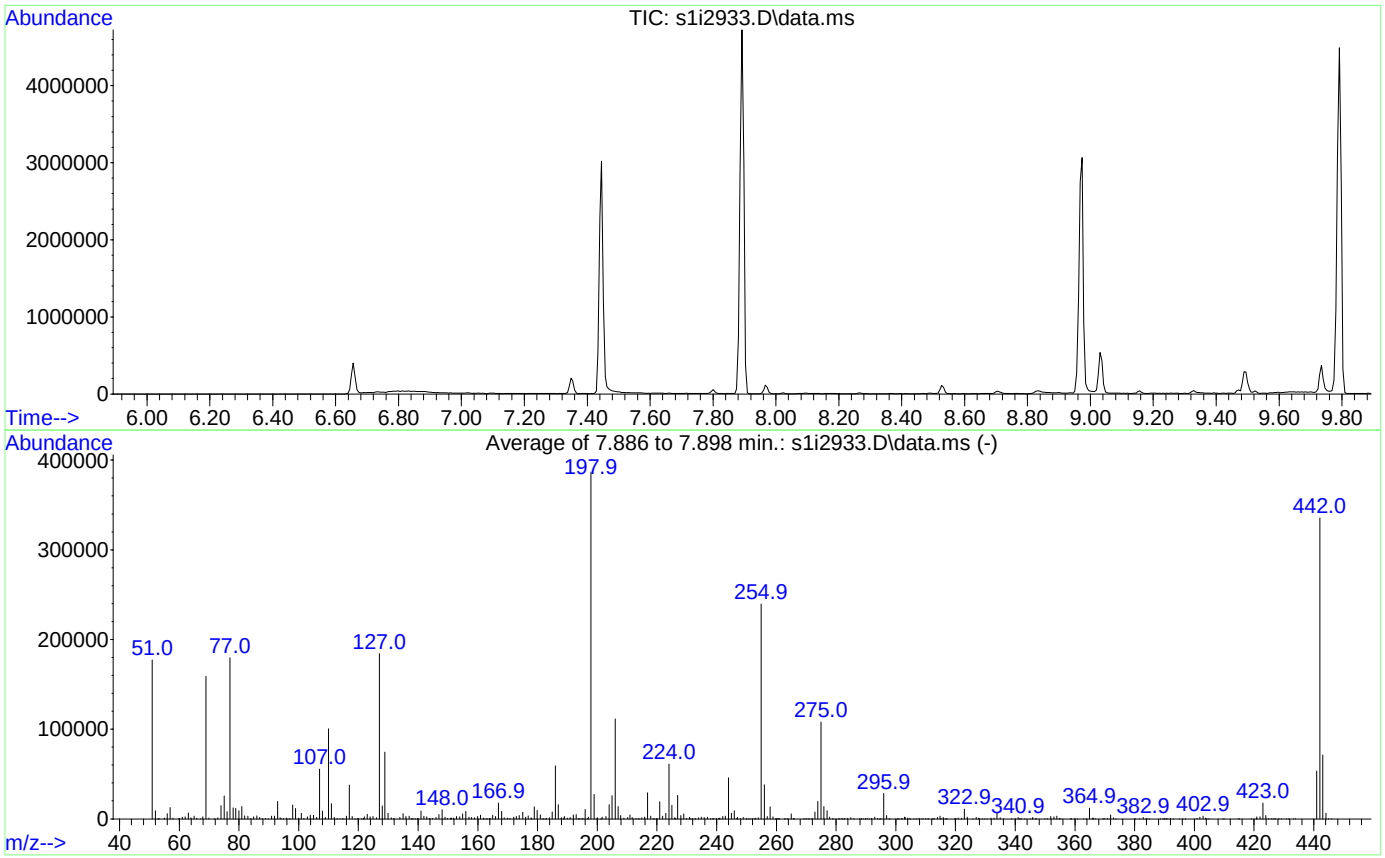
Compounds	Tailing Factor	8270C	8270D
Benzidine	0.55	Pass(<3)	Pass(<2)
Pentachlorophenol	0.89	Pass(<5)	Pass(<2)

DFTPP Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2933.D
Acq On : 30 Sep 2016 01:35
Operator : JLD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Title : dftpp / endrin / ddt SubList :
Last Update : Tue Dec 04 12:26:44 2012



AutoFind: Scans 1364, 1365, 1366; Background Corrected with Scan 1359

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	45.8	177286	PASS
68	69	0.00	2	1.5	2350	PASS
69	198	0.00	100	41.1	158973	PASS
70	69	0.00	2	0.6	905	PASS
127	198	10	80	47.7	184315	PASS
197	198	0.00	2	0.6	2159	PASS
198	198	50	100	100.0	386667	PASS
199	198	5	9	7.1	27340	PASS
275	198	10	60	27.9	107899	PASS
365	198	1	100	3.1	12050	PASS
441	442	0.01	24	15.9	53400	PASS
442	198	50	100	86.8	335467	PASS
443	442	15	24	21.2	71128	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2933.D
Acq On : 30 Sep 2016 01:35
Operator : JLD1
InstName : MSD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 30 09:14:32 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

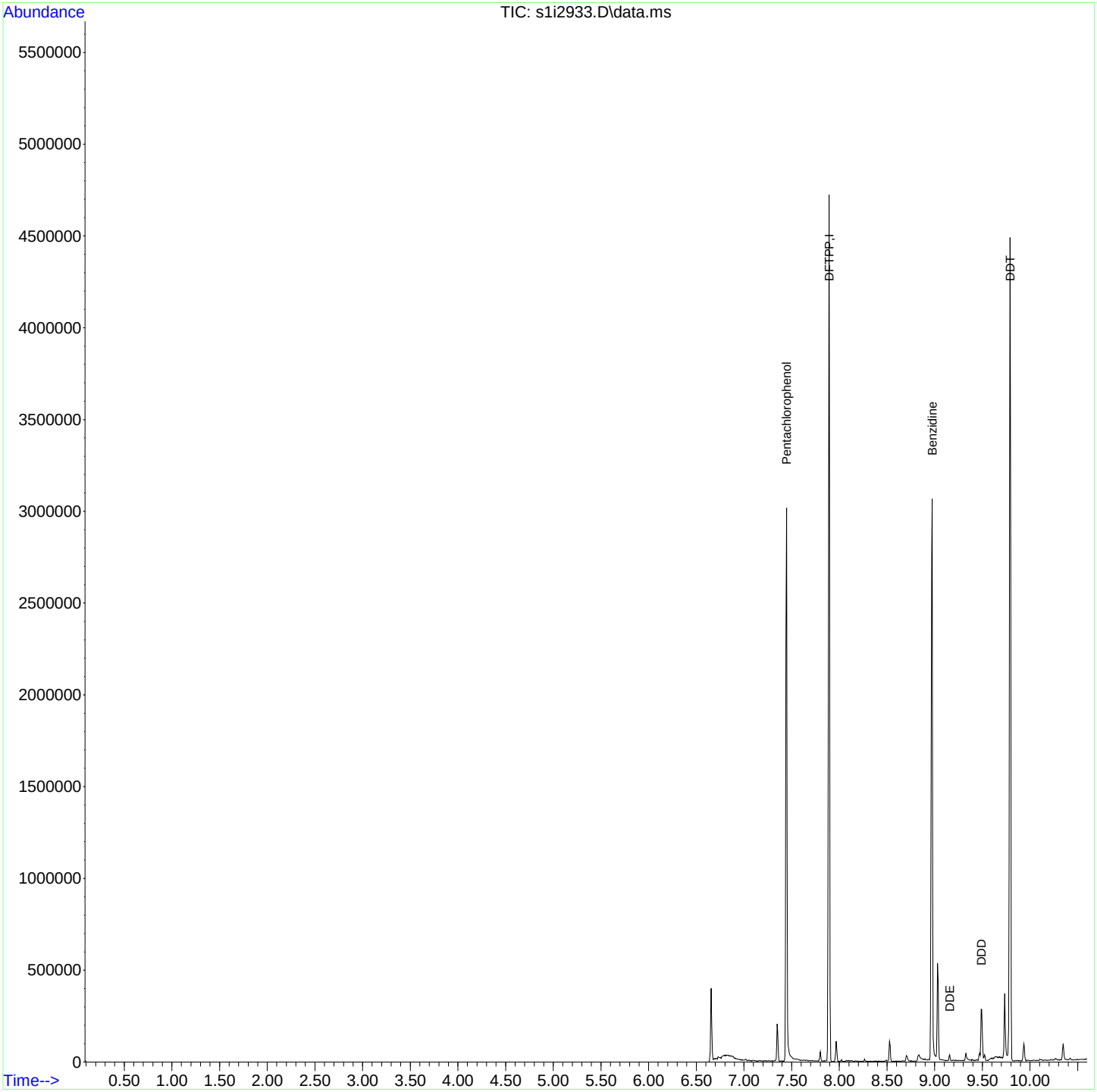
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) DFTPP	TIC	7.892	7.893	1.000	4050950	5.00	ug/l	# 0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) Pentachlorophenol	266	7.446	7.447	0.943	322026	4.44	ug/l	99
4) Benzidine	184	8.974	8.965	1.137	1126748	4.24	ug/l	100
5) DDE	246	9.157	9.153	1.160	3764	5.55	ug/l	95
6) DDD	235	9.489	9.484	1.202	42153	8.47	ug/l	96
7) DDT	235	9.792	9.787	1.241	745122	4.18	ug/l	98

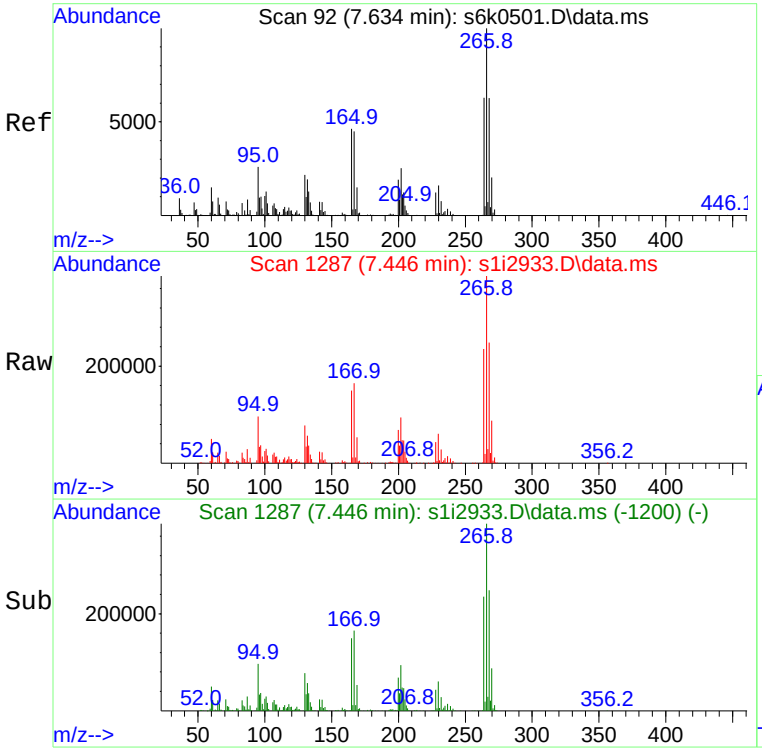
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s092916.B\
Data File : s1i2933.D
Acq On : 30 Sep 2016 01:35
Operator : JLD1
InstName : MSD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 30 09:14:32 2016
Quant Method : C:\msdchem\1\DATA\s092916.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

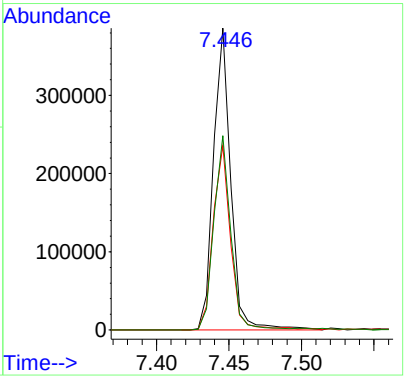


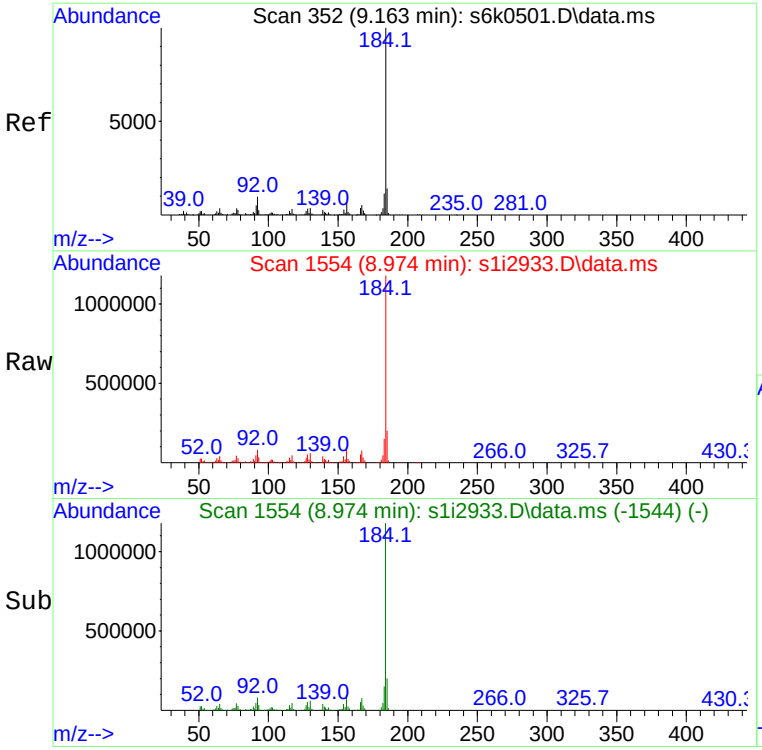


#3
Pentachlorophenol
Concen: 4.44 ug/l
RT: 7.446 min Scan# 1287
Delta R.T. -0.002 min
Lab File: s1i2933.D
Acq: 30 Sep 2016 01:35

Tgt Ion:266 Resp: 322026

Ion	Ratio	Lower	Upper
266	100		
264	62.0	0.0	163.7
268	64.2	0.0	164.1

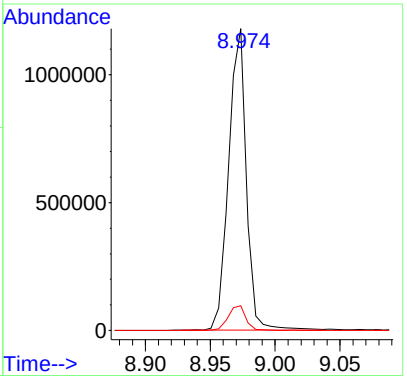


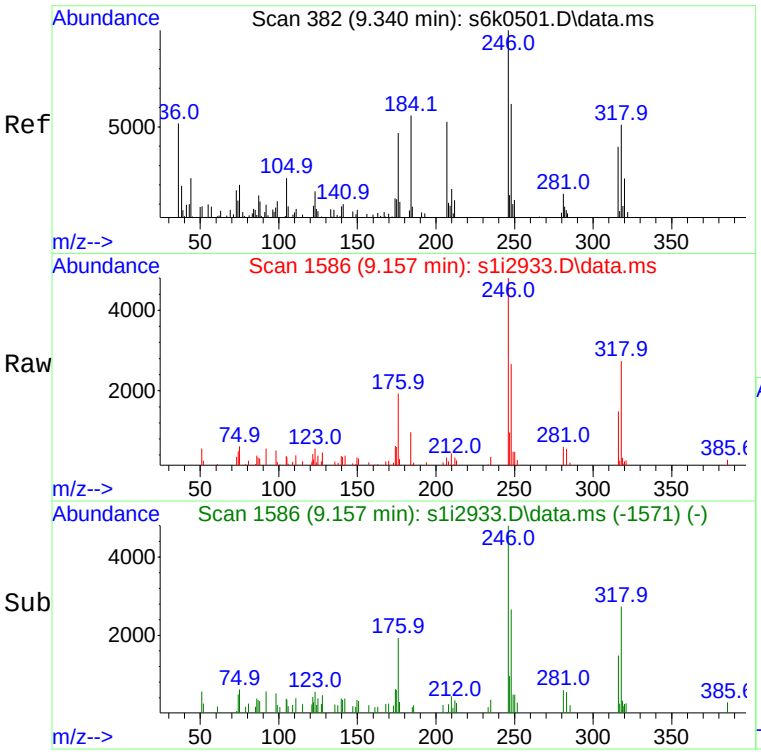


#4
Benzidine
Concen: 4.24 ug/l
RT: 8.974 min Scan# 1554
Delta R.T. 0.008 min
Lab File: s1i2933.D
Acq: 30 Sep 2016 01:35

Tgt Ion:184 Resp: 1126748

Ion	Ratio	Lower	Upper
184	100		
156	8.4	0.0	108.2

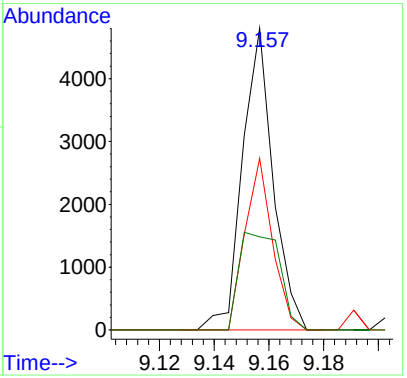


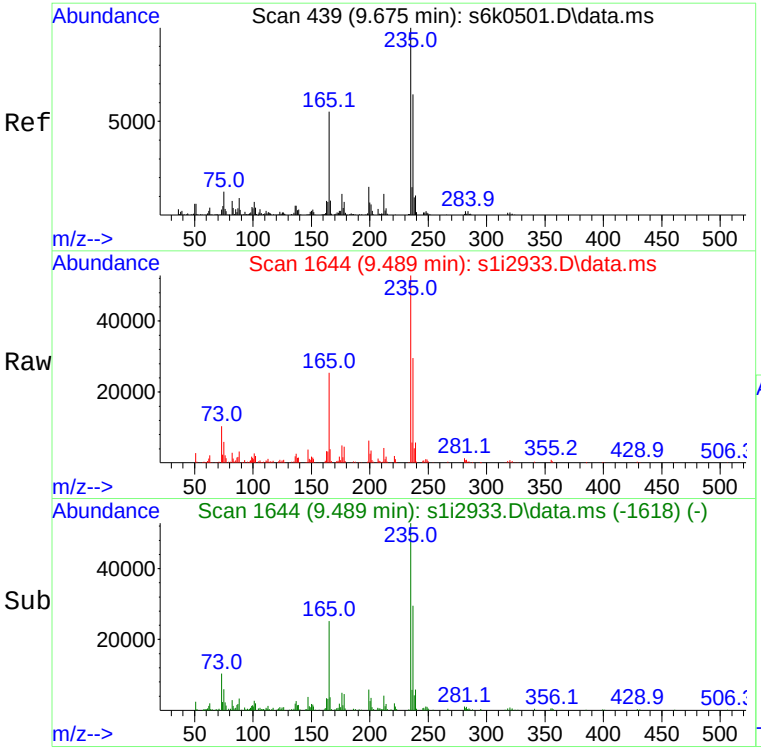


#5
DDE
Concen: 5.55 ug/l
RT: 9.157 min Scan# 1586
Delta R.T. 0.003 min
Lab File: s1i2933.D
Acq: 30 Sep 2016 01:35

Tgt Ion:246 Resp: 3764

Ion	Ratio	Lower	Upper
246	100		
318	50.9	0.0	151.5
316	42.7	0.0	136.1

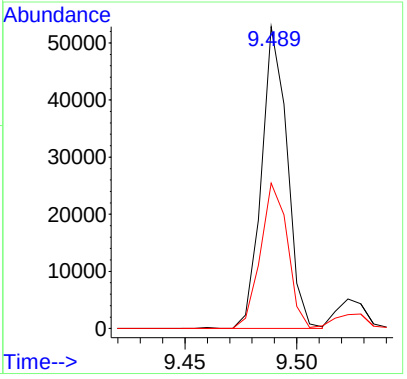


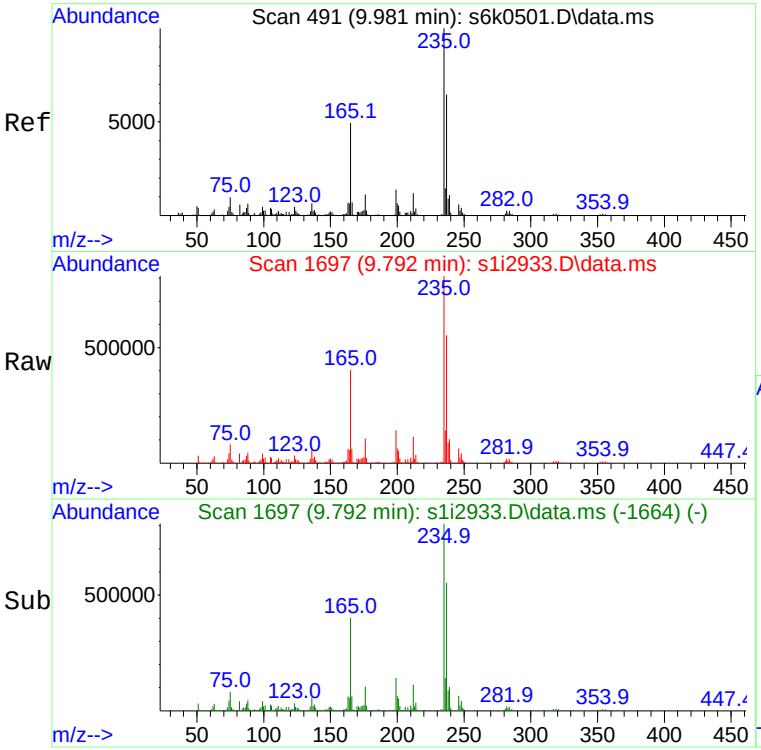


#6
DDD
Concen: 8.47 ug/l
RT: 9.489 min Scan# 1644
Delta R.T. 0.004 min
Lab File: s1i2933.D
Acq: 30 Sep 2016 01:35

Tgt Ion:235 Resp: 42153

Ion	Ratio	Lower	Upper
235	100		
165	51.0	0.0	154.1

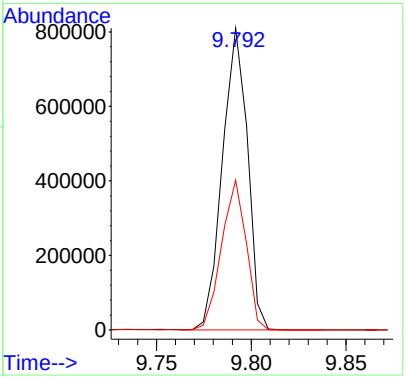




#7
DDT
Concen: 4.18 ug/l
RT: 9.792 min Scan# 1697
Delta R.T. 0.005 min
Lab File: s1i2933.D
Acq: 30 Sep 2016 01:35

Tgt Ion:235 Resp: 745122

Ion	Ratio	Lower	Upper
235	100		
165	48.7	0.0	149.9



8270 Breakdown Report

Data File : C:\msdchem\1\DATA\s092916.B\s1i2933.D Vial: 1
Acq On : 30 Sep 2016 01:35 Operator: JLD1
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP Inst : MSD1
Misc : Multiplr: 1.00
IntFile : rteint.p

Compounds	Area/%Breakdown	8270C	8270D
DDE	3764		
DDD	42153		
DDT	745122		
Breakdown	5.80%	Pass(<20)	Pass(<20)

Compounds	Tailing Factor	8270C	8270D
Benzidine	0.63	Pass(<3)	Pass(<2)
Pentachlorophenol	0.91	Pass(<5)	Pass(<2)

JMB 11/10/2016

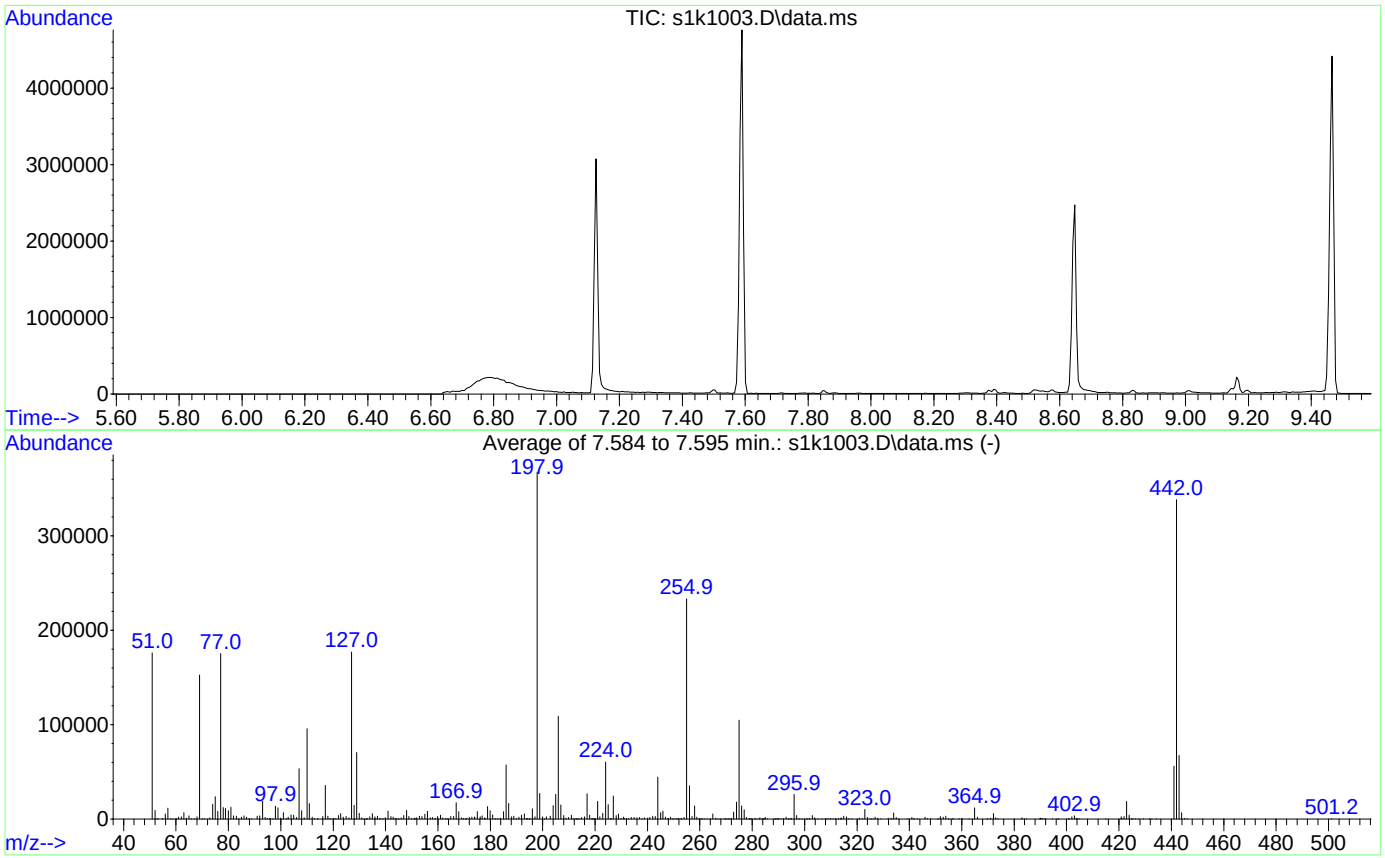
DFTPP Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1003.D
Acq On : 10 Nov 2016 11:17
Operator : JMB3
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

JCB 11/11/2016

Integration File: rteint.p

Method : C:\msdchem\1\DATA\s111016.B\BNABrk_Down8270D.m
Title : dftpp / endrin / ddt SubList :
Last Update : Tue Dec 04 12:26:44 2012



AutoFind: Scans 1311, 1312, 1313; Background Corrected with Scan 1305

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	47.9	176029	PASS
68	69	0.00	2	1.6	2363	PASS
69	198	0.00	100	41.4	152335	PASS
70	69	0.00	2	0.3	516	PASS
127	198	10	80	48.1	176901	PASS
197	198	0.00	2	0.6	2064	PASS
198	198	50	100	100.0	367573	PASS
199	198	5	9	7.3	26904	PASS
275	198	10	60	28.4	104568	PASS
365	198	1	100	3.1	11555	PASS
441	442	0.01	24	16.5	55896	PASS
442	198	50	100	92.1	338432	PASS
443	442	15	24	19.9	67259	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

JMB 11/10/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1003.D
Acq On : 10 Nov 2016 11:17
Operator : JMB3
InstName : MSD1
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

JCB 11/11/2016

Quant Time: Nov 10 12:05:46 2016
Quant Method : C:\msdchem\1\DATA\s110916.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

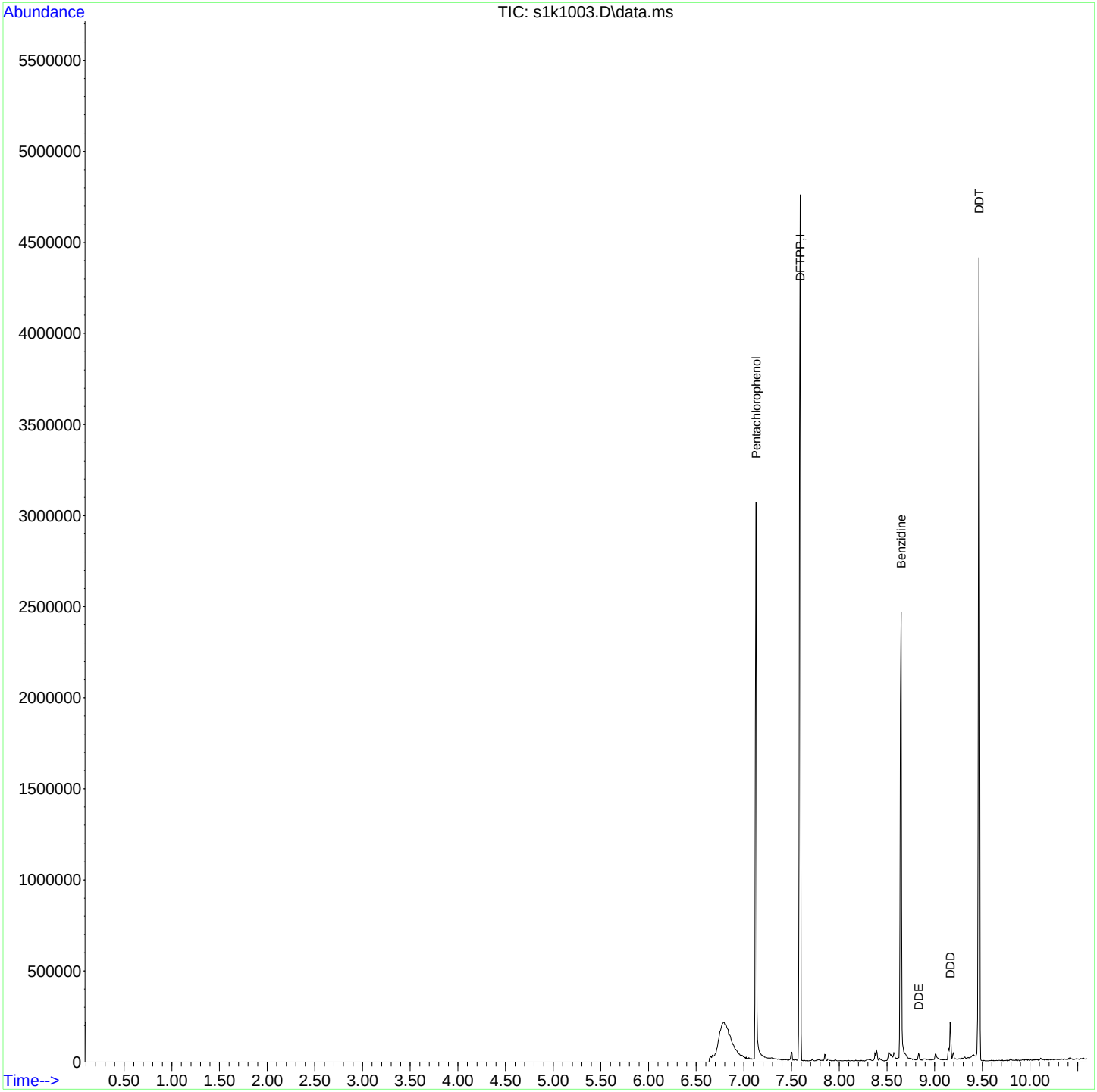
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) DFTPP	TIC	7.589	7.589	1.000	4025180	5.00	ug/l	# 0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) Pentachlorophenol	266	7.126	7.127	0.939	305400	4.24	ug/l	97
4) Benzidine	184	8.648	8.648	1.139	880754	3.34	ug/l	98
5) DDE	246	8.831	8.831	1.164	3661	5.44	ug/l	91
6) DDD	235	9.163	9.163	1.207	33668	6.80	ug/l	92
7) DDT	235	9.466	9.466	1.247	718790	4.06	ug/l	99

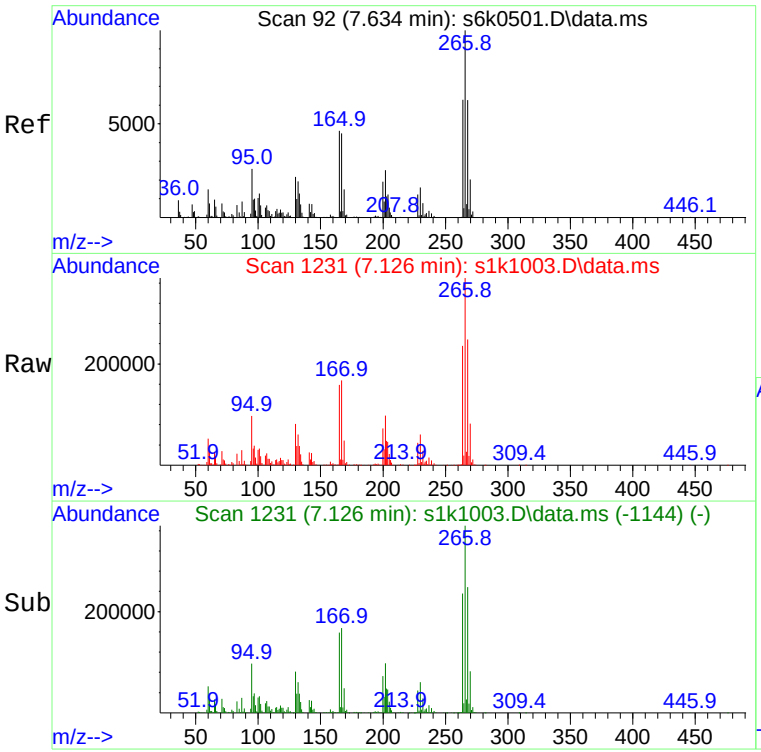
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1003.D
Acq On : 10 Nov 2016 11:17
Operator : JMB3
InstName : MSD1
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 10 12:05:46 2016
Quant Method : C:\msdchem\1\DATA\s110916.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

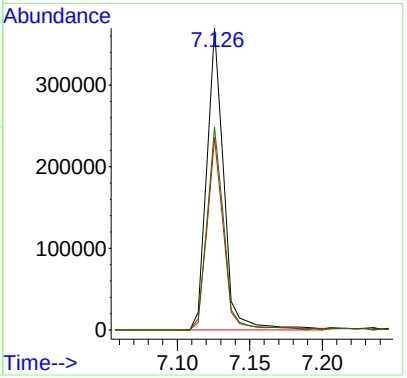


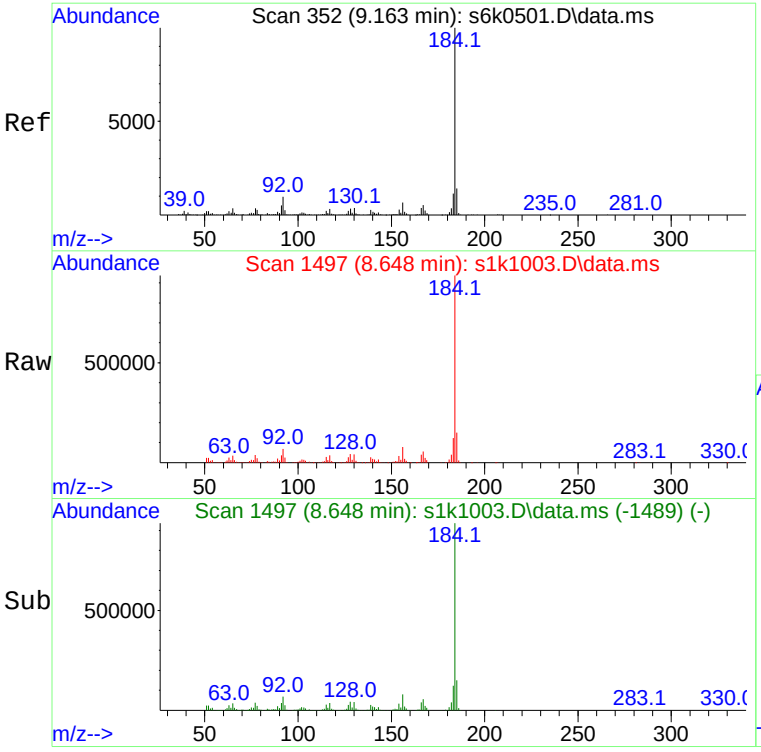


#3
Pentachlorophenol
Concen: 4.24 ug/l
RT: 7.126 min Scan# 1231
Delta R.T. -0.001 min
Lab File: s1k1003.D
Acq: 10 Nov 2016 11:17

Tgt Ion:266 Resp: 305400

Ion	Ratio	Lower	Upper
266	100		
264	62.1	0.0	164.5
268	66.5	0.0	164.3

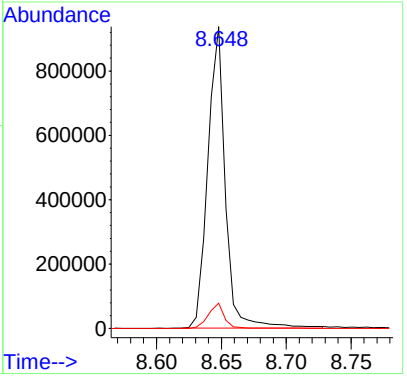


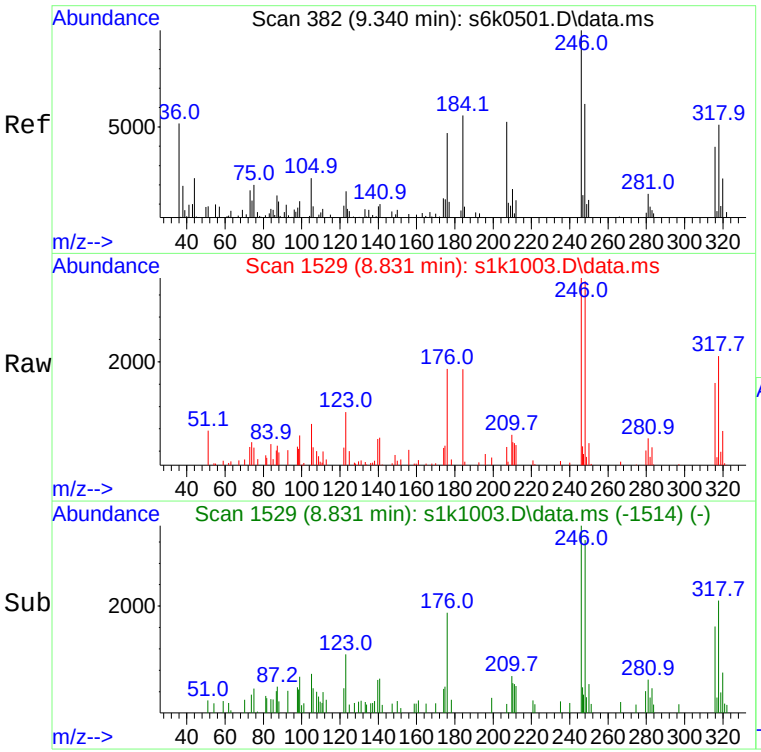


#4
Benzidine
Concen: 3.34 ug/l
RT: 8.648 min Scan# 1497
Delta R.T. 0.000 min
Lab File: s1k1003.D
Acq: 10 Nov 2016 11:17

Tgt Ion:184 Resp: 880754

Ion	Ratio	Lower	Upper
184	100		
156	7.8	0.0	108.4

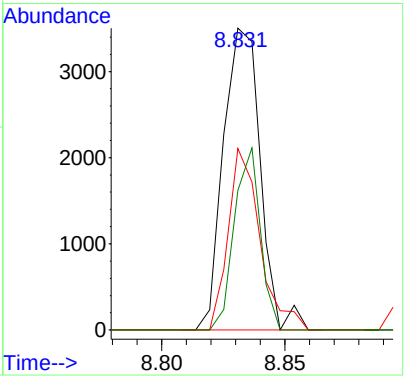


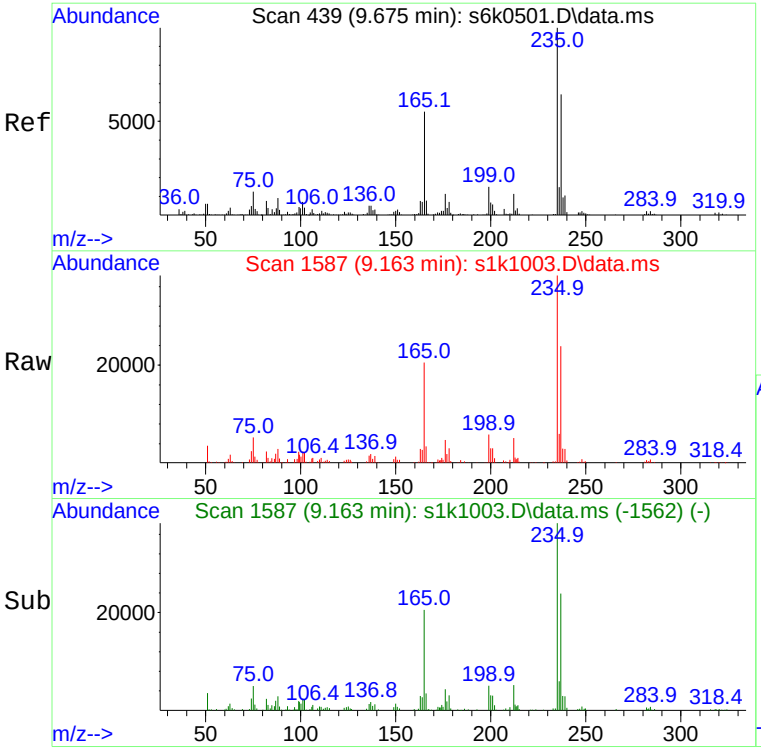


#5
DDE
Concen: 5.44 ug/l
RT: 8.831 min Scan# 1529
Delta R.T. 0.000 min
Lab File: s1k1003.D
Acq: 10 Nov 2016 11:17

Tgt Ion:246 Resp: 3661

Ion	Ratio	Lower	Upper
246	100		
318	51.8	0.0	160.1
316	42.2	0.0	146.2

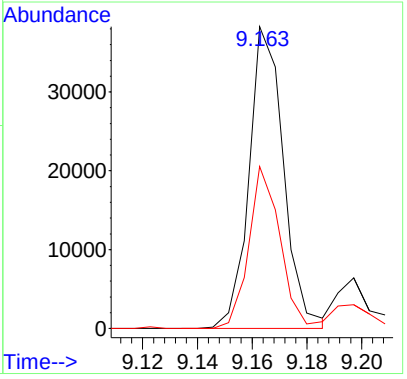


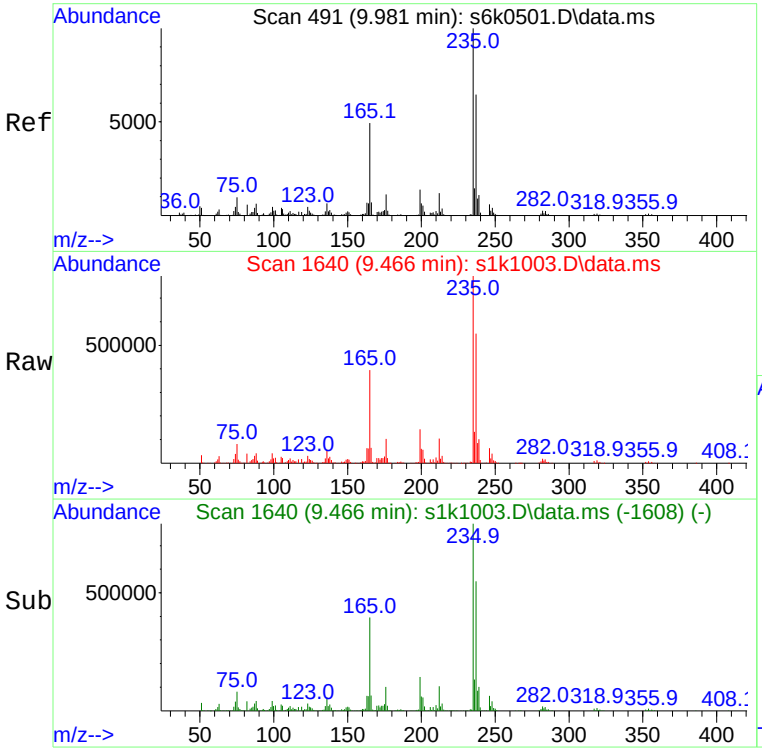


#6
DDD
Concen: 6.80 ug/l
RT: 9.163 min Scan# 1587
Delta R.T. 0.000 min
Lab File: s1k1003.D
Acq: 10 Nov 2016 11:17

Tgt Ion:235 Resp: 33668

Ion	Ratio	Lower	Upper
235	100		
165	48.2	0.0	153.7

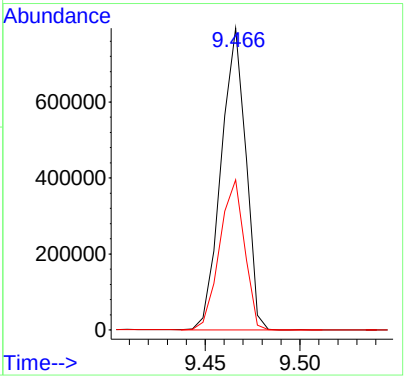




#7
DDT
Concen: 4.06 ug/l
RT: 9.466 min Scan# 1640
Delta R.T. 0.000 min
Lab File: s1k1003.D
Acq: 10 Nov 2016 11:17

Tgt Ion:235 Resp: 718790

Ion	Ratio	Lower	Upper
235	100		
165	50.2	0.0	149.7



JMB
11/10/2016

8270 Breakdown Report

Data File : C:\msdchem\1\DATA\s111016.B\s1k1003.D Vial: 1
Acq On : 10 Nov 2016 11:17 Operator: JMB3
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP Inst : MSD1
Misc : Multiplr: 1.00
IntFile : rteint.p

JCB
11/11/2016

Compounds	Area/%Breakdown	8270C	8270D
DDE	3661		
DDD	33668		
DDT	718790		
Breakdown	4.94%	Pass(<20)	Pass(<20)

Compounds	Tailing Factor	8270C	8270D
Benzidine	0.70	Pass(<3)	Pass(<2)
Pentachlorophenol	1.04	Pass(<5)	Pass(<2)

JMB 11/11/2016

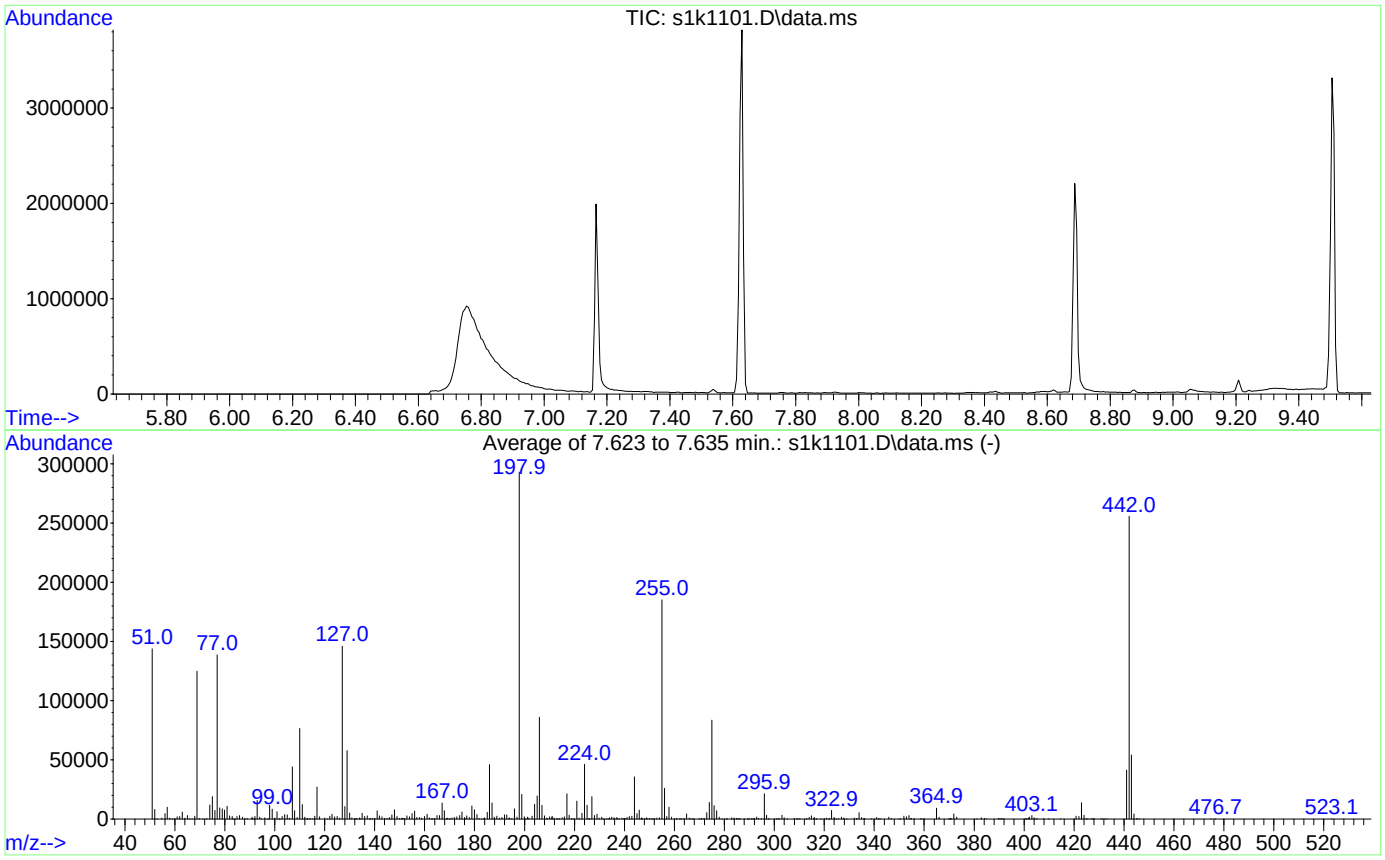
DFTPP Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1101.D
Acq On : 11 Nov 2016 10:33
Operator : JMB3
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

HM 11/14/2016

Integration File:

Method : C:\msdchem\1\DATA\s111116.B\BNABrk_Down8270D.m
Title : dftpp / endrin / ddt SubList :
Last Update : Tue Dec 04 12:26:44 2012



AutoFind: Scans 1318, 1319, 1320; Background Corrected with Scan 1312

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	49.1	143827	PASS
68	69	0.00	2	1.8	2231	PASS
69	198	0.00	100	42.6	124933	PASS
70	69	0.00	2	0.3	351	PASS
127	198	10	80	49.8	145901	PASS
197	198	0.00	2	0.5	1394	PASS
198	198	50	100	100.0	293163	PASS
199	198	5	9	7.1	20763	PASS
275	198	10	60	28.5	83480	PASS
365	198	1	100	3.1	9068	PASS
441	442	0.01	24	16.2	41392	PASS
442	198	50	100	87.2	255701	PASS
443	442	15	24	21.1	54011	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

JMB 11/11/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1101.D
Acq On : 11 Nov 2016 10:33
Operator : JMB3
InstName : MSD1
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

HM 11/14/2016

Quant Time: Nov 11 14:13:52 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

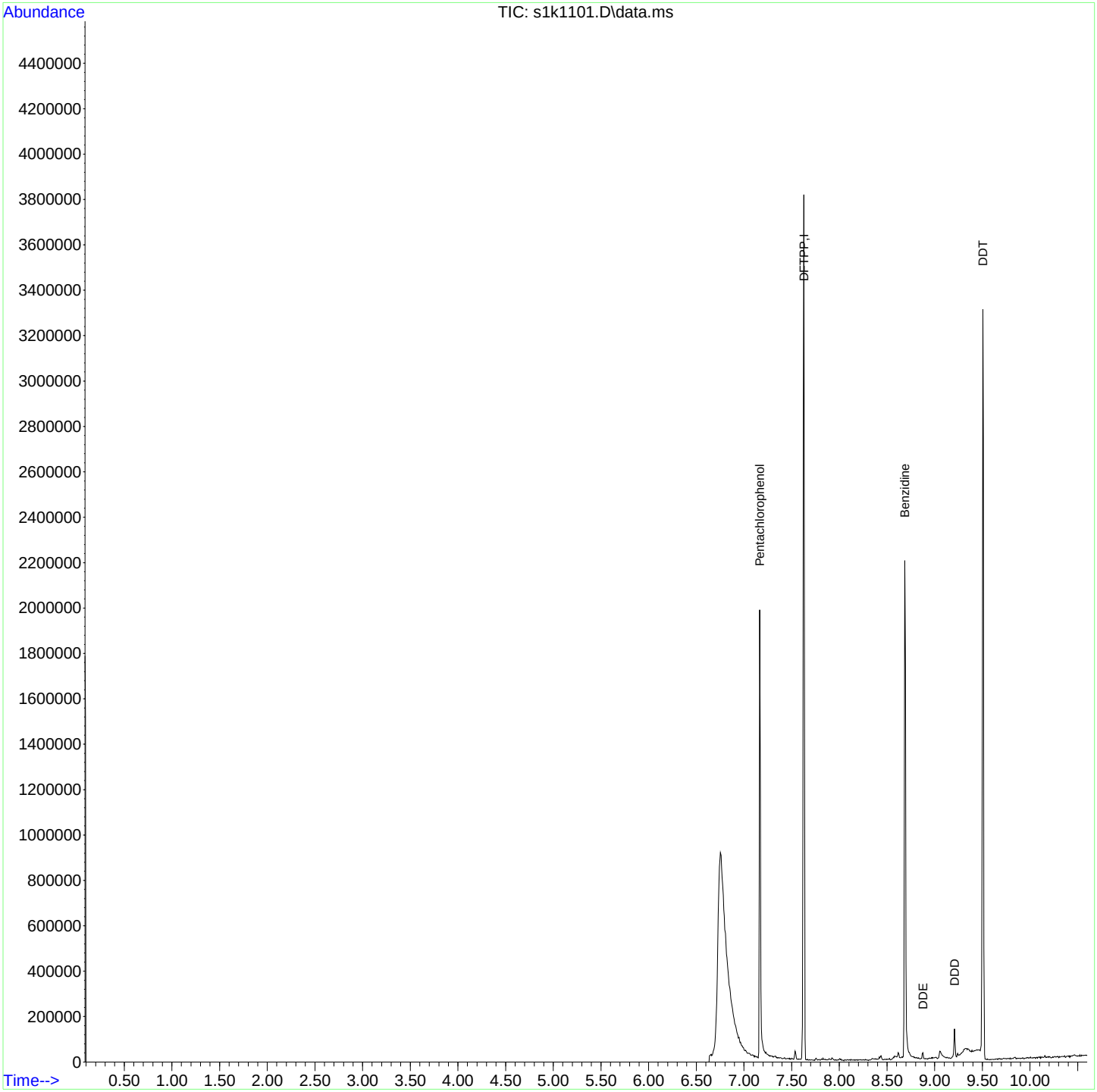
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) DFTPP	TIC	7.629	7.606	1.000	3242307	5.00	ug/l	# 0.02
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) Pentachlorophenol	266	7.165	7.142	0.939	192578	3.32	ug/l	97
4) Benzidine	184	8.687	8.670	1.139	780136	3.67	ug/l	99
5) DDE	246	8.876	8.853	1.164	2382	4.39	ug/l	78
6) DDD	235	9.208	9.185	1.207	19463	4.88	ug/l	100
7) DDT	235	9.506	9.489	1.246	536915	3.76	ug/l	96

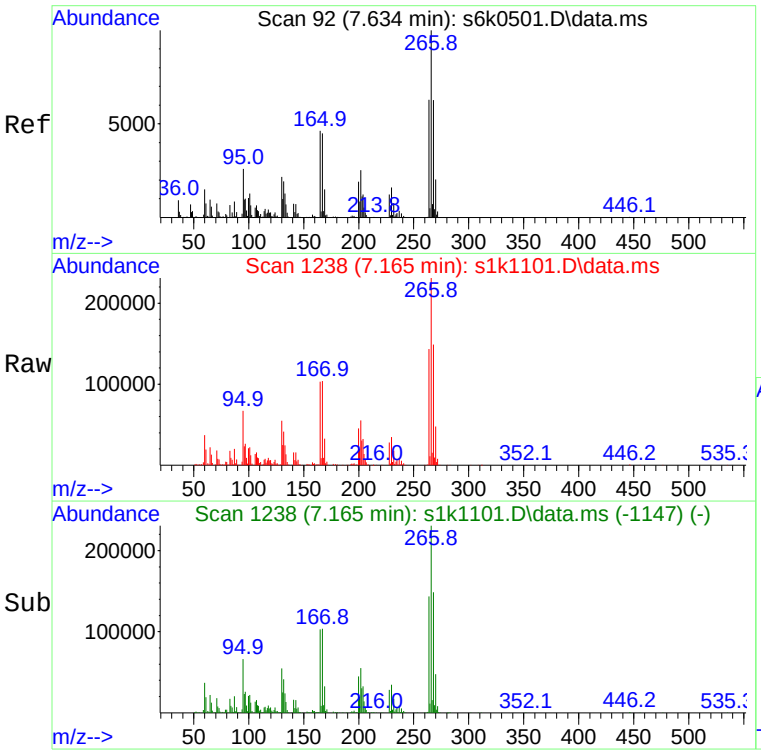
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111116.B\
Data File : s1k1101.D
Acq On : 11 Nov 2016 10:33
Operator : JMB3
InstName : MSD1
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 11 14:13:52 2016
Quant Method : C:\msdchem\1\DATA\s111116.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Tue Dec 04 12:26:44 2012
Response via : Initial Calibration
Integrator: RTE

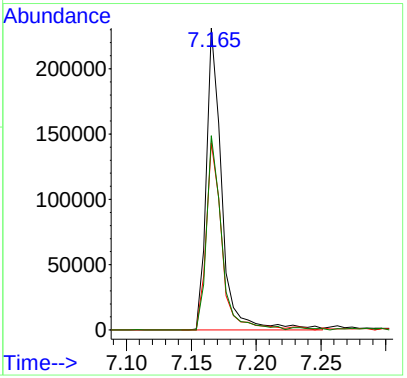


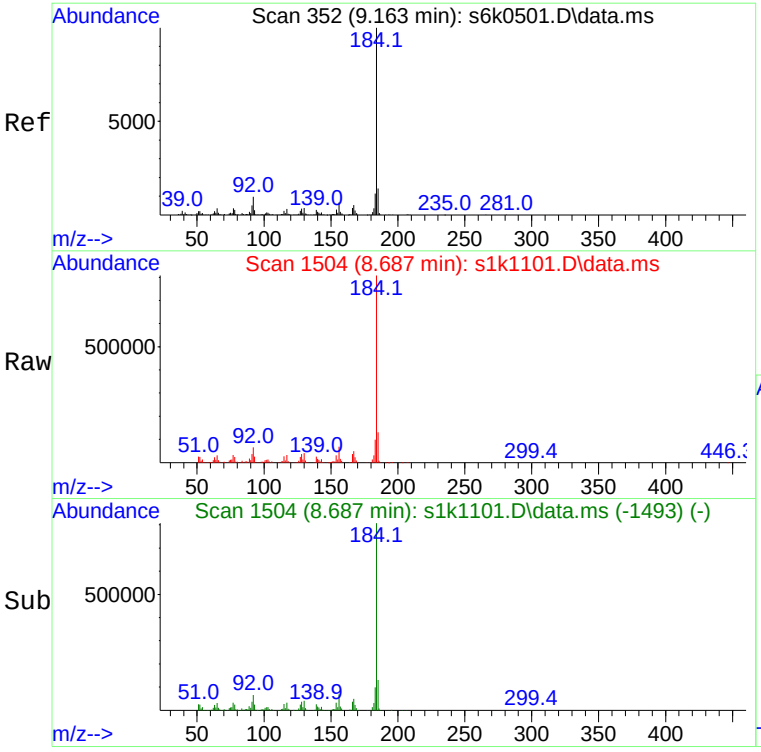


#3
Pentachlorophenol
Concen: 3.32 ug/l
RT: 7.165 min Scan# 1238
Delta R.T. 0.023 min
Lab File: s1k1101.D
Acq: 11 Nov 2016 10:33

Tgt Ion:266 Resp: 192578

Ion	Ratio	Lower	Upper
266	100		
264	62.0	0.0	164.5
268	62.2	0.0	164.3

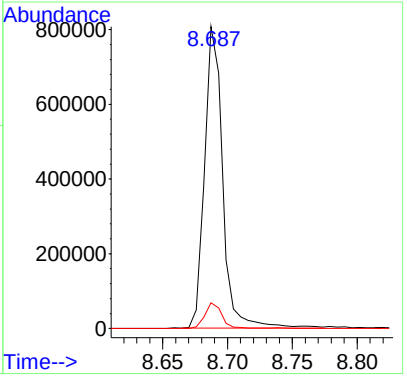


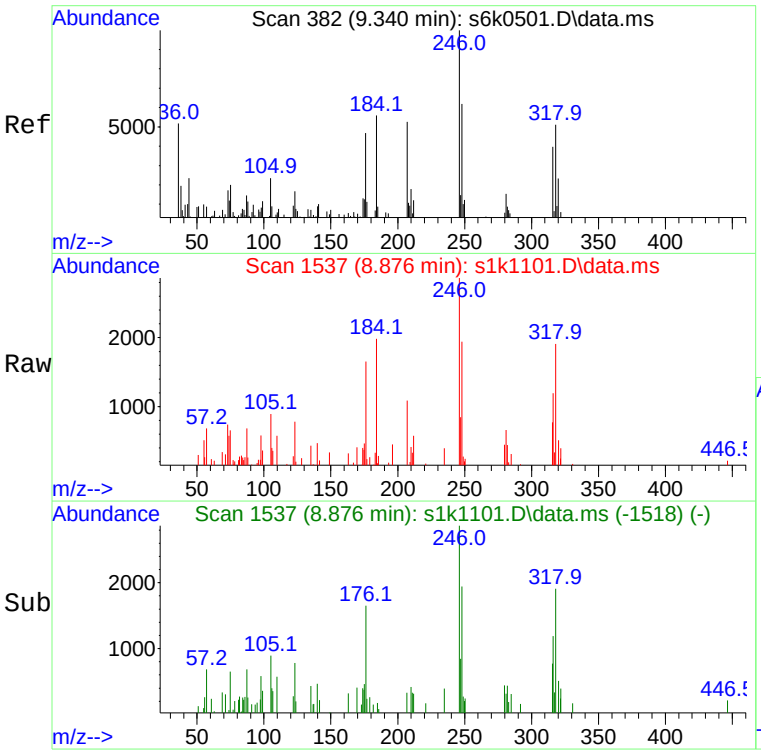


#4
Benzidine
Concen: 3.67 ug/l
RT: 8.687 min Scan# 1504
Delta R.T. 0.017 min
Lab File: s1k1101.D
Acq: 11 Nov 2016 10:33

Tgt Ion:184 Resp: 780136

Ion	Ratio	Lower	Upper
184	100		
156	7.8	0.0	108.1

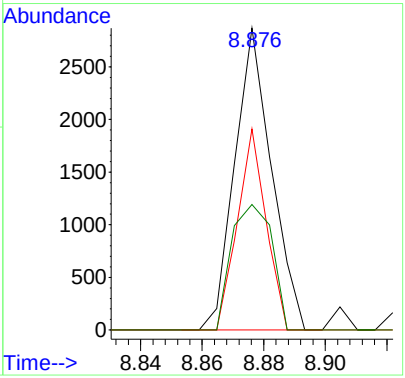


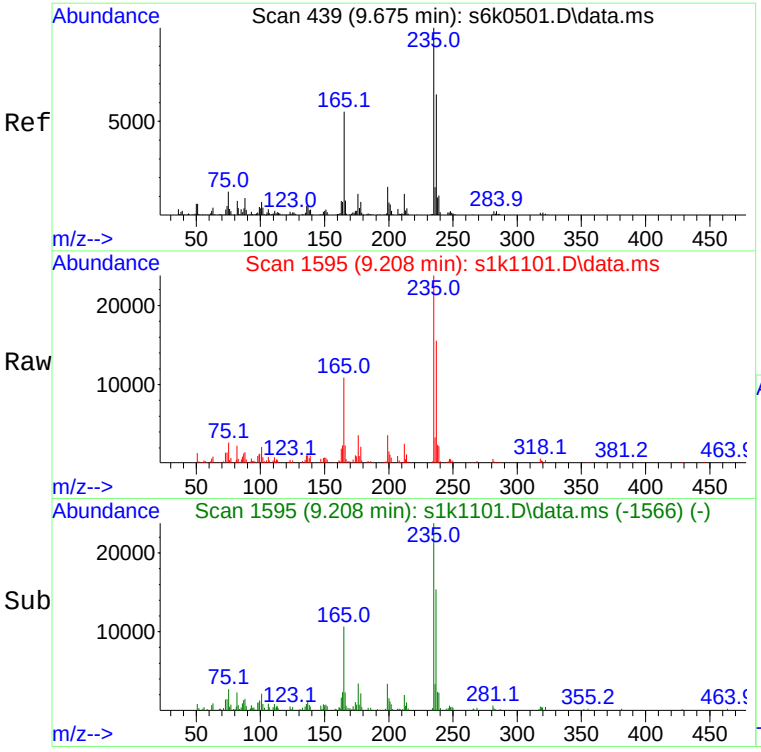


#5
DDE
Concen: 4.39 ug/l
RT: 8.876 min Scan# 1537
Delta R.T. 0.023 min
Lab File: s1k1101.D
Acq: 11 Nov 2016 10:33

Tgt Ion:246 Resp: 2382

Ion	Ratio	Lower	Upper
246	100		
318	51.7	0.0	138.7
316	45.8	0.0	132.9

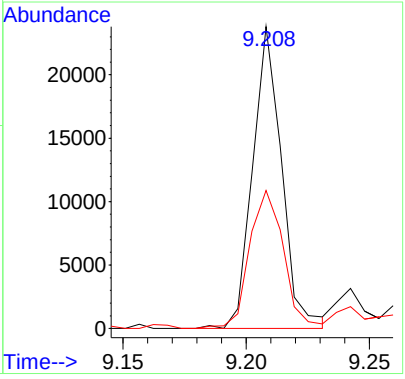


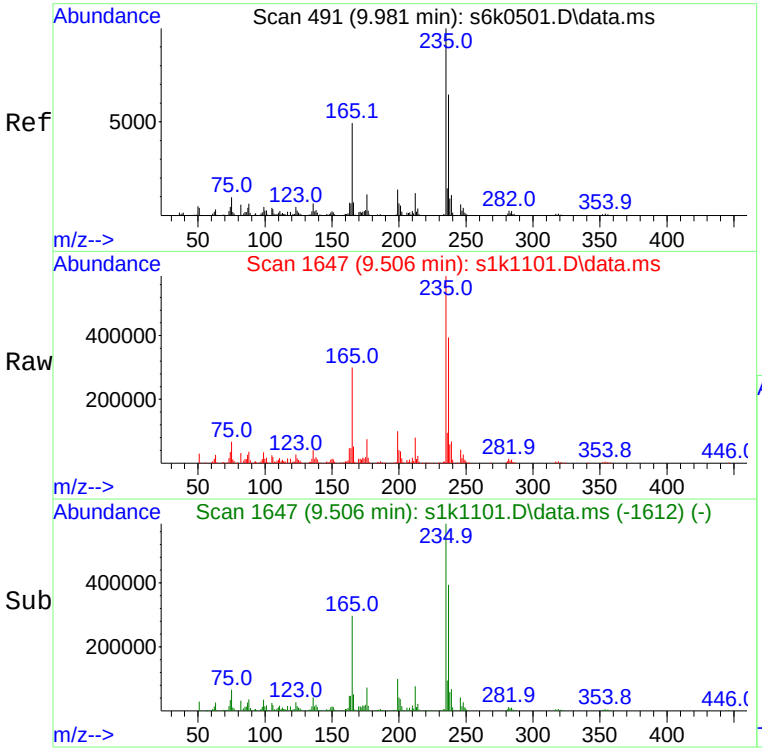


#6
DDD
Concen: 4.88 ug/l
RT: 9.208 min Scan# 1595
Delta R.T. 0.023 min
Lab File: s1k1101.D
Acq: 11 Nov 2016 10:33

Tgt Ion:235 Resp: 19463

Ion	Ratio	Lower	Upper
235	100		
165	53.8	0.0	153.6

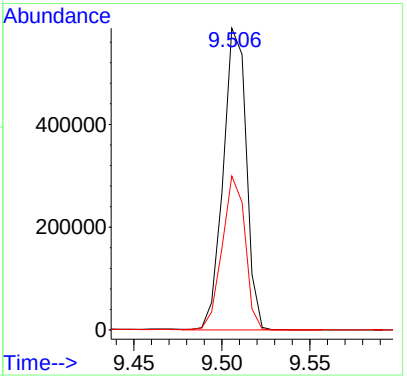




#7
DDT
Concen: 3.76 ug/l
RT: 9.506 min Scan# 1647
Delta R.T. 0.017 min
Lab File: s1k1101.D
Acq: 11 Nov 2016 10:33

Tgt Ion:235 Resp: 536915

Ion	Ratio	Lower	Upper
235	100		
165	50.4	0.0	148.0



JMB
11/11/2016

8270 Breakdown Report

Data File : C:\msdchem\1\DATA\s111116.B\s1k1101.D Vial: 1
Acq On : 11 Nov 2016 10:33 Operator: JMB3
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP Inst : MSD1
Misc : Multiplr: 1.00
IntFile : rteint.p

HM
11/14/2016

Compounds	Area/%Breakdown	8270C	8270D
DDE	2382		
DDD	19463		
DDT	536915		
Breakdown	3.91%	Pass(<20)	Pass(<20)

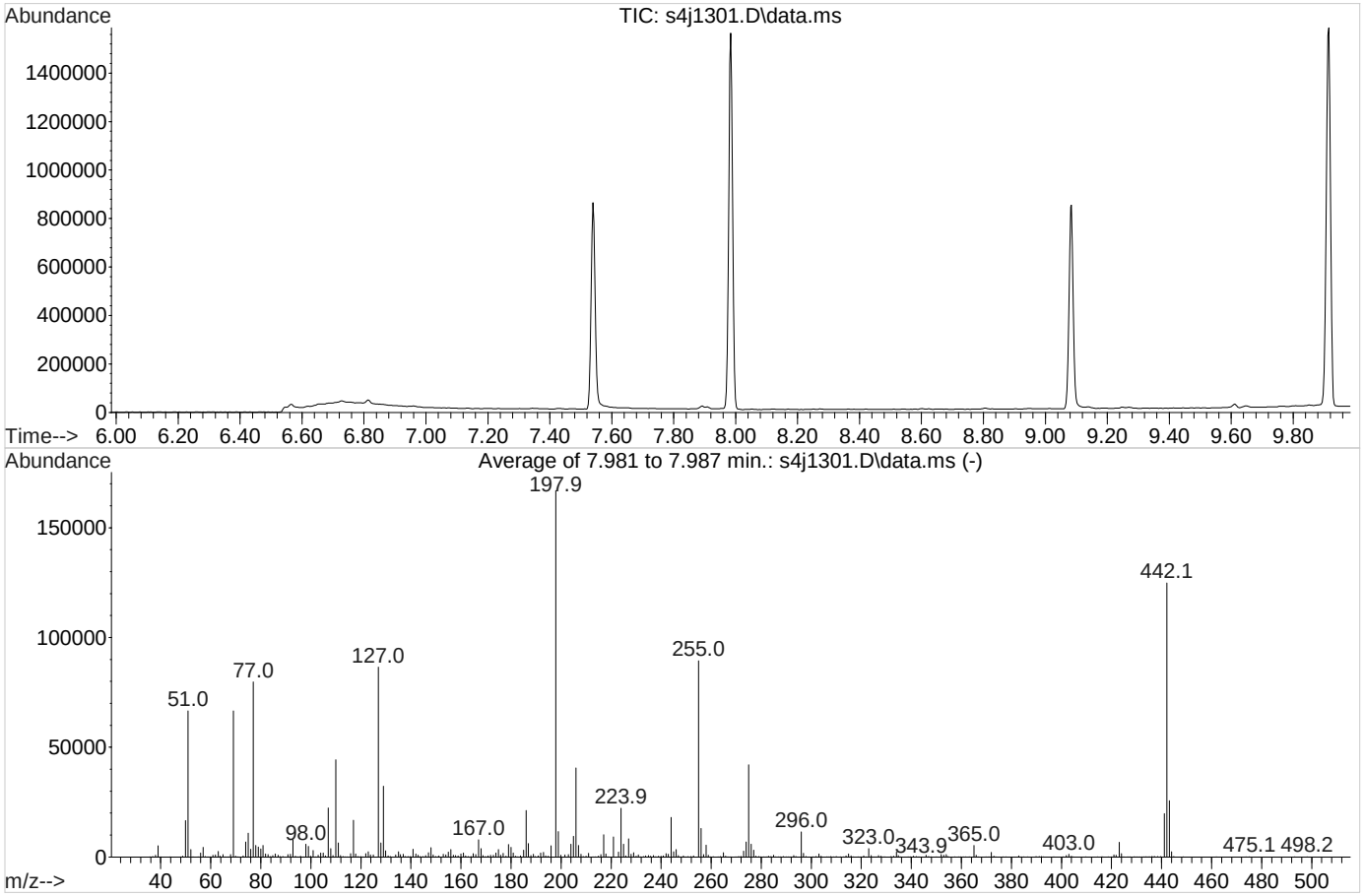
Compounds	Tailing Factor	8270C	8270D
Benzidine	1.46	Pass(<3)	Pass(<2)
Pentachlorophenol	1.70	Pass(<5)	Pass(<2)

DFTPP Tune Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1301.D
Acq On : 13 Oct 2016 10:14
Operator : JMB3
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\DATA\s101316.B\BNABrk_Down8270D.m
Title : dftpp / endrin / ddt SubList :
Last Update : Mon Jun 30 12:01:50 2014



AutoFind: Scans 2664, 2665, 2666; Background Corrected with Scan 2653

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.8	66515	PASS
68	69	0.00	2	1.6	1039	PASS
69	198	0.00	100	39.9	66616	PASS
70	69	0.00	2	0.5	306	PASS
127	198	10	80	51.8	86485	PASS
197	198	0.00	2	0.0	0	PASS
198	198	50	100	100.0	166951	PASS
199	198	5	9	6.9	11532	PASS
275	198	10	60	25.1	41940	PASS
365	198	1	100	3.1	5230	PASS
441	442	0.01	24	15.8	19688	PASS
442	198	50	100	74.8	124841	PASS
443	442	15	24	20.5	25623	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1301.D
Acq On : 13 Oct 2016 10:14
Operator : JMB3
InstName : MSD4
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 13 10:26:33 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Mon Jun 30 12:01:50 2014
Response via : Initial Calibration
Integrator: RTE

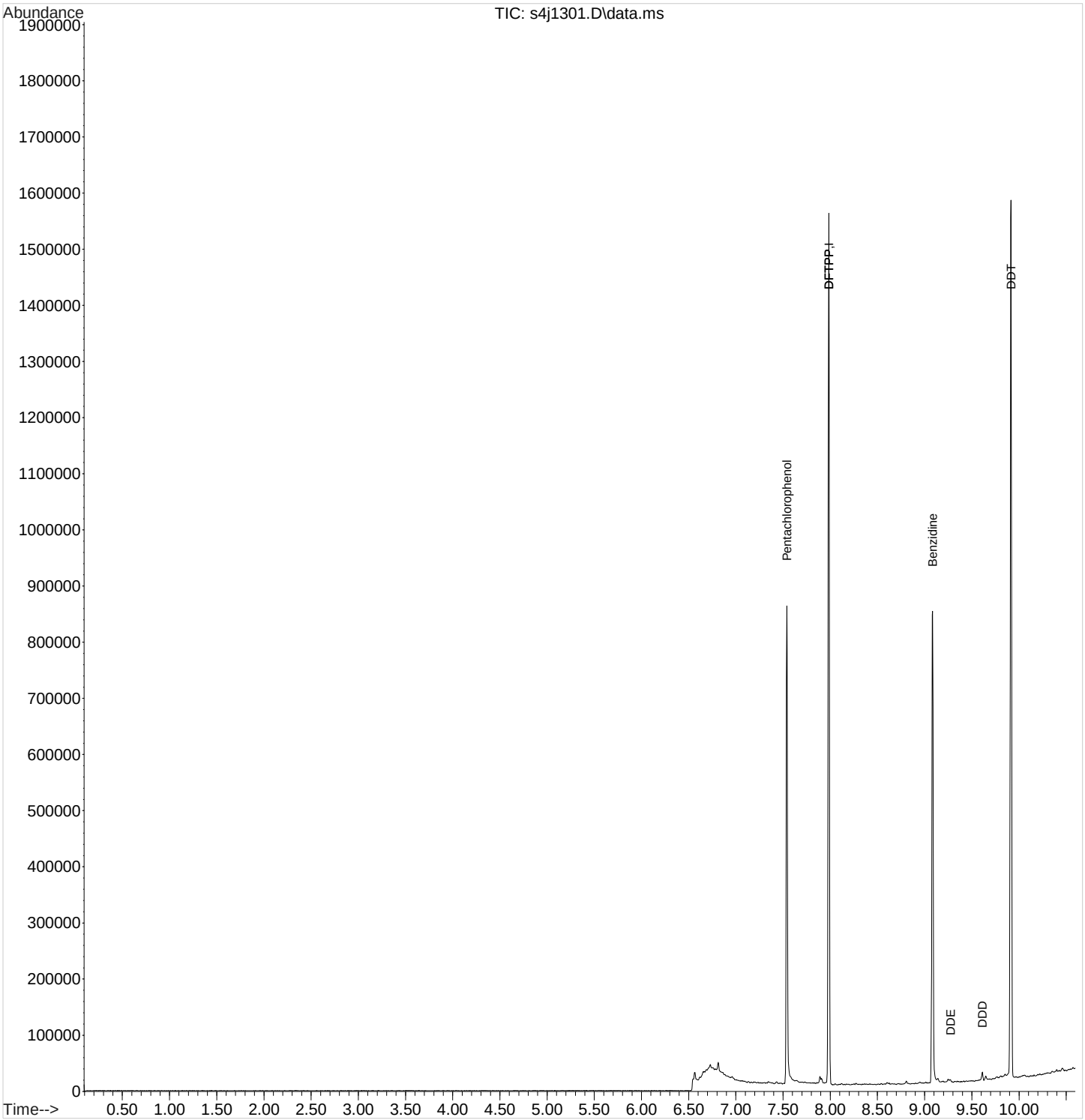
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) DFTPP	TIC	7.984	7.984	1.000	1379695	5.00	ug/ml #	0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) DFTPP	TIC	7.984	7.984	1.000	1379695	5.00	ug/ml#	1
3) Pentachlorophenol	266	7.539	7.539	0.944	98831	4.27	ug/ml	100
4) Benzidine	184	9.085	9.085	1.138	342421	5.40	ug/ml	100
5) DDE	246	9.274	9.274	1.162	418	3.31	ug/ml	93
6) DDD	235	9.613	9.613	1.204	2469	1.05	ug/ml	97
7) DDT	235	9.915	9.915	1.242	286585	5.48	ug/ml	100

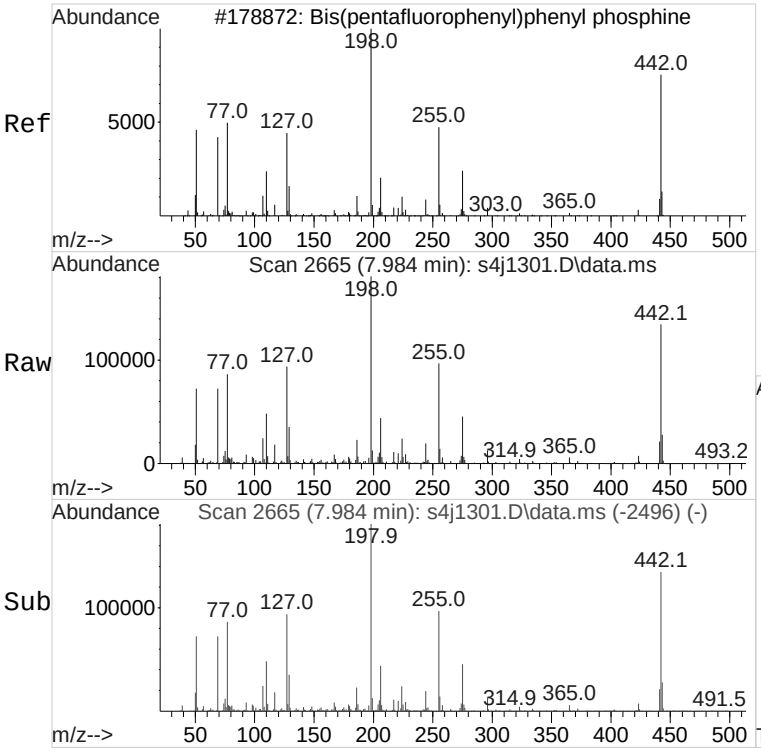
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s101316.B\
Data File : s4j1301.D
Acq On : 13 Oct 2016 10:14
Operator : JMB3
InstName : MSD4
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 13 10:26:33 2016
Quant Method : C:\msdchem\1\DATA\s101316.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Mon Jun 30 12:01:50 2014
Response via : Initial Calibration
Integrator: RTE

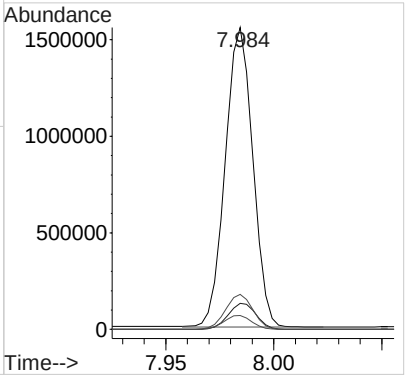


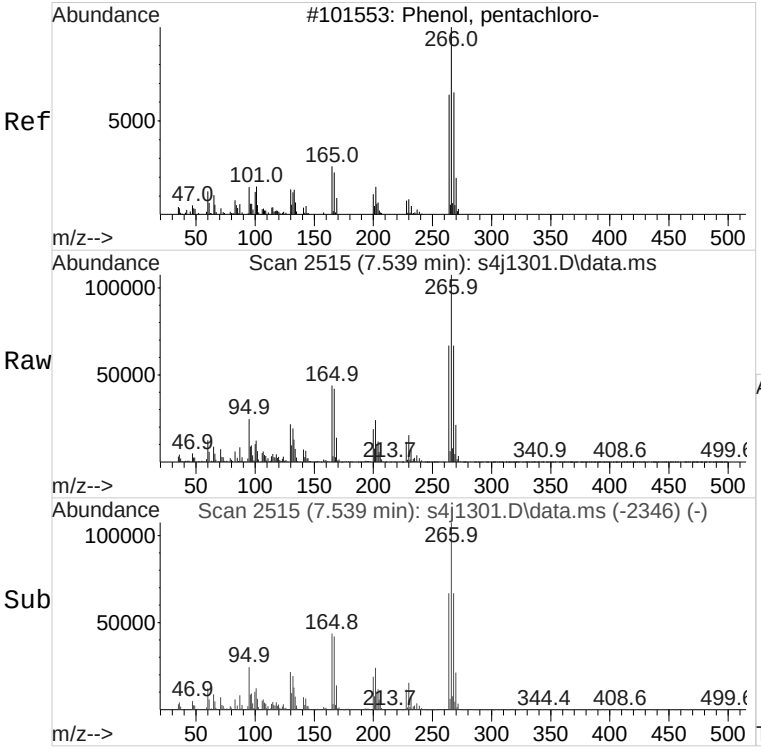


#2
DFTPP
Concen: 5.00 ug/ml
RT: 7.984 min Scan# 2665
Delta R.T. 0.000 min
Lab File: s4j1301.D
Acq: 13 Oct 2016 10:14

Tgt Ion:TIC Resp: 1379695

Ion	Ratio	Lower	Upper
TIC	100		
442	8.8	840.5	880.5#
69	4.7	443.4	483.4#
198	11.6	1139.2	1179.2#

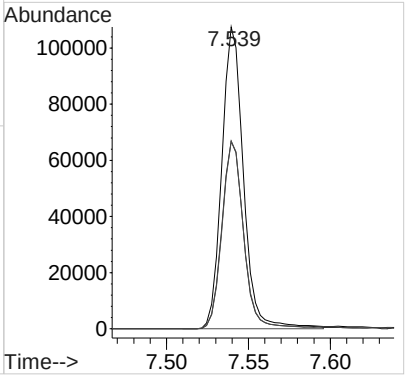


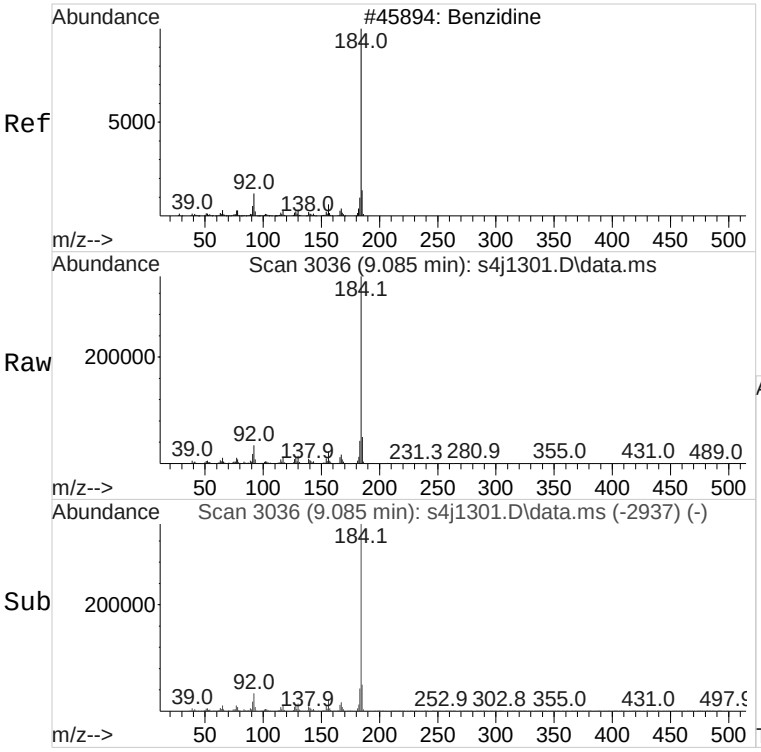


#3
Pentachlorophenol
Concen: 4.27 ug/ml
RT: 7.539 min Scan# 2515
Delta R.T. 0.000 min
Lab File: s4j1301.D
Acq: 13 Oct 2016 10:14

Tgt Ion:266 Resp: 98831

Ion	Ratio	Lower	Upper
266	100		
264	61.9	0.0	162.1
268	61.9	0.0	162.1

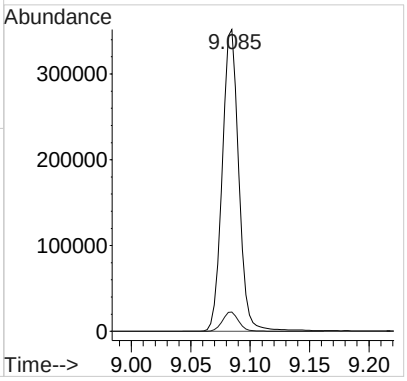


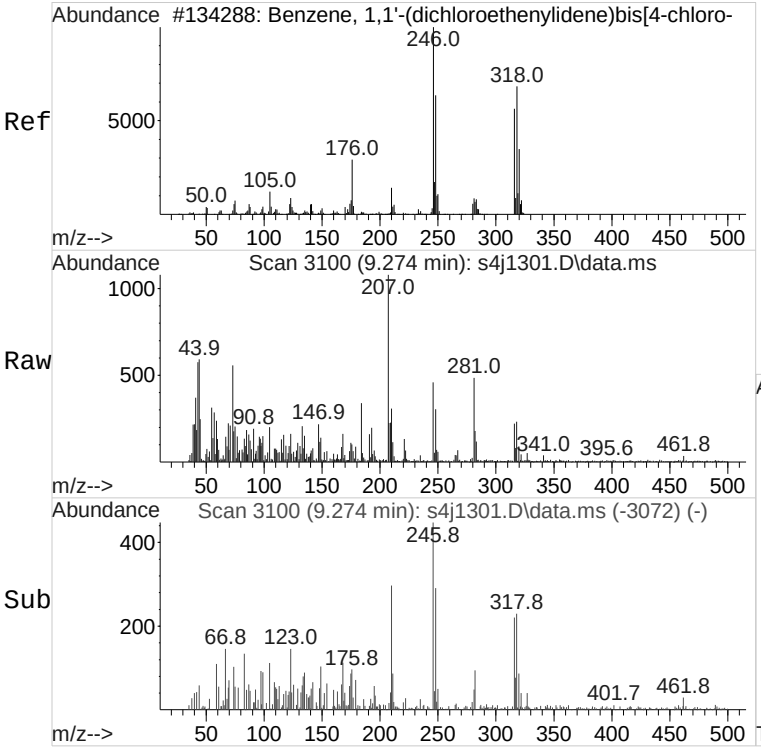


#4
Benzidine
Concen: 5.40 ug/ml
RT: 9.085 min Scan# 3036
Delta R.T. 0.000 min
Lab File: s4j1301.D
Acq: 13 Oct 2016 10:14

Tgt Ion:184 Resp: 342421

Ion	Ratio	Lower	Upper
184	100		
156	6.3	0.0	106.4

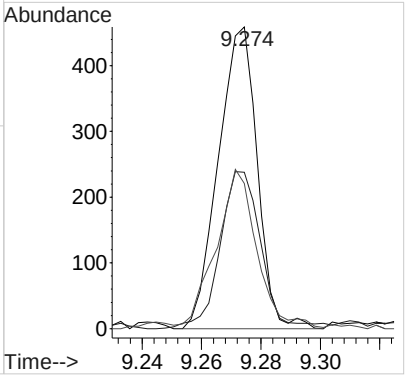


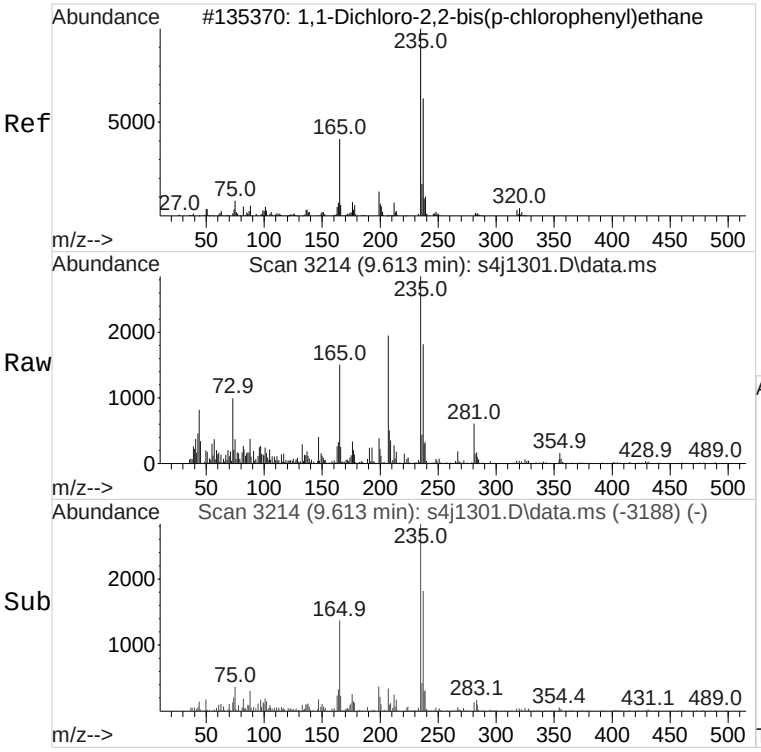


#5
DDE
Concen: 3.31 ug/ml
RT: 9.274 min Scan# 3100
Delta R.T. 0.000 min
Lab File: s4j1301.D
Acq: 13 Oct 2016 10:14

Tgt Ion:246 Resp: 418

Ion	Ratio	Lower	Upper
246	100		
318	54.5	0.0	150.5
316	54.1	0.0	148.1

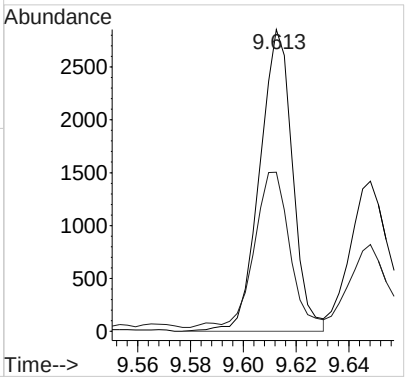


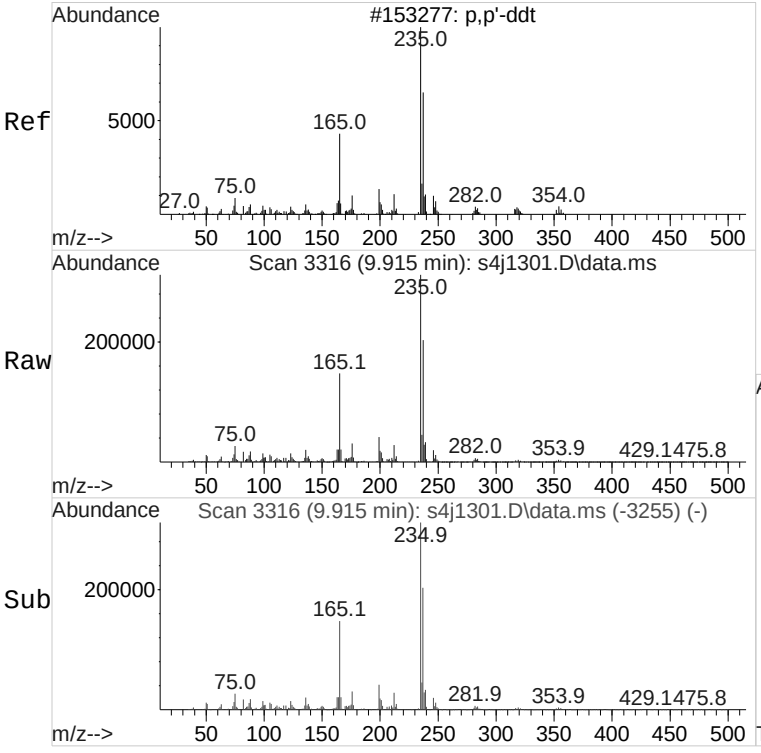


#6
DDD
Concen: 1.05 ug/ml
RT: 9.613 min Scan# 3214
Delta R.T. 0.000 min
Lab File: s4j1301.D
Acq: 13 Oct 2016 10:14

Tgt Ion:235 Resp: 2469

Ion	Ratio	Lower	Upper
235	100		
165	55.1	0.0	152.7

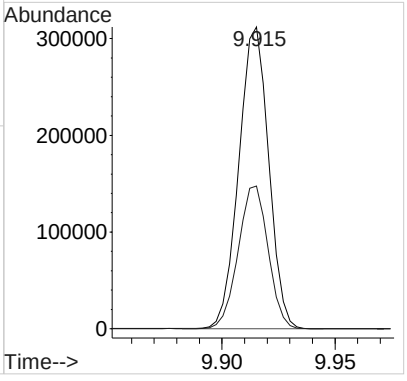




#7
DDT
Concen: 5.48 ug/ml
RT: 9.915 min Scan# 3316
Delta R.T. 0.000 min
Lab File: s4j1301.D
Acq: 13 Oct 2016 10:14

Tgt Ion:235 Resp: 286585

Ion	Ratio	Lower	Upper
235	100		
165	47.4	0.0	147.3



8270 Breakdown Report

Data File : C:\msdchem\1\DATA\s101316.B\s4j1301.D Vial: 1
Acq On : 13 Oct 2016 10:14 Operator: JMB3
Sample : |WBN160728-99|DFTPP|1|SVM|1|DFTPP Inst : MSD4
Misc : Multiplr: 1.00
IntFile : rteint.p

Compounds	Area/%Breakdown	8270C	8270D
DDE	418		
DDD	2469		
DDT	286585		
Breakdown	1.00%	Pass(<20)	Pass(<20)

Compounds	Tailing Factor	8270C	8270D
Benzidine	0.88	Pass(<3)	Pass(<2)
Pentachlorophenol	1.25	Pass(<5)	Pass(<2)

DFTPP Tune Report
GEL Laboratories, LLC

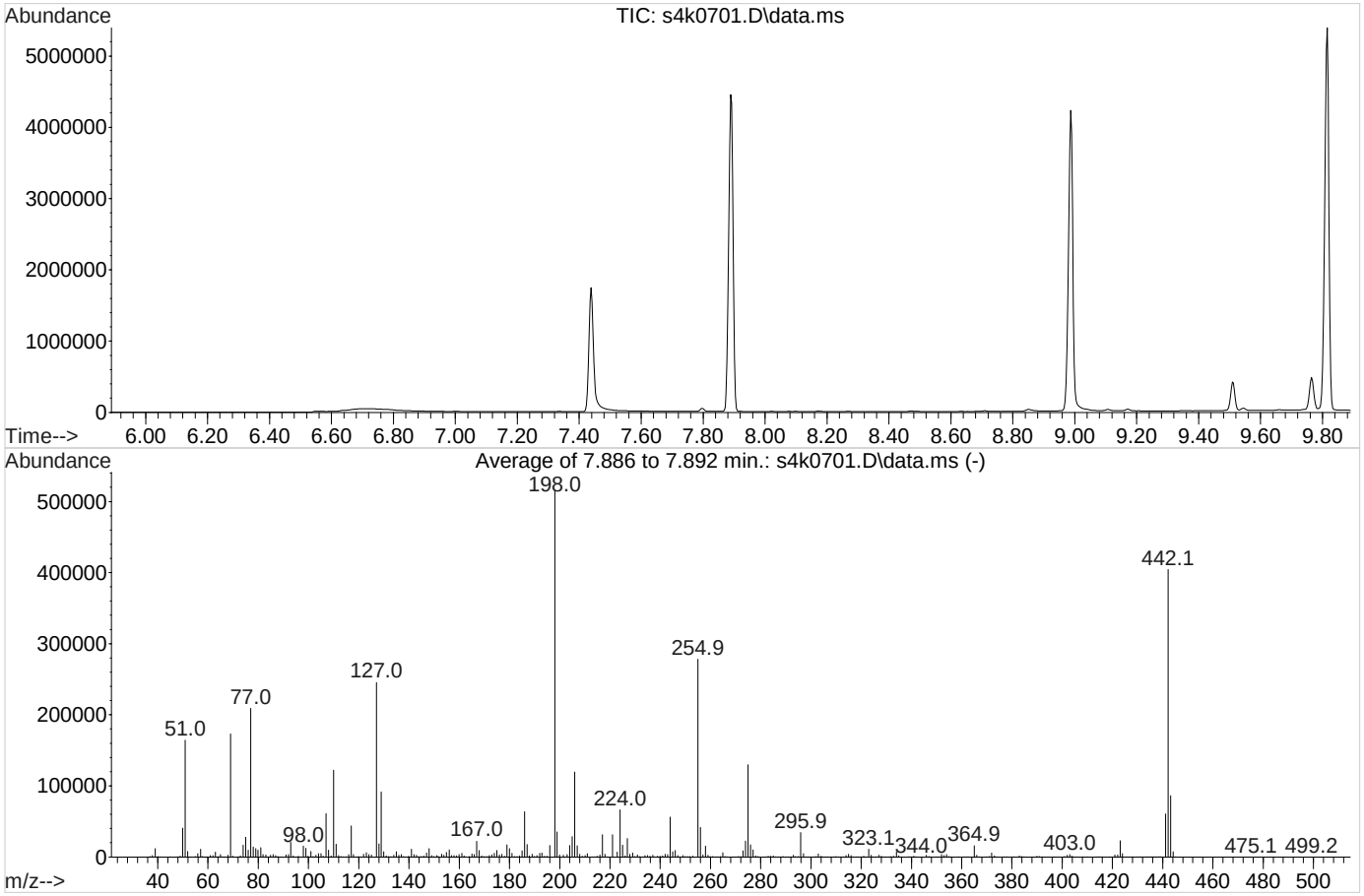
JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0701.D
Acq On : 07 Nov 2016 08:14
Operator : JMB3
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

JCB 11/08/2016

Integration File: rteint.p

Method : C:\msdchem\1\DATA\s110716.B\BNABrk_Down8270D.m
Title : dftpp / endrin / ddt SubList :
Last Update : Mon Jun 30 12:01:50 2014



AutoFind: Scans 2633, 2634, 2635; Background Corrected with Scan 2610

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	31.9	164400	PASS
68	69	0.00	2	1.5	2674	PASS
69	198	0.00	100	33.6	173270	PASS
70	69	0.00	2	0.5	931	PASS
127	198	10	80	47.6	245248	PASS
197	198	0.00	2	0.0	0	PASS
198	198	50	100	100.0	515473	PASS
199	198	5	9	6.8	35163	PASS
275	198	10	60	25.2	129757	PASS
365	198	1	100	3.1	15785	PASS
441	442	0.01	24	14.9	60461	PASS
442	198	50	100	78.5	404480	PASS
443	442	15	24	21.3	86272	PASS

This report evaluates the Rel Abn% as passing only if it is greater than the Lower Limit and lower than the Upper Limit.

JMB 11/07/2016

JCB 11/08/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0701.D
Acq On : 07 Nov 2016 08:14
Operator : JMB3
InstName : MSD4
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 07 08:25:04 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Mon Jun 30 12:01:50 2014
Response via : Initial Calibration
Integrator: RTE

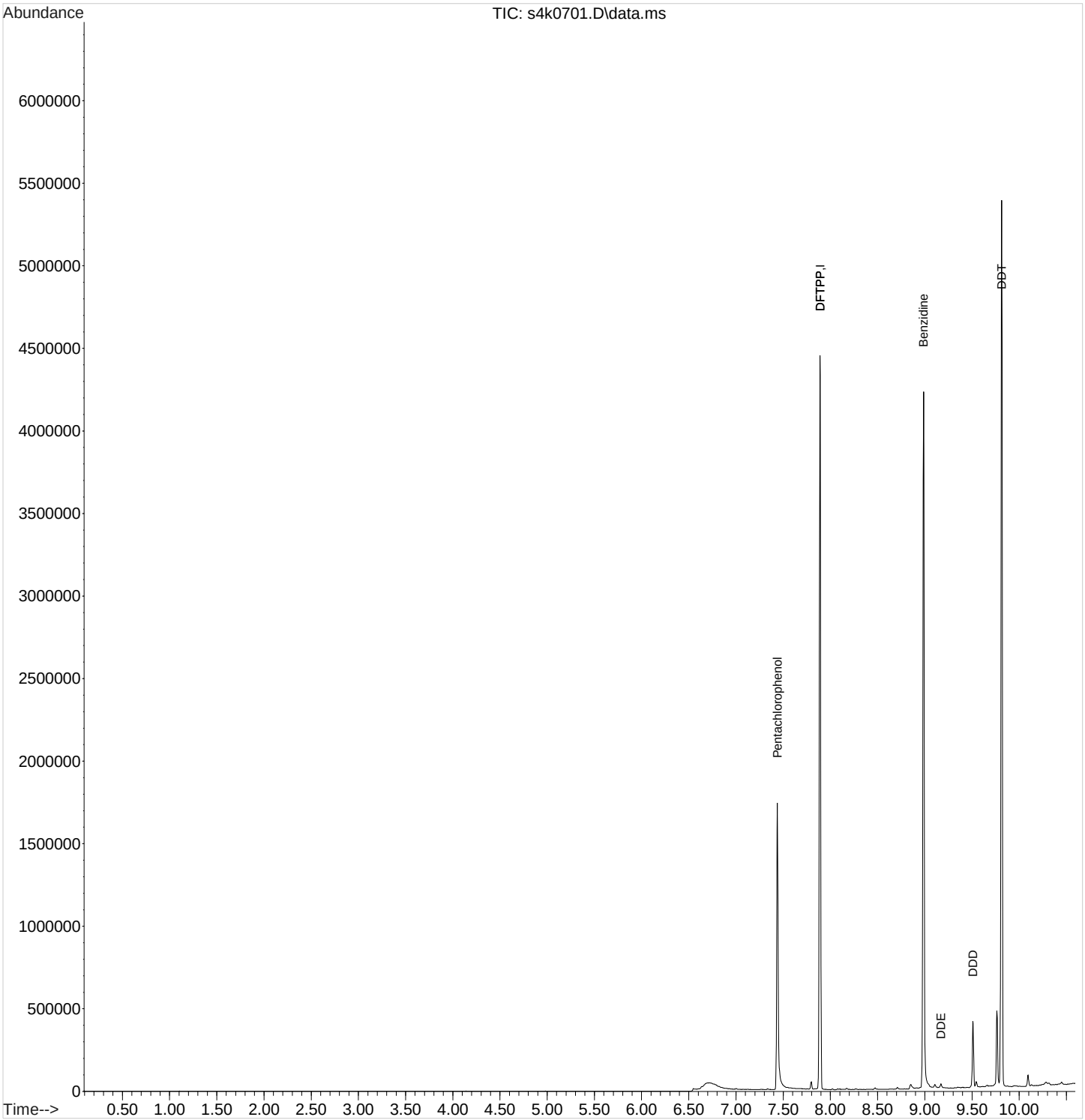
Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
Internal Standards								Dev(Min)
1) DFTPP	TIC	7.889	7.888	1.000	4258214	5.00	ug/ml	# 0.00
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
2) DFTPP	TIC	7.889	7.888	1.000	4258214	5.00	ug/ml	# 1
3) Pentachlorophenol	266	7.438	7.437	0.943	254767	3.56	ug/ml	99
4) Benzidine	184	8.987	8.982	1.139	1825398	9.33	ug/ml	99
5) DDE	246	9.171	9.169	1.162	2563	6.58	ug/ml	93
6) DDD	235	9.509	9.507	1.205	80396	11.03	ug/ml	89
7) DDT	235	9.815	9.812	1.244	1078413	6.69	ug/ml	97

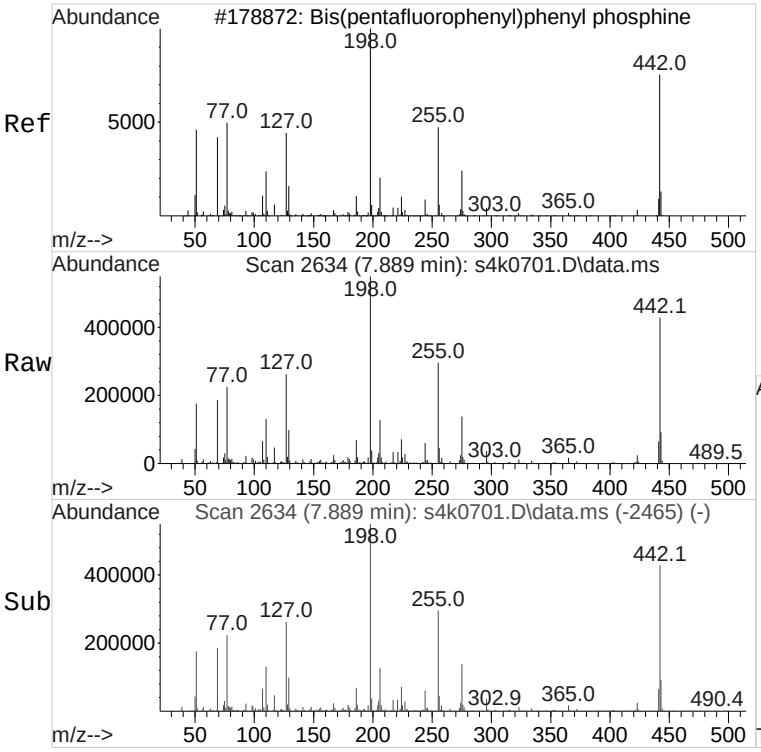
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0701.D
Acq On : 07 Nov 2016 08:14
Operator : JMB3
InstName : MSD4
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 07 08:25:04 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\BNABrk_Down8270D.m
Quant Title : dftpp / endrin / ddt SubList :
QLast Update : Mon Jun 30 12:01:50 2014
Response via : Initial Calibration
Integrator: RTE

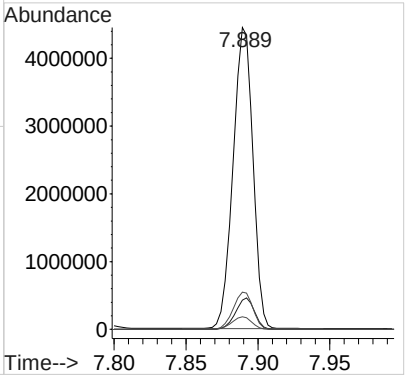


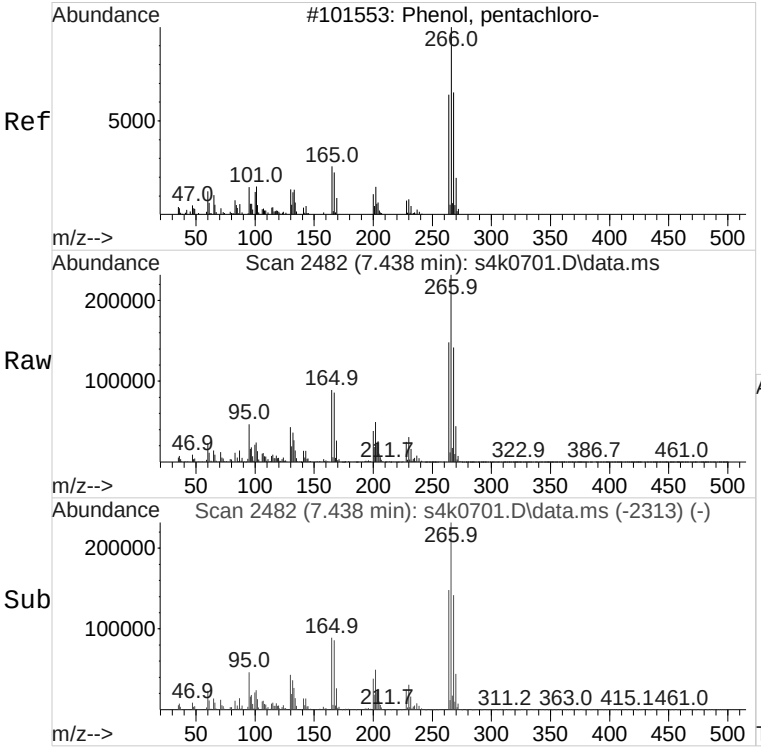


#2
DFTPP
Concen: 5.00 ug/ml
RT: 7.889 min Scan# 2634
Delta R.T. 0.001 min
Lab File: s4k0701.D
Acq: 07 Nov 2016 08:14

Tgt Ion:TIC Resp: 4258214

Ion	Ratio	Lower	Upper
TIC	100		
442	9.9	970.3	1010.3#
69	4.2	403.0	443.0#
198	12.3	1196.6	1236.6#

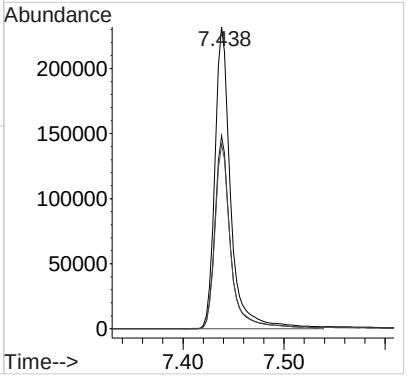


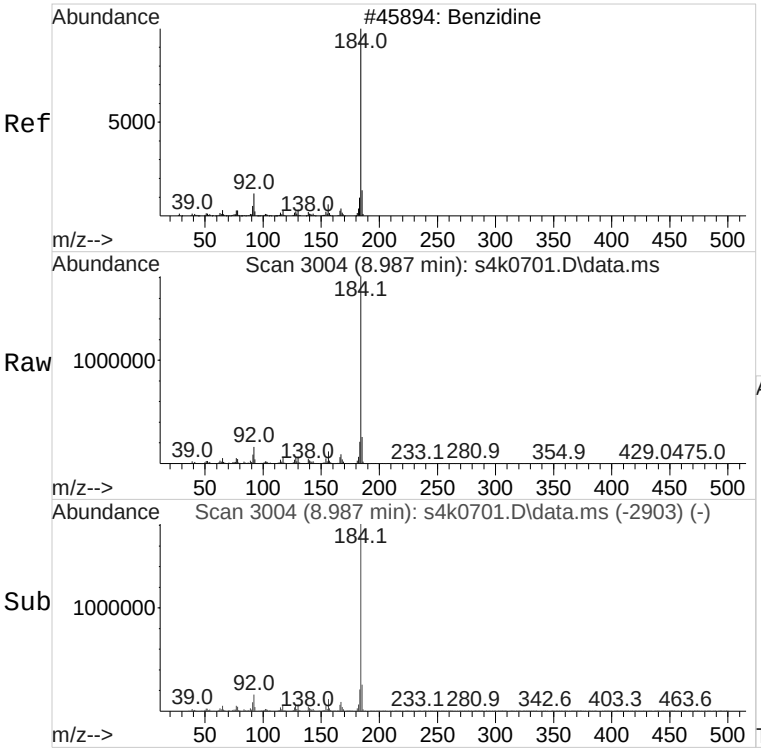


#3
Pentachlorophenol
Concen: 3.56 ug/ml
RT: 7.438 min Scan# 2482
Delta R.T. 0.001 min
Lab File: s4k0701.D
Acq: 07 Nov 2016 08:14

Tgt Ion:266 Resp: 254767

Ion	Ratio	Lower	Upper
266	100		
264	62.6	0.0	164.3
268	61.2	0.0	161.7

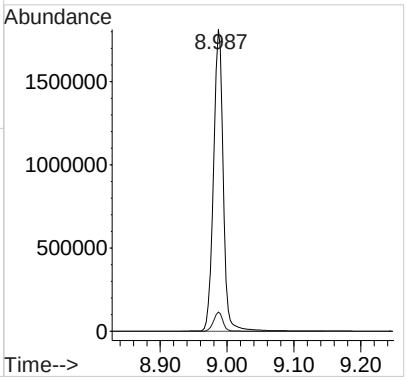


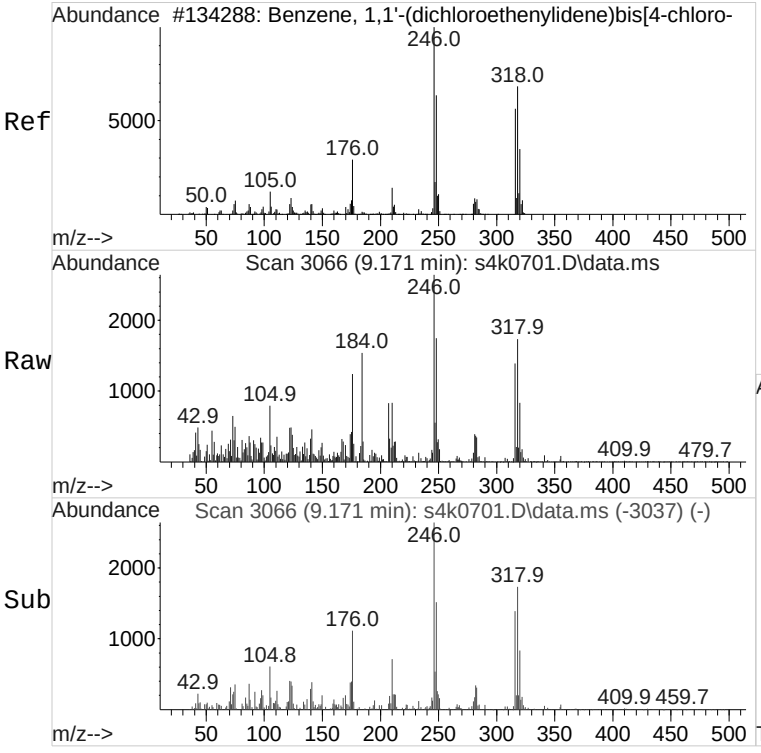


#4
Benzidine
Concen: 9.33 ug/ml
RT: 8.987 min Scan# 3004
Delta R.T. 0.005 min
Lab File: s4k0701.D
Acq: 07 Nov 2016 08:14

Tgt Ion:184 Resp: 1825398

Ion	Ratio	Lower	Upper
184	100		
156	6.2	0.0	106.7

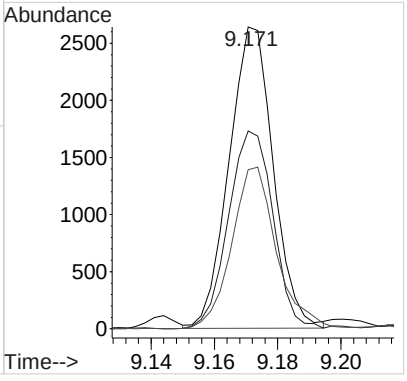


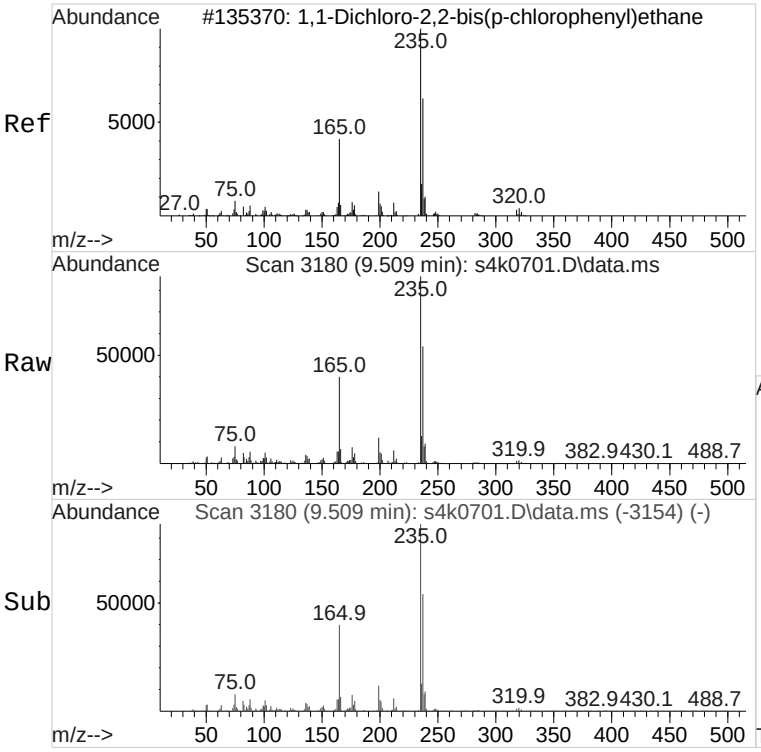


#5
DDE
Concen: 6.58 ug/ml
RT: 9.171 min Scan# 3066
Delta R.T. 0.002 min
Lab File: s4k0701.D
Acq: 07 Nov 2016 08:14

Tgt Ion:246 Resp: 2563

Ion	Ratio	Lower	Upper
246	100		
318	66.7	0.0	160.5
316	54.0	0.0	150.3

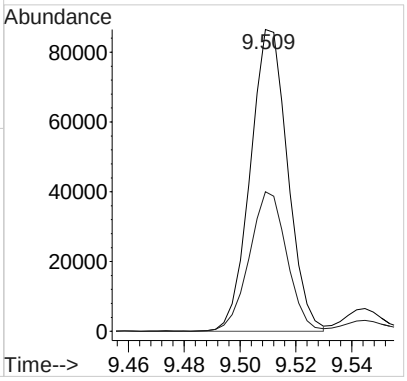


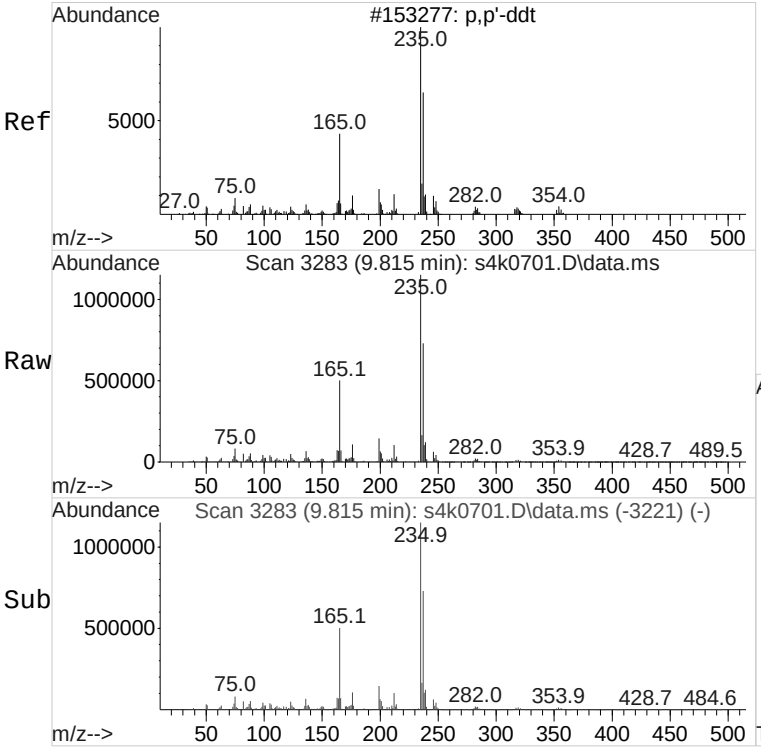


#6
DDD
Concen: 11.03 ug/ml
RT: 9.509 min Scan# 3180
Delta R.T. 0.002 min
Lab File: s4k0701.D
Acq: 07 Nov 2016 08:14

Tgt Ion:235 Resp: 80396

Ion	Ratio	Lower	Upper
235	100		
165	46.3	0.0	154.0

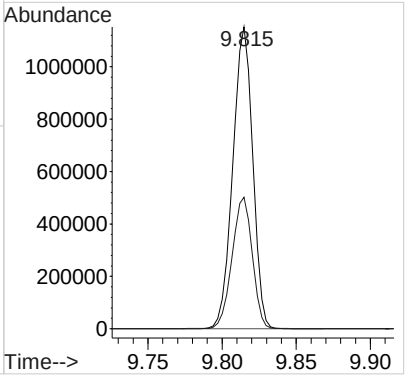




#7
DDT
Concen: 6.69 ug/ml
RT: 9.815 min Scan# 3283
Delta R.T. 0.003 min
Lab File: s4k0701.D
Acq: 07 Nov 2016 08:14

Tgt Ion:235 Resp: 1078413

Ion	Ratio	Lower	Upper
235	100		
165	44.1	0.0	145.8



8270 Breakdown Report

JMB 11/07/2016

Data File : C:\msdchem\1\DATA\s110716.B\s4k0701.D Vial: 1
Acq On : 07 Nov 2016 08:14 Operator: JMB3
Sample : |WBN161104-99|DFTPP|1|SVM|1|DFTPP Inst : MSD4
Misc : Multiplr: 1.00
IntFile : rteint.p

JCB 11/08/2016

Compounds	Area/%Breakdown	8270C	8270D
DDE	2563		
DDD	80396		
DDT	1078413		
Breakdown	7.14%	Pass(<20)	Pass(<20)

Compounds	Tailing Factor	8270C	8270D
Benzidine	0.96	Pass(<3)	Pass(<2)
Pentachlorophenol	1.42	Pass(<5)	Pass(<2)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203665318**				
Client Sample:	**QC for batch 1614269**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1614269**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/10/2016 17:58**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.007 g**	**Final Volume:**	**1 mL**
Data File:	**s111016.B\s1k1016.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl	U	333	ug/kg	100	333
95-94-3	1,2,4,5-Tetrachlorobenzene	U	333	ug/kg	100	333
58-90-2	2,3,4,6-Tetrachlorophenol	U	333	ug/kg	100	333
95-95-4	2,4,5-Trichlorophenol	U	333	ug/kg	100	333
88-06-2	2,4,6-Trichlorophenol	U	333	ug/kg	100	333
120-83-2	2,4-Dichlorophenol	U	333	ug/kg	100	333
105-67-9	2,4-Dimethylphenol	U	333	ug/kg	100	333
51-28-5	2,4-Dinitrophenol	U	667	ug/kg	100	667
121-14-2	2,4-Dinitrotoluene	U	333	ug/kg	100	333
606-20-2	2,6-Dinitrotoluene	U	333	ug/kg	100	333
91-58-7	2-Chloronaphthalene	U	33.3	ug/kg	10.0	33.3
95-57-8	2-Chlorophenol	U	333	ug/kg	100	333
534-52-1	2-Methyl-4,6-dinitrophenol	U	333	ug/kg	100	333
91-57-6	2-Methylnaphthalene	U	33.3	ug/kg	10.0	33.3
88-75-5	2-Nitrophenol	U	333	ug/kg	100	333
91-94-1	3,3'-Dichlorobenzidine	U	333	ug/kg	100	333
101-55-3	4-Bromophenylphenylether	U	333	ug/kg	100	333
59-50-7	4-Chloro-3-methylphenol	U	333	ug/kg	133	333
106-47-8	4-Chloroaniline	U	333	ug/kg	100	333
7005-72-3	4-Chlorophenylphenylether	U	333	ug/kg	100	333
100-02-7	4-Nitrophenol	U	333	ug/kg	100	333
83-32-9	Acenaphthene	U	33.3	ug/kg	10.0	33.3
208-96-8	Acenaphthylene	U	33.3	ug/kg	10.0	33.3
98-86-2	Acetophenone	U	333	ug/kg	100	333
120-12-7	Anthracene	U	33.3	ug/kg	10.0	33.3
1912-24-9	Atrazine	U	333	ug/kg	133	333
100-52-7	Benzaldehyde	U	333	ug/kg	100	333
56-55-3	Benzo(a)anthracene	U	33.3	ug/kg	10.0	33.3
50-32-8	Benzo(a)pyrene	U	33.3	ug/kg	10.0	33.3
205-99-2	Benzo(b)fluoranthene	U	33.3	ug/kg	10.0	33.3
191-24-2	Benzo(ghi)perylene	U	33.3	ug/kg	10.0	33.3
207-08-9	Benzo(k)fluoranthene	U	33.3	ug/kg	10.0	33.3
85-68-7	Butylbenzylphthalate	U	333	ug/kg	100	333
105-60-2	Caprolactam	U	333	ug/kg	100	333
86-74-8	Carbazole	U	33.3	ug/kg	10.0	33.3
218-01-9	Chrysene	U	33.3	ug/kg	10.0	33.3
84-74-2	Di-n-butylphthalate	U	333	ug/kg	100	333
117-84-0	Di-n-octylphthalate	U	333	ug/kg	100	333

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203665318**				
Client Sample:	**QC for batch 1614269**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1614269**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/10/2016 17:58**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.007 g**	**Final Volume:**	**1 mL**
Data File:	**s111016.B\s1k1016.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene	U	33.3	ug/kg	10.0	33.3
132-64-9	Dibenzofuran	U	333	ug/kg	100	333
84-66-2	Diethylphthalate	U	333	ug/kg	100	333
131-11-3	Dimethylphthalate	U	333	ug/kg	100	333
122-39-4	Diphenylamine	U	333	ug/kg	100	333
206-44-0	Fluoranthene	U	33.3	ug/kg	10.0	33.3
86-73-7	Fluorene	U	33.3	ug/kg	10.0	33.3
118-74-1	Hexachlorobenzene	U	333	ug/kg	100	333
87-68-3	Hexachlorobutadiene	U	333	ug/kg	100	333
77-47-4	Hexachlorocyclopentadiene	U	333	ug/kg	100	333
67-72-1	Hexachloroethane	U	333	ug/kg	100	333
193-39-5	Indeno(1,2,3-cd)pyrene	U	33.3	ug/kg	10.0	33.3
78-59-1	Isophorone	U	333	ug/kg	100	333
621-64-7	N-Nitrosodipropylamine	U	333	ug/kg	100	333
91-20-3	Naphthalene	U	33.3	ug/kg	10.0	33.3
98-95-3	Nitrobenzene	U	333	ug/kg	100	333
87-86-5	Pentachlorophenol	U	333	ug/kg	100	333
85-01-8	Phenanthrene	U	33.3	ug/kg	10.0	33.3
108-95-2	Phenol	U	333	ug/kg	100	333
129-00-0	Pyrene	U	33.3	ug/kg	10.0	33.3
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	333	ug/kg	100	333
111-91-1	bis(2-Chloroethoxy)methane	U	333	ug/kg	100	333
111-44-4	bis(2-Chloroethyl) ether	U	333	ug/kg	100	333
117-81-7	bis(2-Ethylhexyl)phthalate	U	333	ug/kg	100	333
65794-96-9	m,p-Cresols	U	333	ug/kg	100	333
99-09-2	m-Nitroaniline	U	333	ug/kg	100	333
95-48-7	o-Cresol	U	333	ug/kg	100	333
88-74-4	o-Nitroaniline	U	333	ug/kg	110	333
100-01-6	p-Nitroaniline	U	333	ug/kg	100	333

JMB 11/11/2016

HM 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1016.D
Acq On : 10 Nov 2016 17:58
Operator : JMB3
InstName : MSD1
Sample : |1203665318|1614270|1|SVM|1|MB
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 11 07:46:33 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	225235	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.100	7.105	1.000	798475	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.405	9.415	1.000	444209	40.00	ng/uL	-0.01
67) A Phenanthrene-d10	188	11.266	11.271	1.000	844651	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.657	14.662	1.000	784241	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.663	17.668	1.000	728585	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	225229	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.100	7.105	1.000	798475	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.405	9.415	1.000	444209	40.00	ng/uL	-0.01
132) B Phenanthrene-d10	188	11.266	11.271	1.000	844651	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.657	14.662	1.000	784241	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.663	17.668	1.000	728585	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.100	7.105	1.000	798475	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.405	9.415	1.000	444209	40.00	ng/uL	-0.01
160) D Phenanthrene-d10	188	11.266	11.271	1.000	844651	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.657	14.662	1.000	784241	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.100	7.105	1.000	798475	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.663	17.668	1.000	728585	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	225229	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.266	11.271	1.000	844651	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.657	14.662	1.000	784241	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.682	3.660	0.692	463443	55.44	ng/uL	0.02
8) Phenol-d5	99	4.821	4.810	0.906	629736	61.52	ng/uL	0.01
25) Nitrobenzene-d5	82	6.105	6.110	0.860	374881	40.11	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.549	8.554	0.909	651305	41.60	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.400	10.405	1.106	191088	65.95	ng/uL	0.00
83) p-Terphenyl-d14	244	13.245	13.245	0.904	777572	37.13	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	55%
8) Phenol-d5	100.000	39 - 106	62%
25) Nitrobenzene-d5	50.000	34 - 109	80%
47) 2-Fluorobiphenyl	50.000	35 - 107	83%
66) 2,4,6-Tribromophenol	100.000	39 - 115	66%
83) p-Terphenyl-d14	50.000	45 - 119	74%

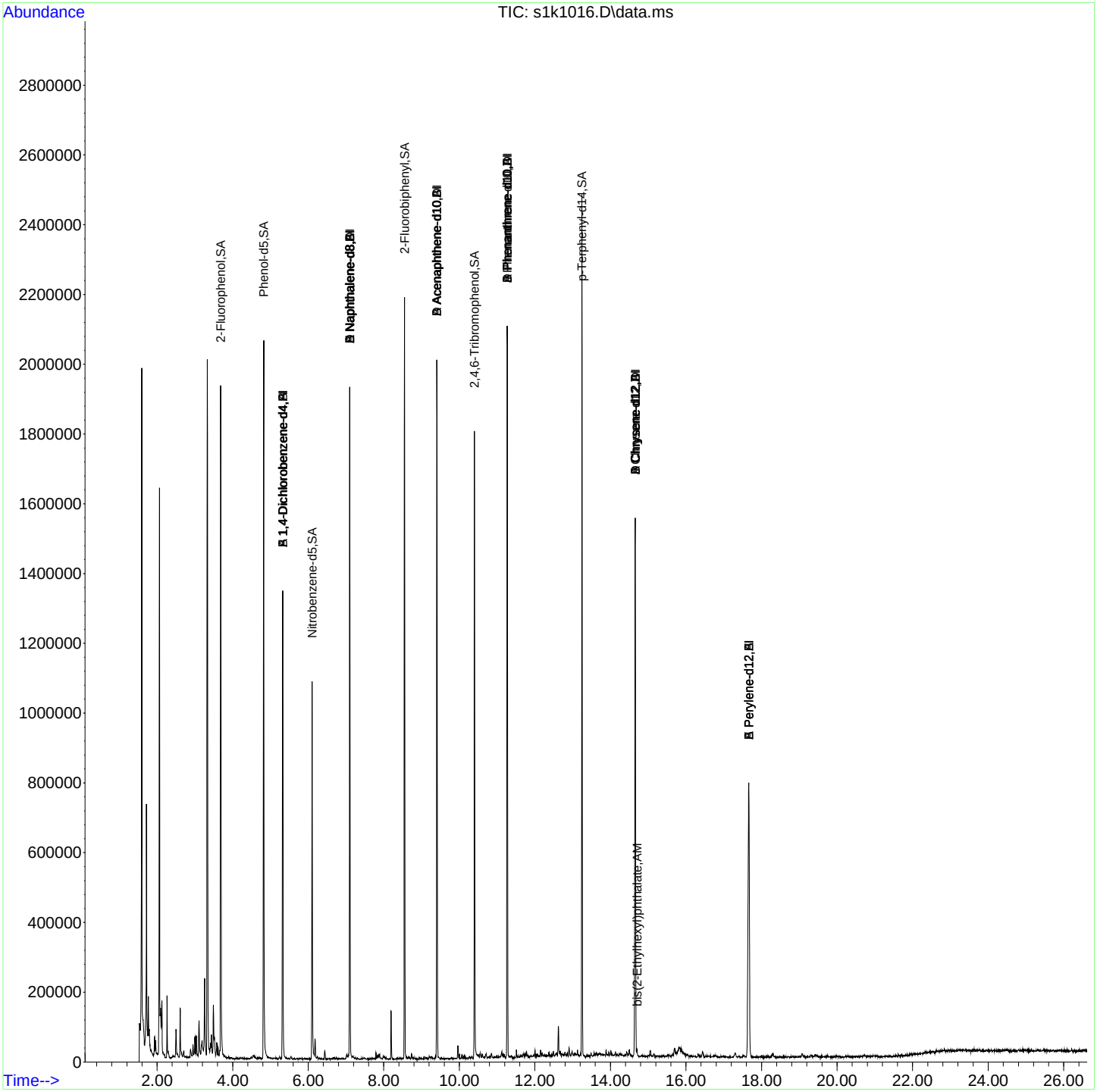
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
85) bis(2-Ethylhexyl)phtha...	149	14.705	14.711	1.003	5195	0.31	ng/uL	96

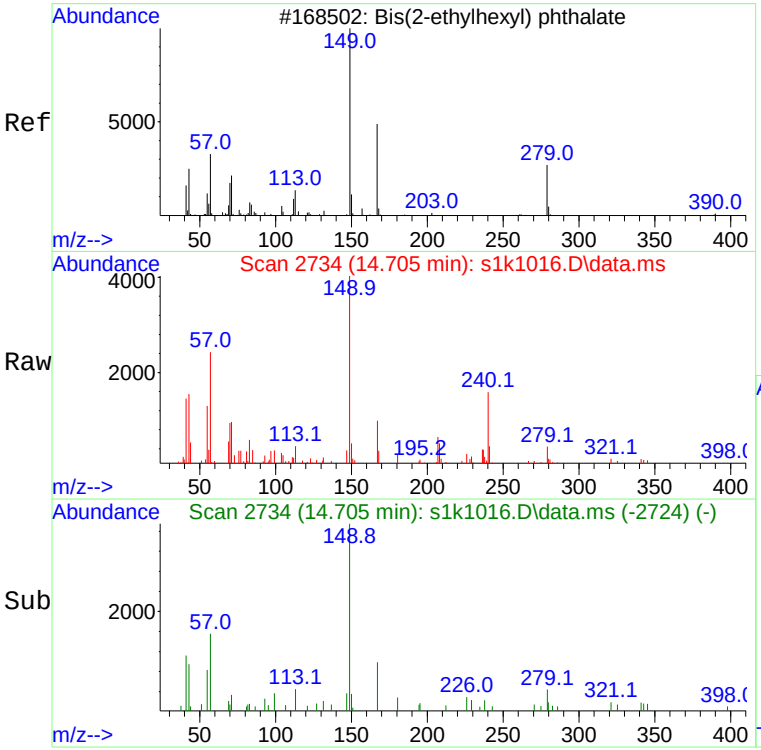
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1016.D
Acq On : 10 Nov 2016 17:58
Operator : JMB3
InstName : MSD1
Sample : |1203665318|1614270|1|SVM|1|MB
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 11 07:46:33 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

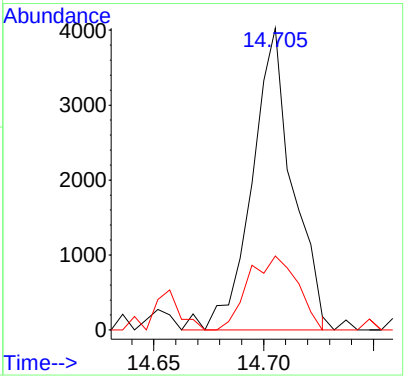


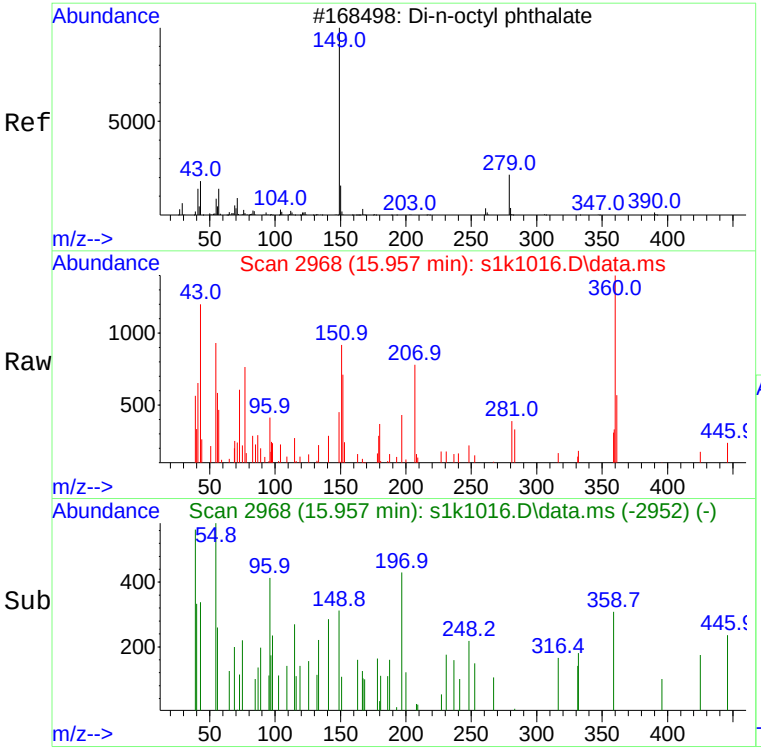


#85
bis(2-Ethylhexyl)phthalate
Concen: 0.31 ng/uL
RT: 14.705 min Scan# 2734
Delta R.T. -0.005 min
Lab File: s1k1016.D
Acq: 10 Nov 2016 17:58

Tgt Ion:149 Resp: 5195

Ion	Ratio	Lower	Upper
149	100		
167	29.5	1.8	61.8

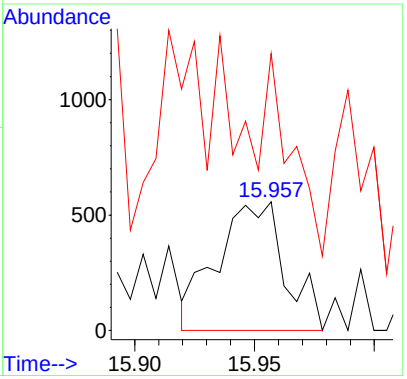




#90 BEFORE analyst DELETION
Di-n-octylphthalate
Concen: 0.51 ng/uL
RT: 15.957 min Scan# 2968
Delta R.T. 0.006 min
Lab File: s1k1016.D
Acq: 10 Nov 2016 17:58

Tgt Ion:149 Resp: 1097

Ion	Ratio	Lower	Upper
149	100		
43	59.9	0.0	43.5#



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203661742**				
Client Sample:	**QC for batch 1612776**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1612776**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 09:01**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.011 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0703.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene	U	3.33	ug/kg	1.67	3.33
91-58-7	2-Chloronaphthalene	U	3.33	ug/kg	1.67	3.33
91-57-6	2-Methylnaphthalene	U	3.33	ug/kg	1.67	3.33
83-32-9	Acenaphthene	U	3.33	ug/kg	1.67	3.33
208-96-8	Acenaphthylene	U	3.33	ug/kg	1.67	3.33
120-12-7	Anthracene	U	3.33	ug/kg	1.67	3.33
56-55-3	Benzo(a)anthracene	U	3.33	ug/kg	1.67	3.33
50-32-8	Benzo(a)pyrene	U	3.33	ug/kg	1.67	3.33
205-99-2	Benzo(b)fluoranthene	U	3.33	ug/kg	1.67	3.33
191-24-2	Benzo(ghi)perylene	U	3.33	ug/kg	1.67	3.33
207-08-9	Benzo(k)fluoranthene	U	3.33	ug/kg	1.67	3.33
218-01-9	Chrysene	U	3.33	ug/kg	1.67	3.33
53-70-3	Dibenzo(a,h)anthracene	U	3.33	ug/kg	1.67	3.33
206-44-0	Fluoranthene	U	3.33	ug/kg	1.67	3.33
86-73-7	Fluorene	U	3.33	ug/kg	1.67	3.33
193-39-5	Indeno(1,2,3-cd)pyrene	U	3.33	ug/kg	1.67	3.33
91-20-3	Naphthalene	U	3.33	ug/kg	1.00	3.33
85-01-8	Phenanthrene	U	3.33	ug/kg	1.67	3.33
129-00-0	Pyrene	U	3.33	ug/kg	1.67	3.33

Quantitation Report
GEL Laboratories, LLC

JMB 11/07/2016

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0703.D
Acq On : 07 Nov 2016 09:01
Operator : JMB3
InstName : MSD4
Sample : |1203661742|1612777|1|SVM|1|MB|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 3 Sample Multiplier: 1

JCB 11/08/2016

Quant Time: Nov 07 09:32:30 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	342443	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1122428	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	441282	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	805342	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.962	14.963	1.000	434627	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.230	18.231	1.000	205839	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	342443	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1122428	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.456	11.457	1.000	805342	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.962	14.963	1.000	434627	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	129521	5.14	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	103%

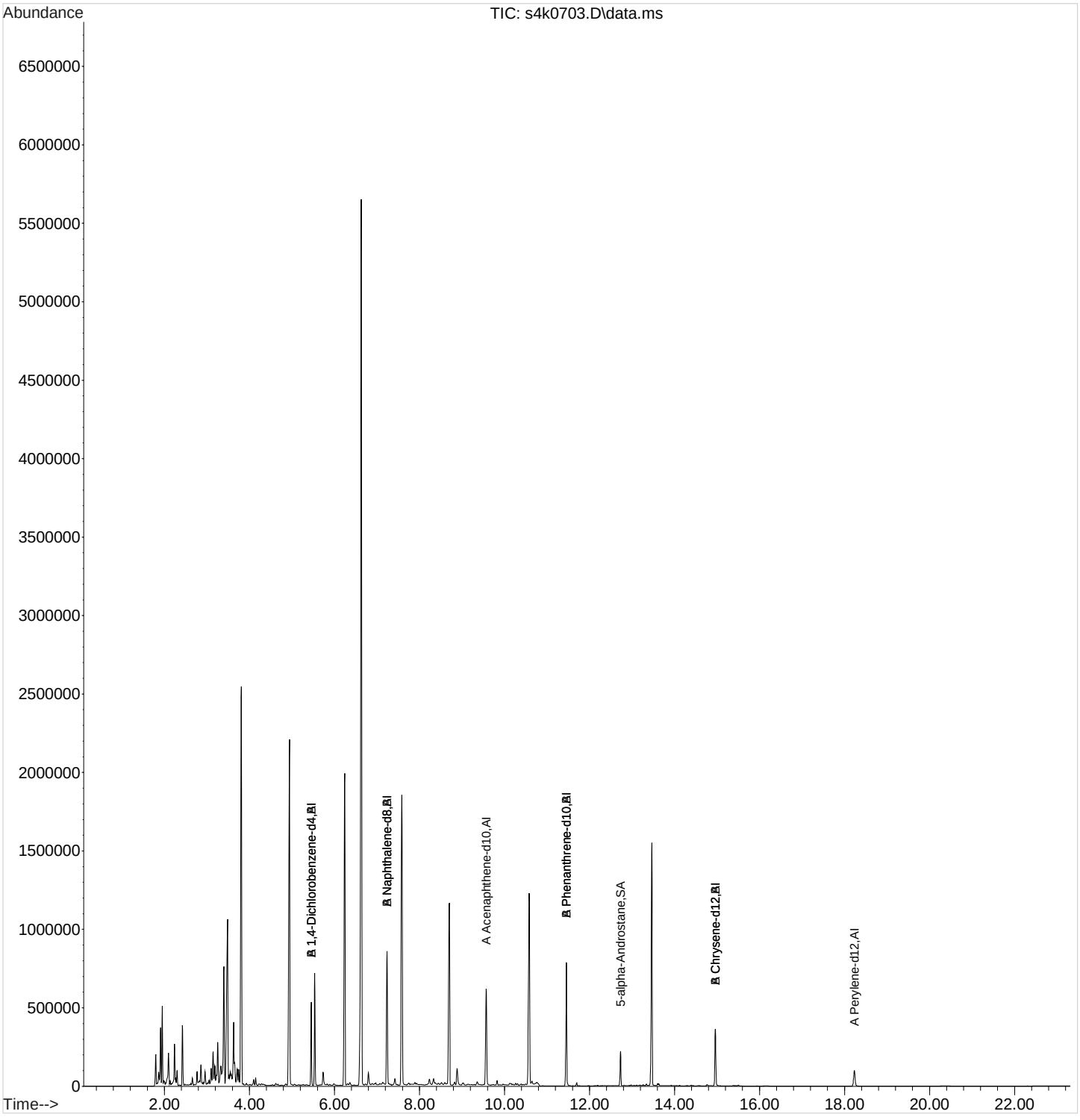
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue

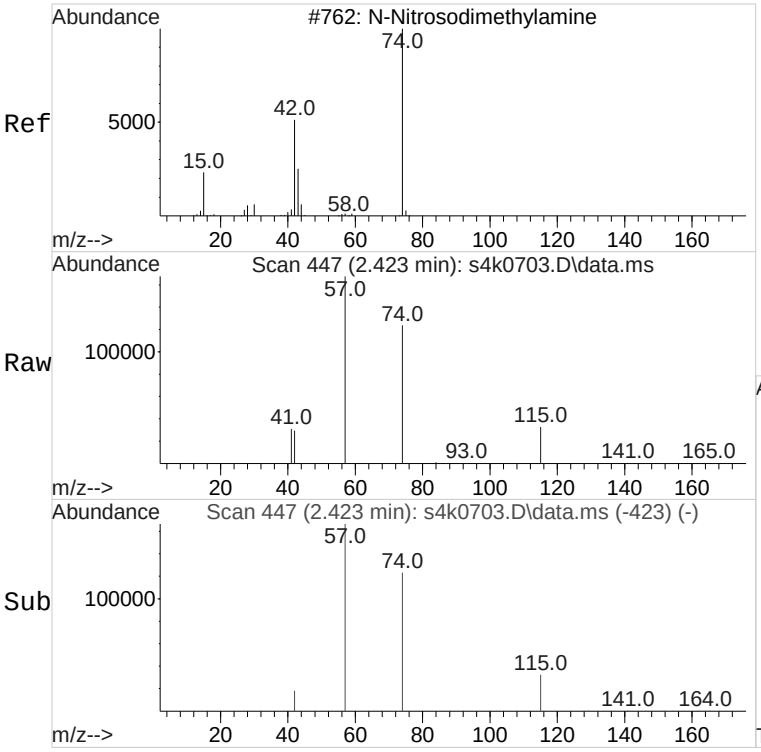
(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0703.D
Acq On : 07 Nov 2016 09:01
Operator : JMB3
InstName : MSD4
Sample : |1203661742|1612777|1|SVM|1|MB|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 07 09:32:30 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

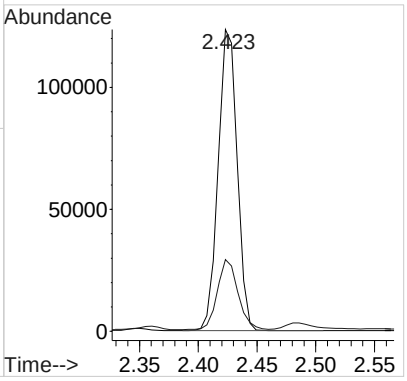


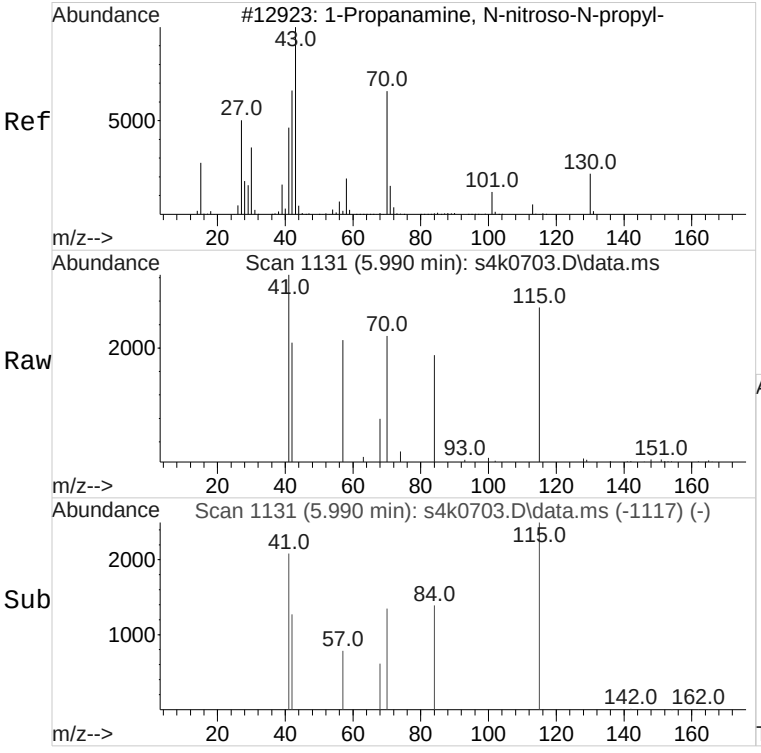


#2 BEFORE analyst DELETION
N-Methyl-N-nitrosomethylamine
Concen: 2.25 ng/uL
RT: 2.423 min Scan# 447
Delta R.T. -0.005 min
Lab File: s4k0703.D
Acq: 07 Nov 2016 09:01

Tgt Ion: 74 Resp: 139519

Ion	Ratio	Lower	Upper
74	100		
42	25.3	39.1	99.1#

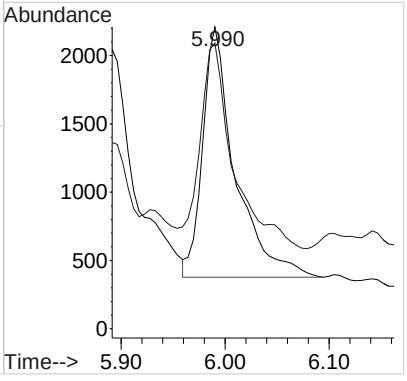




#4 BEFORE analyst DELETION
N-Nitrosodipropylamine
Concen: 0.06 ng/uL
RT: 5.990 min Scan# 1131
Delta R.T. -0.026 min
Lab File: s4k0703.D
Acq: 07 Nov 2016 09:01

Tgt Ion: 70 Resp: 3983

Ion	Ratio	Lower	Upper
70	100		
42	84.6	22.5	82.5#



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203665319**				
Client Sample:	**QC for batch 1614269**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1614269**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/10/2016 18:32**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.028 g**	**Final Volume:**	**1 mL**
Data File:	**s111016.B\s1k1017.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl		1870	ug/kg	99.9	333
95-94-3	1,2,4,5-Tetrachlorobenzene		1460	ug/kg	99.9	333
58-90-2	2,3,4,6-Tetrachlorophenol		1550	ug/kg	99.9	333
95-95-4	2,4,5-Trichlorophenol		1550	ug/kg	99.9	333
88-06-2	2,4,6-Trichlorophenol		1420	ug/kg	99.9	333
120-83-2	2,4-Dichlorophenol		1530	ug/kg	99.9	333
105-67-9	2,4-Dimethylphenol		1390	ug/kg	99.9	333
51-28-5	2,4-Dinitrophenol		871	ug/kg	99.9	666
121-14-2	2,4-Dinitrotoluene		1590	ug/kg	99.9	333
606-20-2	2,6-Dinitrotoluene		1660	ug/kg	99.9	333
91-58-7	2-Chloronaphthalene		1280	ug/kg	9.99	33.3
95-57-8	2-Chlorophenol		1440	ug/kg	99.9	333
534-52-1	2-Methyl-4,6-dinitrophenol		906	ug/kg	99.9	333
91-57-6	2-Methylnaphthalene		1380	ug/kg	9.99	33.3
88-75-5	2-Nitrophenol		1470	ug/kg	99.9	333
91-94-1	3,3'-Dichlorobenzidine		1390	ug/kg	99.9	333
101-55-3	4-Bromophenylphenylether		1390	ug/kg	99.9	333
59-50-7	4-Chloro-3-methylphenol		1450	ug/kg	133	333
106-47-8	4-Chloroaniline		1180	ug/kg	99.9	333
7005-72-3	4-Chlorophenylphenylether		1510	ug/kg	99.9	333
100-02-7	4-Nitrophenol		1370	ug/kg	99.9	333
83-32-9	Acenaphthene		1560	ug/kg	9.99	33.3
208-96-8	Acenaphthylene		1550	ug/kg	9.99	33.3
98-86-2	Acetophenone		1600	ug/kg	99.9	333
120-12-7	Anthracene		1490	ug/kg	9.99	33.3
1912-24-9	Atrazine		1500	ug/kg	133	333
100-52-7	Benzaldehyde		433	ug/kg	99.9	333
56-55-3	Benzo(a)anthracene		1540	ug/kg	9.99	33.3
50-32-8	Benzo(a)pyrene		1490	ug/kg	9.99	33.3
205-99-2	Benzo(b)fluoranthene		1410	ug/kg	9.99	33.3
191-24-2	Benzo(ghi)perylene		1510	ug/kg	9.99	33.3
207-08-9	Benzo(k)fluoranthene		1400	ug/kg	9.99	33.3
85-68-7	Butylbenzylphthalate		1480	ug/kg	99.9	333
105-60-2	Caprolactam		1720	ug/kg	99.9	333
86-74-8	Carbazole		1580	ug/kg	9.99	33.3
218-01-9	Chrysene		1590	ug/kg	9.99	33.3
84-74-2	Di-n-butylphthalate		1410	ug/kg	99.9	333
117-84-0	Di-n-octylphthalate		1500	ug/kg	99.9	333

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203665319**				
Client Sample:	**QC for batch 1614269**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1614269**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/10/2016 18:32**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.028 g**	**Final Volume:**	**1 mL**
Data File:	**s111016.B\s1k1017.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene		1570	ug/kg	9.99	33.3
132-64-9	Dibenzofuran		1500	ug/kg	99.9	333
84-66-2	Diethylphthalate		1470	ug/kg	99.9	333
131-11-3	Dimethylphthalate		1510	ug/kg	99.9	333
122-39-4	Diphenylamine		1440	ug/kg	99.9	333
206-44-0	Fluoranthene		1430	ug/kg	9.99	33.3
86-73-7	Fluorene		1530	ug/kg	9.99	33.3
118-74-1	Hexachlorobenzene		1340	ug/kg	99.9	333
87-68-3	Hexachlorobutadiene		1420	ug/kg	99.9	333
77-47-4	Hexachlorocyclopentadiene		1090	ug/kg	99.9	333
67-72-1	Hexachloroethane		1420	ug/kg	99.9	333
193-39-5	Indeno(1,2,3-cd)pyrene		1340	ug/kg	9.99	33.3
78-59-1	Isophorone		1520	ug/kg	99.9	333
621-64-7	N-Nitrosodipropylamine		1460	ug/kg	99.9	333
91-20-3	Naphthalene		1430	ug/kg	9.99	33.3
98-95-3	Nitrobenzene		1590	ug/kg	99.9	333
87-86-5	Pentachlorophenol		1120	ug/kg	99.9	333
85-01-8	Phenanthrene		1470	ug/kg	9.99	33.3
108-95-2	Phenol		1350	ug/kg	99.9	333
129-00-0	Pyrene		1310	ug/kg	9.99	33.3
108-60-1	bis(2-Chloro-1-methylethyl)ether		1650	ug/kg	99.9	333
111-91-1	bis(2-Chloroethoxy)methane		1490	ug/kg	99.9	333
111-44-4	bis(2-Chloroethyl) ether		1450	ug/kg	99.9	333
117-81-7	bis(2-Ethylhexyl)phthalate		1490	ug/kg	99.9	333
65794-96-9	m,p-Cresols		1440	ug/kg	99.9	333
99-09-2	m-Nitroaniline		1510	ug/kg	99.9	333
95-48-7	o-Cresol		1450	ug/kg	99.9	333
88-74-4	o-Nitroaniline		1640	ug/kg	110	333
100-01-6	p-Nitroaniline		1720	ug/kg	99.9	333

JMB 11/11/2016

HM 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1017.D
Acq On : 10 Nov 2016 18:32
Operator : JMB3
InstName : MSD1
Sample : |1203665319|1614270|1|SVM|1|LCS
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 11 07:46:37 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	219792	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.105	7.105	1.000	754302	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.410	9.415	1.000	423808	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.277	11.271	1.000	880518	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.668	14.662	1.000	795464	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.679	17.668	1.000	820502	40.00	ng/uL	0.01
99) B 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	219136	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.105	7.105	1.000	754302	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.410	9.415	1.000	423808	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.277	11.271	1.000	880518	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.668	14.662	1.000	795464	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.679	17.668	1.000	820502	40.00	ng/uL	0.01
155) D Naphthalene-d8	136	7.105	7.105	1.000	754302	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.410	9.415	1.000	423808	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.277	11.271	1.000	880518	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.668	14.662	1.000	794608	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.105	7.105	1.000	754302	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.679	17.668	1.000	820502	40.00	ng/uL	0.01
173) F 1,4-Dichlorobenzene-d4	152	5.324	5.324	1.000	219136	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.277	11.271	1.000	880518	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.668	14.662	1.000	795464	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.682	3.660	0.692	559943	68.64	ng/uL	0.02
8) Phenol-d5	99	4.826	4.810	0.907	752276	75.32	ng/uL	0.02
25) Nitrobenzene-d5	82	6.110	6.110	0.860	377420	42.74	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.554	8.554	0.909	613746	41.09	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.410	10.405	1.106	225915	81.73	ng/uL	0.00
83) p-Terphenyl-d14	244	13.250	13.245	0.903	846182	39.84	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	69%
8) Phenol-d5	100.000	39 - 106	75%
25) Nitrobenzene-d5	50.000	34 - 109	85%
47) 2-Fluorobiphenyl	50.000	35 - 107	82%
66) 2,4,6-Tribromophenol	100.000	39 - 115	82%
83) p-Terphenyl-d14	50.000	45 - 119	80%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) N-Methyl-N-nitrosometh...	74	2.350	2.334	0.441	184584	35.72	ng/uL	91
4) Pyridine	79	2.387	2.366	0.448	213290	25.21	ng/uL	92
7) Aniline	93	4.880	4.874	0.917	374626	36.15	ng/uL	99
9) Phenol	94	4.848	4.832	0.911	361441	40.43	ng/uL	91
10) bis(2-Chloroethyl) ether	93	4.965	4.960	0.933	315478	43.56	ng/uL	98
11) 2-Chlorophenol	128	5.040	5.035	0.947	302270	43.32	ng/uL	97
12) n-Decane	43	5.104	5.099	0.959	434357	39.41	ng/uL	91
13) 1,3-Dichlorobenzene	146	5.249	5.243	0.986	315701	40.87	ng/uL	100
14) 1,4-Dichlorobenzene	146	5.350	5.345	1.005	287082	40.68	ng/uL	98
15) 1,2-Dichlorobenzene	146	5.559	5.559	1.044	300183	42.52	ng/uL	98
16) bis(2-Chloro-1-methyle...	45	5.719	5.719	1.074	699287	49.47	ng/uL	83
17) Benzyl alcohol	108	5.522	5.516	1.037	212687	44.04	ng/uL	98
18) o-Cresol	107	5.687	5.671	1.068	244918	43.44	ng/uL	88

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1017.D
Acq On : 10 Nov 2016 18:32
Operator : JMB3
InstName : MSD1
Sample : |1203665319|1614270|1|SVM|1|LCS
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 11 07:46:37 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
19) m,p-Cresols	107	5.907	5.907	1.110	317107	43.28	ng/uL#	34
20) N-Nitrosodipropylamine	70	5.917	5.907	1.112	242684	43.81	ng/uL	99
23) Hexachloroethane	117	6.035	6.035	1.134	138307	42.59	ng/uL	100
26) Nitrobenzene	77	6.142	6.137	0.864	384652	47.61	ng/uL	99
27) Isophorone	82	6.479	6.474	0.912	779443	45.53	ng/uL	98
28) 2-Nitrophenol	139	6.581	6.581	0.926	165631	44.02	ng/uL	95
29) 2,4-Dimethylphenol	122	6.655	6.650	0.937	255169	41.81	ng/uL	97
30) bis(2-Chloroethoxy)met...	93	6.789	6.784	0.956	406879	44.84	ng/uL	98
31) 2,4-Dichlorophenol	162	6.923	6.918	0.974	277225	45.86	ng/uL	99
32) Benzoic acid	105	6.848	6.816	0.964	196773	53.59	ng/uL	85
33) 1,2,4-Trichlorobenzene	180	7.030	7.030	0.989	308638	41.83	ng/uL	99
34) alpha-Terpineol	59	7.164	7.158	1.008	344073	44.52	ng/uL	98
35) Naphthalene	128	7.137	7.131	1.005	765201	42.87	ng/uL	99
36) 4-Chloroaniline	127	7.217	7.212	1.016	231072	35.33	ng/uL	98
37) Hexachlorobutadiene	225	7.308	7.308	1.029	216939	42.57	ng/uL	100
38) 4-Chloro-3-methylphenol	107	7.891	7.880	1.111	338514	43.68	ng/uL	99
39) 2-Methylnaphthalene	142	8.068	8.062	1.136	571427	41.44	ng/uL	100
41) 1-Methylnaphthalene	142	8.196	8.191	1.154	544424	43.66	ng/uL	96
43) Hexachlorocyclopentadiene	237	8.276	8.271	0.879	163919	32.88	ng/uL	99
44) 2,3-Dichloroaniline	161	8.437	8.431	0.897	295852	44.02	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.442	8.442	0.897	201577	42.54	ng/uL	100
46) 2,4,5-Trichlorophenol	196	8.495	8.490	0.903	213040	46.58	ng/uL	99
48) 2-Chloronaphthalene	162	8.704	8.699	0.925	513431	38.51	ng/uL	95
49) o-Nitroaniline	65	8.838	8.838	0.939	259349	49.25	ng/uL	100
51) m-Nitroaniline	138	9.367	9.367	0.995	139736	45.39	ng/uL	98
52) Dimethylphthalate	163	9.089	9.089	0.966	734791	45.27	ng/uL	99
54) 2,6-Dinitrotoluene	165	9.159	9.159	0.973	173438	49.75	ng/uL	100
55) 2,4-Dinitrotoluene	165	9.667	9.667	1.027	229060	47.80	ng/uL	97
56) Acenaphthylene	152	9.228	9.228	0.981	926592	46.49	ng/uL	100
57) Acenaphthene	154	9.453	9.453	1.005	536473	46.84	ng/uL	99
58) 2,4-Dinitrophenol	184	9.506	9.501	1.010	34326	26.15	ng/uL	74
59) Dibenzofuran	168	9.672	9.672	1.028	785401	45.05	ng/uL	93
60) 2,3,4,6-Tetrachlorophenol	232	9.833	9.833	1.045	193072	46.55	ng/uL	99
61) Diethylphthalate	149	9.982	9.977	1.061	804099	44.02	ng/uL	98
62) 4-Nitrophenol	139	9.608	9.603	1.021	97558	41.12	ng/uL	96
63) Fluorene	166	10.105	10.105	1.074	696794	45.81	ng/uL	99
64) 4-Chlorophenylphenylether	204	10.111	10.111	1.074	387516	45.44	ng/uL	99
65) p-Nitroaniline	138	10.148	10.137	1.078	148926	51.68	ng/uL	91
68) 2-Methyl-4,6-dinitroph...	198	10.180	10.180	0.903	67917	27.22	ng/uL	96
69) Diphenylamine	169	10.266	10.260	0.910	608640	43.26	ng/uL	97
70) 1,2-Diphenylhydrazine	77	10.309	10.309	0.914	728754	41.86	ng/uL	99
71) 4-Bromophenylphenylether	248	10.720	10.720	0.951	263960	41.82	ng/uL	97
72) Hexachlorobenzene	284	10.795	10.790	0.957	255463	40.13	ng/uL	98
73) Pentachlorophenol	266	11.047	11.041	0.980	121700	33.70	ng/uL	97
74) n-Octadecane	57	11.159	11.159	0.990	680169	42.28	ng/uL	98
76) Phenanthrene	178	11.303	11.303	1.002	899026	44.29	ng/uL	99
77) Anthracene	178	11.368	11.368	1.008	947914	44.62	ng/uL	99
78) Carbazole	167	11.571	11.566	1.026	962842	47.58	ng/uL	98
79) Di-n-butylphthalate	149	12.009	12.009	1.065	1375143	42.37	ng/uL	99
80) Fluoranthene	202	12.774	12.774	1.133	1279561	42.83	ng/uL	98
82) Pyrene	202	13.052	13.052	0.890	1268157	39.39	ng/uL	99
84) Butylbenzylphthalate	149	13.860	13.860	0.945	683310	44.31	ng/uL	100
85) bis(2-Ethylhexyl)phtha...	149	14.711	14.711	1.003	766711	44.63	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1017.D
Acq On : 10 Nov 2016 18:32
Operator : JMB3
InstName : MSD1
Sample : |1203665319|1614270|1|SVM|1|LCS
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 11 07:46:37 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

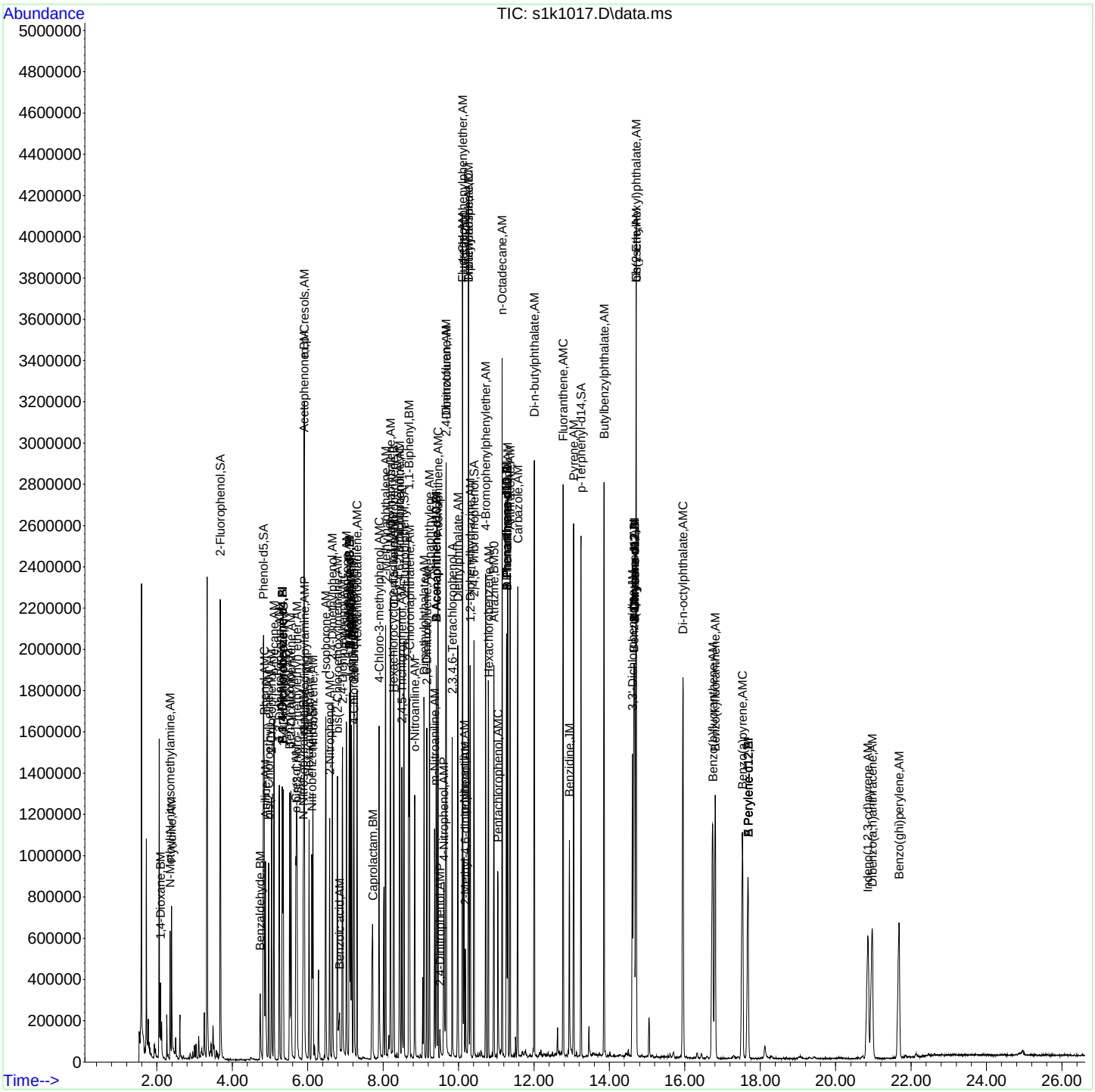
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
86)	Benzo(a)anthracene	228	14.646	14.646	0.999	1149893	46.37	ng/uL	95
87)	Chrysene	228	14.711	14.705	1.003	985467	47.75	ng/uL	99
90)	Di-n-octylphthalate	149	15.951	15.951	1.088	1548058	44.95	ng/uL	96
92)	Benzo(b)fluoranthene	252	16.743	16.727	0.947	1232201	42.45	ng/uL	99
93)	Benzo(k)fluoranthene	252	16.807	16.796	0.951	1057770	42.11	ng/uL	99
94)	Benzo(a)pyrene	252	17.529	17.519	0.992	1126868	44.89	ng/uL	98
95)	Indeno(1,2,3-cd)pyrene	276	20.856	20.851	1.180	770225	40.12	ng/uL	96
96)	Dibenzo(a,h)anthracene	278	20.974	20.958	1.186	845373	47.28	ng/uL	100
97)	Benzo(ghi)perylene	276	21.685	21.674	1.227	889340	45.39	ng/uL	98
100)	1,4-Dioxane	88	2.093	2.077	0.393	61690	21.01	ng/uL	90
109)	Benzaldehyde	77	4.741	4.735	0.890	82151	13.00	ng/uL	93
111)	N-Nitrosopyrrolidine	100	5.885	5.869	1.105	172774	47.53	ng/uL	85
112)	Acetophenone	105	5.901	5.896	1.109	431439	48.13	ng/uL	69
118)	2,6-Dichlorophenol	162	7.228	7.222	1.017	240663	49.77	ng/uL	96
120)	Caprolactam	113	7.725	7.677	1.087	108582	51.69	ng/uL#	67
124)	1,2,4,5-Tetrachloroben...	216	8.287	8.281	0.881	322593	43.72	ng/uL	100
125)	1,1-Biphenyl	154	8.683	8.683	0.923	726957	56.15	ng/uL	97
138)	Atrazine	200	10.940	10.934	0.970	243183	45.12	ng/uL	99
159)	Tributylphosphate	99	10.266	10.245	1.091	892768	46.70	ng/uL	96
176)	Benzidine	184	12.940	12.940	1.148	430916	33.03	ng/uL	98
178)	3,3'-Dichlorobenzidine	252	14.614	14.604	0.996	417165	41.73	ng/uL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1017.D
Acq On : 10 Nov 2016 18:32
Operator : JMB3
InstName : MSD1
Sample : |1203665319|1614270|1|SVM|1|LCS
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 11 07:46:37 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203661743**				
Client Sample:	**QC for batch 1612776**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1612776**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 09:29**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.027 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0704.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene		318	ug/kg	1.67	3.33
91-58-7	2-Chloronaphthalene		241	ug/kg	1.67	3.33
91-57-6	2-Methylnaphthalene		287	ug/kg	1.67	3.33
83-32-9	Acenaphthene		293	ug/kg	1.67	3.33
208-96-8	Acenaphthylene		272	ug/kg	1.67	3.33
120-12-7	Anthracene		280	ug/kg	1.67	3.33
56-55-3	Benzo(a)anthracene		316	ug/kg	1.67	3.33
50-32-8	Benzo(a)pyrene		333	ug/kg	1.67	3.33
205-99-2	Benzo(b)fluoranthene		343	ug/kg	1.67	3.33
191-24-2	Benzo(ghi)perylene		230	ug/kg	1.67	3.33
207-08-9	Benzo(k)fluoranthene		348	ug/kg	1.67	3.33
218-01-9	Chrysene		312	ug/kg	1.67	3.33
53-70-3	Dibenzo(a,h)anthracene		266	ug/kg	1.67	3.33
206-44-0	Fluoranthene		331	ug/kg	1.67	3.33
86-73-7	Fluorene		295	ug/kg	1.67	3.33
193-39-5	Indeno(1,2,3-cd)pyrene		250	ug/kg	1.67	3.33
91-20-3	Naphthalene		277	ug/kg	0.999	3.33
85-01-8	Phenanthrene		273	ug/kg	1.67	3.33
129-00-0	Pyrene		284	ug/kg	1.67	3.33

JMB 11/07/2016

JCB 11/08/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0704.D
Acq On : 07 Nov 2016 09:29
Operator : JMB3
InstName : MSD4
Sample : |1203661743|1612777|1|SVM|1|LCS|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 07 10:14:57 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	319246	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1050794	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	415224	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.455	11.457	1.000	807359	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.960	14.963	1.000	468698	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.229	18.231	1.000	277767	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	319246	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1050794	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.455	11.457	1.000	807359	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.960	14.963	1.000	468698	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.729	12.731	1.111	122910	4.86	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	97%

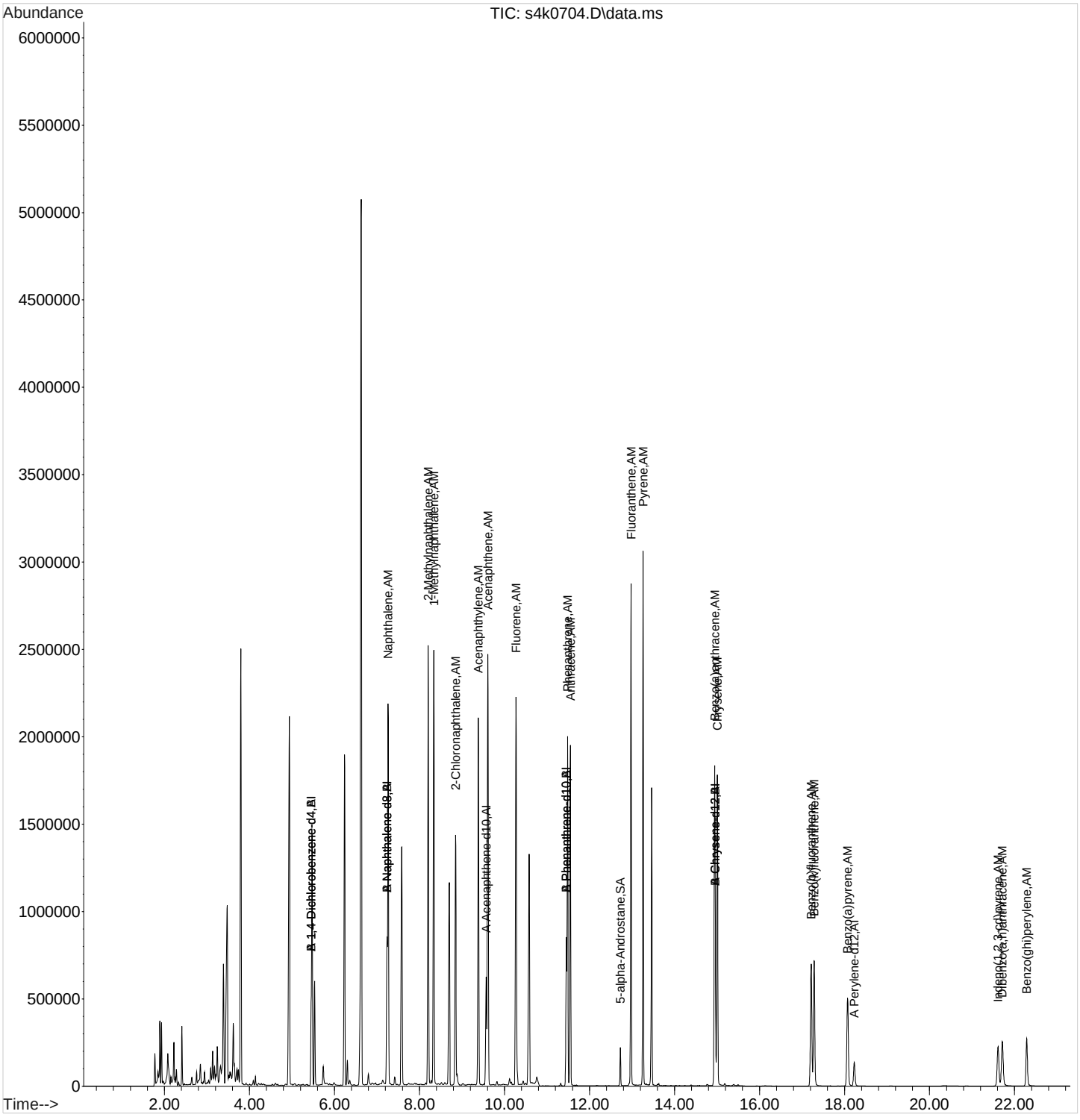
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
6) Naphthalene	128	7.263	7.268	1.004	2431696	8.31	ng/uL	100
7) 2-Methylnaphthalene	142	8.207	8.212	1.134	1693235	8.62	ng/uL	100
8) 1-Methylnaphthalene	142	8.337	8.342	1.152	1600921	9.54	ng/uL	100
10) 2-Chloronaphthalene	162	8.848	8.853	0.925	1404736	7.23	ng/uL	100
11) Acenaphthylene	152	9.385	9.391	0.981	2236588	8.16	ng/uL	100
12) Acenaphthene	154	9.610	9.615	1.004	1302920	8.81	ng/uL	100
13) Fluorene	166	10.272	10.277	1.074	1526864	8.87	ng/uL	100
15) Phenanthrene	178	11.487	11.489	1.003	2275326	8.19	ng/uL	100
16) Anthracene	178	11.551	11.553	1.008	2171064	8.42	ng/uL	100
18) Fluoranthene	202	12.978	12.981	1.133	2545069	9.93	ng/uL	99
20) Pyrene	202	13.264	13.262	0.887	2668466	8.54	ng/uL	99
21) Benzo(a)anthracene	228	14.944	14.943	0.999	1785551	9.48	ng/uL	98
22) Chrysene	228	15.009	15.007	1.003	1671124	9.36	ng/uL	99
24) Benzo(b)fluoranthene	252	17.217	17.213	0.944	1284054	10.29	ng/uL	99
25) Benzo(k)fluoranthene	252	17.285	17.284	0.948	1284338	10.45	ng/uL	100
26) Benzo(a)pyrene	252	18.073	18.072	0.991	1030365	10.01	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.613	21.615	1.186	510449	7.51	ng/uL	98
28) Dibenzo(a,h)anthracene	278	21.713	21.718	1.191	458775	7.99	ng/uL	97
29) Benzo(ghi)perylene	276	22.287	22.289	1.223	497607	6.91	ng/uL	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0704.D
Acq On : 07 Nov 2016 09:29
Operator : JMB3
InstName : MSD4
Sample : |1203661743|1612777|1|SVM|1|LCS|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 07 10:14:57 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:00**	**Matrix:**	**SO**
Lab Sample ID:	**1203665320**	**Date Received:**	**10/28/2016 09:15**	**%Moisture:**	**84.5**
Client Sample:	**QC for batch 1614269**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**WST03-17-127184MS**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/10/2016 19:41**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.018 g**	**Final Volume:**	**1 mL**
Data File:	**s111016.B\s1k1019.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl		10100	ug/kg	643	2140
95-94-3	1,2,4,5-Tetrachlorobenzene		7920	ug/kg	643	2140
58-90-2	2,3,4,6-Tetrachlorophenol		3210	ug/kg	643	2140
95-95-4	2,4,5-Trichlorophenol		3750	ug/kg	643	2140
88-06-2	2,4,6-Trichlorophenol		2730	ug/kg	643	2140
120-83-2	2,4-Dichlorophenol		5300	ug/kg	643	2140
105-67-9	2,4-Dimethylphenol		8060	ug/kg	643	2140
51-28-5	2,4-Dinitrophenol	U	4290	ug/kg	643	4290
121-14-2	2,4-Dinitrotoluene		9610	ug/kg	643	2140
606-20-2	2,6-Dinitrotoluene		9750	ug/kg	643	2140
91-58-7	2-Chloronaphthalene		6920	ug/kg	64.3	214
95-57-8	2-Chlorophenol		5910	ug/kg	643	2140
534-52-1	2-Methyl-4,6-dinitrophenol	U	2140	ug/kg	643	2140
91-57-6	2-Methylnaphthalene		7720	ug/kg	64.3	214
88-75-5	2-Nitrophenol	J	1530	ug/kg	643	2140
91-94-1	3,3'-Dichlorobenzidine		8160	ug/kg	643	2140
101-55-3	4-Bromophenylphenylether		8020	ug/kg	643	2140
59-50-7	4-Chloro-3-methylphenol		7680	ug/kg	858	2140
106-47-8	4-Chloroaniline		9110	ug/kg	643	2140
7005-72-3	4-Chlorophenylphenylether		8320	ug/kg	643	2140
100-02-7	4-Nitrophenol	U	2140	ug/kg	643	2140
83-32-9	Acenaphthene		8490	ug/kg	64.3	214
208-96-8	Acenaphthylene		8450	ug/kg	64.3	214
98-86-2	Acetophenone		8440	ug/kg	643	2140
120-12-7	Anthracene		8670	ug/kg	64.3	214
1912-24-9	Atrazine		8880	ug/kg	858	2140
100-52-7	Benzaldehyde	J	1060	ug/kg	643	2140
56-55-3	Benzo(a)anthracene		8870	ug/kg	64.3	214
50-32-8	Benzo(a)pyrene		8160	ug/kg	64.3	214
205-99-2	Benzo(b)fluoranthene		7600	ug/kg	64.3	214
191-24-2	Benzo(ghi)perylene		7530	ug/kg	64.3	214
207-08-9	Benzo(k)fluoranthene		8040	ug/kg	64.3	214
85-68-7	Butylbenzylphthalate		8720	ug/kg	643	2140
105-60-2	Caprolactam		10000	ug/kg	643	2140
86-74-8	Carbazole		9300	ug/kg	64.3	214
218-01-9	Chrysene		9240	ug/kg	64.3	214
84-74-2	Di-n-butylphthalate		8310	ug/kg	643	2140
117-84-0	Di-n-octylphthalate		8840	ug/kg	643	2140

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:00**	**Matrix:**	**SO**
Lab Sample ID:	**1203665320**	**Date Received:**	**10/28/2016 09:15**	**%Moisture:**	**84.5**
Client Sample:	**QC for batch 1614269**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**WST03-17-127184MS**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/10/2016 19:41**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.018 g**	**Final Volume:**	**1 mL**
Data File:	**s111016.B\s1k1019.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene		7960	ug/kg	64.3	214
132-64-9	Dibenzofuran		8630	ug/kg	643	2140
84-66-2	Diethylphthalate		8720	ug/kg	643	2140
131-11-3	Dimethylphthalate		8900	ug/kg	643	2140
122-39-4	Diphenylamine		8080	ug/kg	643	2140
206-44-0	Fluoranthene		8550	ug/kg	64.3	214
86-73-7	Fluorene		8760	ug/kg	64.3	214
118-74-1	Hexachlorobenzene		7840	ug/kg	643	2140
87-68-3	Hexachlorobutadiene		6750	ug/kg	643	2140
77-47-4	Hexachlorocyclopentadiene		3020	ug/kg	643	2140
67-72-1	Hexachloroethane		6410	ug/kg	643	2140
193-39-5	Indeno(1,2,3-cd)pyrene		6740	ug/kg	64.3	214
78-59-1	Isophorone		8000	ug/kg	643	2140
621-64-7	N-Nitrosodipropylamine		7720	ug/kg	643	2140
91-20-3	Naphthalene		7450	ug/kg	64.3	214
98-95-3	Nitrobenzene		8230	ug/kg	643	2140
87-86-5	Pentachlorophenol	J	1550	ug/kg	643	2140
85-01-8	Phenanthrene		8670	ug/kg	64.3	214
108-95-2	Phenol		7090	ug/kg	643	2140
129-00-0	Pyrene		7700	ug/kg	64.3	214
108-60-1	bis(2-Chloro-1-methylethyl)ether		8560	ug/kg	643	2140
111-91-1	bis(2-Chloroethoxy)methane		7940	ug/kg	643	2140
111-44-4	bis(2-Chloroethyl) ether		7650	ug/kg	643	2140
117-81-7	bis(2-Ethylhexyl)phthalate		8850	ug/kg	643	2140
65794-96-9	m,p-Cresols		7730	ug/kg	643	2140
99-09-2	m-Nitroaniline		10300	ug/kg	643	2140
95-48-7	o-Cresol		7720	ug/kg	643	2140
88-74-4	o-Nitroaniline		9500	ug/kg	708	2140
100-01-6	p-Nitroaniline		9480	ug/kg	643	2140

JMB 11/11/2016

HM 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1019.D
Acq On : 10 Nov 2016 19:41
Operator : JMB3
InstName : MSD1
Sample : |1203665320|1614270|1|SVM|1|MS
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 11 07:46:45 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.329	5.324	1.000	231195	40.00	ng/uL	0.00
24) A Naphthalene-d8	136	7.105	7.105	1.000	794961	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.410	9.415	1.000	443659	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.271	11.271	1.000	905306	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.668	14.662	1.000	818019	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.674	17.668	1.000	831746	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.329	5.324	1.000	230917	40.00	ng/uL	0.00
115) B Naphthalene-d8	136	7.105	7.105	1.000	794961	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.410	9.415	1.000	443659	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.271	11.271	1.000	905306	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.668	14.662	1.000	818019	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.674	17.668	1.000	831746	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.105	7.105	1.000	794961	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.410	9.415	1.000	443659	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.271	11.271	1.000	905306	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.668	14.662	1.000	818019	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.105	7.105	1.000	794961	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.674	17.668	1.000	831746	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.329	5.324	1.000	230917	40.00	ng/uL	0.00
175) J Phenanthrene-d10	188	11.271	11.271	1.000	905306	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.668	14.662	1.000	818019	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.719	3.660	0.698	373888	43.57	ng/uL	0.06
8) Phenol-d5	99	4.832	4.810	0.907	666022	63.39	ng/uL	0.02
25) Nitrobenzene-d5	82	6.115	6.110	0.861	322394	34.64	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.554	8.554	0.909	546010	34.92	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.410	10.405	1.106	92810	32.07	ng/uL	0.00
83) p-Terphenyl-d14	244	13.250	13.245	0.903	817411	37.43	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	44%
8) Phenol-d5	100.000	39 - 106	63%
25) Nitrobenzene-d5	50.000	34 - 109	69%
47) 2-Fluorobiphenyl	50.000	35 - 107	70%
66) 2,4,6-Tribromophenol	100.000	39 - 115	32%#
83) p-Terphenyl-d14	50.000	45 - 119	75%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) N-Methyl-N-nitrosometh...	74	2.355	2.334	0.442	157477	28.97	ng/uL	97
4) Pyridine	79	2.393	2.366	0.449	196575	22.09	ng/uL	97
7) Aniline	93	4.890	4.874	0.918	357894	32.83	ng/uL	97
9) Phenol	94	4.853	4.832	0.911	310964	33.07	ng/uL	93
10) bis(2-Chloroethyl) ether	93	4.971	4.960	0.933	271902	35.69	ng/uL	99
11) 2-Chlorophenol	128	5.051	5.035	0.948	202133	27.54	ng/uL	97
12) n-Decane	43	5.104	5.099	0.958	200003	17.25	ng/uL	92
13) 1,3-Dichlorobenzene	146	5.254	5.243	0.986	243515	29.97	ng/uL	98
14) 1,4-Dichlorobenzene	146	5.356	5.345	1.005	225089	30.32	ng/uL	99
15) 1,2-Dichlorobenzene	146	5.564	5.559	1.044	233236	31.41	ng/uL	100
16) bis(2-Chloro-1-methyle...	45	5.720	5.719	1.073	593257	39.90	ng/uL	85
17) Benzyl alcohol	108	5.527	5.516	1.037	185411	36.50	ng/uL	96
18) o-Cresol	107	5.693	5.671	1.068	213576	36.02	ng/uL	87

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1019.D
Acq On : 10 Nov 2016 19:41
Operator : JMB3
InstName : MSD1
Sample : |1203665320|1614270|1|SVM|1|MS
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 11 07:46:45 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
19) m,p-Cresols	107	5.907	5.907	1.108	277727	36.04	ng/uL#	37
20) N-Nitrosodipropylamine	70	5.912	5.907	1.109	209840	36.01	ng/uL	93
23) Hexachloroethane	117	6.040	6.035	1.133	102166	29.91	ng/uL	98
26) Nitrobenzene	77	6.142	6.137	0.864	326943	38.39	ng/uL	98
27) Isophorone	82	6.479	6.474	0.912	673245	37.31	ng/uL	97
28) 2-Nitrophenol	139	6.581	6.581	0.926	28227	7.12	ng/uL	98
29) 2,4-Dimethylphenol	122	6.656	6.650	0.937	241850	37.60	ng/uL	96
30) bis(2-Chloroethoxy)met...	93	6.789	6.784	0.956	354120	37.03	ng/uL	98
31) 2,4-Dichlorophenol	162	6.923	6.918	0.974	157457	24.72	ng/uL	99
33) 1,2,4-Trichlorobenzene	180	7.030	7.030	0.989	261396	33.62	ng/uL	99
34) alpha-Terpineol	59	7.158	7.158	1.008	295091	36.23	ng/uL	97
35) Naphthalene	128	7.132	7.131	1.004	653373	34.73	ng/uL	100
36) 4-Chloroaniline	127	7.217	7.212	1.016	292881	42.49	ng/uL	100
37) Hexachlorobutadiene	225	7.308	7.308	1.029	169078	31.48	ng/uL	99
38) 4-Chloro-3-methylphenol	107	7.891	7.880	1.111	292597	35.82	ng/uL	99
39) 2-Methylnaphthalene	142	8.068	8.062	1.136	523405	36.02	ng/uL	99
41) 1-Methylnaphthalene	142	8.191	8.191	1.153	479265	36.47	ng/uL	98
43) Hexachlorocyclopentadiene	237	8.276	8.271	0.879	73499	14.08	ng/uL	98
44) 2,3-Dichloroaniline	161	8.437	8.431	0.897	293938	41.78	ng/uL	99
45) 2,4,6-Trichlorophenol	196	8.442	8.442	0.897	63135	12.73	ng/uL	96
46) 2,4,5-Trichlorophenol	196	8.501	8.490	0.903	83675	17.48	ng/uL	100
48) 2-Chloronaphthalene	162	8.699	8.699	0.924	450425	32.27	ng/uL	95
49) o-Nitroaniline	65	8.838	8.838	0.939	244240	44.31	ng/uL	97
51) m-Nitroaniline	138	9.367	9.367	0.995	154033	47.80	ng/uL	98
52) Dimethylphthalate	163	9.084	9.089	0.965	705498	41.52	ng/uL	99
54) 2,6-Dinitrotoluene	165	9.159	9.159	0.973	165976	45.48	ng/uL	95
55) 2,4-Dinitrotoluene	165	9.667	9.667	1.027	224820	44.82	ng/uL	95
56) Acenaphthylene	152	9.228	9.228	0.981	822518	39.42	ng/uL	99
57) Acenaphthene	154	9.453	9.453	1.005	474564	39.58	ng/uL	99
59) Dibenzofuran	168	9.672	9.672	1.028	734517	40.25	ng/uL	98
60) 2,3,4,6-Tetrachlorophenol	232	9.833	9.833	1.045	65093	14.99	ng/uL	97
61) Diethylphthalate	149	9.977	9.977	1.060	777415	40.66	ng/uL	99
63) Fluorene	166	10.105	10.105	1.074	650623	40.86	ng/uL	100
64) 4-Chlorophenylphenylether	204	10.111	10.111	1.074	346410	38.80	ng/uL	98
65) p-Nitroaniline	138	10.143	10.137	1.078	133288	44.19	ng/uL	93
69) Diphenylamine	169	10.261	10.260	0.910	545248	37.69	ng/uL	97
70) 1,2-Diphenylhydrazine	77	10.309	10.309	0.915	670962	37.48	ng/uL	99
71) 4-Bromophenylphenylether	248	10.720	10.720	0.951	242553	37.38	ng/uL	98
72) Hexachlorobenzene	284	10.790	10.790	0.957	239272	36.56	ng/uL	97
73) Pentachlorophenol	266	11.047	11.041	0.980	16344	7.25	ng/uL	95
74) n-Octadecane	57	11.159	11.159	0.990	631390	38.18	ng/uL	96
76) Phenanthrene	178	11.303	11.303	1.003	843846	40.43	ng/uL	99
77) Anthracene	178	11.368	11.368	1.009	883456	40.45	ng/uL	99
78) Carbazole	167	11.571	11.566	1.027	902136	43.36	ng/uL	98
79) Di-n-butylphthalate	149	12.009	12.009	1.065	1292548	38.73	ng/uL	99
80) Fluoranthene	202	12.774	12.774	1.133	1225070	39.89	ng/uL	99
82) Pyrene	202	13.052	13.052	0.890	1188724	35.90	ng/uL	98
84) Butylbenzylphthalate	149	13.860	13.860	0.945	645034	40.68	ng/uL	99
85) bis(2-Ethylhexyl)phtha...	149	14.711	14.711	1.003	729410	41.29	ng/uL	99
86) Benzo(a)anthracene	228	14.646	14.646	0.999	1055084	41.38	ng/uL	95
87) Chrysene	228	14.711	14.705	1.003	914686	43.10	ng/uL	100
90) Di-n-octylphthalate	149	15.951	15.951	1.088	1458113	41.21	ng/uL	95
92) Benzo(b)fluoranthene	252	16.738	16.727	0.947	1042163	35.42	ng/uL	99

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1019.D
Acq On : 10 Nov 2016 19:41
Operator : JMB3
InstName : MSD1
Sample : |1203665320|1614270|1|SVM|1|MS
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 11 07:46:45 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

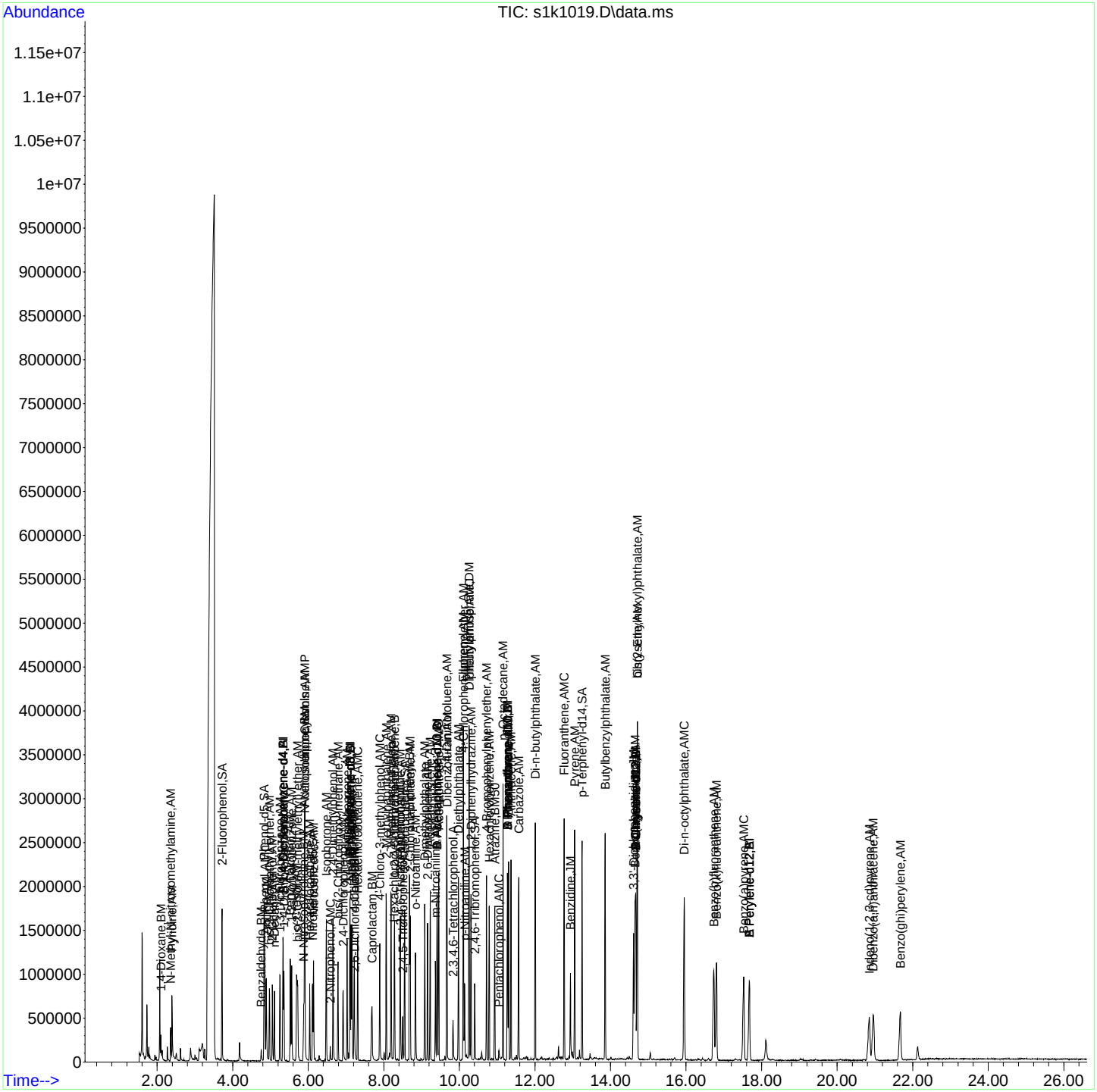
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
93)	Benzo(k)fluoranthene	252	16.807	16.796	0.951	954349	37.48	ng/uL	99
94)	Benzo(a)pyrene	252	17.529	17.519	0.992	967760	38.03	ng/uL	99
95)	Indeno(1,2,3-cd)pyrene	276	20.851	20.851	1.180	611745	31.43	ng/uL	99
96)	Dibenzo(a,h)anthracene	278	20.958	20.958	1.186	672954	37.13	ng/uL	88
97)	Benzo(ghi)perylene	276	21.674	21.674	1.226	697160	35.10	ng/uL	97
100)	1,4-Dioxane	88	2.098	2.077	0.394	47267	15.27	ng/uL	83
109)	Benzaldehyde	77	4.751	4.735	0.892	32812	4.93	ng/uL	94
111)	N-Nitrosopyrrolidine	100	5.880	5.869	1.103	151182	39.47	ng/uL	86
112)	Acetophenone	105	5.901	5.896	1.107	371672	39.34	ng/uL	71
118)	2,6-Dichlorophenol	162	7.228	7.222	1.017	49867	9.79	ng/uL	99
120)	Caprolactam	113	7.688	7.677	1.082	103320	46.67	ng/uL#	63
124)	1,2,4,5-Tetrachloroben...	216	8.287	8.281	0.881	285232	36.93	ng/uL	97
125)	1,1-Biphenyl	154	8.677	8.683	0.922	650172	47.14	ng/uL	98
138)	Atrazine	200	10.940	10.934	0.971	229376	41.40	ng/uL	99
159)	Tributylphosphate	99	10.255	10.245	1.090	881059	44.02	ng/uL	96
176)	Benzidine	184	12.940	12.940	1.148	427789	31.89	ng/uL	99
178)	3,3'-Dichlorobenzidine	252	14.609	14.604	0.996	391048	38.04	ng/uL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1019.D
Acq On : 10 Nov 2016 19:41
Operator : JMB3
InstName : MSD1
Sample : |1203665320|1614270|1|SVM|1|MS
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 11 07:46:45 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**1203661744**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.6**
Client Sample:	**QC for batch 1612776**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**SD140300MS**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 10:26**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.041 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0706.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene		524	ug/kg	2.63	5.25
91-58-7	2-Chloronaphthalene		407	ug/kg	2.63	5.25
91-57-6	2-Methylnaphthalene		471	ug/kg	2.63	5.25
83-32-9	Acenaphthene		487	ug/kg	2.63	5.25
208-96-8	Acenaphthylene		448	ug/kg	2.63	5.25
120-12-7	Anthracene		470	ug/kg	2.63	5.25
56-55-3	Benzo(a)anthracene		507	ug/kg	2.63	5.25
50-32-8	Benzo(a)pyrene		535	ug/kg	2.63	5.25
205-99-2	Benzo(b)fluoranthene		534	ug/kg	2.63	5.25
191-24-2	Benzo(ghi)perylene		360	ug/kg	2.63	5.25
207-08-9	Benzo(k)fluoranthene		552	ug/kg	2.63	5.25
218-01-9	Chrysene		499	ug/kg	2.63	5.25
53-70-3	Dibenzo(a,h)anthracene		435	ug/kg	2.63	5.25
206-44-0	Fluoranthene		486	ug/kg	2.63	5.25
86-73-7	Fluorene		489	ug/kg	2.63	5.25
193-39-5	Indeno(1,2,3-cd)pyrene		390	ug/kg	2.63	5.25
91-20-3	Naphthalene		454	ug/kg	1.58	5.25
85-01-8	Phenanthrene		459	ug/kg	2.63	5.25
129-00-0	Pyrene		445	ug/kg	2.63	5.25

JMB 11/07/2016

JCB 11/08/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0706.D
Acq On : 07 Nov 2016 10:26
Operator : JMB3
InstName : MSD4
Sample : |1203661744|1612777|1|SVM|1|MS|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 07 11:22:44 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	330993	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1117152	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.573	9.573	1.000	432811	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	840484	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.962	14.963	1.000	442660	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.233	18.231	1.000	273119	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	330993	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1117152	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.456	11.457	1.000	840484	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.962	14.963	1.000	442660	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	115404	4.39	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	88%

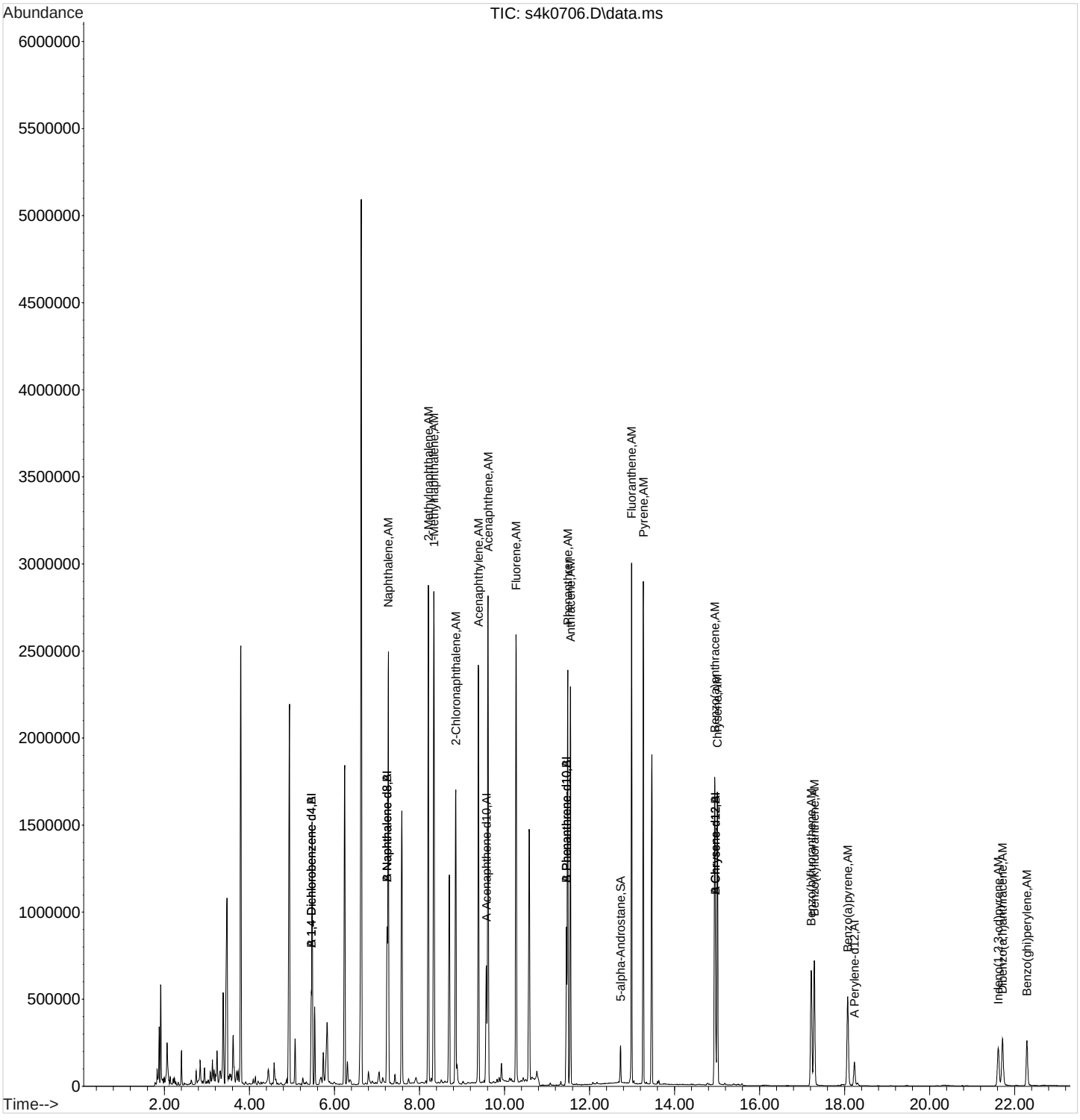
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
6) Naphthalene	128	7.268	7.268	1.004	2688894	8.65	ng/uL	100
7) 2-Methylnaphthalene	142	8.207	8.212	1.134	1871252	8.96	ng/uL	100
8) 1-Methylnaphthalene	142	8.337	8.342	1.152	1778242	9.97	ng/uL	100
10) 2-Chloronaphthalene	162	8.853	8.853	0.925	1572169	7.76	ng/uL	100
11) Acenaphthylene	152	9.391	9.391	0.981	2438794	8.53	ng/uL	100
12) Acenaphthene	154	9.615	9.615	1.004	1427905	9.27	ng/uL	100
13) Fluorene	166	10.272	10.277	1.073	1670943	9.31	ng/uL	100
15) Phenanthrene	178	11.488	11.489	1.003	2526226	8.74	ng/uL	100
16) Anthracene	178	11.552	11.553	1.008	2401269	8.95	ng/uL	100
18) Fluoranthene	202	12.992	12.981	1.134	2469905	9.26	ng/uL	99
20) Pyrene	202	13.265	13.262	0.887	2504251	8.48	ng/uL	100
21) Benzo(a)anthracene	228	14.945	14.943	0.999	1716638	9.65	ng/uL	99
22) Chrysene	228	15.010	15.007	1.003	1603172	9.51	ng/uL	99
24) Benzo(b)fluoranthene	252	17.218	17.213	0.944	1248583	10.17	ng/uL	99
25) Benzo(k)fluoranthene	252	17.289	17.284	0.948	1270111	10.51	ng/uL	100
26) Benzo(a)pyrene	252	18.074	18.072	0.991	1031180	10.19	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.617	21.615	1.186	495830	7.42	ng/uL	97
28) Dibenzo(a,h)anthracene	278	21.717	21.718	1.191	468015	8.29	ng/uL	97
29) Benzo(ghi)perylene	276	22.291	22.289	1.223	485616	6.86	ng/uL	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0706.D
Acq On : 07 Nov 2016 10:26
Operator : JMB3
InstName : MSD4
Sample : |1203661744|1612777|1|SVM|1|MS|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 07 11:22:44 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:00**	**Matrix:**	**SO**
Lab Sample ID:	**1203665321**	**Date Received:**	**10/28/2016 09:15**	**%Moisture:**	**84.5**
Client Sample:	**QC for batch 1614269**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**WST03-17-127184MSD**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/10/2016 20:15**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.011 g**	**Final Volume:**	**1 mL**
Data File:	**s111016.B\s1k1020.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-52-4	1,1'-Biphenyl		10700	ug/kg	644	2150
95-94-3	1,2,4,5-Tetrachlorobenzene		8250	ug/kg	644	2150
58-90-2	2,3,4,6-Tetrachlorophenol		6980	ug/kg	644	2150
95-95-4	2,4,5-Trichlorophenol		6650	ug/kg	644	2150
88-06-2	2,4,6-Trichlorophenol		5150	ug/kg	644	2150
120-83-2	2,4-Dichlorophenol		6960	ug/kg	644	2150
105-67-9	2,4-Dimethylphenol		8270	ug/kg	644	2150
51-28-5	2,4-Dinitrophenol	U	4290	ug/kg	644	4290
121-14-2	2,4-Dinitrotoluene		10300	ug/kg	644	2150
606-20-2	2,6-Dinitrotoluene		10200	ug/kg	644	2150
91-58-7	2-Chloronaphthalene		7320	ug/kg	64.4	215
95-57-8	2-Chlorophenol		6790	ug/kg	644	2150
534-52-1	2-Methyl-4,6-dinitrophenol		2980	ug/kg	644	2150
91-57-6	2-Methylnaphthalene		7830	ug/kg	64.4	215
88-75-5	2-Nitrophenol	J	1910	ug/kg	644	2150
91-94-1	3,3'-Dichlorobenzidine		8810	ug/kg	644	2150
101-55-3	4-Bromophenylphenylether		8710	ug/kg	644	2150
59-50-7	4-Chloro-3-methylphenol		8790	ug/kg	858	2150
106-47-8	4-Chloroaniline		8570	ug/kg	644	2150
7005-72-3	4-Chlorophenylphenylether		9070	ug/kg	644	2150
100-02-7	4-Nitrophenol	U	2150	ug/kg	644	2150
83-32-9	Acenaphthene		9230	ug/kg	64.4	215
208-96-8	Acenaphthylene		9040	ug/kg	64.4	215
98-86-2	Acetophenone		8510	ug/kg	644	2150
120-12-7	Anthracene		9500	ug/kg	64.4	215
1912-24-9	Atrazine		9840	ug/kg	858	2150
100-52-7	Benzaldehyde	J	1290	ug/kg	644	2150
56-55-3	Benzo(a)anthracene		10100	ug/kg	64.4	215
50-32-8	Benzo(a)pyrene		9460	ug/kg	64.4	215
205-99-2	Benzo(b)fluoranthene		9230	ug/kg	64.4	215
191-24-2	Benzo(ghi)perylene		8770	ug/kg	64.4	215
207-08-9	Benzo(k)fluoranthene		9280	ug/kg	64.4	215
85-68-7	Butylbenzylphthalate		10200	ug/kg	644	2150
105-60-2	Caprolactam		10900	ug/kg	644	2150
86-74-8	Carbazole		9890	ug/kg	64.4	215
218-01-9	Chrysene		10400	ug/kg	64.4	215
84-74-2	Di-n-butylphthalate		9220	ug/kg	644	2150
117-84-0	Di-n-octylphthalate		9760	ug/kg	644	2150

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:00**	**Matrix:**	**SO**
Lab Sample ID:	**1203665321**	**Date Received:**	**10/28/2016 09:15**	**%Moisture:**	**84.5**
Client Sample:	**QC for batch 1614269**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**WST03-17-127184MSD**	**Method:**	**SW846 3541/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1614270**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/10/2016 20:15**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 12:02**	**Aliquot:**	**30.011 g**	**Final Volume:**	**1 mL**
Data File:	**s111016.B\s1k1020.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
53-70-3	Dibenzo(a,h)anthracene		9260	ug/kg	64.4	215
132-64-9	Dibenzofuran		9160	ug/kg	644	2150
84-66-2	Diethylphthalate		9500	ug/kg	644	2150
131-11-3	Dimethylphthalate		9710	ug/kg	644	2150
122-39-4	Diphenylamine		8880	ug/kg	644	2150
206-44-0	Fluoranthene		9290	ug/kg	64.4	215
86-73-7	Fluorene		9380	ug/kg	64.4	215
118-74-1	Hexachlorobenzene		8710	ug/kg	644	2150
87-68-3	Hexachlorobutadiene		7130	ug/kg	644	2150
77-47-4	Hexachlorocyclopentadiene	J	2090	ug/kg	644	2150
67-72-1	Hexachloroethane		6140	ug/kg	644	2150
193-39-5	Indeno(1,2,3-cd)pyrene		7970	ug/kg	64.4	215
78-59-1	Isophorone		8450	ug/kg	644	2150
621-64-7	N-Nitrosodipropylamine		7790	ug/kg	644	2150
91-20-3	Naphthalene		7610	ug/kg	64.4	215
98-95-3	Nitrobenzene		8300	ug/kg	644	2150
87-86-5	Pentachlorophenol		3570	ug/kg	644	2150
85-01-8	Phenanthrene		9500	ug/kg	64.4	215
108-95-2	Phenol		7290	ug/kg	644	2150
129-00-0	Pyrene		9020	ug/kg	64.4	215
108-60-1	bis(2-Chloro-1-methylethyl)ether		8600	ug/kg	644	2150
111-91-1	bis(2-Chloroethoxy)methane		8320	ug/kg	644	2150
111-44-4	bis(2-Chloroethyl) ether		7510	ug/kg	644	2150
117-81-7	bis(2-Ethylhexyl)phthalate		10500	ug/kg	644	2150
65794-96-9	m,p-Cresols		8020	ug/kg	644	2150
99-09-2	m-Nitroaniline		10700	ug/kg	644	2150
95-48-7	o-Cresol		8120	ug/kg	644	2150
88-74-4	o-Nitroaniline		9870	ug/kg	708	2150
100-01-6	p-Nitroaniline		9840	ug/kg	644	2150

JMB 11/11/2016

HM 11/14/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1020.D
Acq On : 10 Nov 2016 20:15
Operator : JMB3
InstName : MSD1
Sample : |1203665321|1614270|1|SVM|1|MSD
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 11 07:46:49 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.334	5.324	1.000	237491	40.00	ng/uL	0.01
24) A Naphthalene-d8	136	7.105	7.105	1.000	809011	40.00	ng/uL	0.00
42) A Acenaphthene-d10	164	9.410	9.415	1.000	453005	40.00	ng/uL	0.00
67) A Phenanthrene-d10	188	11.271	11.271	1.000	911961	40.00	ng/uL	0.00
81) A Chrysene-d12	240	14.668	14.662	1.000	767409	40.00	ng/uL	0.00
91) A Perylene-d12	264	17.674	17.668	1.000	732770	40.00	ng/uL	0.00
99) B 1,4-Dichlorobenzene-d4	152	5.334	5.324	1.000	237042	40.00	ng/uL	0.01
115) B Naphthalene-d8	136	7.105	7.105	1.000	809011	40.00	ng/uL	0.00
123) B Acenaphthene-d10	164	9.410	9.415	1.000	453005	40.00	ng/uL	0.00
132) B Phenanthrene-d10	188	11.271	11.271	1.000	911961	40.00	ng/uL	0.00
145) B Chrysene-d12	240	14.668	14.662	1.000	767409	40.00	ng/uL	0.00
152) B Perylene-d12	264	17.674	17.668	1.000	732770	40.00	ng/uL	0.00
155) D Naphthalene-d8	136	7.105	7.105	1.000	809011	40.00	ng/uL	0.00
157) D Acenaphthene-d10	164	9.410	9.415	1.000	453005	40.00	ng/uL	0.00
160) D Phenanthrene-d10	188	11.271	11.271	1.000	911961	40.00	ng/uL	0.00
167) D Chrysene-d12	240	14.668	14.662	1.000	767244	40.00	ng/uL	0.00
169) E Naphthalene-d8	136	7.105	7.105	1.000	809011	40.00	ng/uL	0.00
171) E Perylene-d12	264	17.674	17.668	1.000	732770	40.00	ng/uL	0.00
173) F 1,4-Dichlorobenzene-d4	152	5.334	5.324	1.000	237042	40.00	ng/uL	0.01
175) J Phenanthrene-d10	188	11.271	11.271	1.000	911961	40.00	ng/uL	0.00
177) J Chrysene-d12	240	14.668	14.662	1.000	767409	40.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
5) 2-Fluorophenol	112	3.740	3.660	0.701	394354	44.74	ng/uL	0.08
8) Phenol-d5	99	4.837	4.810	0.907	699973	64.86	ng/uL	0.03
25) Nitrobenzene-d5	82	6.115	6.110	0.861	323014	34.11	ng/uL	0.00
47) 2-Fluorobiphenyl	172	8.554	8.554	0.909	561495	35.17	ng/uL	0.00
66) 2,4,6-Tribromophenol	330	10.410	10.405	1.106	188806	63.90	ng/uL	0.00
83) p-Terphenyl-d14	244	13.250	13.245	0.903	885275	43.21	ng/uL	0.00

Compound	Amount	Range	Recovery
5) 2-Fluorophenol	100.000	36 - 104	45%
8) Phenol-d5	100.000	39 - 106	65%
25) Nitrobenzene-d5	50.000	34 - 109	68%
47) 2-Fluorobiphenyl	50.000	35 - 107	70%
66) 2,4,6-Tribromophenol	100.000	39 - 115	64%
83) p-Terphenyl-d14	50.000	45 - 119	86%

Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
3) N-Methyl-N-nitrosometh...	74	2.355	2.334	0.442	158093	28.31	ng/uL	93
4) Pyridine	79	2.393	2.366	0.449	208028	22.76	ng/uL	93
7) Aniline	93	4.896	4.874	0.918	365737	32.66	ng/uL	95
9) Phenol	94	4.858	4.832	0.911	328457	34.00	ng/uL	94
10) bis(2-Chloroethyl) ether	93	4.976	4.960	0.933	274045	35.02	ng/uL	99
11) 2-Chlorophenol	128	5.056	5.035	0.948	238715	31.67	ng/uL	99
12) n-Decane	43	5.104	5.099	0.957	228222	19.17	ng/uL	93
13) 1,3-Dichlorobenzene	146	5.254	5.243	0.985	249965	29.95	ng/uL	100
14) 1,4-Dichlorobenzene	146	5.356	5.345	1.004	228672	29.99	ng/uL	98
15) 1,2-Dichlorobenzene	146	5.570	5.559	1.044	239759	31.43	ng/uL	99
16) bis(2-Chloro-1-methyle...	45	5.725	5.719	1.073	612617	40.11	ng/uL#	89
17) Benzyl alcohol	108	5.532	5.516	1.037	194611	37.30	ng/uL	97
18) o-Cresol	107	5.693	5.671	1.067	230652	37.86	ng/uL	90

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1020.D
Acq On : 10 Nov 2016 20:15
Operator : JMB3
InstName : MSD1
Sample : |1203665321|1614270|1|SVM|1|MSD
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 11 07:46:49 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
19) m,p-Cresols	107	5.912	5.907	1.108	296137	37.41	ng/uL#	40
20) N-Nitrosodipropylamine	70	5.917	5.907	1.109	217349	36.31	ng/uL	95
23) Hexachloroethane	117	6.040	6.035	1.132	100434	28.62	ng/uL	95
26) Nitrobenzene	77	6.142	6.137	0.864	335430	38.71	ng/uL	98
27) Isophorone	82	6.479	6.474	0.912	723604	39.41	ng/uL	96
28) 2-Nitrophenol	139	6.586	6.581	0.927	35994	8.92	ng/uL	99
29) 2,4-Dimethylphenol	122	6.656	6.650	0.937	252452	38.57	ng/uL	95
30) bis(2-Chloroethoxy)met...	93	6.789	6.784	0.956	377532	38.79	ng/uL	97
31) 2,4-Dichlorophenol	162	6.923	6.918	0.974	210286	32.44	ng/uL	99
33) 1,2,4-Trichlorobenzene	180	7.030	7.030	0.989	268578	33.94	ng/uL	99
34) alpha-Terpineol	59	7.164	7.158	1.008	315471	38.05	ng/uL	97
35) Naphthalene	128	7.137	7.131	1.005	679340	35.48	ng/uL	100
36) 4-Chloroaniline	127	7.217	7.212	1.016	280115	39.94	ng/uL	99
37) Hexachlorobutadiene	225	7.308	7.308	1.029	181611	33.23	ng/uL	99
38) 4-Chloro-3-methylphenol	107	7.891	7.880	1.111	340637	40.98	ng/uL	98
39) 2-Methylnaphthalene	142	8.068	8.062	1.136	540068	36.52	ng/uL	99
41) 1-Methylnaphthalene	142	8.196	8.191	1.154	513627	38.41	ng/uL	99
43) Hexachlorocyclopentadiene	237	8.276	8.271	0.879	51935	9.75	ng/uL	99
44) 2,3-Dichloroaniline	161	8.437	8.431	0.897	322546	44.90	ng/uL	100
45) 2,4,6-Trichlorophenol	196	8.442	8.442	0.897	121718	24.03	ng/uL	99
46) 2,4,5-Trichlorophenol	196	8.501	8.490	0.903	151471	30.98	ng/uL	99
48) 2-Chloronaphthalene	162	8.699	8.699	0.924	486113	34.11	ng/uL	95
49) o-Nitroaniline	65	8.838	8.838	0.939	259014	46.02	ng/uL	98
51) m-Nitroaniline	138	9.367	9.367	0.995	163653	49.74	ng/uL	100
52) Dimethylphthalate	163	9.089	9.089	0.966	785530	45.28	ng/uL	98
54) 2,6-Dinitrotoluene	165	9.164	9.159	0.974	176656	47.41	ng/uL	99
55) 2,4-Dinitrotoluene	165	9.667	9.667	1.027	246774	48.18	ng/uL	95
56) Acenaphthylene	152	9.228	9.228	0.981	897937	42.15	ng/uL	99
57) Acenaphthene	154	9.453	9.453	1.005	526491	43.01	ng/uL	96
59) Dibenzofuran	168	9.672	9.672	1.028	795358	42.68	ng/uL	96
60) 2,3,4,6-Tetrachlorophenol	232	9.833	9.833	1.045	144226	32.53	ng/uL	99
61) Diethylphthalate	149	9.977	9.977	1.060	864721	44.29	ng/uL	99
63) Fluorene	166	10.105	10.105	1.074	711199	43.74	ng/uL	99
64) 4-Chlorophenylphenylether	204	10.111	10.111	1.074	385236	42.26	ng/uL	100
65) p-Nitroaniline	138	10.143	10.137	1.078	141271	45.87	ng/uL	94
68) 2-Methyl-4,6-dinitroph...	198	10.186	10.180	0.904	27871	13.88	ng/uL	97
69) Diphenylamine	169	10.261	10.260	0.910	603462	41.41	ng/uL	98
70) 1,2-Diphenylhydrazine	77	10.309	10.309	0.915	735845	40.81	ng/uL	98
71) 4-Bromophenylphenylether	248	10.720	10.720	0.951	265430	40.60	ng/uL	98
72) Hexachlorobenzene	284	10.790	10.790	0.957	267699	40.60	ng/uL	99
73) Pentachlorophenol	266	11.047	11.041	0.980	55301	16.62	ng/uL	97
74) n-Octadecane	57	11.159	11.159	0.990	704006	42.26	ng/uL	97
76) Phenanthrene	178	11.303	11.303	1.003	931222	44.29	ng/uL	97
77) Anthracene	178	11.368	11.368	1.009	974215	44.28	ng/uL	99
78) Carbazole	167	11.571	11.566	1.027	966014	46.09	ng/uL	98
79) Di-n-butylphthalate	149	12.009	12.009	1.065	1444853	42.98	ng/uL	99
80) Fluoranthene	202	12.774	12.774	1.133	1339394	43.29	ng/uL	98
82) Pyrene	202	13.052	13.052	0.890	1305914	42.04	ng/uL	99
84) Butylbenzylphthalate	149	13.860	13.860	0.945	704758	47.38	ng/uL	100
85) bis(2-Ethylhexyl)phtha...	149	14.711	14.711	1.003	809397	48.84	ng/uL	99
86) Benzo(a)anthracene	228	14.646	14.646	0.999	1130302	47.25	ng/uL	95
87) Chrysene	228	14.711	14.705	1.003	962763	48.36	ng/uL	98
90) Di-n-octylphthalate	149	15.951	15.951	1.088	1512036	45.50	ng/uL	96

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1020.D
Acq On : 10 Nov 2016 20:15
Operator : JMB3
InstName : MSD1
Sample : |1203665321|1614270|1|SVM|1|MSD
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 11 07:46:49 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE

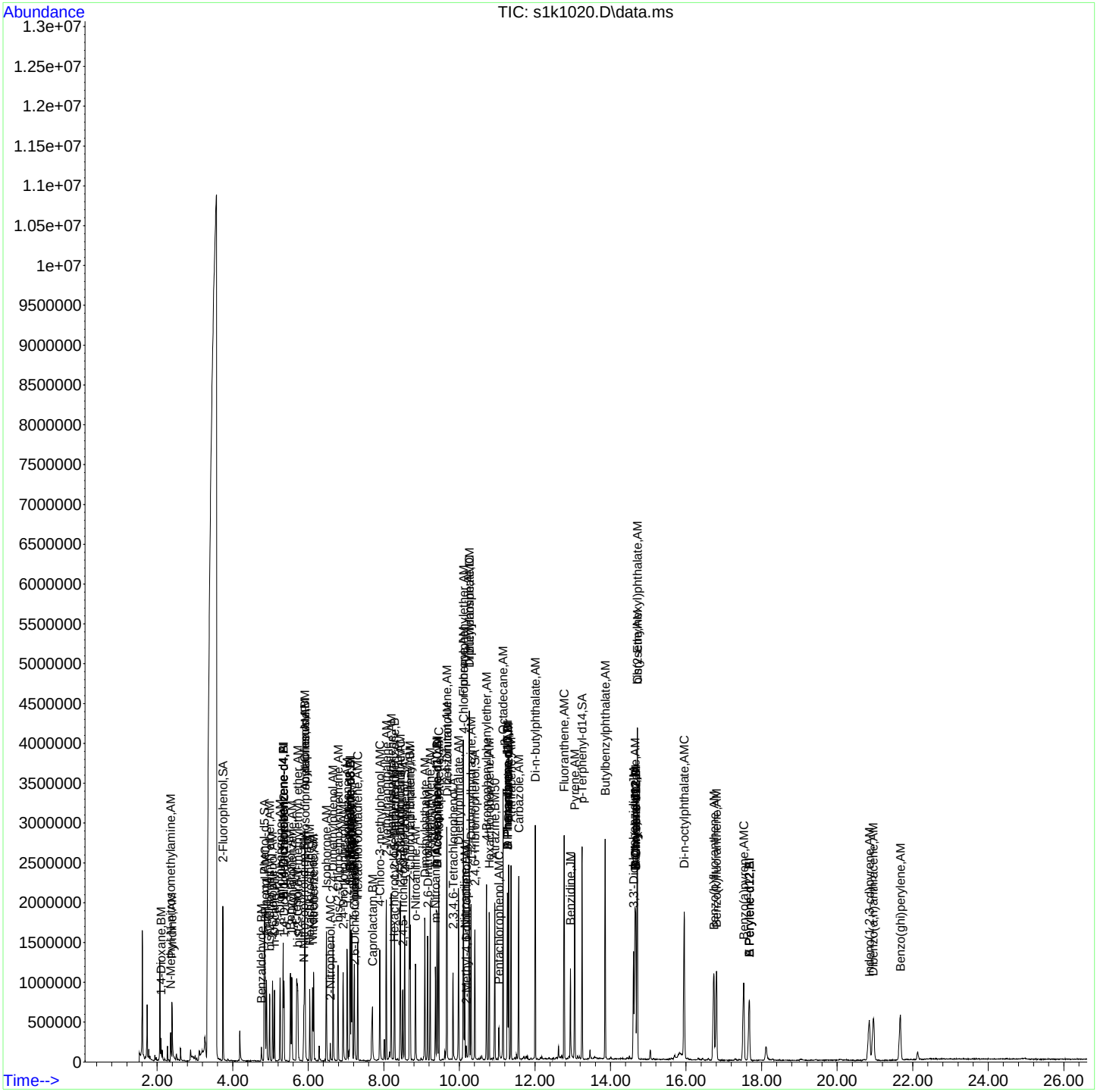
	Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	
92)	Benzo(b)fluoranthene	252	16.738	16.727	0.947	1114916	43.01	ng/uL	99
93)	Benzo(k)fluoranthene	252	16.807	16.796	0.951	969985	43.24	ng/uL	99
94)	Benzo(a)pyrene	252	17.529	17.519	0.992	988643	44.10	ng/uL	99
95)	Indeno(1,2,3-cd)pyrene	276	20.851	20.851	1.180	636771	37.14	ng/uL	97
96)	Dibenzo(a,h)anthracene	278	20.958	20.958	1.186	689284	43.17	ng/uL	99
97)	Benzo(ghi)perylene	276	21.674	21.674	1.226	715027	40.87	ng/uL	99
100)	1,4-Dioxane	88	2.104	2.077	0.394	51058	16.07	ng/uL	97
109)	Benzaldehyde	77	4.757	4.735	0.892	41230	6.03	ng/uL	99
111)	N-Nitrosopyrrolidine	100	5.885	5.869	1.103	159354	40.52	ng/uL	92
112)	Acetophenone	105	5.907	5.896	1.107	384821	39.68	ng/uL	69
118)	2,6-Dichlorophenol	162	7.228	7.222	1.017	65726	12.67	ng/uL	93
120)	Caprolactam	113	7.704	7.677	1.084	114571	50.85	ng/uL#	71
124)	1,2,4,5-Tetrachloroben...	216	8.287	8.281	0.881	303458	38.47	ng/uL	97
125)	1,1-Biphenyl	154	8.683	8.683	0.923	695675	49.68	ng/uL	97
138)	Atrazine	200	10.940	10.934	0.971	256131	45.89	ng/uL	99
159)	Tributylphosphate	99	10.261	10.245	1.090	984948	48.20	ng/uL	96
176)	Benzidine	184	12.940	12.940	1.148	479137	35.46	ng/uL	98
178)	3,3'-Dichlorobenzidine	252	14.609	14.604	0.996	395910	41.05	ng/uL	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s111016.B\
Data File : s1k1020.D
Acq On : 10 Nov 2016 20:15
Operator : JMB3
InstName : MSD1
Sample : |1203665321|1614270|1|SVM|1|MSD
Misc : |MSD827D4_S| SOIL MIX[A,B,D,E,J]
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Nov 11 07:46:49 2016
Quant Method : C:\msdchem\1\DATA\s111016.B\MSD1_8270C_8270D_092916.M
Quant Title : BNA01 SubList :
QLast Update : Fri Sep 30 09:55:56 2016
Response via : Initial Calibration
Integrator: RTE



Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/24/2016 11:43**	**Matrix:**	**SOIL**
Lab Sample ID:	**1203661745**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**36.6**
Client Sample:	**QC for batch 1612776**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**SD140300MSD**	**Method:**	**SW846 3541/8270D SIM P**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1612777**	**Inst:**	**MSD4.I**	**Dilution:**	**1**
Run Date:	**11/07/2016 11:22**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/04/2016 08:33**	**Aliquot:**	**30.03 g**	**Final Volume:**	**1 mL**
Data File:	**s110716.B\s4k0708.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
90-12-0	1-Methylnaphthalene		508	ug/kg	2.63	5.25
91-58-7	2-Chloronaphthalene		387	ug/kg	2.63	5.25
91-57-6	2-Methylnaphthalene		458	ug/kg	2.63	5.25
83-32-9	Acenaphthene		468	ug/kg	2.63	5.25
208-96-8	Acenaphthylene		435	ug/kg	2.63	5.25
120-12-7	Anthracene		451	ug/kg	2.63	5.25
56-55-3	Benzo(a)anthracene		507	ug/kg	2.63	5.25
50-32-8	Benzo(a)pyrene		532	ug/kg	2.63	5.25
205-99-2	Benzo(b)fluoranthene		554	ug/kg	2.63	5.25
191-24-2	Benzo(ghi)perylene		381	ug/kg	2.63	5.25
207-08-9	Benzo(k)fluoranthene		533	ug/kg	2.63	5.25
218-01-9	Chrysene		497	ug/kg	2.63	5.25
53-70-3	Dibenzo(a,h)anthracene		459	ug/kg	2.63	5.25
206-44-0	Fluoranthene		462	ug/kg	2.63	5.25
86-73-7	Fluorene		474	ug/kg	2.63	5.25
193-39-5	Indeno(1,2,3-cd)pyrene		412	ug/kg	2.63	5.25
91-20-3	Naphthalene		434	ug/kg	1.58	5.25
85-01-8	Phenanthrene		435	ug/kg	2.63	5.25
129-00-0	Pyrene		513	ug/kg	2.63	5.25

JMB 11/07/2016

JCB 11/08/2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0708.D
Acq On : 07 Nov 2016 11:22
Operator : JMB3
InstName : MSD4
Sample : |1203661745|1612777|1|SVM|1|MSD|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 07 12:00:32 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE

Compound	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	Dev(Min)
Internal Standards								
1) A 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	344975	4.00	ng/uL	0.00
5) A Naphthalene-d8	136	7.237	7.237	1.000	1162413	4.00	ng/uL	0.00
9) A Acenaphthene-d10	164	9.568	9.573	1.000	460210	4.00	ng/uL	0.00
14) A Phenanthrene-d10	188	11.456	11.457	1.000	905432	4.00	ng/uL	0.00
19) A Chrysene-d12	240	14.962	14.963	1.000	385937	4.00	ng/uL	0.00
23) A Perylene-d12	264	18.233	18.231	1.000	222718	4.00	ng/uL	0.00
30) B 1,4-Dichlorobenzene-d4	152	5.453	5.448	1.000	344975	4.00	ng/uL	0.00
33) B Naphthalene-d8	136	7.237	7.237	1.000	1162413	4.00	ng/uL	0.00
35) B Phenanthrene-d10	188	11.456	11.457	1.000	905432	4.00	ng/uL	0.00
37) B Chrysene-d12	240	14.962	14.963	1.000	385937	4.00	ng/uL	0.00
System Monitoring Compounds								Dev(Min)
17) 5-alpha-Androstane	245	12.730	12.731	1.111	115810	4.09	ng/uL	0.00

Compound	Amount	Range	Recovery
17) 5-alpha-Androstane	5.000	30 - 115	82%

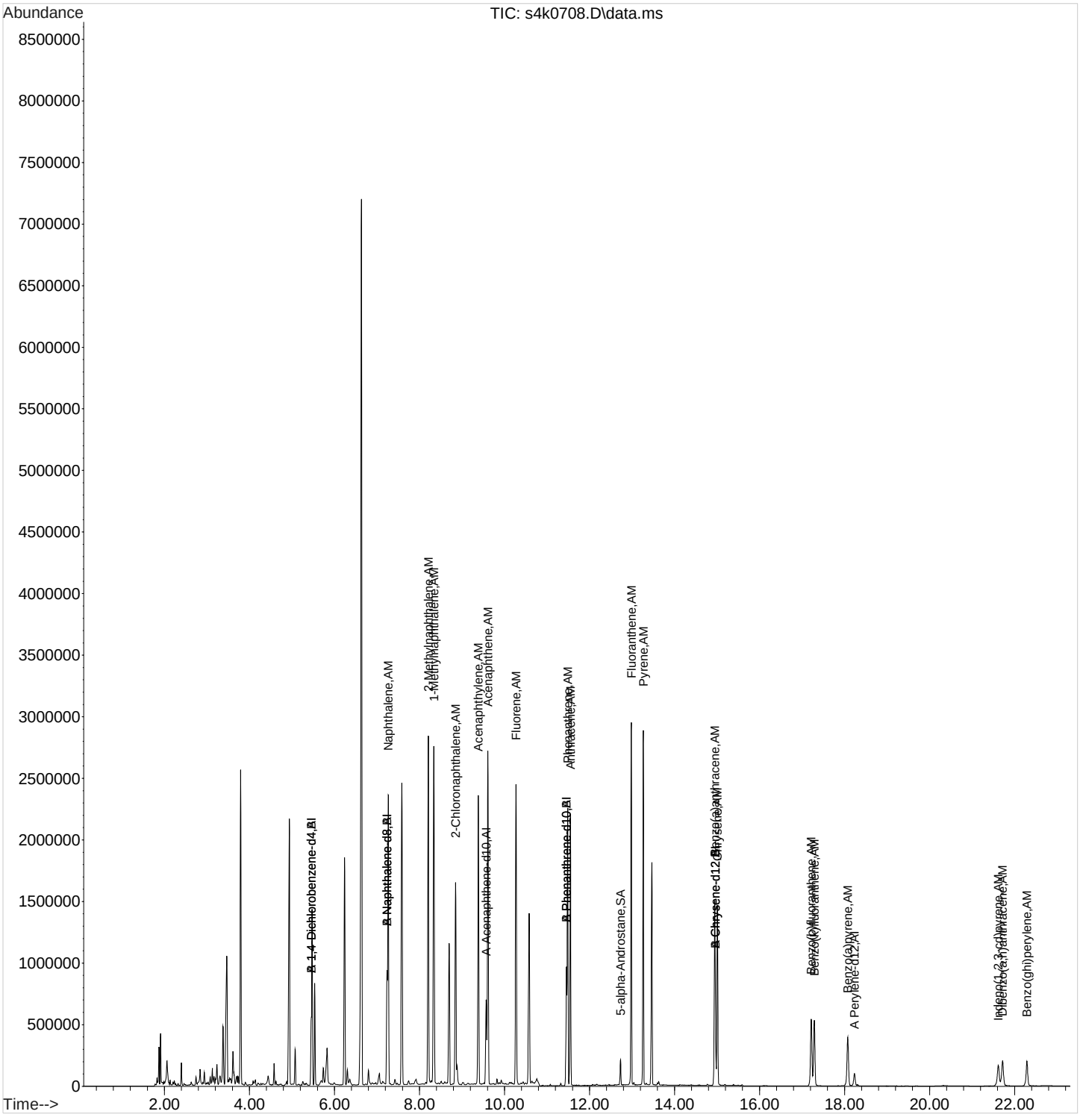
Target Compounds	QIon	R.T.	Exp RT	Rel RT	Response	Conc	Units	QValue
6) Naphthalene	128	7.268	7.268	1.004	2675752	8.27	ng/uL	100
7) 2-Methylnaphthalene	142	8.207	8.212	1.134	1894060	8.72	ng/uL	100
8) 1-Methylnaphthalene	142	8.337	8.342	1.152	1795334	9.67	ng/uL	100
10) 2-Chloronaphthalene	162	8.848	8.853	0.925	1587549	7.37	ng/uL	100
11) Acenaphthylene	152	9.385	9.391	0.981	2518456	8.29	ng/uL	100
12) Acenaphthene	154	9.610	9.615	1.004	1459082	8.91	ng/uL	100
13) Fluorene	166	10.272	10.277	1.074	1722768	9.03	ng/uL	100
15) Phenanthrene	178	11.488	11.489	1.003	2579725	8.28	ng/uL	100
16) Anthracene	178	11.552	11.553	1.008	2485198	8.59	ng/uL	100
18) Fluoranthene	202	12.984	12.981	1.133	2528426	8.79	ng/uL	100
20) Pyrene	202	13.265	13.262	0.887	2511771	9.76	ng/uL	100
21) Benzo(a)anthracene	228	14.945	14.943	0.999	1498809	9.66	ng/uL	99
22) Chrysene	228	15.010	15.007	1.003	1391054	9.46	ng/uL	99
24) Benzo(b)fluoranthene	252	17.215	17.213	0.944	1056064	10.55	ng/uL	99
25) Benzo(k)fluoranthene	252	17.289	17.284	0.948	1000439	10.15	ng/uL	100
26) Benzo(a)pyrene	252	18.074	18.072	0.991	834709	10.12	ng/uL	100
27) Indeno(1,2,3-cd)pyrene	276	21.617	21.615	1.186	428026	7.85	ng/uL	98
28) Dibenzo(a,h)anthracene	278	21.717	21.718	1.191	401730	8.73	ng/uL	97
29) Benzo(ghi)perylene	276	22.291	22.289	1.223	418934	7.25	ng/uL	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(A) = Over the calibration range (d) = deleted

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\s110716.B\
Data File : s4k0708.D
Acq On : 07 Nov 2016 11:22
Operator : JMB3
InstName : MSD4
Sample : |1203661745|1612777|1|SVM|1|MSD|||
Misc : |MSDS417D_S| SOIL MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 07 12:00:32 2016
Quant Method : C:\msdchem\1\DATA\s110716.B\MSD4_SIMPAHPLUS_8270d_101316.m
Quant Title : BNA01 SubList :
QLast Update : Thu Oct 13 14:32:32 2016
Response via : Initial Calibration
Integrator: RTE



Miscellaneous

Prep Logbook

Automated Soxhlet Extraction

Batch ID: 1612776 **Verified by:** _____
Analyst: Mia DeLee
Method: SW846 3541

Lab SOP: GL-OA-E-066 REV# 7
Instrument: Semi-Volatiles Manual

Sample ID	Prep Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203661742 MB	04-NOV-2016 08:33:00	30.011	1	0.03332
1203661743 LCS	04-NOV-2016 08:33:00	30.027	1	0.0333
409254013	04-NOV-2016 08:33:00	30.007	1	0.03333
1203661744 MS (409254013)	04-NOV-2016 08:33:00	30.041	1	0.03329
1203661745 MSD (409254013)	04-NOV-2016 08:33:00	30.03	1	0.0333
409254014	04-NOV-2016 08:33:00	30.102	1	0.03322
409254015	04-NOV-2016 08:33:00	30.049	1	0.03328
409254016	04-NOV-2016 08:33:00	30.078	1	0.03325
409254017	04-NOV-2016 08:33:00	30.038	1	0.03329
409254018	04-NOV-2016 08:33:00	30.015	1	0.03332
409254019	04-NOV-2016 08:33:00	30.055	1	0.03327
409254026	04-NOV-2016 08:33:00	30.057	1	0.03327
409254027	04-NOV-2016 08:33:00	30.005	1	0.03333
409254028	04-NOV-2016 08:33:00	30.055	1.4	0.04658

Type	Sample Id	Description	Serial Number	Spike Amt	Units
LCS	1203661743	PAH SIM LCS 10 mg/L	UE160912-20	1	mL
MS	1203661744	PAH SIM LCS 10 mg/L	UE160912-20	1	mL
MSD	1203661745	PAH SIM LCS 10 mg/L	UE160912-20	1	mL
SURR	All	BNA for all Surrogate	UE160912-12	1	mL
REGNT	All	Sand pure 40-100 mesh	160712-A	30	g
REGNT	All	Acetone	160913-B4	60	mL
REGNT	All	Methylene Chloride	2470801	60	mL

Comments:

Final Solvent: CH2Cl2
Verified by: SJW

Samples 409254013--4018 were slightly muddy. Sample 409254019 was very wet.

Samples 409254026--4028 contained moist soil.
Sample 409254028 appeared greasy while concentrating on the TurboVap and did not concentrate to 1mL; the final volume is recorded above.

Prep Logbook

Automated Soxhlet Extraction

Batch ID: 1614269 **Verified by:** _____
Analyst: Mia DeLee
Method: SW846 3541

Lab SOP: GL-OA-E-066 REV# 7
Instrument: Semi-Volatiles Manual

Sample ID	Prep Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203665318 MB	08-NOV-2016 12:02:00	30.007	1	0.03333
1203665319 LCS	08-NOV-2016 12:02:00	30.028	1	0.0333
409239005	08-NOV-2016 12:02:00	10.002	1	0.09998
409239007	08-NOV-2016 12:02:00	10.053	1	0.09947
409239009	08-NOV-2016 12:02:00	10.046	1	0.09954
409239011	08-NOV-2016 12:02:00	10.025	1	0.09975
409239024	08-NOV-2016 12:02:00	10.045	1	0.09955
409239026	08-NOV-2016 12:02:00	10.019	1	0.09981
409254029	08-NOV-2016 12:02:00	30.046	1	0.03328
409254032	08-NOV-2016 12:02:00	30.104	1	0.03322
409254034	08-NOV-2016 12:02:00	30.015	1	0.03332
409254036	08-NOV-2016 12:02:00	30.032	1	0.0333
409254038	08-NOV-2016 12:02:00	30.041	1	0.03329
409286001	08-NOV-2016 12:02:00	30.026	1	0.0333
1203665320 MS (409286001)	08-NOV-2016 12:02:00	30.018	1	0.03331
1203665321 MSD (409286001)	08-NOV-2016 12:02:00	30.011	1	0.03332
409831001	08-NOV-2016 12:02:00	30.13	1	0.03319
409833001	08-NOV-2016 12:02:00	30.19	1	0.03312
409833002	08-NOV-2016 12:02:00	30.12	1	0.0332

Type	Sample Id	Description	Serial Number	Spike Amt	Units
LCS	1203665319	BNA LCS w/o Benzidine/Atrazine 50ppm	WE161026-40	1	mL
LCS	1203665319	BENZIDINE/Atrazine LCS	WE161026-48	1	mL
MS	1203665320	BNA LCS w/o Benzidine/Atrazine 50ppm	WE161026-40	1	mL
MS	1203665320	BENZIDINE/Atrazine LCS	WE161026-48	1	mL
MSD	1203665321	BNA LCS w/o Benzidine/Atrazine 50ppm	WE161026-40	1	mL
MSD	1203665321	BENZIDINE/Atrazine LCS	WE161026-48	1	mL
SURR	All	BNA for all Surrogate	UE161108-06	1	mL
REGNT	All	Sand pure 40-100 mesh	160712-A	30	g
REGNT	All	Acetone	160913-B4	60	mL
REGNT	All	Methylene Chloride	2474087	60	mL

Comments:

Final Solvent: CH2Cl2
Verified by: SR

Samples 409239005--9026 contained pieces of rock/powder. Due to the limited volume of these samples, a 10g aliquot was used (per group leader).

Sample 409286001 contained a moist, clumpy solid.

ORGANIC RUN LOG - INSTRUMENT ID#MSD1

GEL ORGANIC RUN LOG

DATE: 29-Sep-16 METHOD: See Data OPERATOR: JLD1 Sequence Number: S092916.B

Multiplier Voltage: 1553
Internal Std ID: UBN150908-01.4
Internal Std ID: WBN160602-99 (SIM)
Solvent Reference ID: 2403002

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See Associated Data and Run Log
GEL SOP: GL-OA-E-009

Analysis Date Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
09/29/2016 09:17	s1i2901.D	WBN160728-99	DFTPP	DFTPP	1	1	JLD1	USE
09/29/2016 09:35	s1i2902.D	INSTRUMENTBLA			1	2	JLD1	IB
09/29/2016 10:05	s1i2903.D	WBN160920-08	M1	ICAL	1	3	JLD1	USE
09/29/2016 10:35	s1i2904.D	WBN160920-07	M2	ICAL	1	4	JLD1	USE
09/29/2016 11:09	s1i2905.D	WBN160920-06	M3	ICAL	1	5	JLD1	USE
09/29/2016 11:43	s1i2906.D	WBN160920-05.1	M4DUSE	ICAL	1	6	JLD1	DUSE
09/29/2016 12:18	s1i2907.D	WBN160920-04	M5	ICAL	1	7	JLD1	USE
09/29/2016 12:52	s1i2908.D	WBN160920-03	M6	ICAL	1	8	JLD1	USE
09/29/2016 13:26	s1i2909.D	WBN160920-02	M7	ICAL	1	9	JLD1	USE
09/29/2016 14:01	s1i2910.D	WBN160920-01	M8	ICAL	1	10	JLD1	USE
09/29/2016 14:35	s1i2911.D	WBN160920-05.1	M4	ICAL	1	6	JLD1	DUSE
09/29/2016 15:10	s1i2912.D	WBN160920-09.1	MICV	ICV	1	11	JLD1	DUSE
09/29/2016 15:44	s1i2913.D	WBN160920-05.1	M4	ICAL	1	6	JLD1	USE
09/29/2016 16:19	s1i2914.D	WBN160920-09.1	MICV	ICV	1	11	JLD1	USE
09/29/2016 16:52	s1i2915.D	WBN160728-99	DFTPP	DFTPP	1	1	JLD1	USE
09/29/2016 17:10	s1i2916.D	INSTRUMENTBLA			1	2	JLD1	IB
09/29/2016 17:40	s1i2917.D	WBN160921-17	A2	ICAL	1	12	JLD1	USE
09/29/2016 18:09	s1i2918.D	WBN160921-16	A3	ICAL	1	13	JLD1	USE
09/29/2016 18:39	s1i2919.D	WBN160921-15.1	A4	ICAL	1	14	JLD1	USE
09/29/2016 19:09	s1i2920.D	WBN160921-14	A5	ICAL	1	15	JLD1	USE
09/29/2016 19:38	s1i2921.D	WBN160921-13	A6	ICAL	1	16	JLD1	USE
09/29/2016 20:08	s1i2922.D	WBN160921-12.1	A7	ICAL	1	17	JLD1	USE
09/29/2016 20:38	s1i2923.D	WBN160921-11	A8	ICAL	1	18	JLD1	USE
09/29/2016 21:08	s1i2924.D	WBN160730-18.1	AICV	ICV	1	19	JLD1	DUSE; SEE 2948
09/29/2016 21:38	s1i2925.D	WBN160731-25	P2	ICAL	1	20	JLD1	USE
09/29/2016 22:07	s1i2926.D	WBN160731-24	P3	ICAL	1	21	JLD1	USE
09/29/2016 22:37	s1i2927.D	WBN160731-23.1	P4	ICAL	1	22	JLD1	USE
09/29/2016 23:07	s1i2928.D	WBN160731-22	P5	ICAL	1	23	JLD1	USE
09/29/2016 23:37	s1i2929.D	WBN160731-21	P6	ICAL	1	24	JLD1	USE
09/30/2016 00:06	s1i2930.D	WBN160731-20	P7	ICAL	1	25	JLD1	USE
09/30/2016 00:36	s1i2931.D	WBN160731-19	P8	ICAL	1	26	JLD1	USE
09/30/2016 01:05	s1i2932.D	WBN160731-26.3	PICV	ICV	1	27	JLD1	USE

ORGANIC RUN LOG - INSTRUMENT ID#MSD1

GEL ORGANIC RUN LOG

09/30/2016 01:35	s1i2933.D	WBN160728-99	DFTPP	DFTPP	1	1	JLD1	USE
09/30/2016 01:52	s1i2934.D	INSTRUMENTBLA			1	2	JLD1	IB
09/30/2016 02:22	s1i2935.D	WBN160906-31	H2	ICAL	1	28	JLD1	USE
09/30/2016 02:52	s1i2936.D	WBN160906-32	H3	ICAL	1	29	JLD1	USE
09/30/2016 03:21	s1i2937.D	WBN160906-33.1	H4	ICAL	1	30	JLD1	USE
09/30/2016 03:51	s1i2938.D	WBN160906-34	H5	ICAL	1	31	JLD1	USE
09/30/2016 04:21	s1i2939.D	WBN160913-35	H6	ICAL	1	32	JLD1	USE
09/30/2016 04:51	s1i2940.D	WBN160809-38	HICV	ICV	1	33	JLD1	USE
09/30/2016 05:21	s1i2941.D	WBN160801-43	B2	ICAL	1	34	JLD1	USE
09/30/2016 05:51	s1i2942.D	WBN160801-44	B3	ICAL	1	35	JLD1	USE
09/30/2016 06:20	s1i2943.D	WBN160801-45.1	B4	ICAL	1	36	JLD1	USE
09/30/2016 06:50	s1i2944.D	WBN160801-46	B5	ICAL	1	37	JLD1	USE; NO LEVEL 6 FOR BENZ ICAL
09/30/2016 07:20	s1i2945.D	WBN160801-48	B7	ICAL	1	38	JLD1	USE
09/30/2016 07:50	s1i2946.D	WBN160801-49	B8	ICAL	1	39	JLD1	USE
09/30/2016 08:20	s1i2947.D	WBN160801-50.2	BICV	ICV	1	40	JLD1	DUSE; TIME GAP
09/30/2016 09:49	s1i2948.D	WBN160922-18.2	AICV	ICV	1	41	JLD1	USE

ORGANIC RUN LOG - INSTRUMENT ID#MSD1

GEL ORGANIC RUN LOG

DATE: 10-Nov-16 METHOD: See Data OPERATOR: JMB3 Sequence Number: S111016.B

Multiplier Voltage: 1576
Internal Std ID: UBN160520-01.2
Internal Std ID: WBN160804-99 (SIM)
Solvent Reference ID: 2403002

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See Associated Data and Run Log
GEL SOP: GL-OA-E-009

Analysis Date	Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
11/10/2016	09:34	s1k1001.D	WBN161104-99	DFTPP	duse	1	1	JMB3	DUSE: passed
11/10/2016	09:51	s1k1002.D	WBN161025-05.4	M-CCV	duse	1	2	JMB3	DUSE: outliers - performed maintenance
11/10/2016	11:17	s1k1003.D	WBN161104-99	DFTPP	DFTPP	1	1	JMB3	√
11/10/2016	11:34	s1k1004.D	WBN161025-05.4	M-CCV	duse	1	2	JMB3	DUSE: see s1k1006
11/10/2016	12:09	s1k1005.D	WBN161004-18.4	A-CCV	CCV	1	3	JMB3	√
11/10/2016	12:40	s1k1006.D	WBN161025-05.4	M-CCV	CCV	1	2	JMB3	√ IS1: 192132
11/10/2016	13:14	s1k1007.D	WBN160731-23.2	P-CCV	CCV	1	4	JMB3	√
11/10/2016	13:40	s1k1008.D	WBN161021-38	H-CCV	CCV	1	5	JMB3	√
11/10/2016	14:07	s1k1009.D	WBN160801-45.2	B-CCV	CCV	1	6	JMB3	√
11/10/2016	14:33	s1k1010.D	409519002	BETT	1613520	1	7	JMB3	Report
11/10/2016	15:07	s1k1011.D	409519005	BETT	1613520	1	8	JMB3	Report
11/10/2016	15:41	s1k1012.D	409519008	BETT	1613520	1	9	JMB3	Report
11/10/2016	16:16	s1k1013.D	409519012	BETT	1613520	1	10	JMB3	Report
11/10/2016	16:50	s1k1014.D	1203663472	MS	1613520	1	11	JMB3	Report
11/10/2016	17:24	s1k1015.D	1203663473	MSD	1613520	1	12	JMB3	Report
11/10/2016	17:58	s1k1016.D	1203665318	MB	1614270	1	13	JMB3	Report
11/10/2016	18:32	s1k1017.D	1203665319	LCS	1614270	1	14	JMB3	Report
11/10/2016	19:06	s1k1018.D	409286001	ARSL	1614270	1	15	JMB3	Report
11/10/2016	19:41	s1k1019.D	1203665320	MS	1614270	1	16	JMB3	Report
11/10/2016	20:15	s1k1020.D	1203665321	MSD	1614270	1	17	JMB3	Report
11/10/2016	20:48	s1k1021.D	409833001	CARE	1614270	1	18	JMB3	Report
11/10/2016	21:22	s1k1022.D	409833002	CARE	1614270	1	19	JMB3	Report
11/10/2016	21:57	s1k1023.D	409831001	CARE	1614270	1	20	JMB3	DUSE: ISTD's 3-6 <10% or 0% - see dilutions on 111116
11/10/2016	22:30	s1k1024.D	WBN161104-99	DFTPP	DFTPP	1	1	JMB3	DUSE: post sequence screen - PCP low

ORGANIC RUN LOG - INSTRUMENT ID#MSD1

GEL ORGANIC RUN LOG

DATE: 11-Nov-16 METHOD: See Data OPERATOR: JMB3 Sequence Number: S111116.B

Multiplier Voltage: 1576
Internal Std ID: UBN160520-01.2
Internal Std ID: WBN160804-99 (SIM)
Solvent Reference ID: 2403002

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See Associated Data and Run Log
GEL SOP: GL-OA-E-009

Analysis Date	Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
11/11/2016	10:33	s1k1101.D	WBN161104-99	DFTPP	DFTPP	1	1	JMB3	√
11/11/2016	10:50	s1k1102.D	WBN161025-05.4	M-CCV	duse	1	2	JMB3	DUSE: see s1k1107
11/11/2016	11:27	s1k1103.D	WBN161004-18.4	A-CCV	CCV	1	3	JMB3	√
11/11/2016	11:57	s1k1104.D	WBN160731-23.2	P-CCV	CCV	1	4	JMB3	√
11/11/2016	12:23	s1k1105.D	WBN161021-38	H-CCV	CCV	1	5	JMB3	√
11/11/2016	12:50	s1k1106.D	WBN160801-45.2	B-CCV	CCV	1	6	JMB3	√
11/11/2016	13:48	s1k1107.D	WBN161025-05.4	M-CCV	CCV	1	2	JMB3	√ IS1: 241123
11/11/2016	14:23	s1k1108.D	WBN160921-17	A/B-10ppm	CRDL	1	7	JMB3	√
11/11/2016	14:51	s1k1109.D	409254029	HAAL	1614270	1	8	JMB3	Report
11/11/2016	15:21	s1k1110.D	409254032	HAAL	1614270	1	9	JMB3	Report
11/11/2016	15:51	s1k1111.D	409254034	HAAL	1614270	1	10	JMB3	Report
11/11/2016	16:21	s1k1112.D	409254036	HAAL	1614270	1	11	JMB3	Report
11/11/2016	16:51	s1k1113.D	409254038	HAAL	1614270	1	12	JMB3	Report
11/11/2016	17:21	s1k1114.D	409239005	UCOR	1614270	1	13	JMB3	Report
11/11/2016	17:51	s1k1115.D	409239007	UCOR	1614270	1	14	JMB3	Report
11/11/2016	18:21	s1k1116.D	409239009	UCOR	1614270	10	15	JMB3	Report
11/11/2016	18:51	s1k1117.D	409239011	UCOR	1614270	1	16	JMB3	Report: all except OR hits - see s1k1405 for 4x results
11/11/2016	19:21	s1k1118.D	409239024	UCOR	1614270	10	17	JMB3	DUSE: possible carryover - rerun - see s1k1406
11/11/2016	19:50	s1k1119.D	409239026	UCOR	1614270	10	18	JMB3	Report
11/11/2016	20:20	s1k1120.D	409831001	CARE	1614270	2000	19	JMB3	DUSE: rr @ 500x - see s1k1122
11/11/2016	20:54	s1k1121.D	409831001	CARE	1614270	1000	20	JMB3	DUSE: rr @ 500x - see s1k1122
11/11/2016	21:28	s1k1122.D	409831001	CARE	1614270	500	21	JMB3	Report: per PM - no ISTD6, do not report higher dilutions
11/11/2016	22:02	s1k1123.D	WBN161104-99	DFTPP	DFTPP	1	1	JMB3	DUSE: post sequence screen - passed
11/11/2016	22:19	s1k1124.D	WBN161025-05.4	M-CCV	CCV	1	2	JMB3	DUSE: ok
11/11/2016	22:54	s1k1125.D	WBN161004-18.4	A/B-CCV	CCV	1	3	JMB3	DUSE: ok

ORGANIC RUN LOG - INSTRUMENT ID#MSD4

GEL ORGANIC RUN LOG

DATE: 13-Oct-16 METHOD: See Data OPERATOR: JMB3 Sequence Number: S101316.B

Multiplier Voltage: 1812
Internal Std ID: UBN160520-01.1
Internal Std ID: WBN160602-99 (SIM)
Solvent Reference ID: 2403002

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See Associated Data and Run Log
GEL SOP: GL-OA-E-009

Analysis Date	Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
10/13/2016	10:14	s4j1301.D	WBN160728-99	DFTPP	DFTPP	1	1	JMB3	√
10/13/2016	10:29	s4j1302.D	WBN160804-83.1	S-6	ICAL	1	2	JMB3	√
10/13/2016	11:06	s4j1303.D	WBN160804-88	S-1	ICAL	1	3	JMB3	√
10/13/2016	11:34	s4j1304.D	WBN160804-87	S-2	ICAL	1	4	JMB3	√
10/13/2016	12:02	s4j1305.D	WBN160804-86	S-3	ICAL	1	5	JMB3	√
10/13/2016	12:31	s4j1306.D	WBN160804-85	S-4	ICAL	1	6	JMB3	√
10/13/2016	12:59	s4j1307.D	WBN160804-84	S-5	ICAL	1	7	JMB3	√
10/13/2016	13:27	s4j1308.D	WBN160804-82	S-7	ICAL	1	8	JMB3	√
10/13/2016	13:56	s4j1309.D	WBN160804-81	S-8	ICAL	1	9	JMB3	√
10/13/2016	14:24	s4j1310.D	WBN160804-89.1	S-ICV	ICV	1	10	JMB3	√
10/13/2016	14:52	s4j1311.D	1203644335	MB	1605717	1	11	JMB3	
10/13/2016	15:21	s4j1312.D	1203644336	LCS	1605717	1	12	JMB3	
10/13/2016	15:49	s4j1313.D	407306001	QCQA_LOD(3510)	1605717	1	13	JMB3	
10/13/2016	16:18	s4j1314.D	407306002	QCQA_LOQ(3510)	1605717	1	14	JMB3	

ORGANIC RUN LOG - INSTRUMENT ID#MSD4

GEL ORGANIC RUN LOG

DATE: 7-Nov-16 METHOD: See Data OPERATOR: JMB3 Sequence Number: S110716.B

Multiplier Voltage: 1812
Internal Std ID: UBN160520-01.2
Internal Std ID: WBN161106-99 (SIM)
Solvent Reference ID: 2403002

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See Associated Data and Run Log
GEL SOP: GL-OA-E-009

Analysis Date	Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
11/07/2016	08:14	s4k0701.D	WBN161104-99	DFTPP	DFTPP	1	1	JMB3	√
11/07/2016	08:29	s4k0702.D	WBN160804-83.4	S-CCV	CCV	1	2	JMB3	√ IS1: 421327
11/07/2016	09:01	s4k0703.D	1203661742	MB	1612777	1	3	JMB3	Report
11/07/2016	09:29	s4k0704.D	1203661743	LCS	1612777	1	4	JMB3	Report
11/07/2016	09:57	s4k0705.D	409254028	HAAL	1612777	20	5	JMB3	DUSE: matrix, ISTD failure - rr @ 200x - see s4k0717
11/07/2016	10:26	s4k0706.D	1203661744	MS	1612777	1	6	JMB3	Report
11/07/2016	10:54	s4k0707.D	409254013	HAAL	1612777	1	7	JMB3	Report
11/07/2016	11:22	s4k0708.D	1203661745	MSD	1612777	1	8	JMB3	Report
11/07/2016	11:51	s4k0709.D	409254014	HAAL	1612777	1	9	JMB3	Report
11/07/2016	12:19	s4k0710.D	409254015	HAAL	1612777	1	10	JMB3	Report
11/07/2016	12:47	s4k0711.D	409254016	HAAL	1612777	1	11	JMB3	Report
11/07/2016	13:16	s4k0712.D	409254017	HAAL	1612777	1	12	JMB3	Report
11/07/2016	13:44	s4k0713.D	409254018	HAAL	1612777	1	13	JMB3	Report
11/07/2016	14:12	s4k0714.D	409254019	HAAL	1612777	1	14	JMB3	Report
11/07/2016	14:41	s4k0715.D	409254026	HAAL	1612777	1	15	JMB3	Report
11/07/2016	15:09	s4k0716.D	409254027	HAAL	1612777	1	16	JMB3	Report
11/07/2016	15:38	s4k0717.D	409254028	HAAL	1612777	200	17	JMB3	Report
11/07/2016	16:06	s4k0718.D	1203662815	MB	1613211	1	18	JMB3	Report
11/07/2016	16:34	s4k0719.D	1203662816	LCS	1613211	1	19	JMB3	Report: 3 spikes high - not hits in ERMC samples
11/07/2016	17:03	s4k0720.D	409766001	ERMC	1613211	1	20	JMB3	Report
11/07/2016	17:31	s4k0721.D	1203662817	MS	1613211	1	21	JMB3	Report
11/07/2016	17:59	s4k0722.D	1203662818	MSD	1613211	1	22	JMB3	Report
11/07/2016	18:28	s4k0723.D	409766002	ERMC	1613211	1	23	JMB3	DUSE: failed ISTD - see rr s4k0814
11/07/2016	18:56	s4k0724.D	409766003	ERMC	1613211	1	24	JMB3	Report
11/07/2016	19:24	s4k0725.D	409766004	ERMC	1613211	1	25	JMB3	Report
11/07/2016	19:52	s4k0726.D	409766005	ERMC	1613211	1	26	JMB3	Report
11/07/2016	20:20	s4k0727.D	409766006	ERMC	1613211	1	27	JMB3	DUSE: outside tune - see rr s4k0815
11/07/2016	20:49	s4k0728.D	409766007	ERMC	1613211	1	28	JMB3	DUSE: outside tune - see rr s4k0816
11/07/2016	21:17	s4k0729.D	409766008	ERMC	1613211	1	29	JMB3	DUSE: outside tune - see rr s4k0817
11/07/2016	21:45	s4k0730.D	WBN161104-99	DFTPP	DFTPP	1	1	JMB3	DUSE: breakdown > 20% - file not printed/reviewed
11/07/2016	22:00	s4k0731.D	WBN160804-83.4	S-CCV	CCV	1	2	JMB3	DUSE: Tune failed - CCV responsed OK - file not printed/reviewed
11/07/2016	22:29	s4k0732.D	409766006	ERMC	1613211	1	27	JMB3	DUSE: Tune failed - file not printed/reviewed

ORGANIC RUN LOG - INSTRUMENT ID#MSD4

GEL ORGANIC RUN LOG

11/07/2016 22:57	s4k0733.D	409766007	ERMC	1613211	1	28	JMB3	DUSE: Tune failed - file not printed/reviewed
11/07/2016 23:25	s4k0734.D	409766008	ERMC	1613211	1	29	JMB3	DUSE: Tune failed - file not printed/reviewed

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
08-NOV-16	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 3541/8270D SIM PAH	Solid	HAAL
Batch ID:	**Sample Numbers:**		
1612777	See Below		

Potentially affected work order(s)(SDG): 409254

Application Issues:

Failed Yield for Surrogates

Manual Integration

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Yield for Surrogates: 409254 028	1. Sample (See Below) did not meet surrogate recovery acceptance criteria. The sample was analyzed at a dilution. As a result, one or more surrogates were diluted out of the acceptance limits. 409254028 (SS050100) 5-alpha-Androstane [0* (30%-118%)].

Originator's Name:

Josh Brooks 08-NOV-16

Data Validator/Group Leader:

Cameron Bearden 08-NOV-16

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
14-NOV-16	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 3541/8270D	Solid	CARE, HAAL, ARSL(LANL),
Batch ID:	**Sample Numbers:**		
1614270	See Below		

Potentially affected work order(s)(SDG): 409239,409254,409286(2017-257),409831(EUI-10351),409833(EUI-10352)

Application Issues:

Failed Recovery for MS/MSD, or PS/PSD

Failed RPD for MS/MSD, or PS/PSD

Failed Yield for Surrogates

Manual Integration

Specification and Requirements Exception Description:	**DER Disposition:**
1. Sample 409831001 and QC sample 1203665320MS failed surrogate recovery.	1. Sample (See Below) did not meet surrogate recovery acceptance criteria. The sample was analyzed at a dilution. As a result, one or more surrogates were diluted out of the acceptance limits. 409831001 (0680-05-0022 L125220) 2,4,6-Tribromophenol [0* (39%-115%)], 2-Fluorobiphenyl [170* (35%-107%)], 2-Fluorophenol [0* (36%-104%)], Nitrobenzene-d5 [0* (34%-109%)], Phenol-d5 [0* (39%-106%)] and p-Terphenyl-d14 [130* (45%-119%)]. Sample (See Below) did not meet surrogate recovery acceptance criteria. Since the parent sample and associated MS/MSD pair displayed similar recoveries, the failures were attributed to matrix interference and the data results are reported. 1203665320 (WST03-17-127184MS) 2,4,6-Tribromophenol [32* (39%-115%)].
2. The 1203665320MS and 1203665321MSD failed spike recovery.	2. The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported. 1203665320 (WST03-17-127184MS) Several [See applicable report]. 1203665321 (WST03-17-127184MSD) Several [See applicable report].
3. The RPD values between the 1203665320MS and 1203665321MSD wer enot within the acceptance limits.	3. The relative percent differences (RPD) for the MS and MSD, (See Below), were not within the acceptance limits. The failures were attributed to matrix interference. The data were reported. 1203665320MS and 1203665321MSD (WST03-17-127184) 2,3,4,6-Tetrachlorophenol [74* (0%-30%)], 2,4,5-Trichlorophenol [56* (0%-30%)], 2,4,6-Trichlorophenol [62* (0%-30%)], 2-Methyl-4,6-dinitrophenol [200* (0%-30%)], Hexachlorocyclopentadiene [36* (0%-30%)] and Pentachlorophenol [79* (0%-30%)].

Originator's Name:

Josh Brooks 14-NOV-16

Data Validator/Group Leader:

Herbert Maier 14-NOV-16

FID Diesel Range Organics Analysis

Case Narrative

Diesel Range Organics
Technical Case Narrative
Haley & Aldrich, Inc. (HAAL)
SDG #: 409254

Product: **Analysis of Diesel Range Organics by Flame Ionization Detector**
Analytical Method: SW846 3541/8015C
Analytical Procedure: GL-OA-E-003 REV# 28
Analytical Batch: 1612127

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-010 REV# 26
Preparation Batch: 1612126

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
409254040	DP060321
409254041	DP060113
409254042	DP060212
409254043	DP060212DUP
1203659992	Method Blank (MB)
1203659993	Laboratory Control Sample (LCS)
1203659994	409254040(DP060321) Matrix Spike (MS)
1203659995	409254040(DP060321) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria; however, the MB contained low level (below the PQL) of hydrocarbons.

Miscellaneous Information

Manual Integrations
Samples 1203659993 (LCS), 1203659994 (DP060321MS) and 1203659995 (DP060321MSD) required manual integration to correctly position the baseline as set in the calibration standard injections.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

HAAL002 Haley & Aldrich, Inc.

Client SDG: 409254 GEL Work Order: 409254

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
B The target analyte was detected in the associated blank.
J Value is estimated

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 18 NOV 2016 **Title: Data Validator**

Sample Data Summary

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:31**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254040**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**15.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP060321**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 01:36**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.062 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0324.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	BJ	7640	ug/Kg	2550	7830
68334-30-5						

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254041**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**7.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP060113**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 03:33**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.025 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0327.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	BJ	6850	ug/Kg	2340	7210
68334-30-5						

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 13:22**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254042**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**16.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP060212**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 04:12**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.004 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0328.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	BJ	6840	ug/Kg	2610	8020
68334-30-5						

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 13:22**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254043**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**24.2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP060212DUP**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 04:51**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0329.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	B	9100	ug/Kg	2860	8790
68334-30-5						

Quality Control Summary

FID Diesel Range Organics

Surrogate Recovery Report

SDG Number: 409254

Matrix Type: SOLID

Sample ID	Client ID	OTP %REC
1203659992	MB for batch 1612126	70
1203659993	LCS for batch 1612126	75
409254040	DP060321	79
1203659994	DP060321MS	85
1203659995	DP060321MSD	70
409254041	DP060113	80
409254042	DP060212	75
409254043	DP060212DUP	83

Surrogate		Acceptance Limits
OTP	= o-Terphenyl	(40%-109%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

FID Diesel Range Organics

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Sample Type: Laboratory Control Sample
Client ID: LCS for batch 1612126
Matrix: SOIL
Lab Sample ID 1203659993
Instrument: FID7.I
Analysis Date: 11/04/2016 00:58
Dilution: 1
Analyst: LXA1
Prep Batch ID: 1612126
Inj. Vol: 1 uL
Batch ID: 1612127

CAS No	Parmname		Amount Added ug/Kg	Sample Conc. ug/Kg	Spike Conc. ug/Kg	Recovery %	Acceptance Limits
68334-30-5	LCS	Diesel Range Organics	33300	0.0	25900	78	56-110

FID Diesel Range Organics

Quality Control Summary
Spike Recovery Report

SDG Number: **409254**
Client ID: **DP060321MS**
Lab Sample ID **1203659994**
Instrument: **FID7.I**
Analvst: **LXA1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **SOIL**
%Moisture: **15.1**
Analvsis Date: **11/04/2016 02:15**
Prep Batch ID: **1612126**
Batch ID: **1612127**
Dilution: **1**

CAS No	Parmname		Amount Added ug/Kg	Sample Conc. ug/Kg		Spike Conc. ug/Kg	Recovery %	Acceptance Limits
68334-30-5	MS	Diesel Range Organics	39300	7640	BJ	45600	97	32-127

FID Diesel Range Organics

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: DP060321MSD
Lab Sample ID 1203659995
Instrument: FID7.I
Analyst: LXA1
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 15.1
Analysis Date: 11/04/2016 02:54
Prep Batch ID: 1612126
Batch ID: 1612127
Dilution: 1

CAS No	Parmname	Amount Added ug/Kg	Sample Conc. ug/Kg		Spike Conc. ug/Kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
68334-30-5	MSD Diesel Range Organics	39200	7640	BJ	33100	65	32-127	32	0-72

Method Blank Summary

SDG Number:	**409254**	**Client:**	**HAAL002**	**Matrix:**	**SOIL**
Client ID:	**MB for batch 1612126**	**Instrument ID:**	**FID7.I**	**Data File:**	**110316_DRO\F7K0322.D**
Lab Sample ID:	**1203659992**	**Prep Date:**	**11/02/2016 12:26**	**Analyzed:**	**11/04/16 00:19**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1612126	1203659993	110316_DRO\F7K0323.D	11/04/16	0058
02	DP060321	409254040	110316_DRO\F7K0324.D	11/04/16	0136
03	DP060321MS	1203659994	110316_DRO\F7K0325.D	11/04/16	0215
04	DP060321MSD	1203659995	110316_DRO\F7K0326.D	11/04/16	0254
05	DP060113	409254041	110316_DRO\F7K0327.D	11/04/16	0333
06	DP060212	409254042	110316_DRO\F7K0328.D	11/04/16	0412
07	DP060212DUP	409254043	110316_DRO\F7K0329.D	11/04/16	0451

Sample Data

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:31**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254040**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**15.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP060321**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 01:36**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.062 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0324.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	BJ	7640	ug/Kg	2550	7830
68334-30-5						

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0324.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 01:36
Operator : LXA1 InstName : FID7
Sample : |409254040|1612127|1|DROQ|1|HAAL|||
Misc : |FIDDROC4_S|SOIL|DP060321|MIX[A]||
ALS Vial : 24 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:38 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl		14.169	14.166 -0.003	29758794	15.763	mg/L

Compound	Amount	Range	Recovery
2) o-Terphenyl	20.000	No Limits	79%

Target Compounds					
1) HA Diesel Range Organics	Range	8.055 - 17.937	314124265	194.981	mg/L

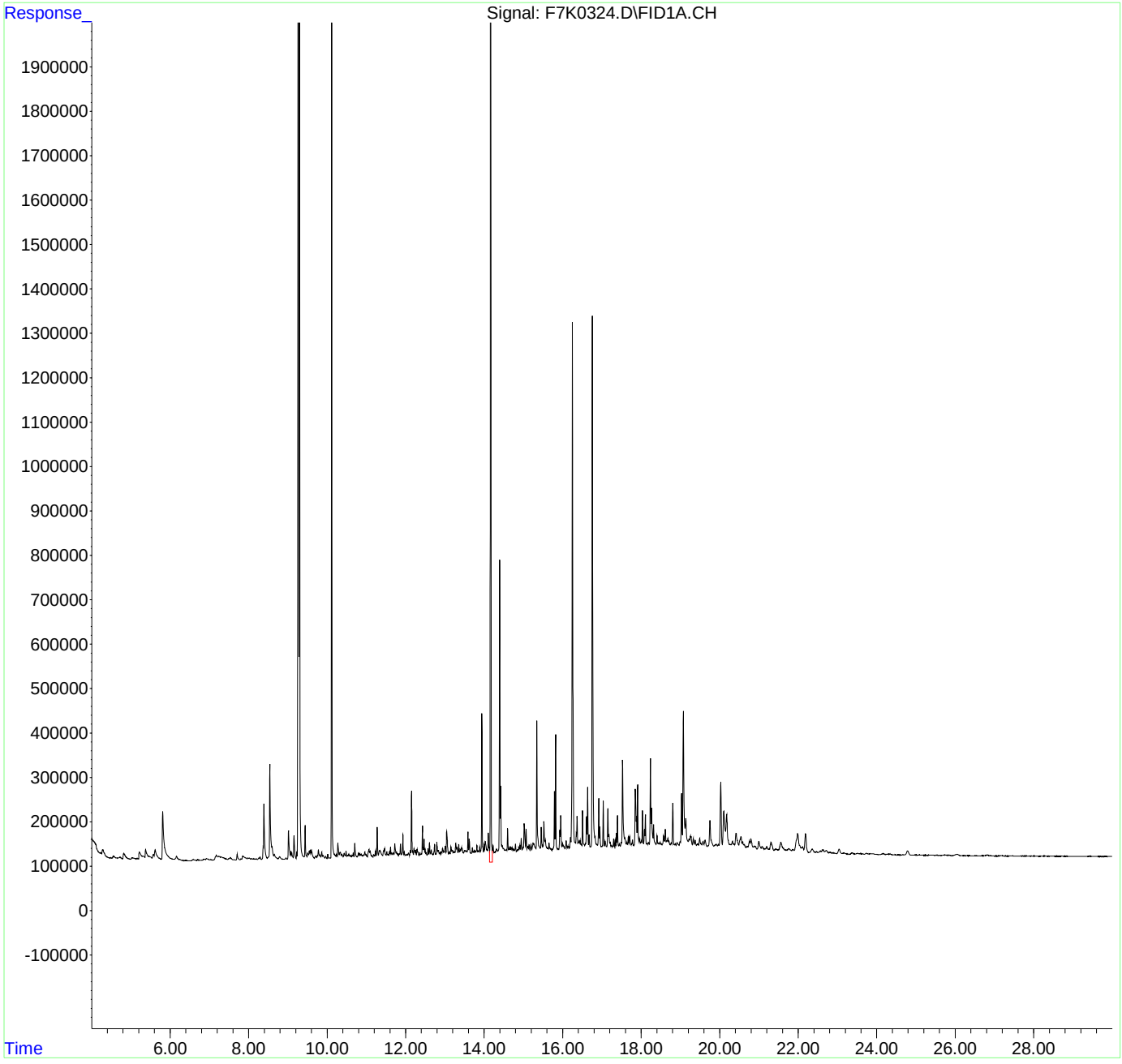
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

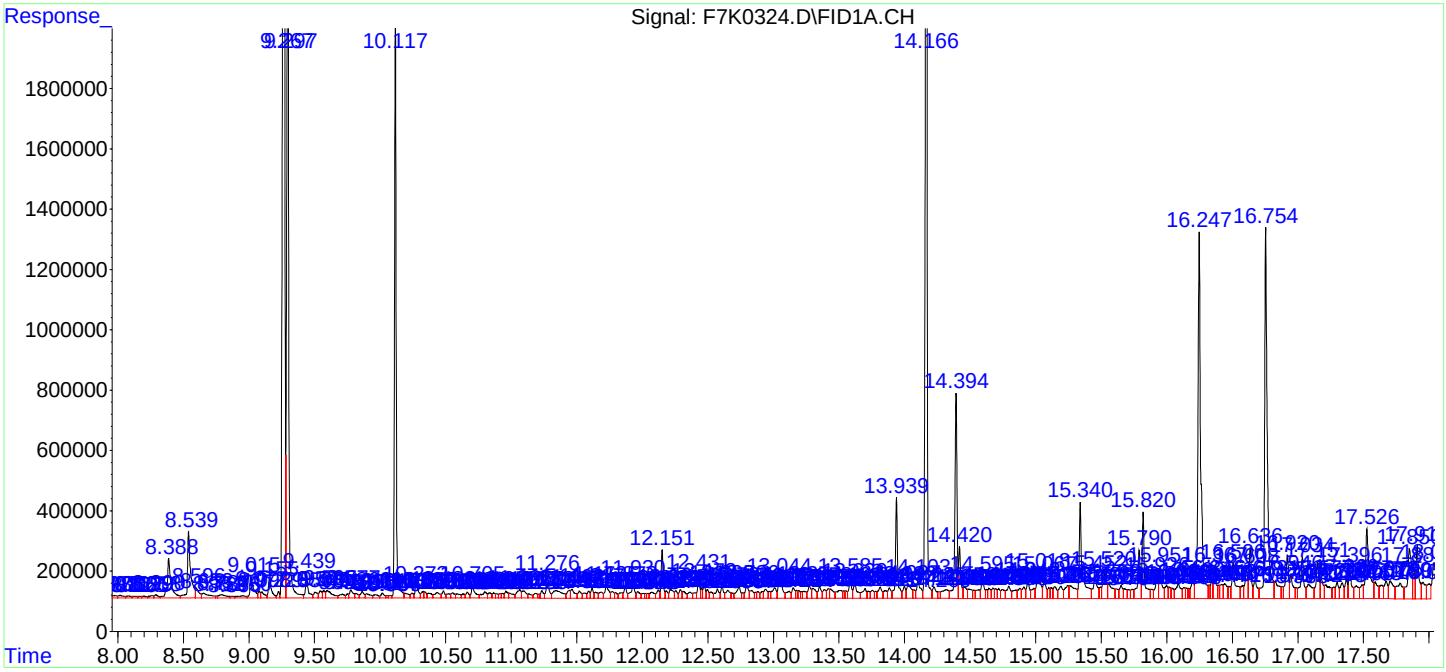
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0324.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 01:36
Operator : LXA1 InstName : FID7
Sample : |409254040|1612127|1|DROQ|1|HAAL|||
Misc : |FIDDROC4_S|SOIL|DP060321|MIX[A]||
ALS Vial : 24 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:38 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

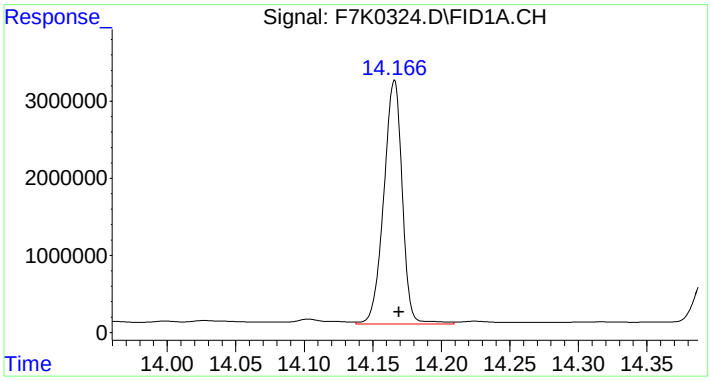
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	343883059
Total SMC/ISTD Resp:	29758794
Final Resp:	314124265



#2
o-Terphenyl

R.T.:	14.166 min
Delta R.T.:	-0.003 min
Response:	29758794
Conc:	15.76 mg/L

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254041**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**7.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP060113**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 03:33**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.025 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0327.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	BJ	6850	ug/Kg	2340	7210
68334-30-5						

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0327.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 03:33
Operator : LXA1 InstName : FID7
Sample : |409254041|1612127|1|DROQ|1|HAAL|||
Misc : |FIDDROC4_S|SOIL|DP060113|MIX[A]||
ALS Vial : 27 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:44 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl		14.169	14.165 -0.004	30309328	16.055	mg/L

Compound	Amount	Range	Recovery
2) o-Terphenyl	20.000	No Limits	80%

Target Compounds					
1) HA Diesel Range Organics	Range	8.055 - 17.937	305986898	189.930	mg/L

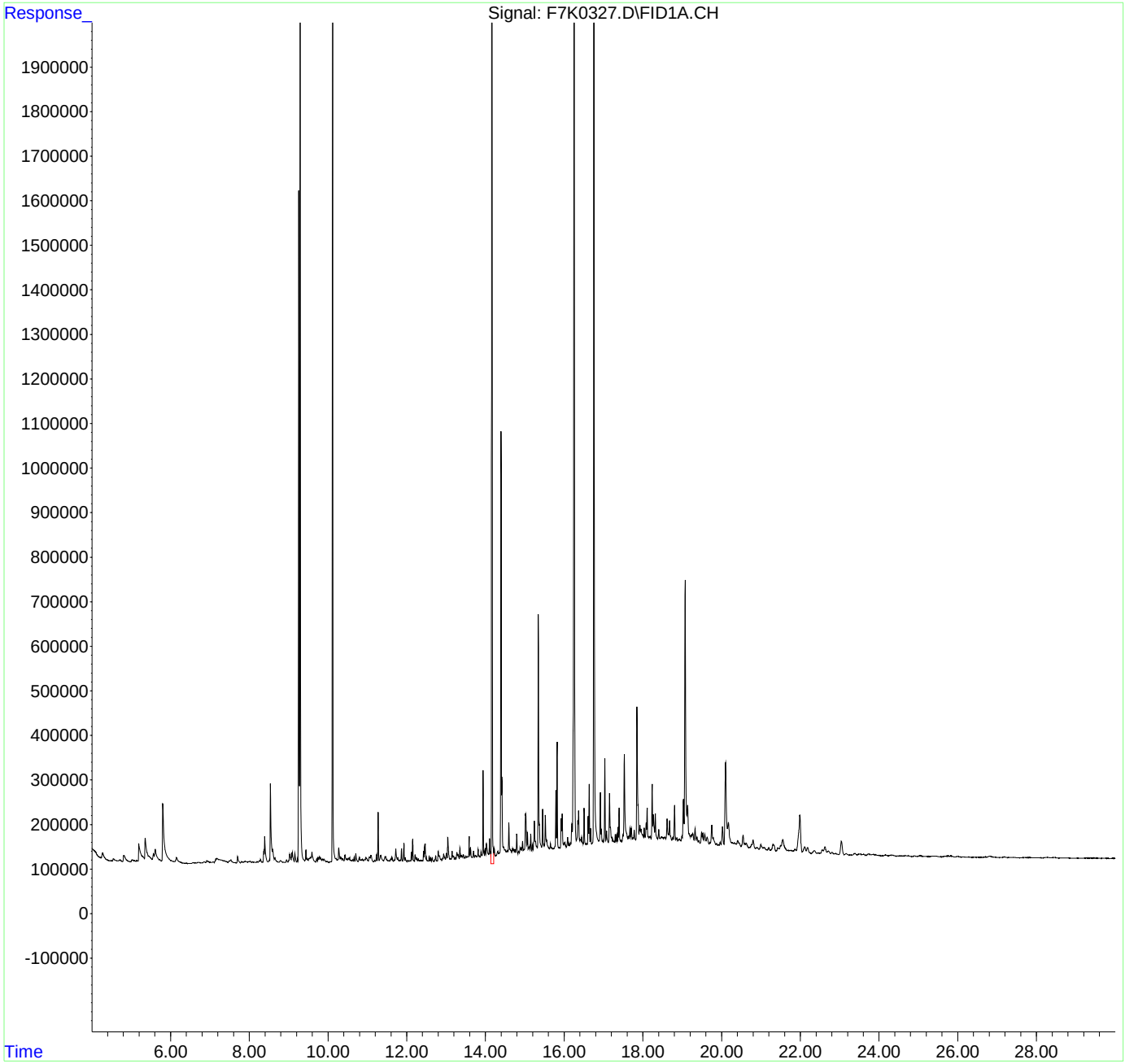
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

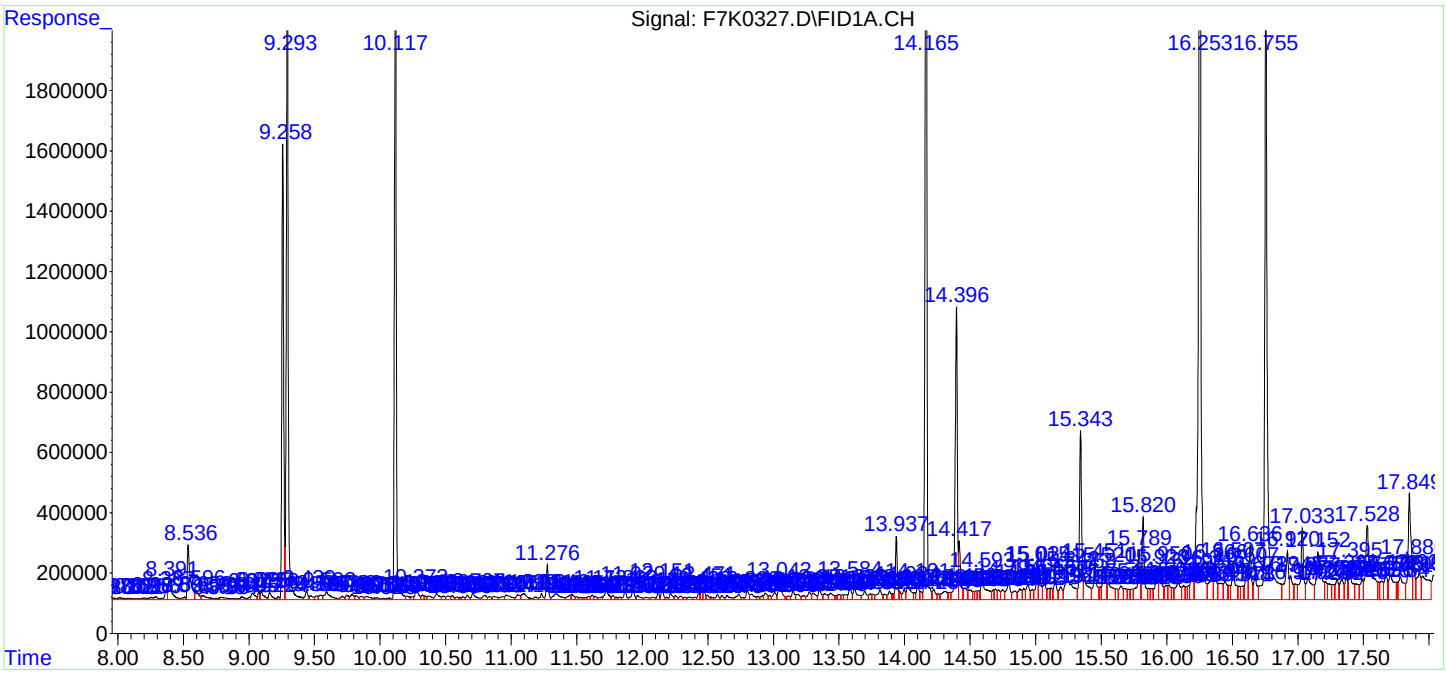
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0327.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 03:33
Operator : LXA1 InstName : FID7
Sample : |409254041|1612127|1|DROQ|1|HAAL|||
Misc : |FIDDROC4_S|SOIL|DP060113|MIX[A]||
ALS Vial : 27 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:44 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

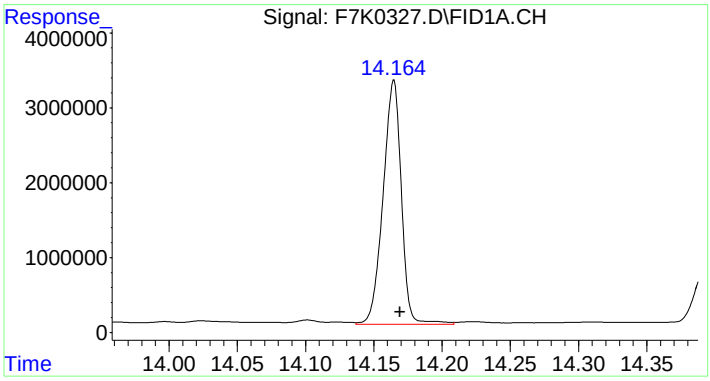
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	336296227
Total SMC/ISTD Resp:	30309328
Final Resp:	305986898



#2
o-Terphenyl

R.T.:	14.165 min
Delta R.T.:	-0.004 min
Response:	30309328
Conc:	16.06 mg/L

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 13:22**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254042**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**16.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP060212**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 04:12**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.004 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0328.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	BJ	6840	ug/Kg	2610	8020
68334-30-5						

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0328.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 04:12
Operator : LXA1 InstName : FID7
Sample : |409254042|1612127|1|DROQ|1|HAAL|||
Misc : |FIDDROC4_S|SOIL|DP060212|MIX[A]||
ALS Vial : 28 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:46 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl		14.169	14.167 -0.002	28368034	15.027	mg/L

Compound	Amount	Range	Recovery
2) o-Terphenyl	20.000	No Limits	75%

Target Compounds					
1) HA Diesel Range Organics	Range	8.055 - 17.937	274759252	170.546	mg/L

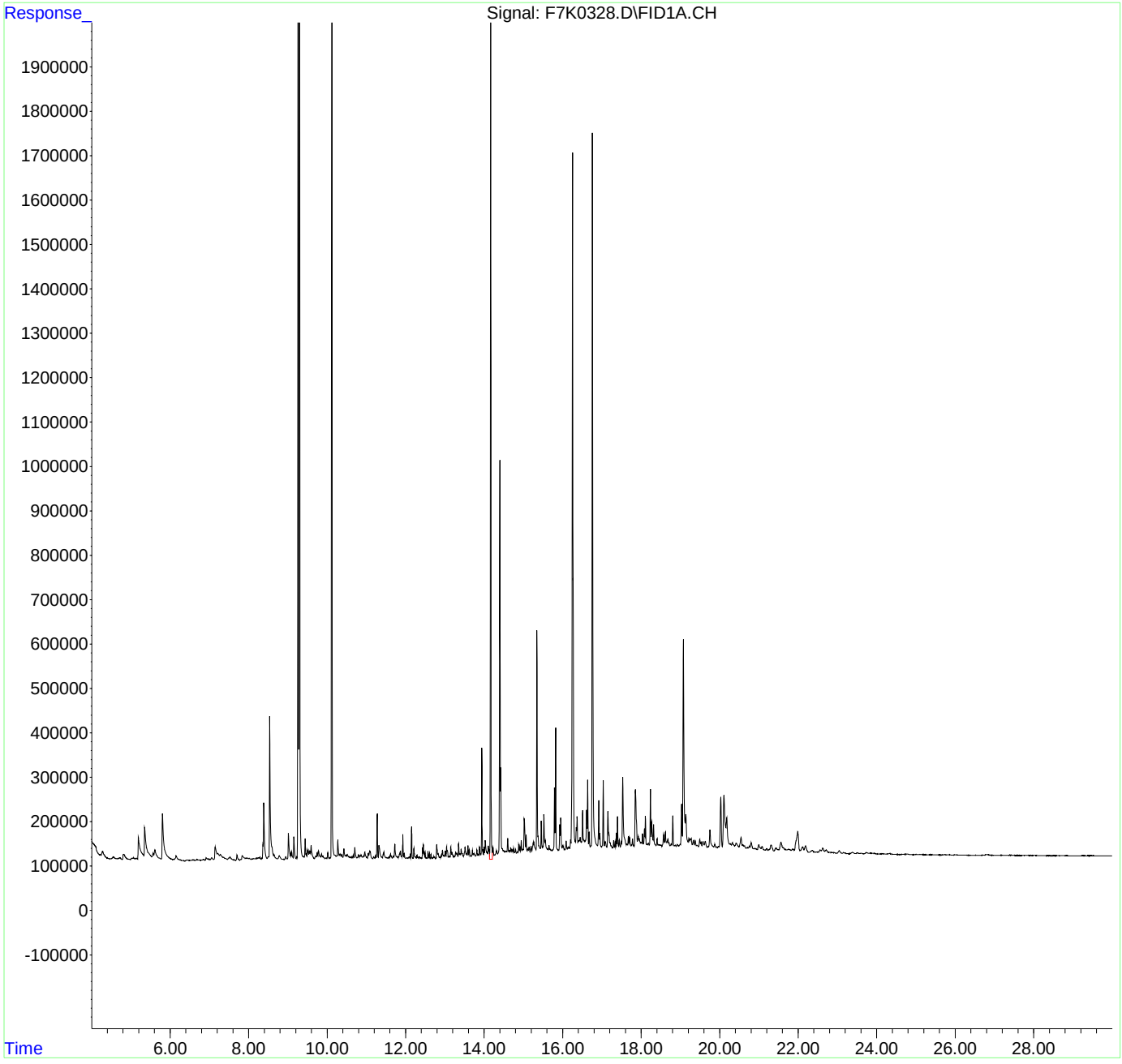
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

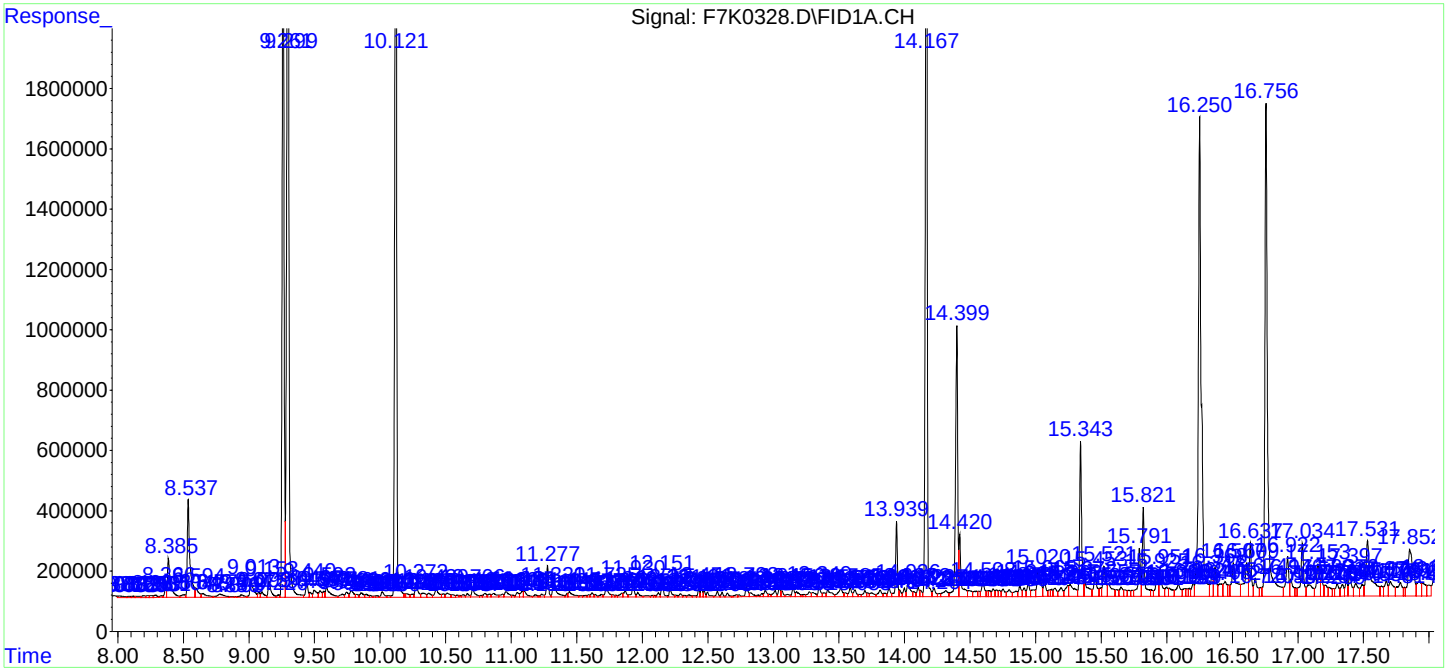
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0328.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 04:12
Operator : LXA1 InstName : FID7
Sample : |409254042|1612127|1|DROQ|1|HAAL|||
Misc : |FIDDROC4_S|SOIL|DP060212|MIX[A]||
ALS Vial : 28 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:46 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

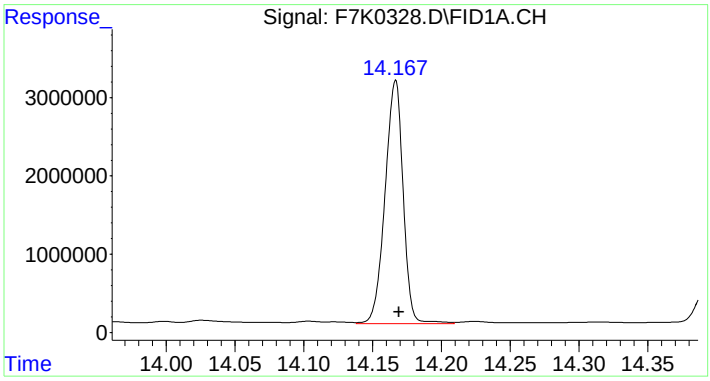
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





Compound: Diesel Range Organics

RT Range: 8.055: 17.937
Total TPH Resp: 303127286
Total SMC/ISTD Resp: 28368034
Final Resp: 274759252



#2
o-Terphenyl
R.T.: 14.167 min
Delta R.T.: -0.002 min
Response: 28368034
Conc: 15.03 mg/L

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 13:22**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254043**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**24.2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP060212DUP**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 04:51**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0329.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	B	9100	ug/Kg	2860	8790
68334-30-5						

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0329.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 04:51
Operator : LXA1 InstName : FID7
Sample : |409254043|1612127|1|DROQ|1|HAAL|||
Misc : |FIDDROC4_S|SOIL|DP060212DUP|MIX[A]||
ALS Vial : 29 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:48 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.169	14.167	-0.002	31359138	16.611	mg/L

Compound	Amount	Range	Recovery
2) o-Terphenyl	20.000	No Limits	83%

Target Compounds					
1) HA Diesel Range Organics	Range	8.055 - 17.937	333616679	207.080	mg/L

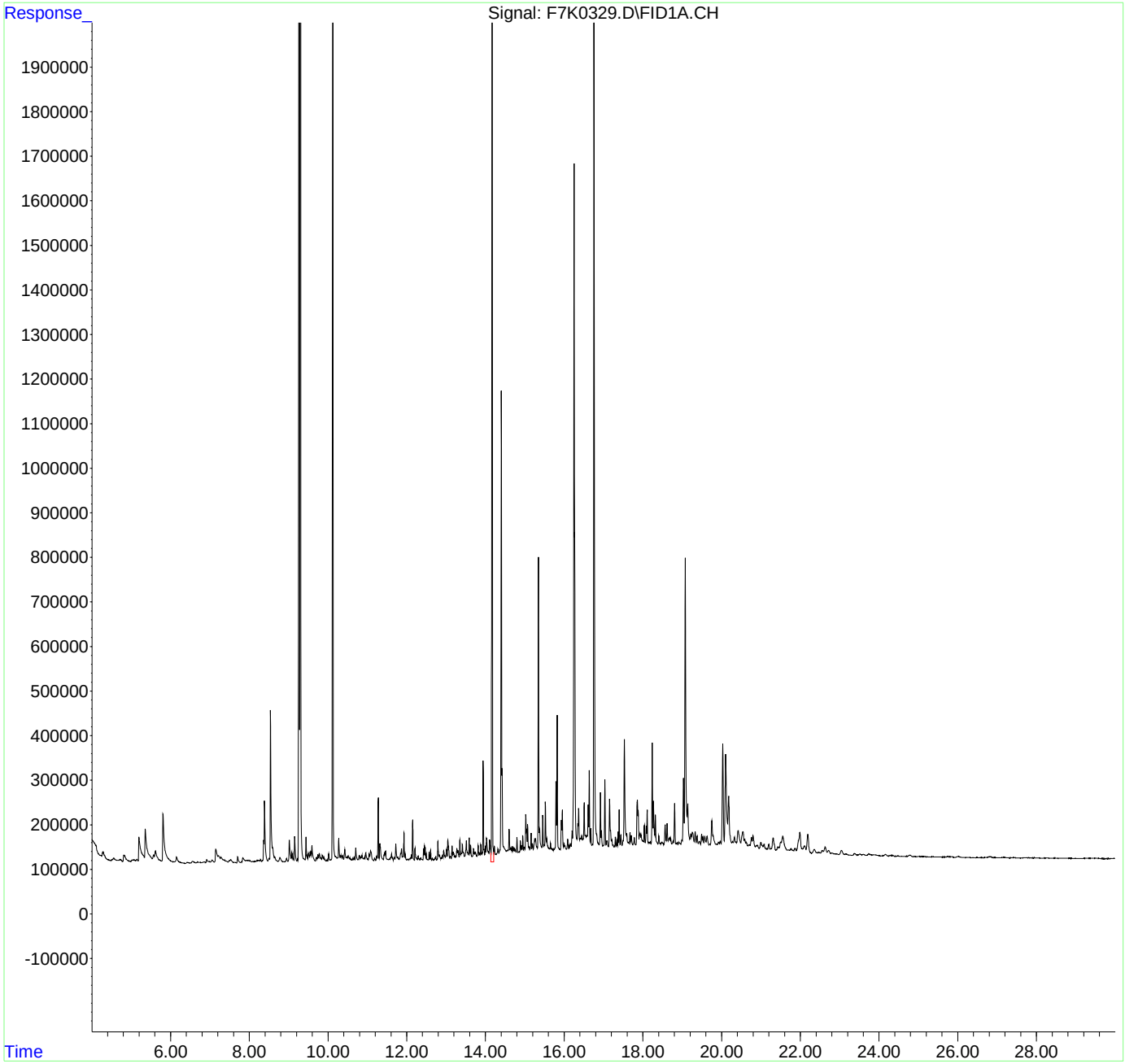
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

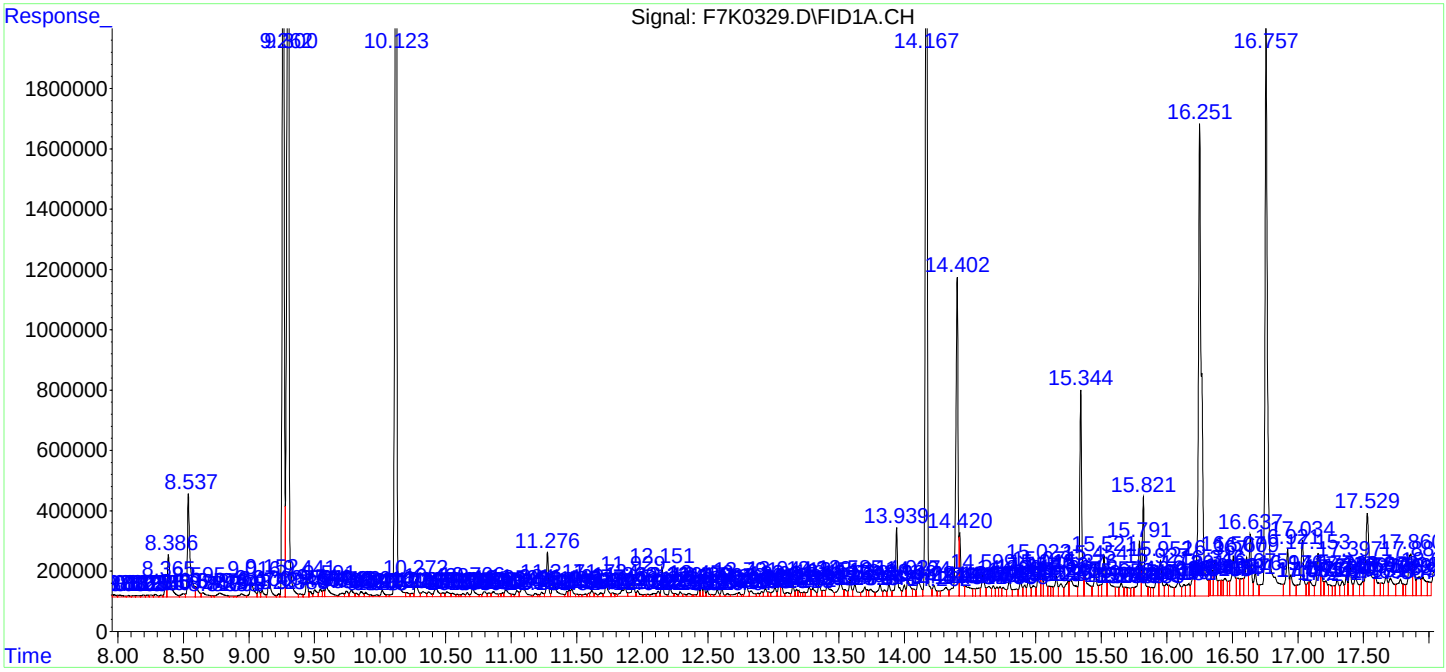
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0329.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 04:51
Operator : LXA1 InstName : FID7
Sample : |409254043|1612127|1|DROQ|1|HAAL|||
Misc : |FIDDROC4_S|SOIL|DP060212DUP|MIX[A]||
ALS Vial : 29 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:48 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

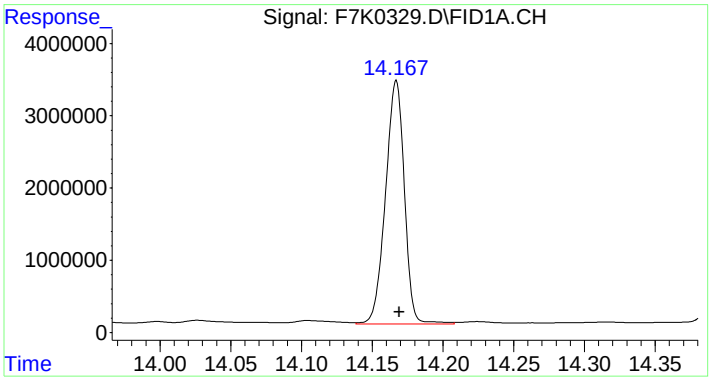
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





Compound: Diesel Range Organics

RT Range: 8.055: 17.937
Total TPH Resp: 364975817
Total SMC/ISTD Resp: 31359138
Final Resp: 333616679



#2
o-Terphenyl
R.T.: 14.167 min
Delta R.T.: -0.002 min
Response: 31359138
Conc: 16.61 mg/L

Standards

Calibration History Report FID7
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Last Update : Tue Oct 25 14:51:13 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

Cal Lvl:1 Amt:200.00 Last Updated with: C:\msdchem\1\DATA\102516DRO\f7j2503.D

Injection Date	Mix	Calibration File
25 Oct 2016 11:33	A	C:\msdchem\1\DATA\102516DRO\f7j2503.D

Cal Lvl:2 Amt:500.00 Last Updated with: C:\msdchem\1\DATA\102516DRO\f7j2504.D

Injection Date	Mix	Calibration File
25 Oct 2016 12:12	A	C:\msdchem\1\DATA\102516DRO\f7j2504.D

Cal Lvl:3 Amt:1000.00 Last Updated with: C:\msdchem\1\DATA\102516DRO\f7j2505.D

Injection Date	Mix	Calibration File
25 Oct 2016 12:51	A	C:\msdchem\1\DATA\102516DRO\f7j2505.D

Cal Lvl:4 Amt:2000.00 Last Updated with: C:\msdchem\1\DATA\102516DRO\f7j2506.D

Injection Date	Mix	Calibration File
25 Oct 2016 13:30	A	C:\msdchem\1\DATA\102516DRO\f7j2506.D

Cal Lvl:5 Amt:5000.00 Last Updated with: C:\msdchem\1\DATA\102516DRO\f7j2507.D

Injection Date	Mix	Calibration File
25 Oct 2016 14:09	A	C:\msdchem\1\DATA\102516DRO\f7j2507.D

FID7_DRO_102516.m Fri Nov 04 08:24:40 2016

Response Factor Report FID7
GEL Laboratories, LLC

Method File : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Last Update : Tue Oct 25 14:51:13 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound			1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
b	m1	m2										
1)HA	Diesel Range Organics		1.3264409	1.6161006	1.6650818	1.7461489	1.7014884		1.6111	AVRG	E6	10.3110
2)SA	o-Terphenyl		1.6499587	1.8584381	1.9318371	2.0407463	1.9581870		1.8878	AVRG	E6	7.8442
3)B	n-Decane								0.0000	AVRG		-1.0000
4)B	n-Octacosane								0.0000	AVRG		-1.0000

(#) = Out of Range ($) = Individual RF Out of Range ### Number of calibration levels exceeded format ###
AVRG = Average, LINR = Linear Regression, 1/x = the inverse of concentration, 1/x^2 = the inverse square of concentration

COMPOUND LISTING
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Last Update : Tue Oct 25 14:51:13 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

Integration Parameter File: autoint1.e

*** Integrator Events ***	
Initial Threshold	5.0
Initial Peak Width	0.020
Initial Area Reject	0.0
Shoulders OFF	

	Compound	RT	RT Window
1)HA	Diesel Range Organics	12.996	8.055-17.937
2)SA	o-Terphenyl	14.169	14.139-14.199
3)B	n-Decane	8.085	8.055- 8.115
4)B	n-Octacosane	17.907	17.877-17.937

FID7_DRO_102516.m Fri Nov 04 08:24:38 2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\102516DRO\
Data File : f7j2503.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 11:33
Operator : LXA1 InstName : FID7
Sample : |UFI160222-11.1|ICAL|1|DROQ|1|DRO-ICAL-1
Misc : |MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:45 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.181	14.172	-0.009	8249793	4.374	mg/L m
Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		265288178	164.662	mg/L m

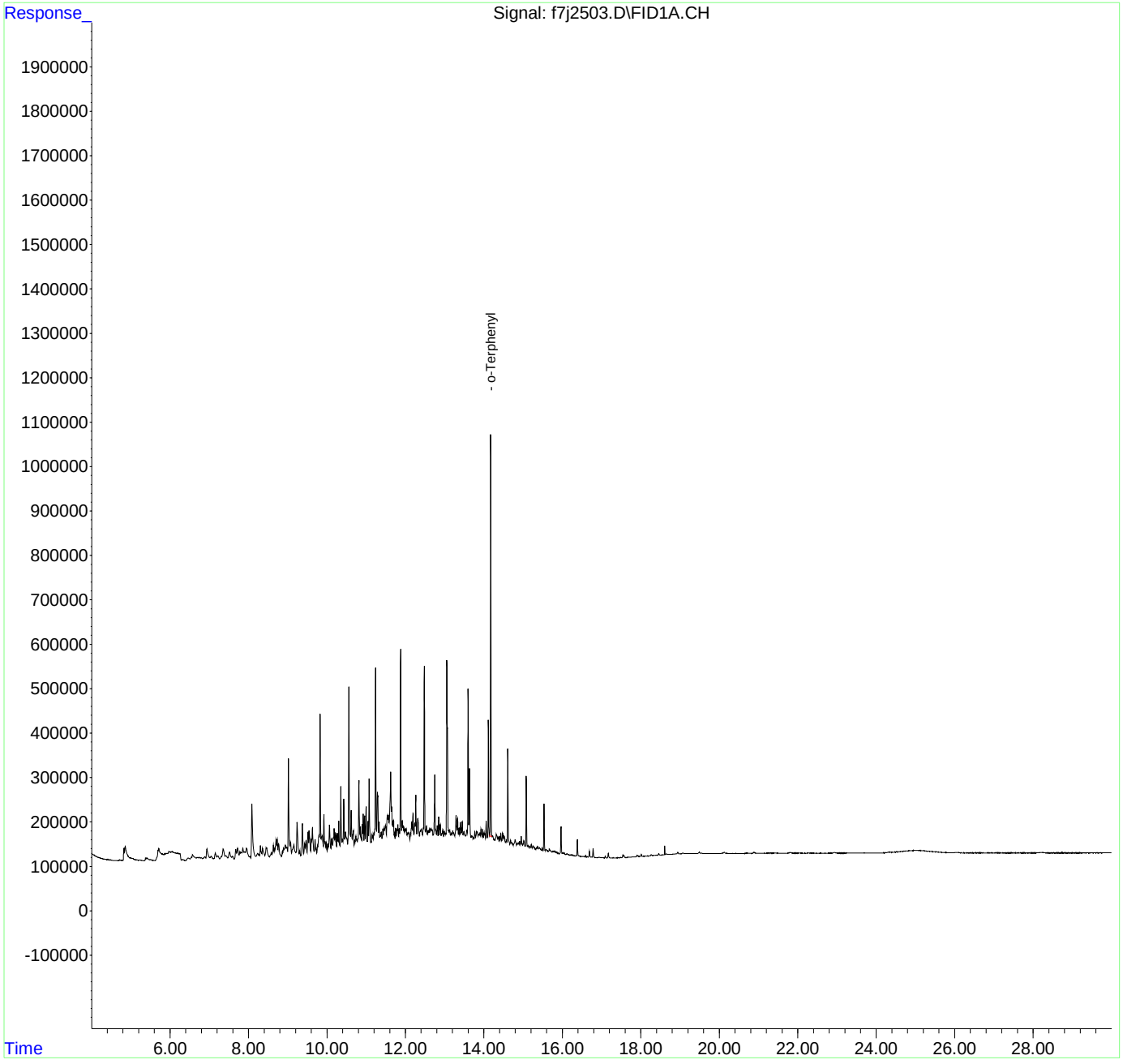
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

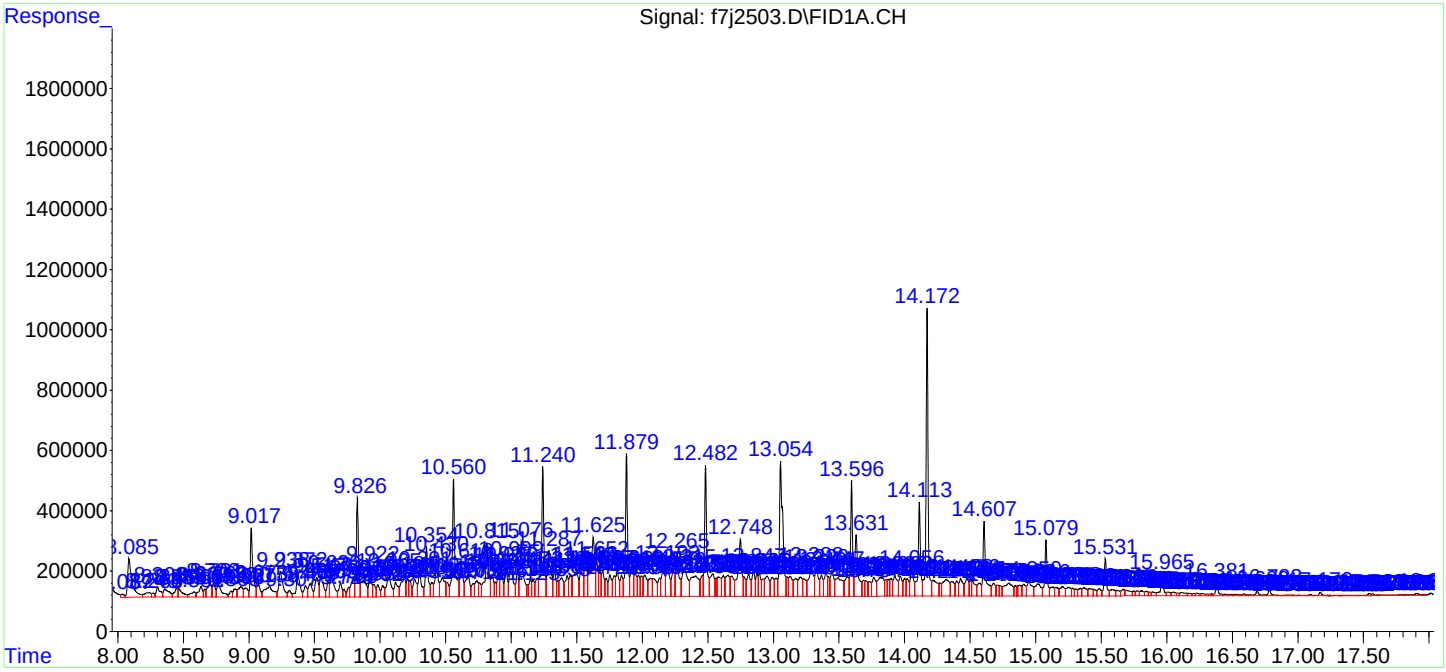
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\102516DRO\
DaData File : f7j2503.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 11:33
Operator : LXA1 InstName : FID7
Sample : |UFI160222-11.1|ICAL|1|DROQ|1|DRO-ICAL-1
Misc : |MIX[A]
ALS Vial : 3 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:45 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

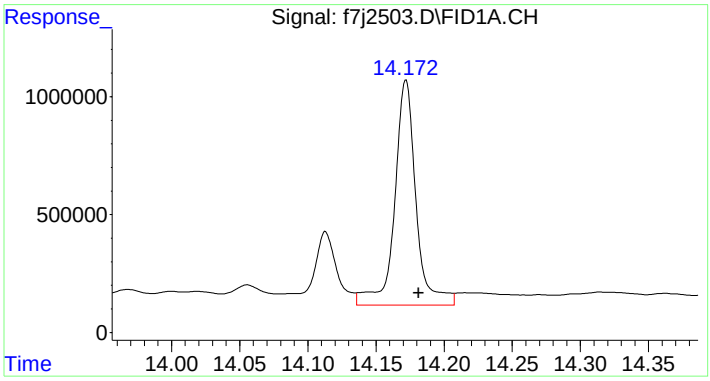
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





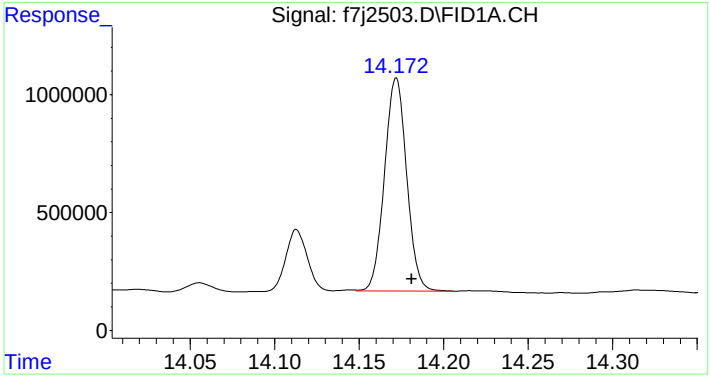
Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	273537971
Total SMC/ISTD Resp:	8249793
Final Resp:	265288178



#2 BEFORE analyst INTEGRATION
o-Terphenyl

R.T.:	14.172 min
Delta R.T.:	-0.009 min
Response:	10452060
Conc:	5.54 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl

R.T.:	14.172 min
Delta R.T.:	-0.009 min
Response:	8249793
Conc:	4.37 mg/L MANUALLY INTEGRATED

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\102516DRO\
Data File : f7j2504.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 12:12
Operator : LXA1 InstName : FID7
Sample : |UFI160222-12.1|ICAL|1|DROQ|1|DRO-ICAL-2
Misc : |MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:47 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.181	14.171	-0.010	18584381	9.854	mg/L m
Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		808050323	501.549	mg/L m

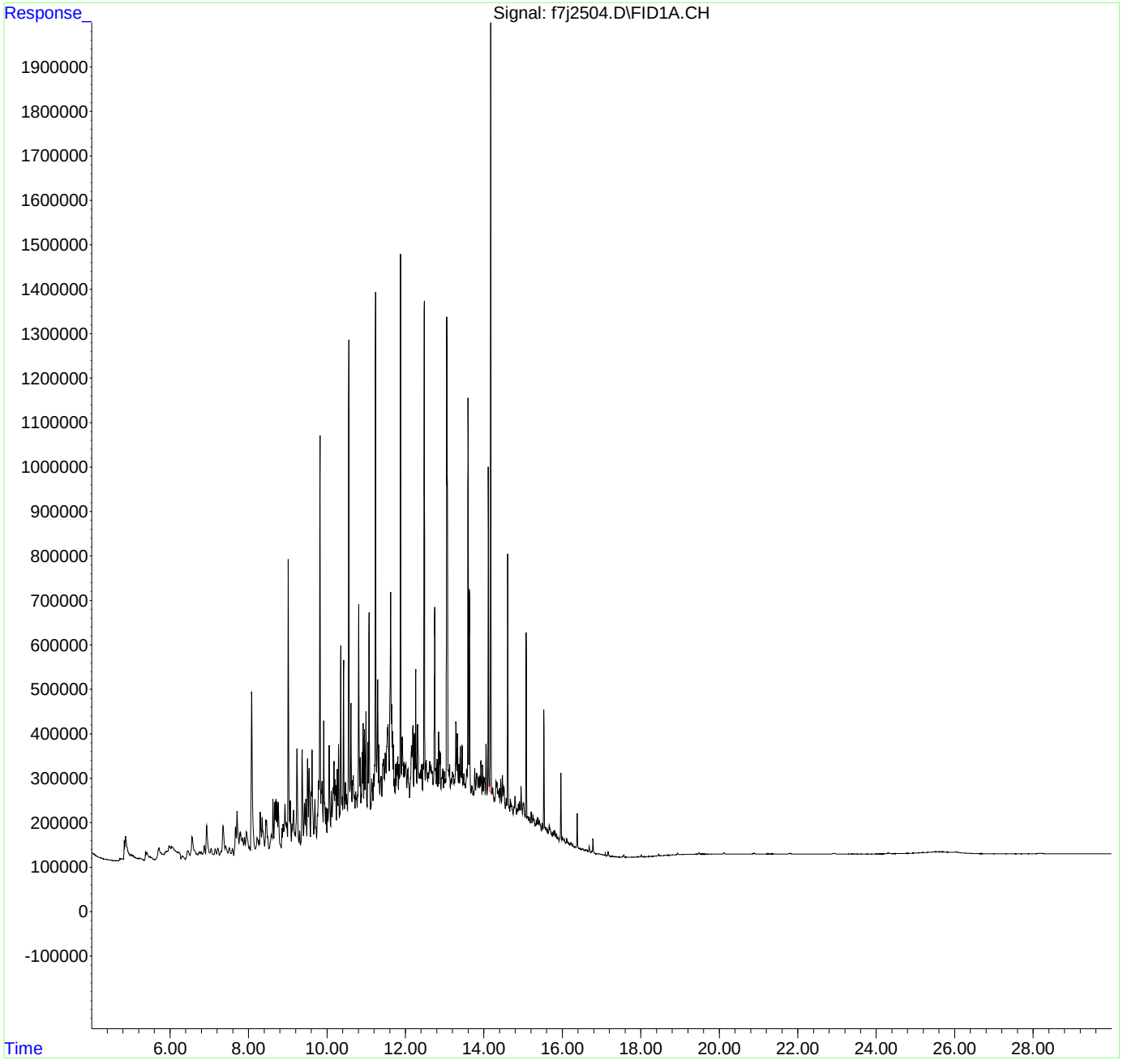
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

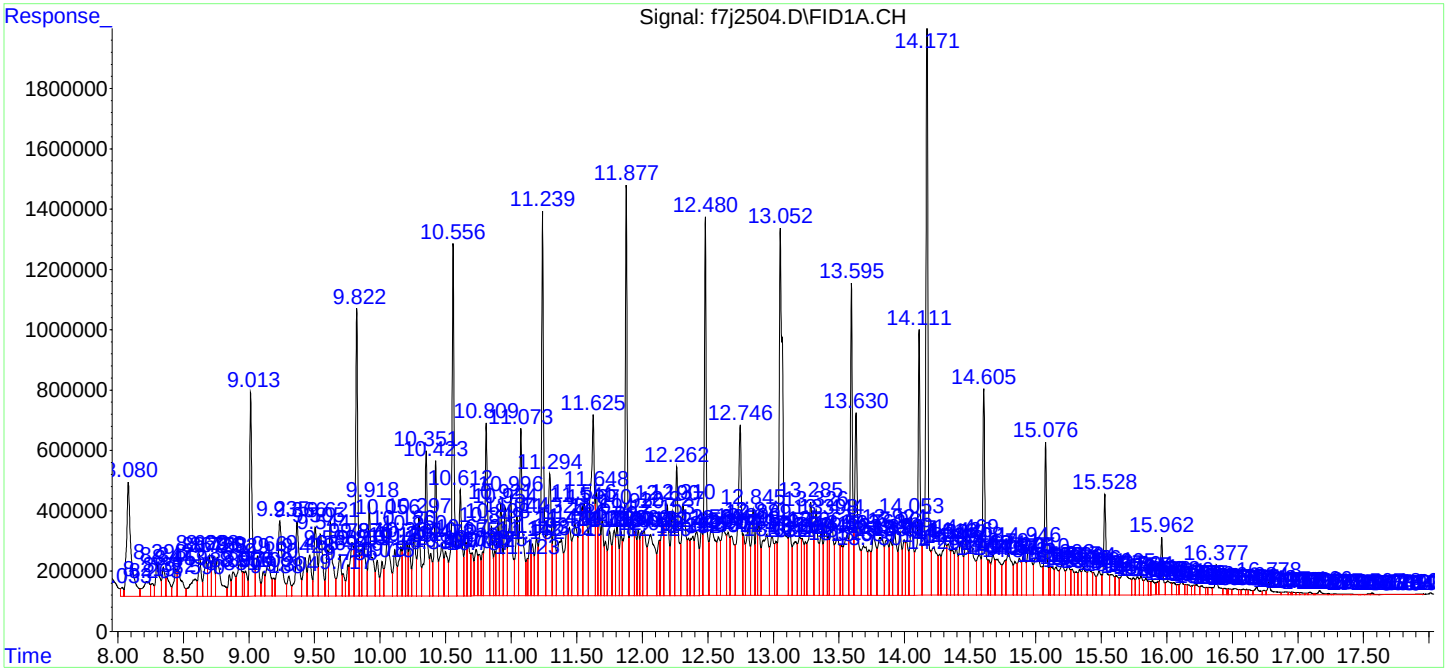
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\102516DRO\
DaData File : f7j2504.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 12:12
Operator : LXA1 InstName : FID7
Sample : |UFI160222-12.1|ICAL|1|DROQ|1|DRO-ICAL-2
Misc : |MIX[A]
ALS Vial : 4 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:47 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

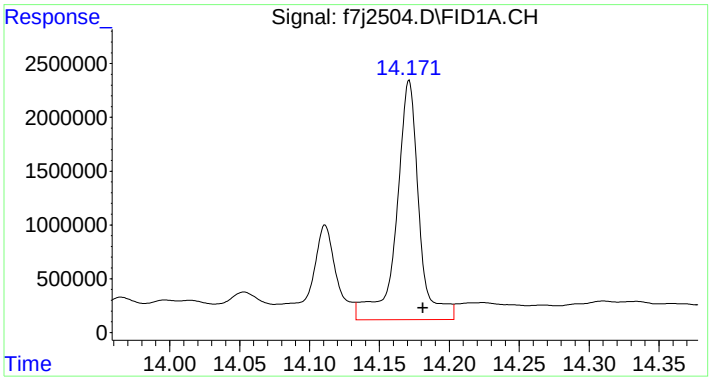
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





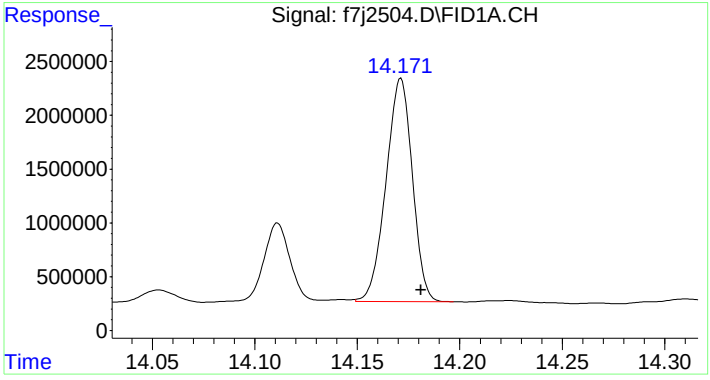
Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	826634704
Total SMC/ISTD Resp:	18584381
Final Resp:	808050323



#2 BEFORE analyst INTEGRATION
o-Terphenyl

R.T.:	14.171 min
Delta R.T.:	-0.010 min
Response:	25003564
Conc:	13.26 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl

R.T.:	14.171 min
Delta R.T.:	-0.010 min
Response:	18584381
Conc:	9.85 mg/L MANUALLY INTEGRATED

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\102516DRO\
Data File : f7j2505.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 12:51
Operator : LXA1 InstName : FID7
Sample : |UFI160222-13.1|ICAL|1|DROQ|1|DRO-ICAL-3
Misc : |MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:49 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.181	14.176	-0.005	48295928	25.609	mg/L m
Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		1665081848	1033.501	mg/L m

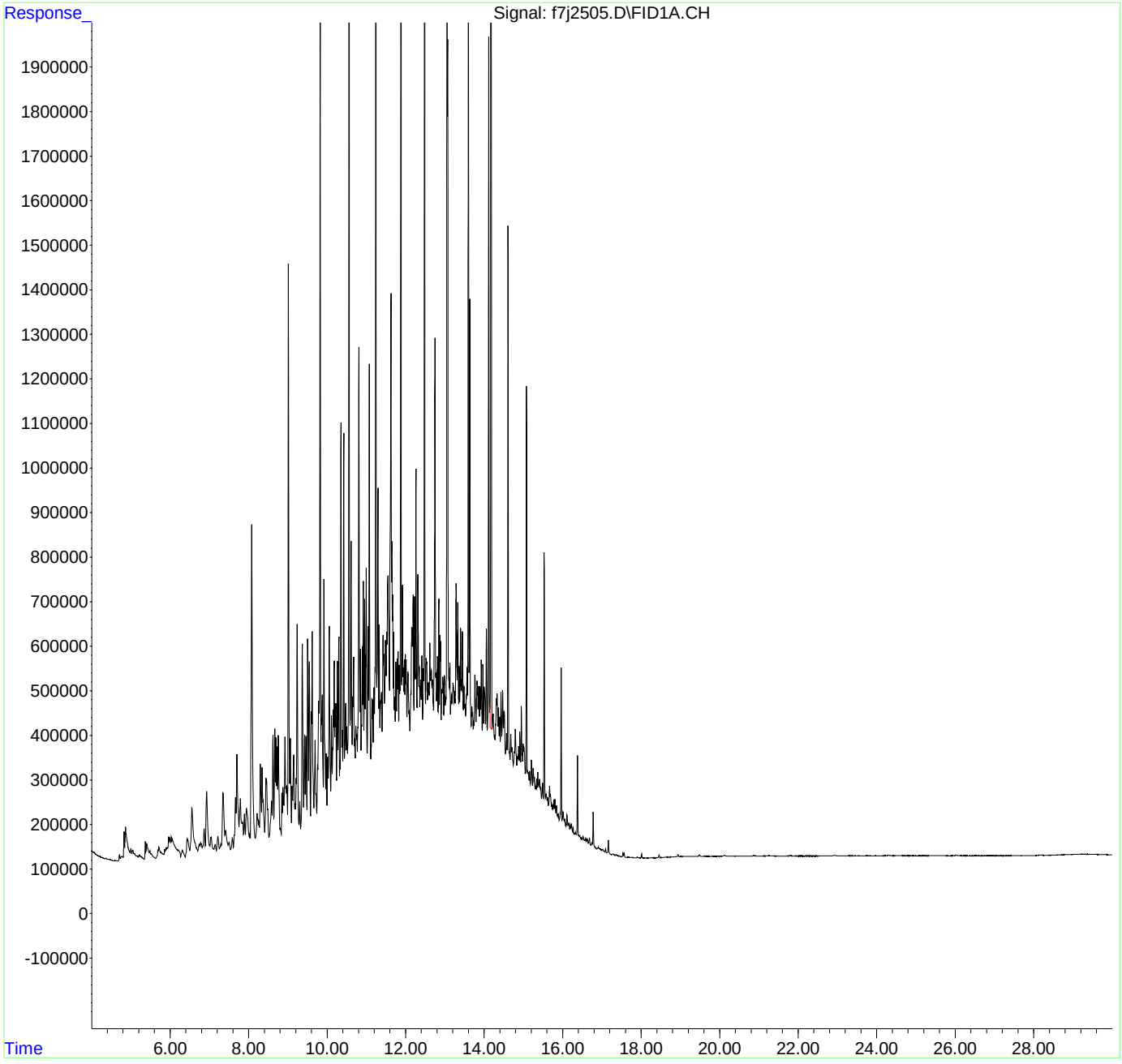
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

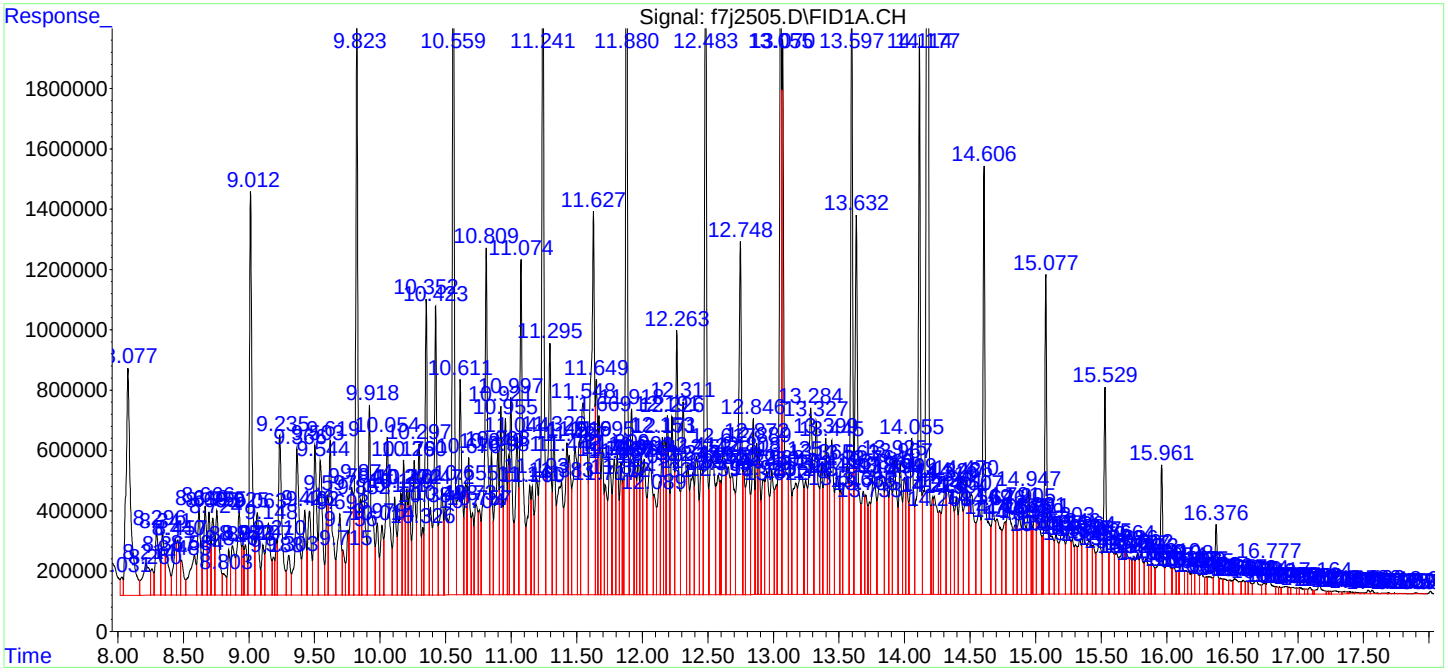
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\102516DRO\
DaData File : f7j2505.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 12:51
Operator : LXA1 InstName : FID7
Sample : |UFI160222-13.1|ICAL|1|DROQ|1|DRO-ICAL-3
Misc : |MIX[A]
ALS Vial : 5 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:49 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

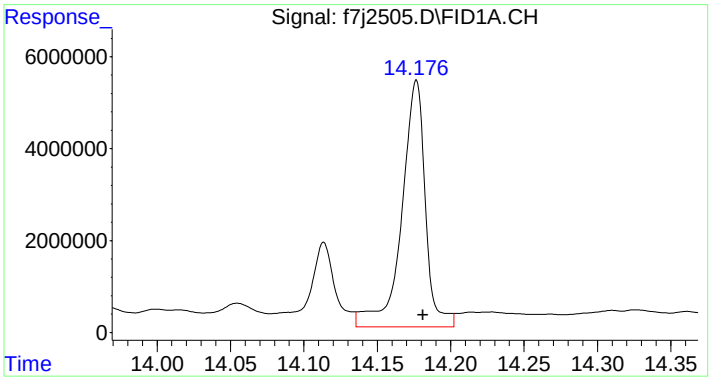
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um



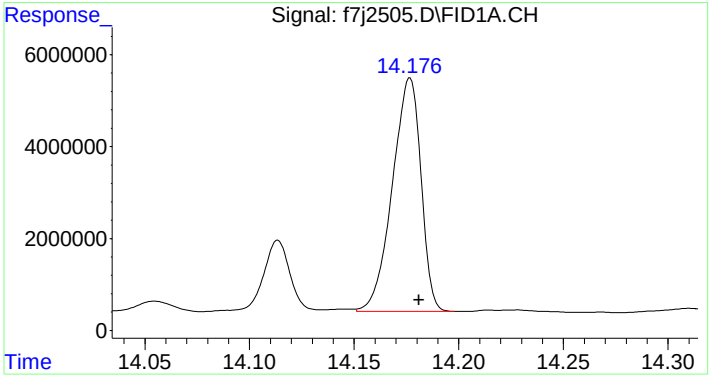


Compound: Diesel Range Organics

RT Range: 8.055: 17.937
Total TPH Resp: 1713377776
Total SMC/ISTD Resp: 48295928
Final Resp: 1665081848



#2 BEFORE analyst INTEGRATION
o-Terphenyl
R.T.: 14.177 min
Delta R.T.: -0.004 min
Response: 60461722
Conc: 32.06 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl
R.T.: 14.176 min
Delta R.T.: -0.005 min
Response: 48295928
Conc: 25.61 mg/L MANUALLY INTEGRATED

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\102516DRO\
Data File : f7j2506.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 13:30
Operator : LXA1 InstName : FID7
Sample : |UFI160222-14.1|ICAL|1|DROQ|1|DRO-ICAL-4
Misc : |MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:51 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl		14.181	14.186 0.005	102037313	54.105	mg/L m
Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		3492297820	2167.637	mg/L m

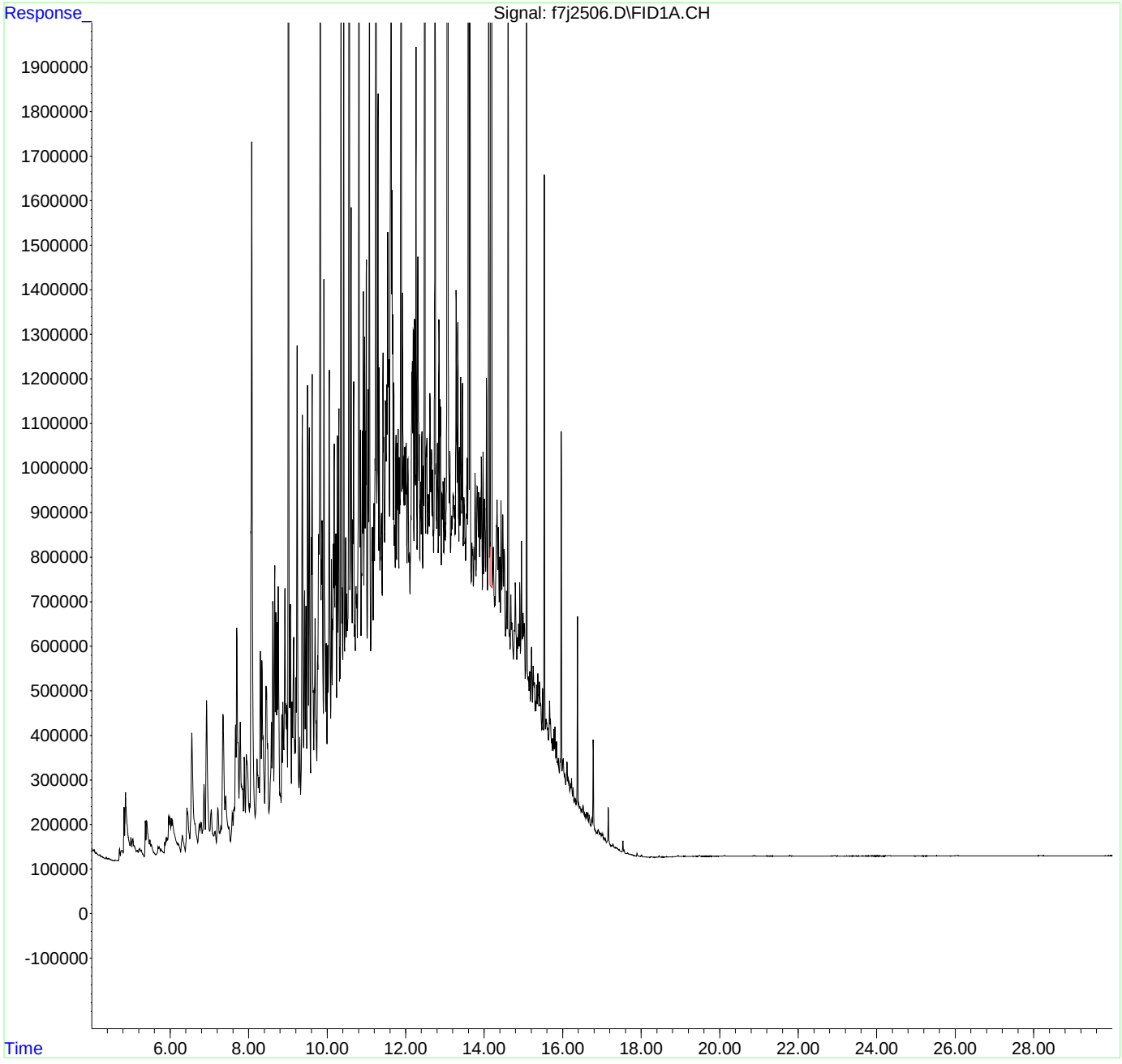
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

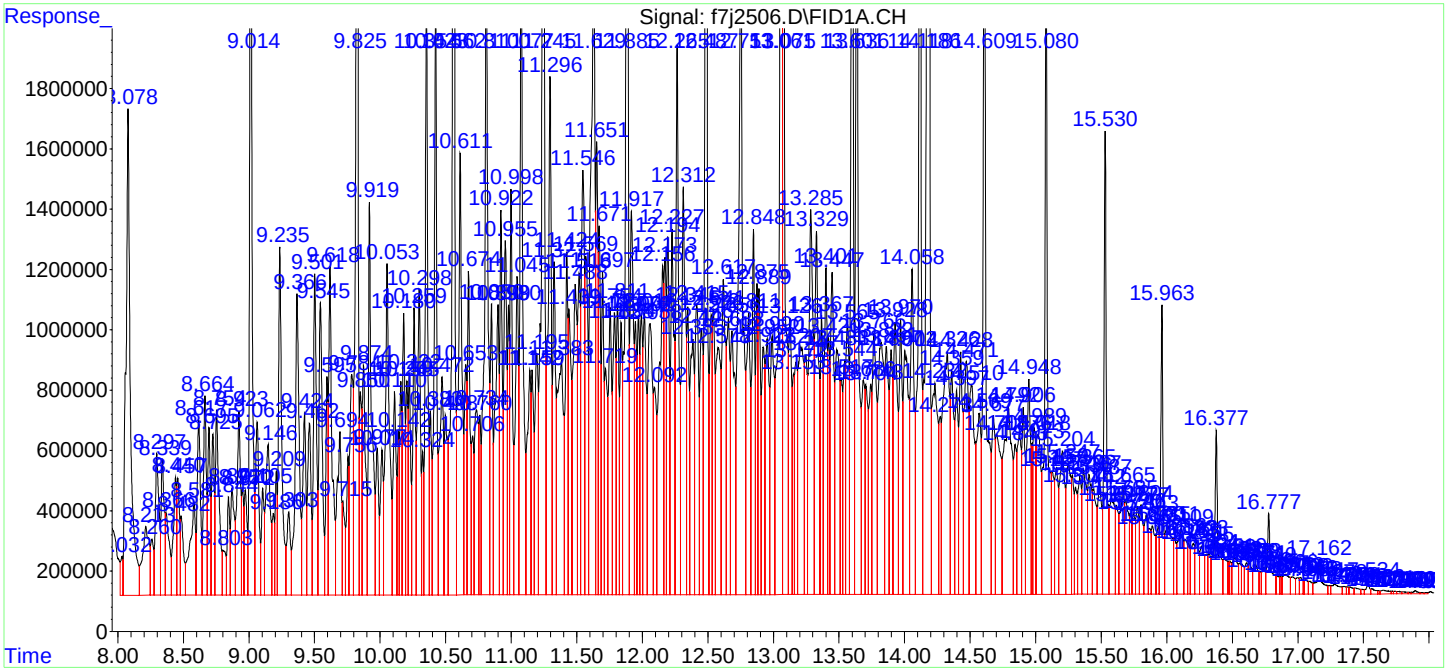
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\102516DRO\
DaData File : f7j2506.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 13:30
Operator : LXA1 InstName : FID7
Sample : |UFI160222-14.1|ICAL|1|DROQ|1|DRO-ICAL-4
Misc : |MIX[A]
ALS Vial : 6 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:51 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

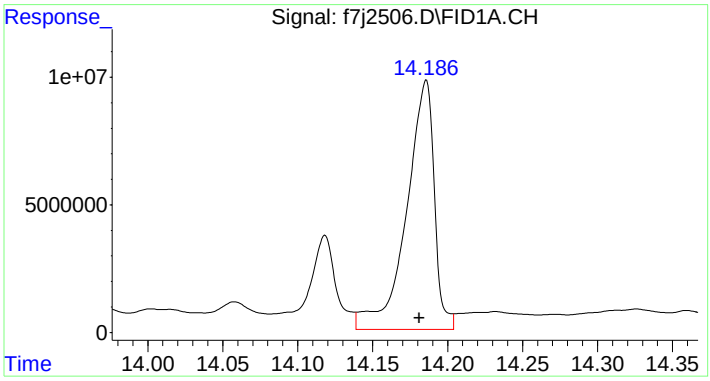
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um



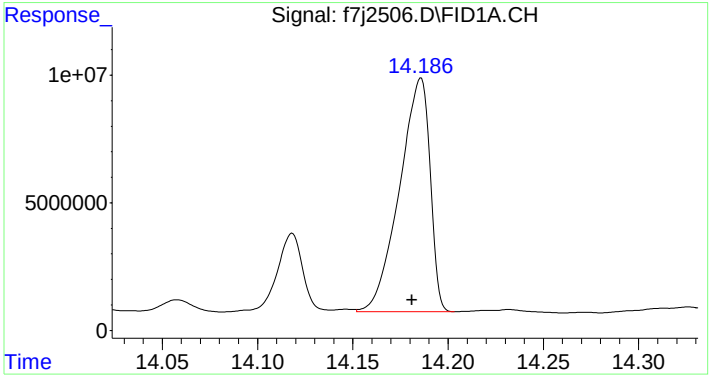


Compound: Diesel Range Organics

RT Range: 8.055: 17.937
Total TPH Resp: 3594335134
Total SMC/ISTD Resp: 102037313
Final Resp: 3492297820



#2 BEFORE analyst INTEGRATION
o-Terphenyl
R.T.: 14.186 min
Delta R.T.: 0.005 min
Response: 126681642
Conc: 67.17 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl
R.T.: 14.186 min
Delta R.T.: 0.005 min
Response: 102037313
Conc: 54.11 mg/L MANUALLY INTEGRATED

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\102516DRO\
Data File : f7j2507.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 14:09
Operator : LXA1 InstName : FID7
Sample : |UFI160222-15.1|ICAL|1|DROQ|1|DRO-ICAL-5
Misc : |MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:53 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl		14.181	14.199 0.018f	195818705	103.833	mg/L m A
Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		8507441929	5280.492	mg/L m A

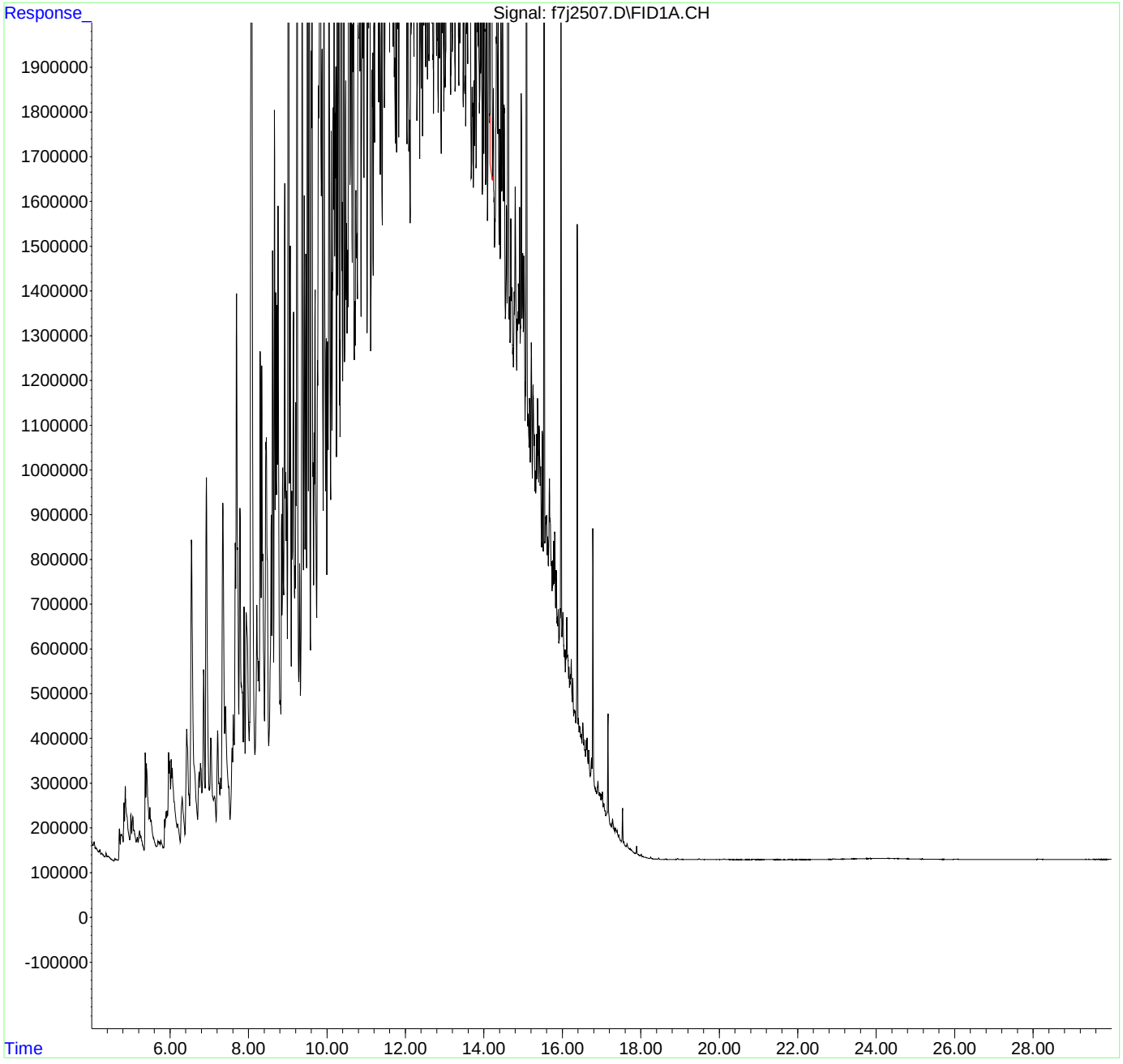
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

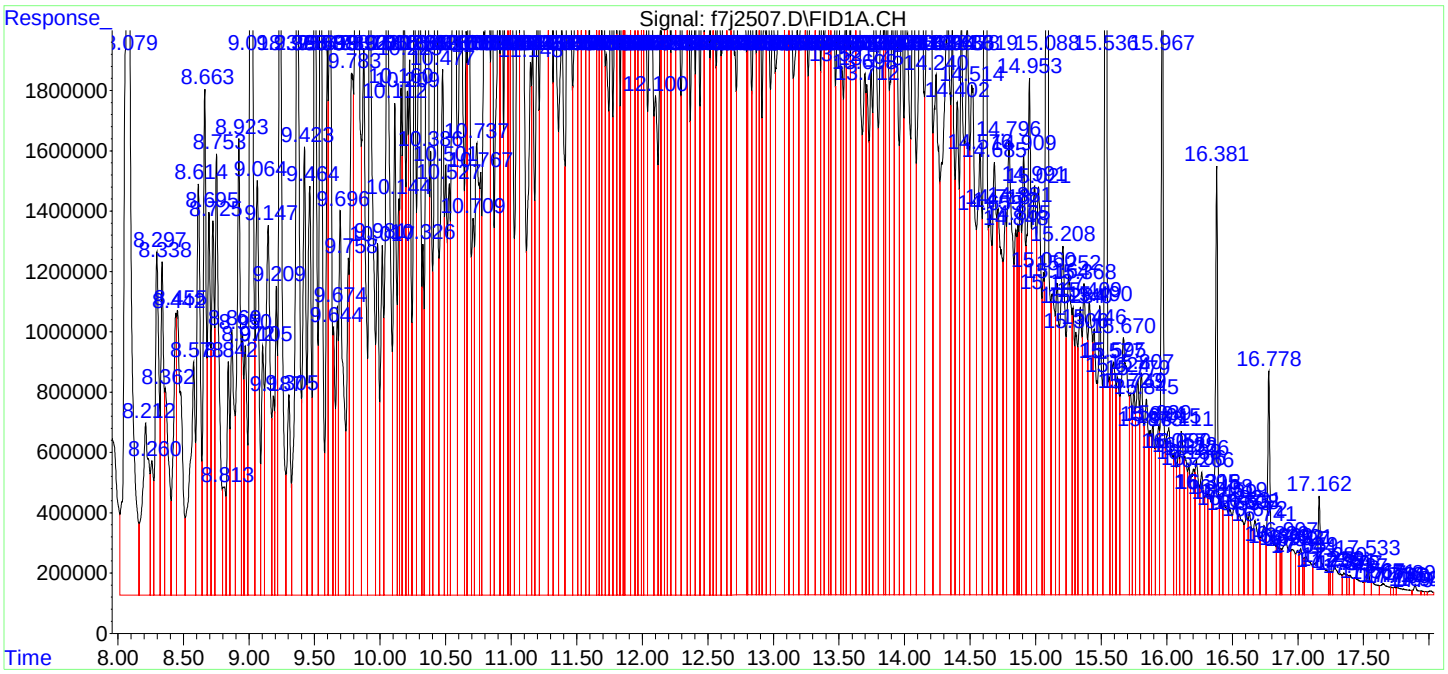
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\102516DRO\
DaData File : f7j2507.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 14:09
Operator : LXA1 InstName : FID7
Sample : |UFI160222-15.1|ICAL|1|DROQ|1|DRO-ICAL-5
Misc : |MIX[A]
ALS Vial : 7 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 25 14:49:53 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:49:07 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

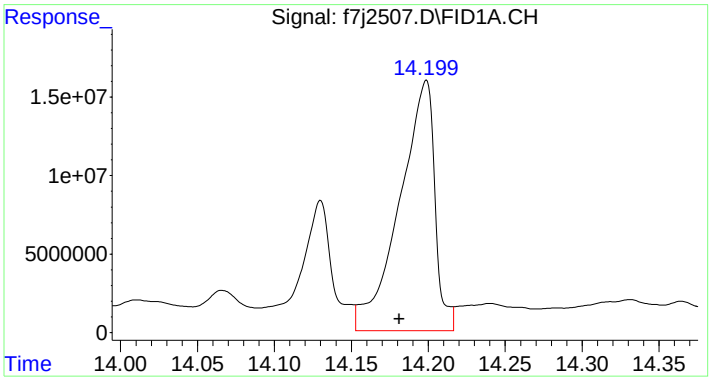
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um



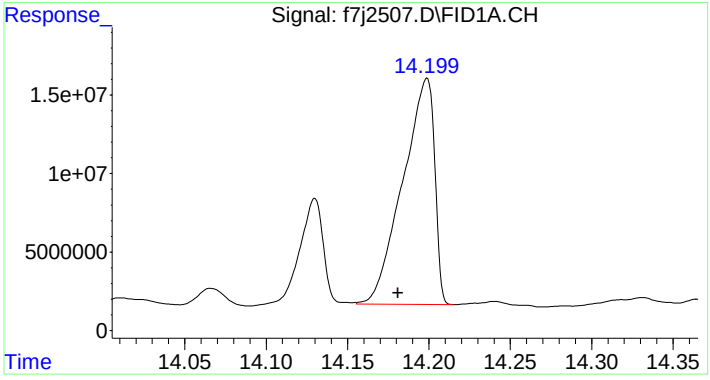


Compound: Diesel Range Organics

RT Range: 8.055: 17.937
Total TPH Resp: 8703260634
Total SMC/ISTD Resp: 195818705
Final Resp: 8507441929



#2 BEFORE analyst INTEGRATION
o-Terphenyl
R.T.: 14.199 min
Delta R.T.: 0.018 min
Response: 254776861
Conc: 135.10 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl
R.T.: 14.199 min
Delta R.T.: 0.018 min
Response: 195818705
Conc: 103.83 mg/L MANUALLY INTEGRATED

Continuing Calibration Summary

Client SDG: 409254

Instrument ID: FID7.I

Injection Date: 25-OCT-16 14:48

Data File: 102516DRO\f7j2508.D

Init. Cal. Date(s): NA

Lab Sample ID UFI150820-26.3

Method: 102516DRO\FID7_DRO_102516.m

Column ID: DB-5ms

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Diesel Range Organics	1611052.14	1625009.36	1000000	0.87	20		Averaged
o-Terphenyl(Surr)	1887833.44	2012956.8	25000	6.63	20		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\102516DRO\
Data File : f7j2508.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 14:48
Operator : LXA1 InstName : FID7
Sample : |UFI150820-26.3|ICV|1|DROQ|1|DRO_ICV
Misc : |MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 26 08:24:52 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.181	14.177	-0.004	50323920	26.657	mg/L m
Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		1625009356	1008.663	mg/L m

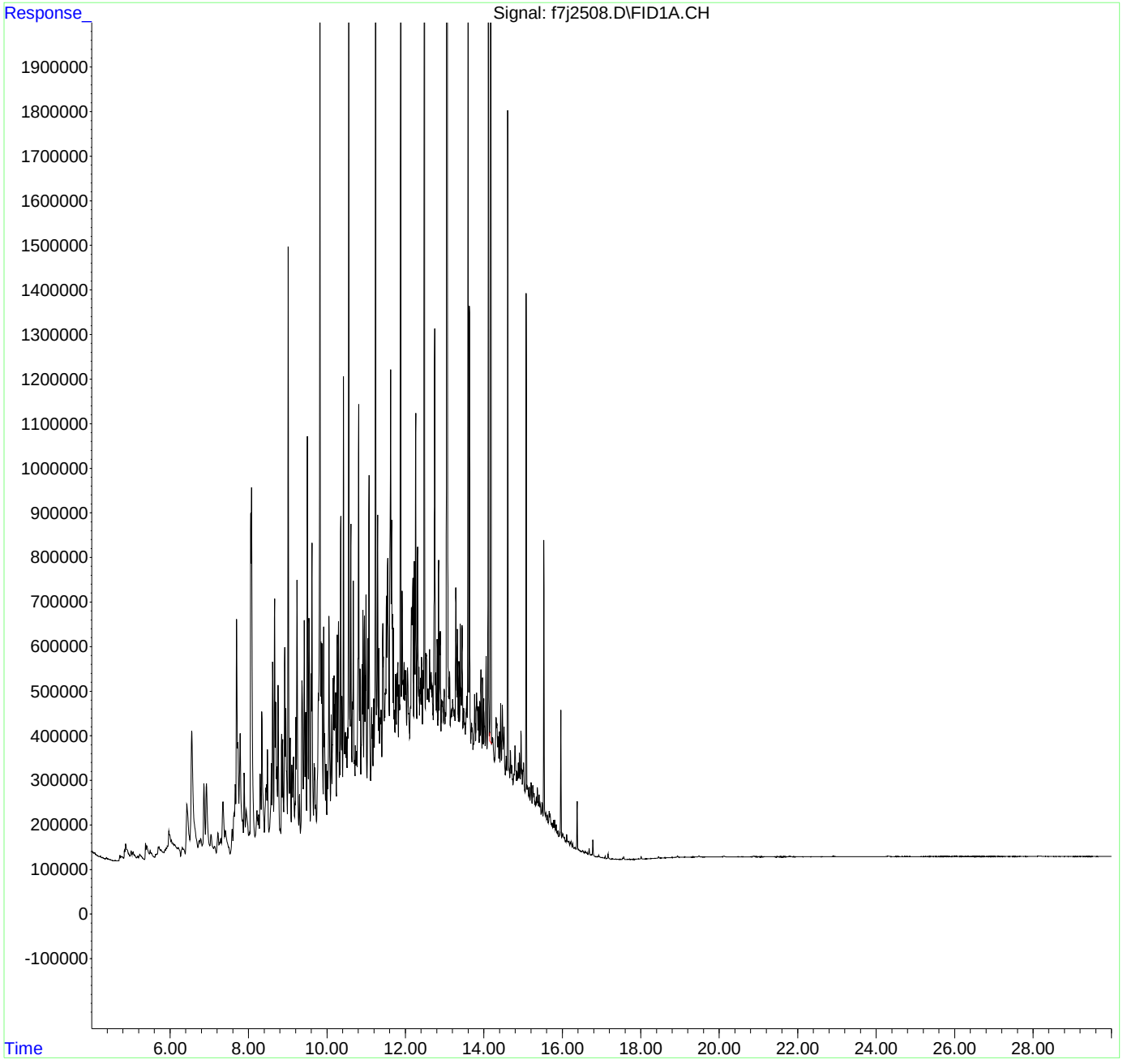
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

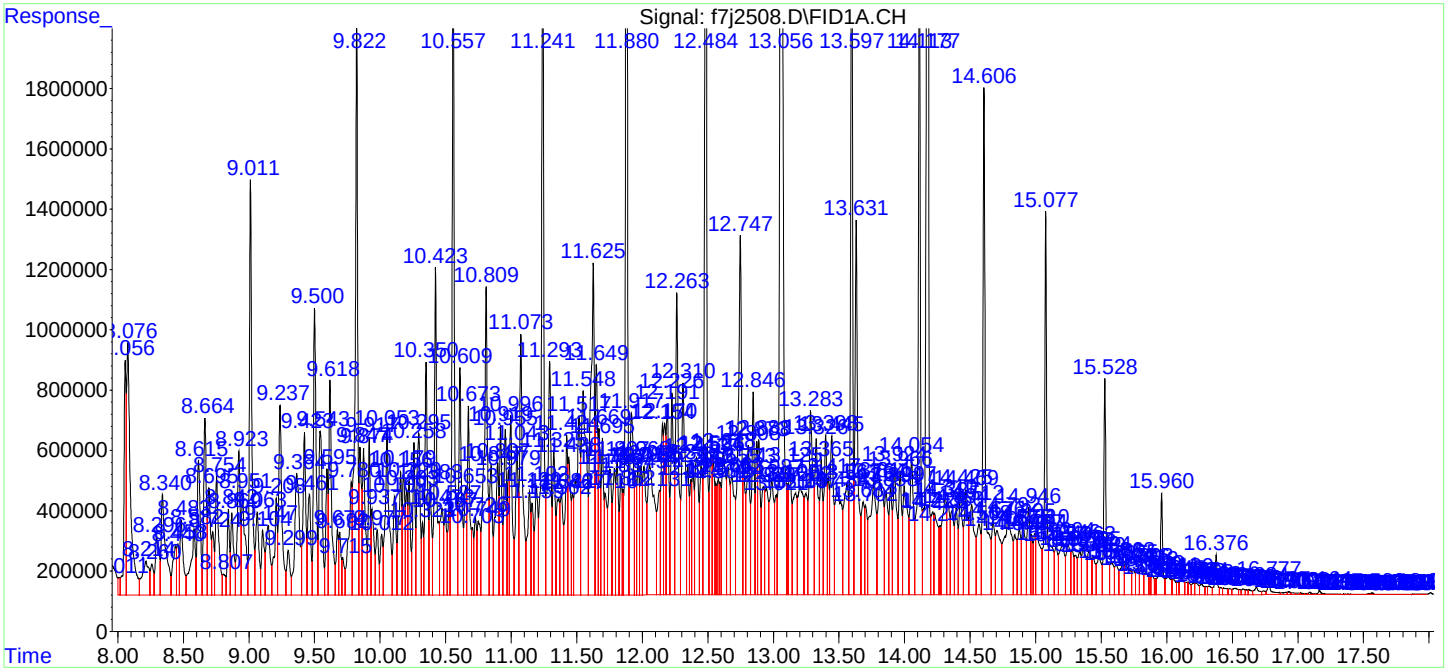
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\102516DRO\
DaData File : f7j2508.D
Signal(s) : FID1A.CH
Acq On : 25 Oct 2016 14:48
Operator : LXA1 InstName : FID7
Sample : |UFI150820-26.3|ICV|1|DROQ|1|DRO_ICV
Misc : |MIX[A]
ALS Vial : 8 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 26 08:24:52 2016
Quant Method : C:\msdchem\1\DATA\102516DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

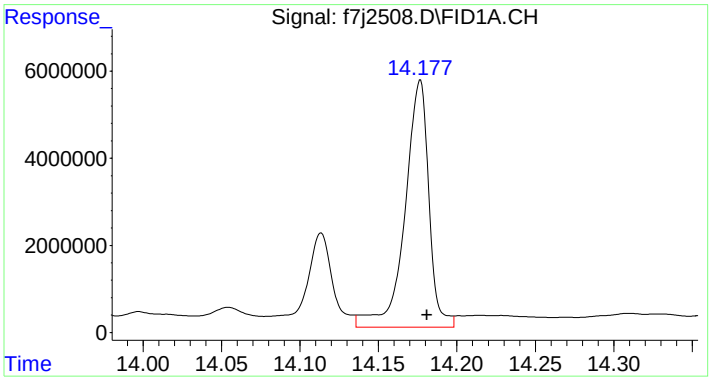
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um



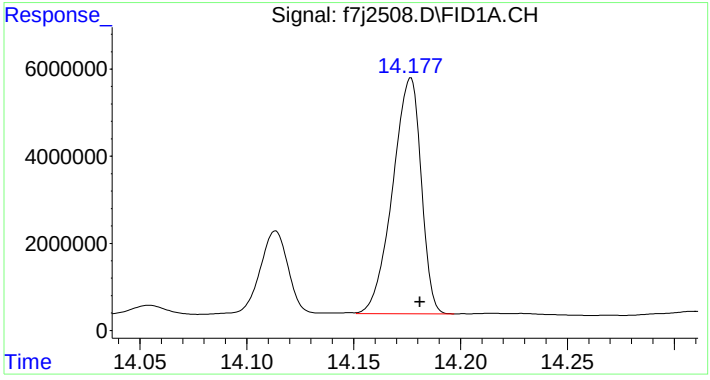


Compound: Diesel Range Organics

RT Range: 8.055: 17.937
Total TPH Resp: 1675333276
Total SMC/ISTD Resp: 50323920
Final Resp: 1625009356



#2 BEFORE analyst INTEGRATION
o-Terphenyl
R.T.: 14.177 min
Delta R.T.: -0.004 min
Response: 60401744
Conc: 32.00 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl
R.T.: 14.177 min
Delta R.T.: -0.004 min
Response: 50323920
Conc: 26.66 mg/L MANUALLY INTEGRATED

Continuing Calibration Summary

Instrument ID: FID7.I

Client SDG: 409254

Injection Date: 03-NOV-16 23:01

Data File: 110316_DRO\F7K0320.D

Init. Cal. Date(s): NA

Lab Sample ID UFI150820-26.3

Method: 110316_DRO\FID7_DRO_102516.m

Column ID: DB-5ms

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Diesel Range Organics	1611052.14	1565065.57	1000000	-2.85	20		Averaged
o-Terphenyl(Surr)	1887833.44	1891124.32	25000	0.17	20		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0320.D
Signal(s) : FID1A.CH
Acq On : 03 Nov 2016 23:01
Operator : LXA1 InstName : FID7
Sample : |UFI150820-26.3|CCV|1|DROQ|1|DRO_CCV
Misc : |MIX[A,D]
ALS Vial : 20 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:11 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.169	14.169	0.000	47278108	25.044	mg/L m
Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		1565065573	971.456	mg/L m

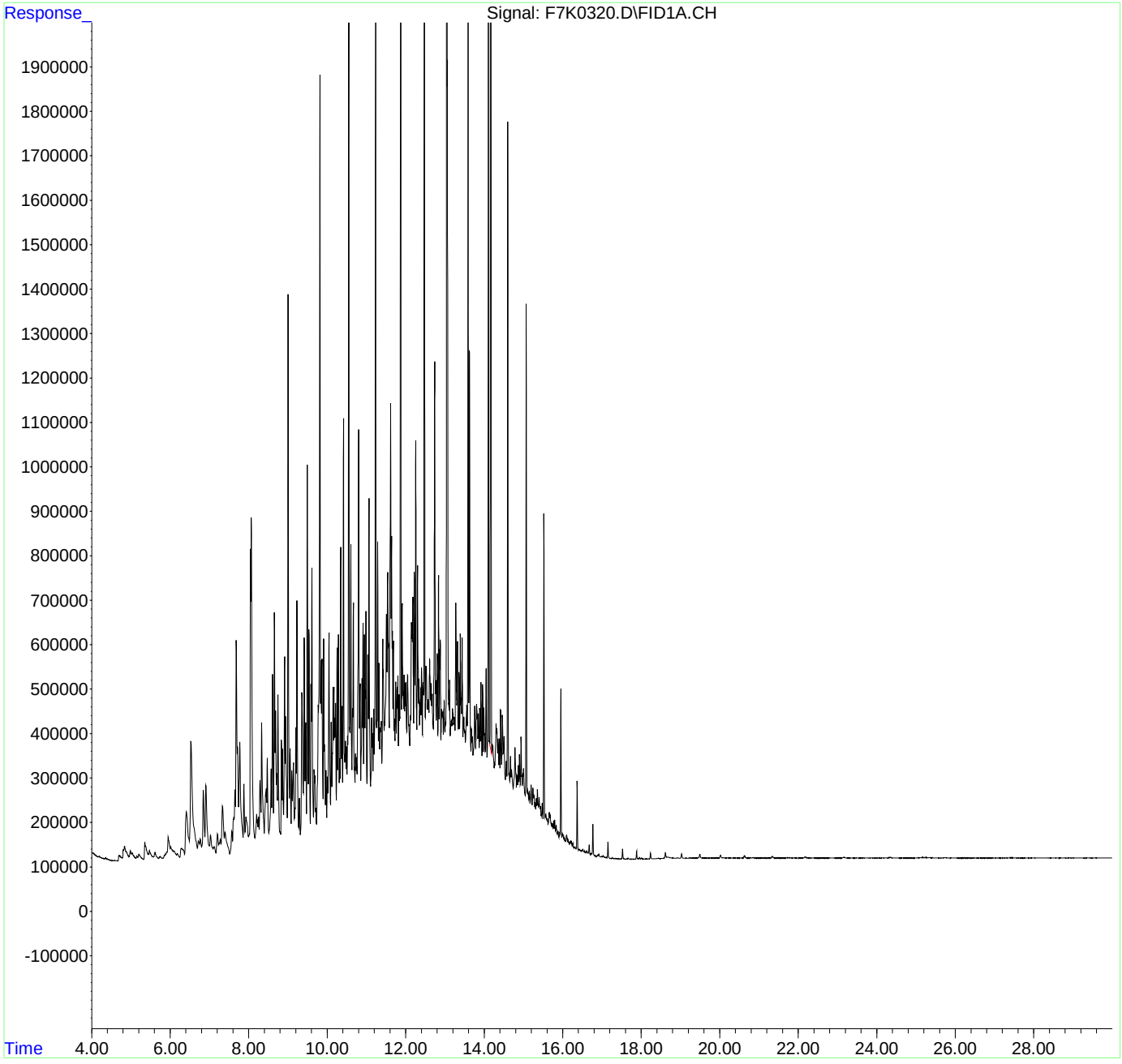
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

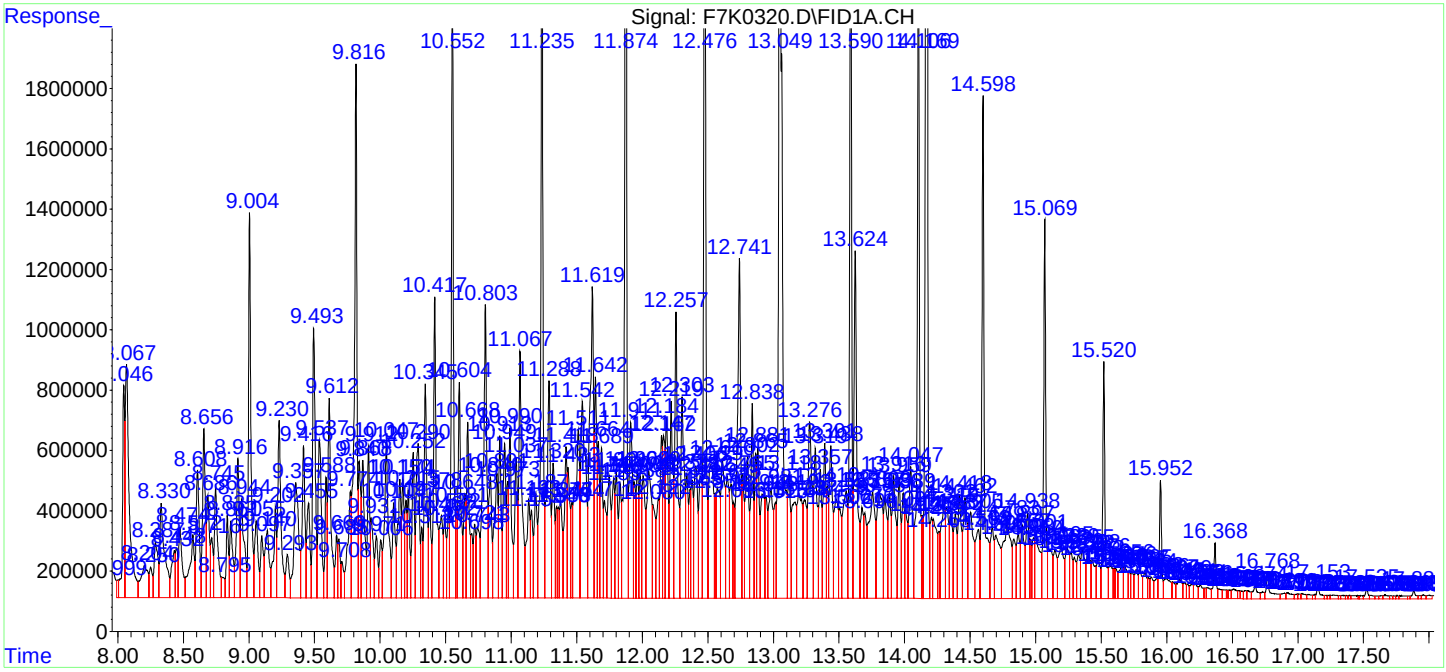
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0320.D
Signal(s) : FID1A.CH
Acq On : 03 Nov 2016 23:01
Operator : LXA1 InstName : FID7
Sample : |UFI150820-26.3|CCV|1|DROQ|1|DRO_CCV
Misc : |MIX[A,D]
ALS Vial : 20 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:11 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

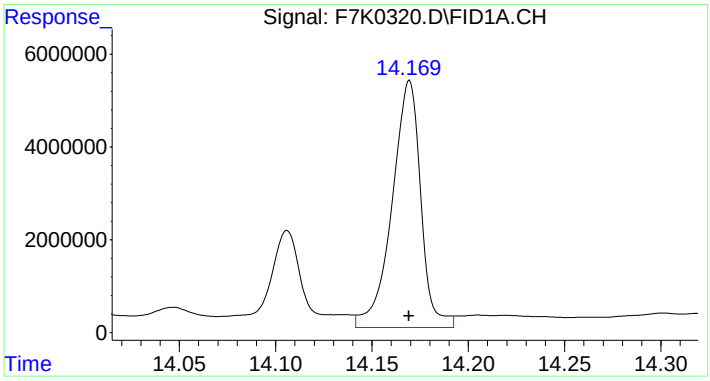
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





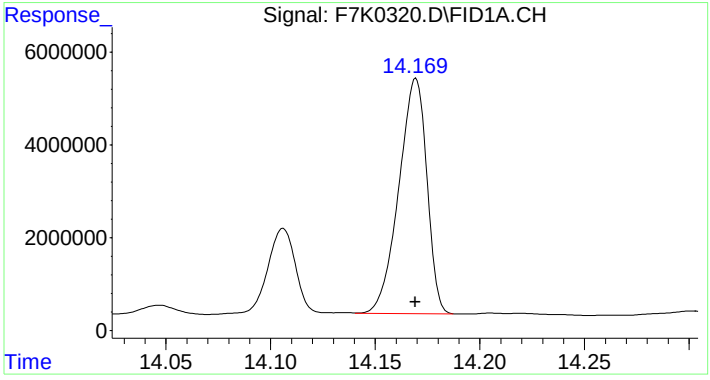
Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	1612343681
Total SMC/ISTD Resp:	47278108
Final Resp:	1565065573



#2 BEFORE analyst INTEGRATION
o-Terphenyl

R.T.:	14.169 min
Delta R.T.:	0.000 min
Response:	55041728
Conc:	29.16 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl

R.T.:	14.169 min
Delta R.T.:	0.000 min
Response:	47278108
Conc:	25.04 mg/L MANUALLY INTEGRATED

Continuing Calibration Summary

Instrument ID: FID7.I

Client SDG: 409254

Injection Date: 04-NOV-16 06:08

Data File: 110316_DRO\F7K0331.D

Init. Cal. Date(s): NA

Lab Sample ID UFI150820-26.3

Method: 110316_DRO\FID7_DRO_102516.m

Column ID: DB-5ms

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Diesel Range Organics	1611052.14	1812472.69	1000000	12.5	20		Averaged
o-Terphenyl(Surr)	1887833.44	2246392	25000	18.99	20		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0331.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 06:08
Operator : LXA1 InstName : FID7
Sample : |UFI150820-26.3|CCV|1|DROQ|1|DRO_CCV
Misc : |MIX[A,D]
ALS Vial : 31 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:52 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.169	14.171	0.002	56159800	29.748	mg/L m
Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		1812472693	1125.024	mg/L m

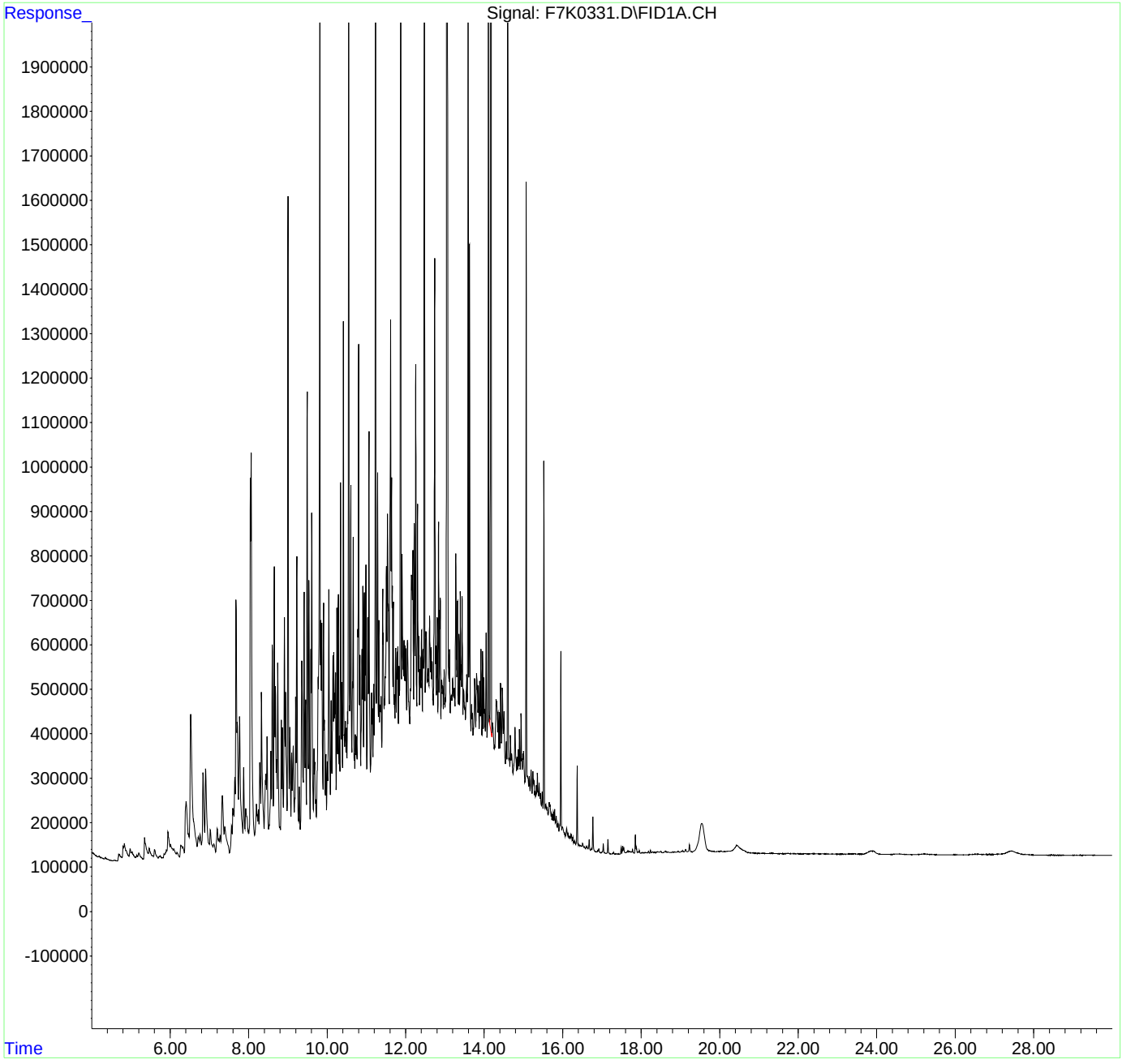
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

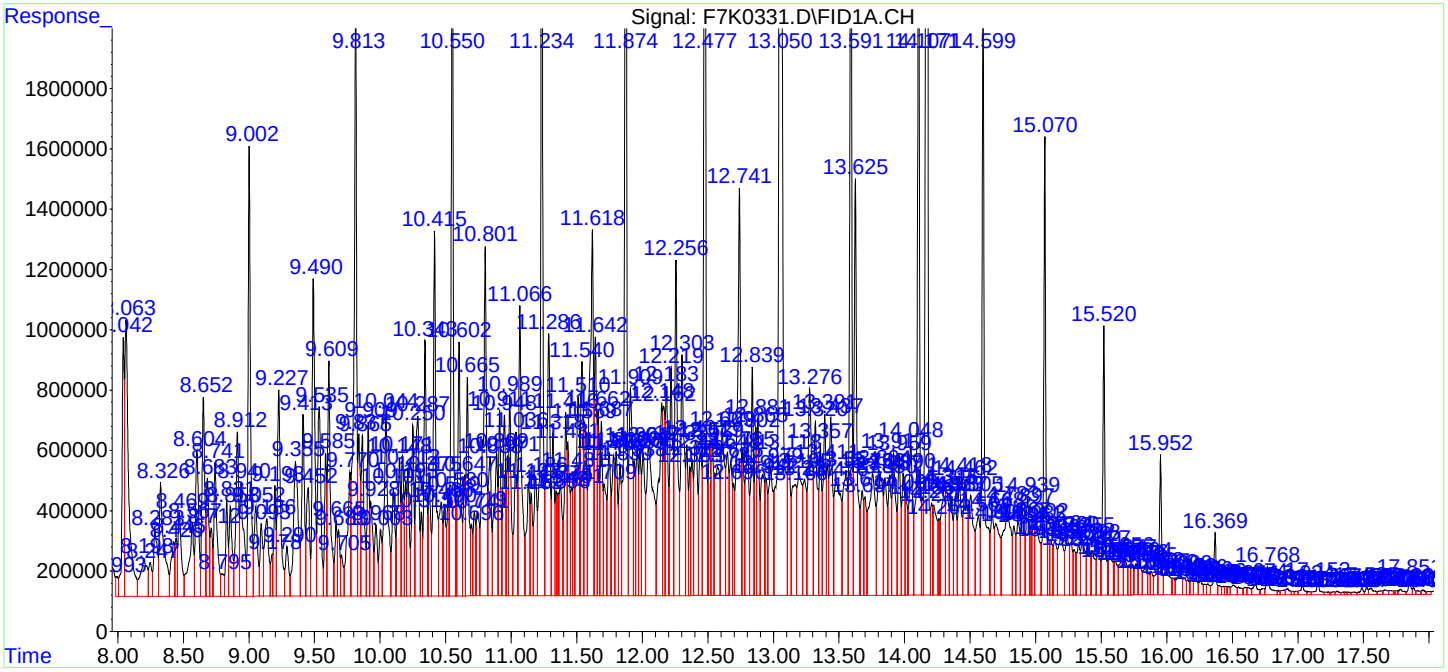
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0331.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 06:08
Operator : LXA1 InstName : FID7
Sample : |UFI150820-26.3|CCV|1|DROQ|1|DRO_CCV
Misc : |MIX[A,D]
ALS Vial : 31 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:52 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

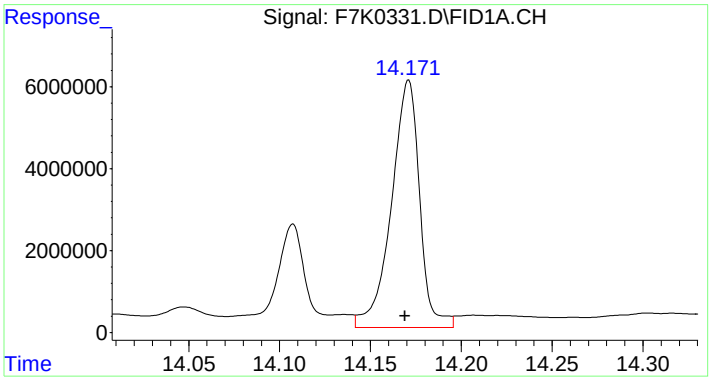
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





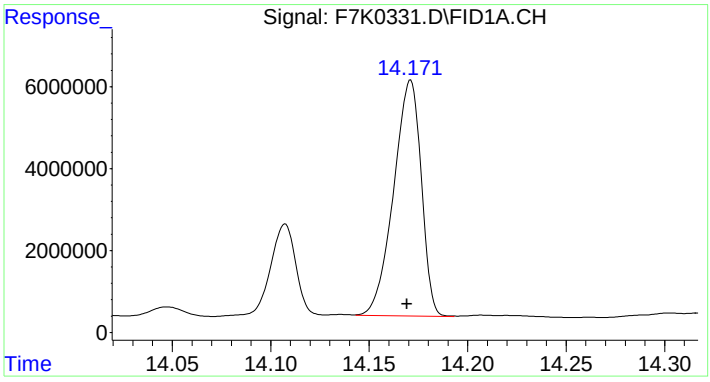
Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	1868632493
Total SMC/ISTD Resp:	56159800
Final Resp:	1812472693



#2 BEFORE analyst INTEGRATION
o-Terphenyl

R.T.:	14.171 min
Delta R.T.:	0.002 min
Response:	65474149
Conc:	34.68 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl

R.T.:	14.171 min
Delta R.T.:	0.002 min
Response:	56159800
Conc:	29.75 mg/L MANUALLY INTEGRATED

Lab Name: GEL Laboratories LLC **Client SDG:** 409254

GC Column: DB-5ms

Instrument ID: FID7.

Analytical Sequence for Performance Evaluation Mixtures, Blanks, Samples, and Standards is given below:

Mean Surrogate RT From Initial Calibration: **RT Range Based on Calibration Verification:**				14.18 14.15 14.21 #
File	**Sample Number**	**Lab Sample ID**	**Analysis Date**	**o-Terphenyl**
f7j2503.D	ICAL	UFI160222-11.1	25-OCT-16 11:33	14.17
f7j2504.D	ICAL	UFI160222-12.1	25-OCT-16 12:12	14.17
f7j2505.D	ICAL	UFI160222-13.1	25-OCT-16 12:51	14.18
f7j2506.D	ICAL	UFI160222-14.1	25-OCT-16 13:30	14.19
f7j2507.D	ICAL	UFI160222-15.1	25-OCT-16 14:09	14.2
f7j2508.D	ICV	UFI150820-26.3	25-OCT-16 14:48	14.18

Column used to flag retention time values with an asterisk.

Lab Name: GEL Laboratories LLC **Client SDG:** 409254

GC Column: DB-5ms

Instrument ID: FID7.

Analytical Sequence for Performance Evaluation Mixtures, Blanks, Samples, and Standards is given below:

Mean Surrogate RT From Initial Calibration: **RT Range Based on Calibration Verification:**				14.17 14.14 14.2 #
File	**Sample Number**	**Lab Sample ID**	**Analysis Date**	**o-Terphenyl**
F7K0318.D	CCB	ZZZZZZZ	03-NOV-16 21:43	14.17
F7K0319.D	ZZZZZZZ	ZZZZZZZ	03-NOV-16 22:22	NA
F7K0320.D	CCV	UFI150820-26.3	03-NOV-16 23:01	14.17
F7K0321.D	CCB	WFI161004-99	03-NOV-16 23:40	14.17
F7K0322.D	MB	1203659992	04-NOV-16 00:19	14.17
F7K0323.D	BLK01LCS	1203659993	04-NOV-16 00:58	14.17
F7K0324.D	DP060321	409254040	04-NOV-16 01:36	14.17
F7K0325.D	DP060321MS	1203659994	04-NOV-16 02:15	14.17
F7K0326.D	DP060321MSD	1203659995	04-NOV-16 02:54	14.17
F7K0327.D	DP060113	409254041	04-NOV-16 03:33	14.17
F7K0328.D	DP060212	409254042	04-NOV-16 04:12	14.17
F7K0329.D	DP060212DUP	409254043	04-NOV-16 04:51	14.17
F7K0330.D	ZZZZZZZ	ZZZZZZZ	04-NOV-16 05:29	14.17
F7K0331.D	CCV	UFI150820-26.3	04-NOV-16 06:08	14.17
F7K0332.D	CCB	WFI161004-99	04-NOV-16 06:47	14.17

Column used to flag retention time values with an asterisk.

Quality Control Data

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203659992**				
Client Sample:	**QC for batch 1612126**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1612126**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 00:19**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.048 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0322.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	J	3190	ug/Kg	2160	6660
68334-30-5						

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0322.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 00:19
Operator : LXA1 InstName : FID7
Sample : |1203659992|1612127|1|DROQ|1|MB|||
Misc : |FIDDROC4_S|SOIL|QC A|MIX[A]||
ALS Vial : 22 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:34 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.169	14.165	-0.004	26568641	14.074	mg/L

Compound	Amount	Range	Recovery
2) o-Terphenyl	20.000	No Limits	70%

Target Compounds						
1) HA Diesel Range Organics	Range	8.055 - 17.937		154549788	95.931	mg/L

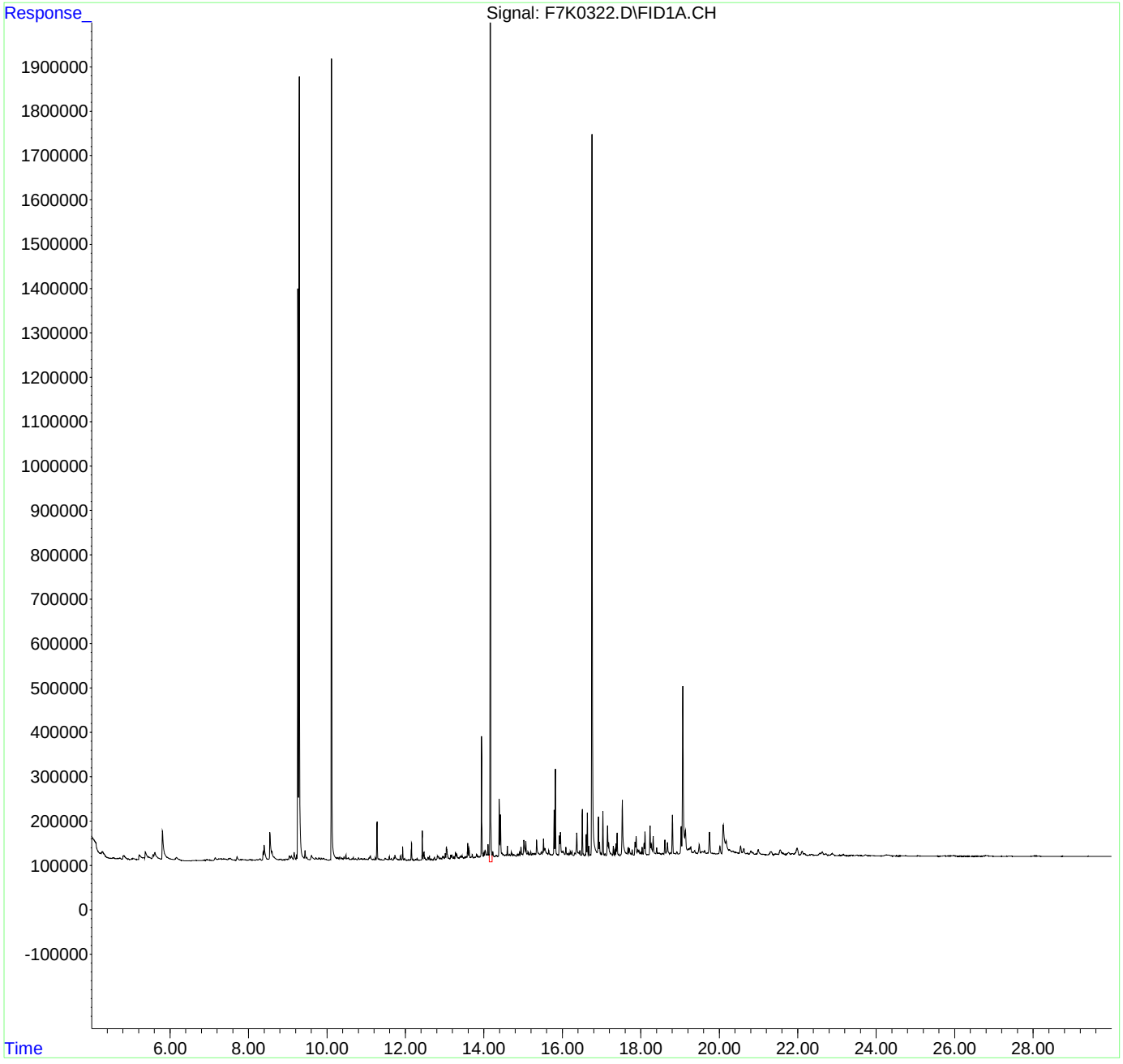
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

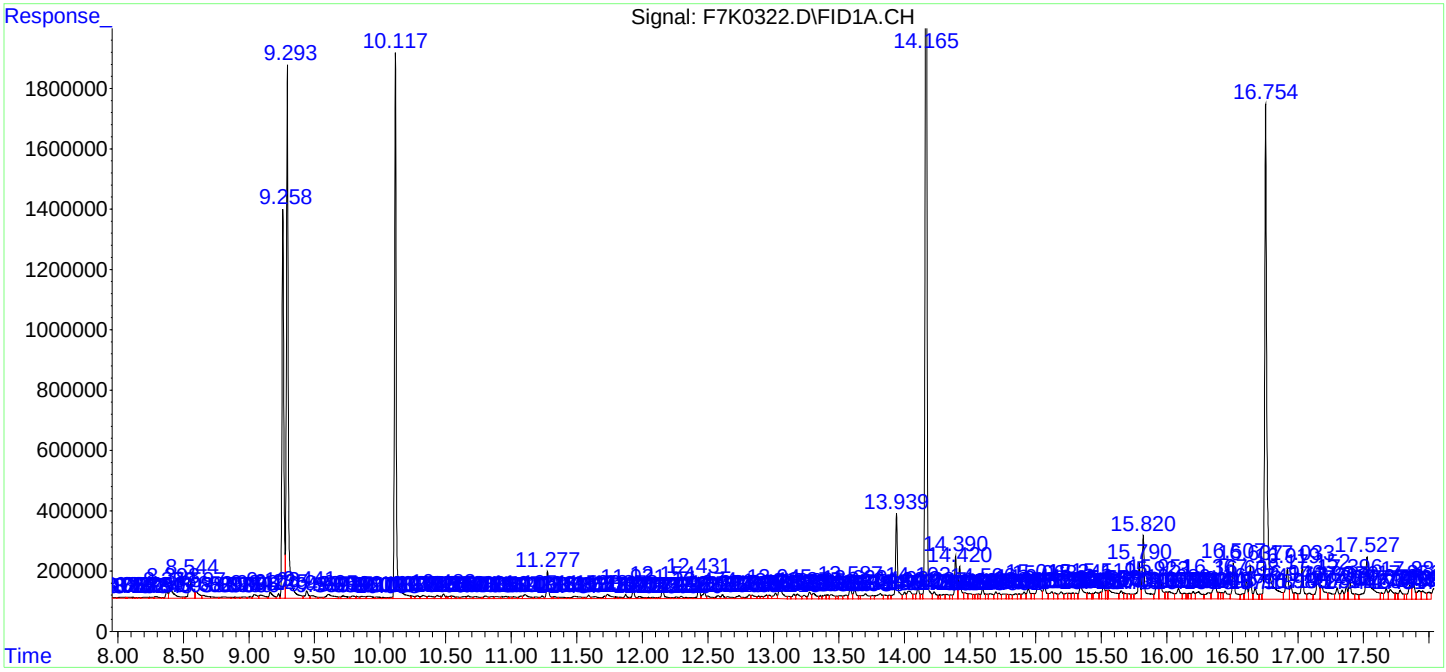
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0322.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 00:19
Operator : LXA1 InstName : FID7
Sample : |1203659992|1612127|1|DROQ|1|MB|||
Misc : |FIDDROC4_S|SOIL|QC A|MIX[A]||
ALS Vial : 22 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:34 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

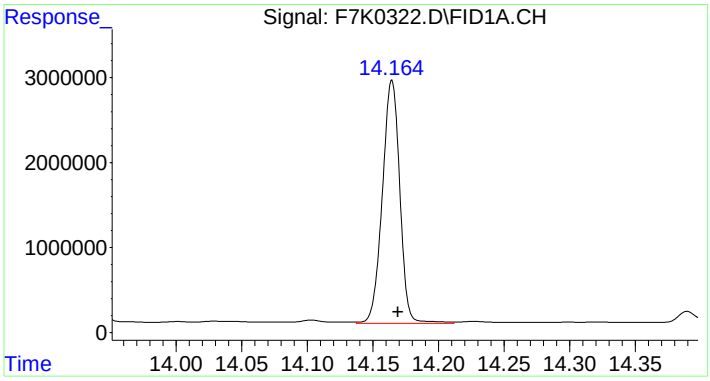
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	181118429
Total SMC/ISTD Resp:	26568641
Final Resp:	154549788



#2
o-Terphenyl

R.T.:	14.165 min
Delta R.T.:	-0.005 min
Response:	26568641
Conc:	14.07 mg/L

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**SOIL**
Lab Sample ID:	**1203659993**				
Client Sample:	**QC for batch 1612126**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1612126**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 00:58**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.032 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0323.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	B	25900	ug/Kg	2160	6660
68334-30-5						

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0323.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 00:58
Operator : LXA1 InstName : FID7
Sample : |1203659993|1612127|1|DROQ|1|LCS|||
Misc : |FIDDROC4_S|SOIL|QC A|MIX[A]||
ALS Vial : 23 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:36 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.169	14.166	-0.003	28172366	14.923	mg/L m

Compound	Amount	Range	Recovery
2) o-Terphenyl	20.000	No Limits	75%

Target Compounds					
1) HA Diesel Range Organics	Range	8.055 - 17.937	1254918135	778.943	mg/L m

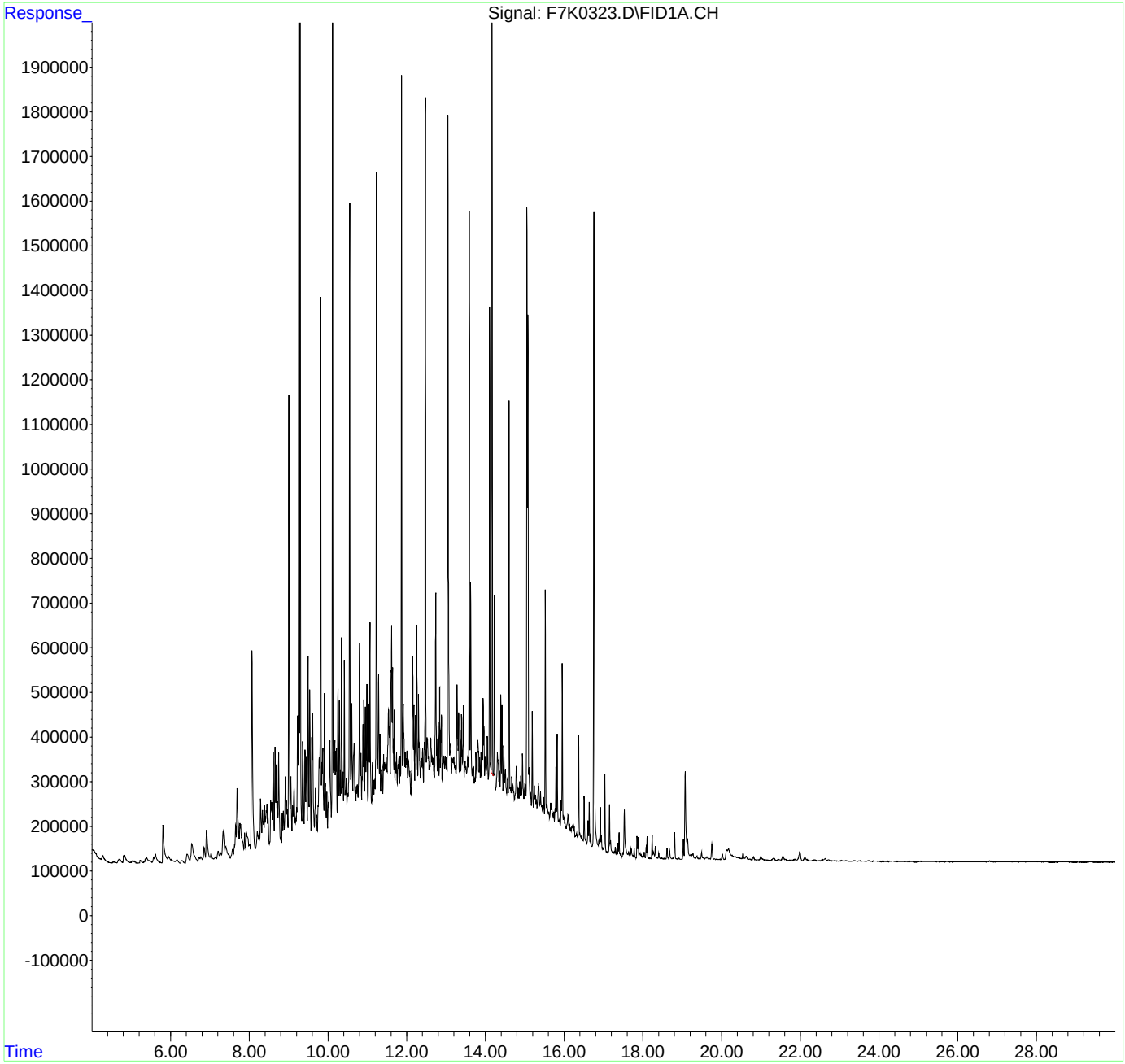
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

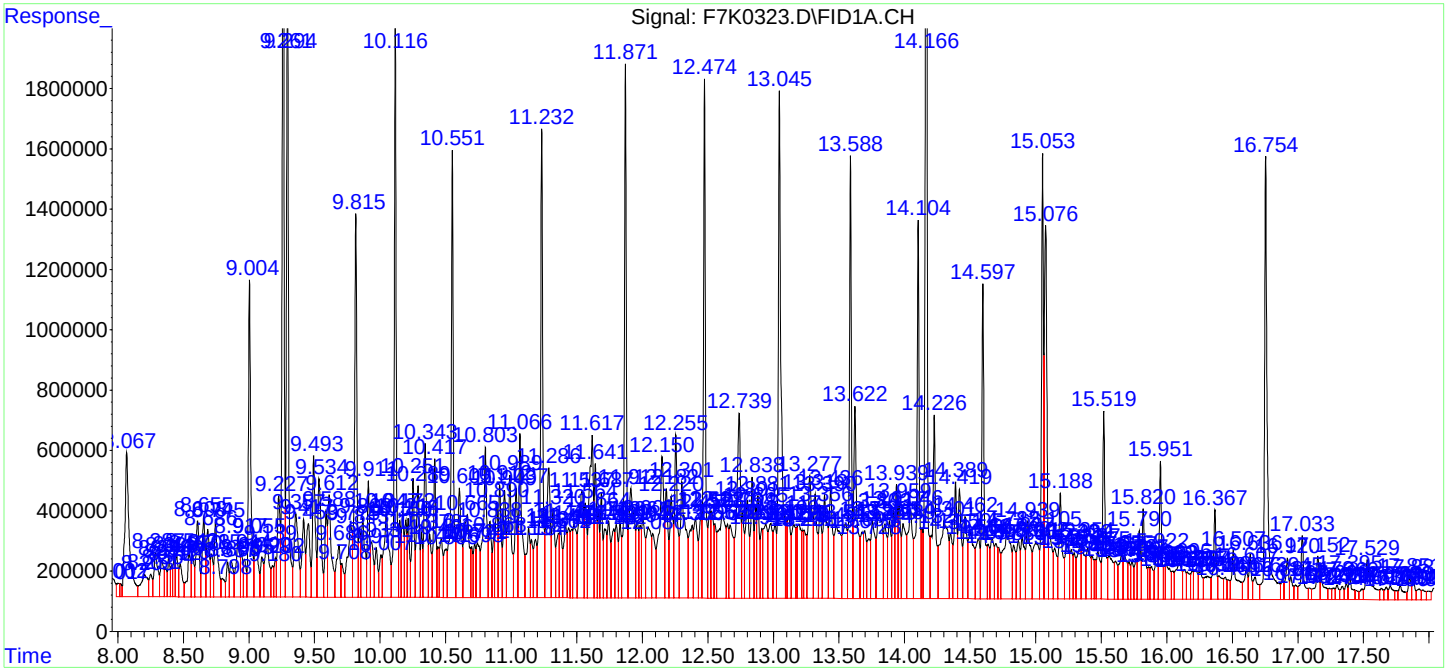
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0323.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 00:58
Operator : LXA1 InstName : FID7
Sample : |1203659993|1612127|1|DROQ|1|LCS|||
Misc : |FIDDROC4_S|SOIL|QC A|MIX[A]||
ALS Vial : 23 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:36 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

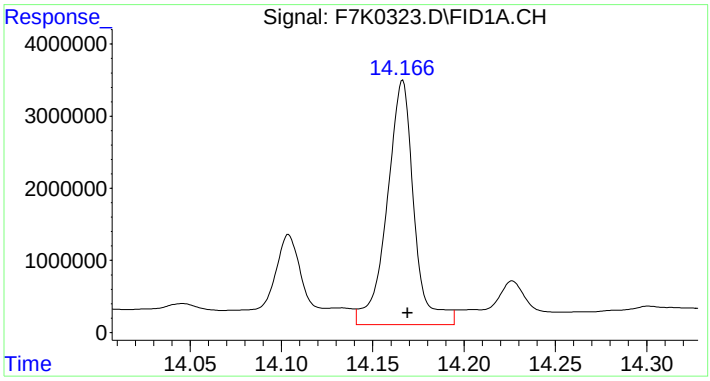
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





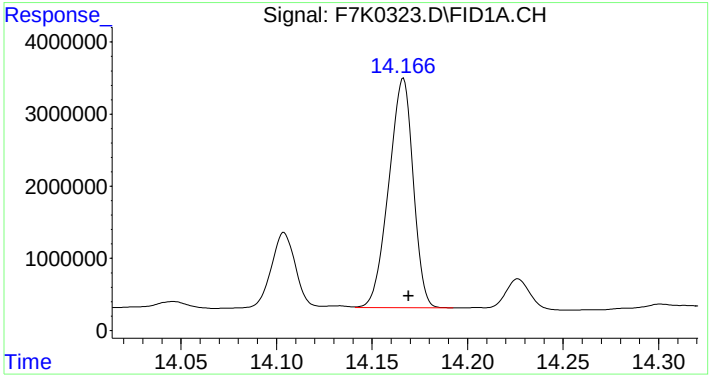
Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	1283090500
Total SMC/ISTD Resp:	28172366
Final Resp:	1254918135



#2 BEFORE analyst INTEGRATION
o-Terphenyl

R.T.:	14.166 min
Delta R.T.:	-0.003 min
Response:	34905130
Conc:	18.49 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl

R.T.:	14.166 min
Delta R.T.:	-0.003 min
Response:	28172366
Conc:	14.92 mg/L MANUALLY INTEGRATED

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:31**	**Matrix:**	**SOIL**
Lab Sample ID:	**1203659994**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**15.1**
Client Sample:	**QC for batch 1612126**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**DP060321MS**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 02:15**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.002 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0325.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	B	45600	ug/Kg	2550	7850
68334-30-5						

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0325.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 02:15
Operator : LXA1 InstName : FID7
Sample : |1203659994|1612127|1|DROQ|1|MS|||
Misc : |FIDDROC4_S|SOIL|QC A|MIX[A]||
ALS Vial : 25 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:40 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl		14.169	14.167 -0.002	32013867	16.958	mg/L m

Compound	Amount	Range	Recovery
2) o-Terphenyl	20.000	No Limits	85%

Target Compounds					
1) HA Diesel Range Organics	Range	8.055 - 17.937	1869980575	1160.720	mg/L m

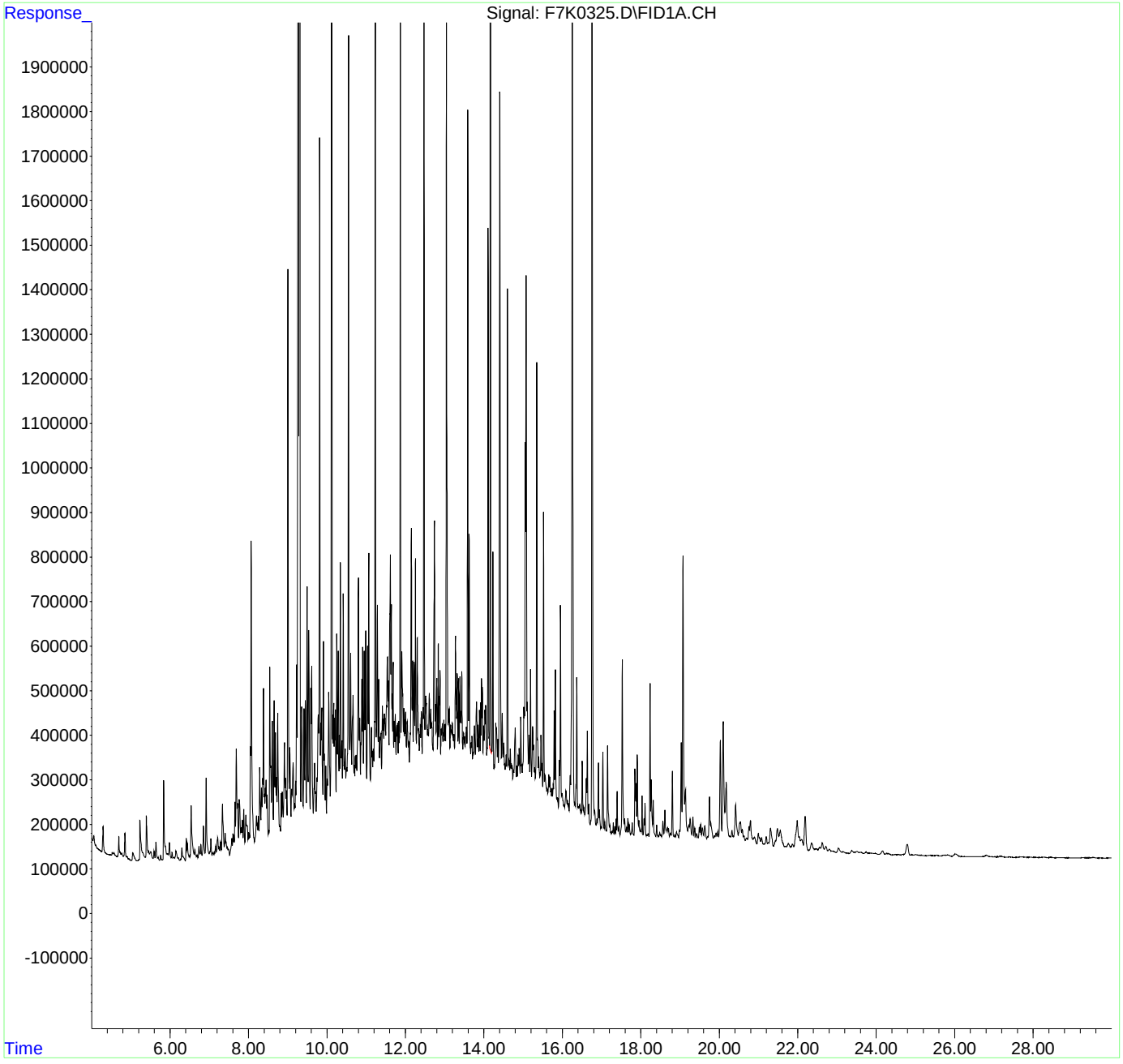
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

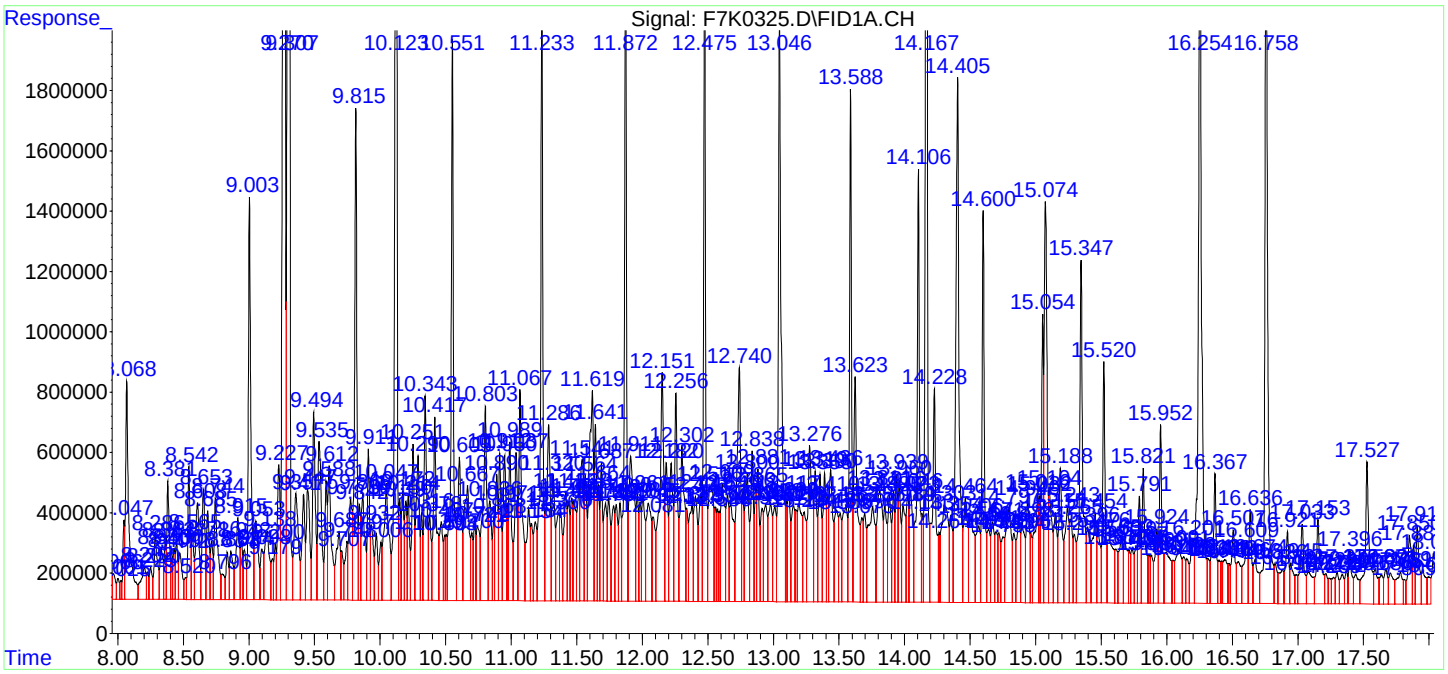
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0325.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 02:15
Operator : LXA1 InstName : FID7
Sample : |1203659994|1612127|1|DROQ|1|MS|||
Misc : |FIDDROC4_S|SOIL|QC A|MIX[A]||
ALS Vial : 25 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:40 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

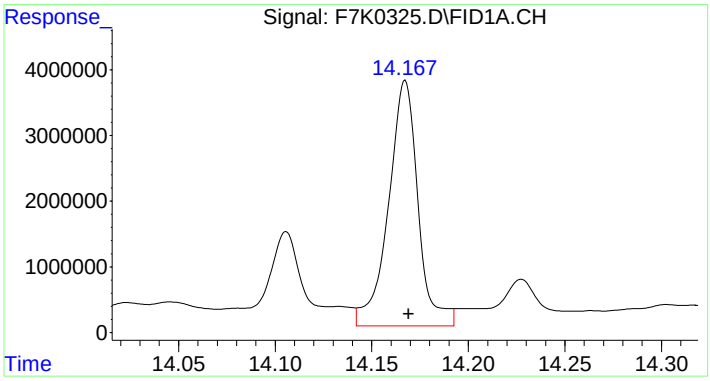
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um





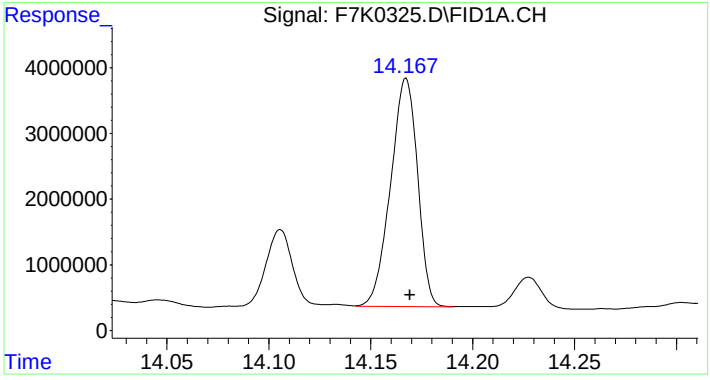
Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	1901994441
Total SMC/ISTD Resp:	32013867
Final Resp:	1869980575



#2 BEFORE analyst INTEGRATION
o-Terphenyl

R.T.:	14.167 min
Delta R.T.:	-0.002 min
Response:	40009009
Conc:	21.19 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl

R.T.:	14.167 min
Delta R.T.:	-0.002 min
Response:	32013867
Conc:	16.96 mg/L MANUALLY INTEGRATED

FID Diesel Range Organics
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 12:31**	**Matrix:**	**SOIL**
Lab Sample ID:	**1203659995**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**15.1**
Client Sample:	**QC for batch 1612126**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**DP060321MSD**	**Method:**	**SW846 3541/8015C**	**SOP Ref:**	**GL-OA-E-003**
Batch ID:	**1612127**	**Inst:**	**FID7.I**	**Dilution:**	**1**
Run Date:	**11/04/2016 02:54**	**Analyst:**	**LXA1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/02/2016 12:26**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**110316_DRO\F7K0326.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
PHCG1020DRO	Diesel Range Organics	B	33100	ug/Kg	2550	7850
68334-30-5						

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110316_DRO\
Data File : F7K0326.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 02:54
Operator : LXA1 InstName : FID7
Sample : |1203659995|1612127|1|DROQ|1|MSD|||
Misc : |FIDDROC4_S|SOIL|QC A|MIX[A]||
ALS Vial : 26 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:42 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um

Compound	Exp	R.T.	Delta	Response	Conc	Units
System Monitoring Compounds						
2) SA o-Terphenyl	14.169	14.166	-0.003	26567932	14.073	mg/L m

Compound	Amount	Range	Recovery
2) o-Terphenyl	20.000	No Limits	70%

Target Compounds					
1) HA Diesel Range Organics	Range	8.055 - 17.937	1359646801	843.950	mg/L m

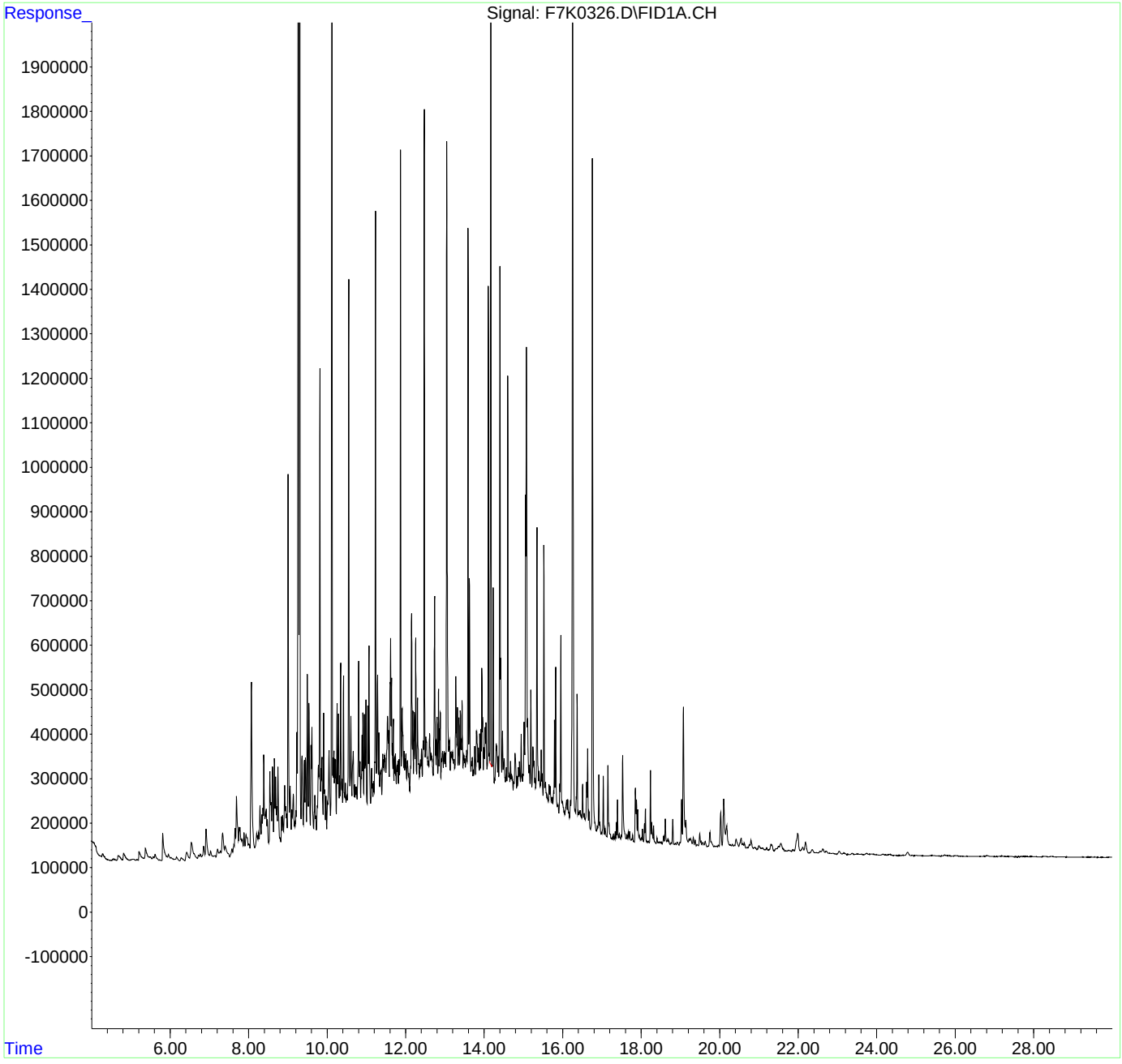
(f)=RT Delta > 1/2 Window (A) = Over the calibration range (d) = deleted (m)=manual int.

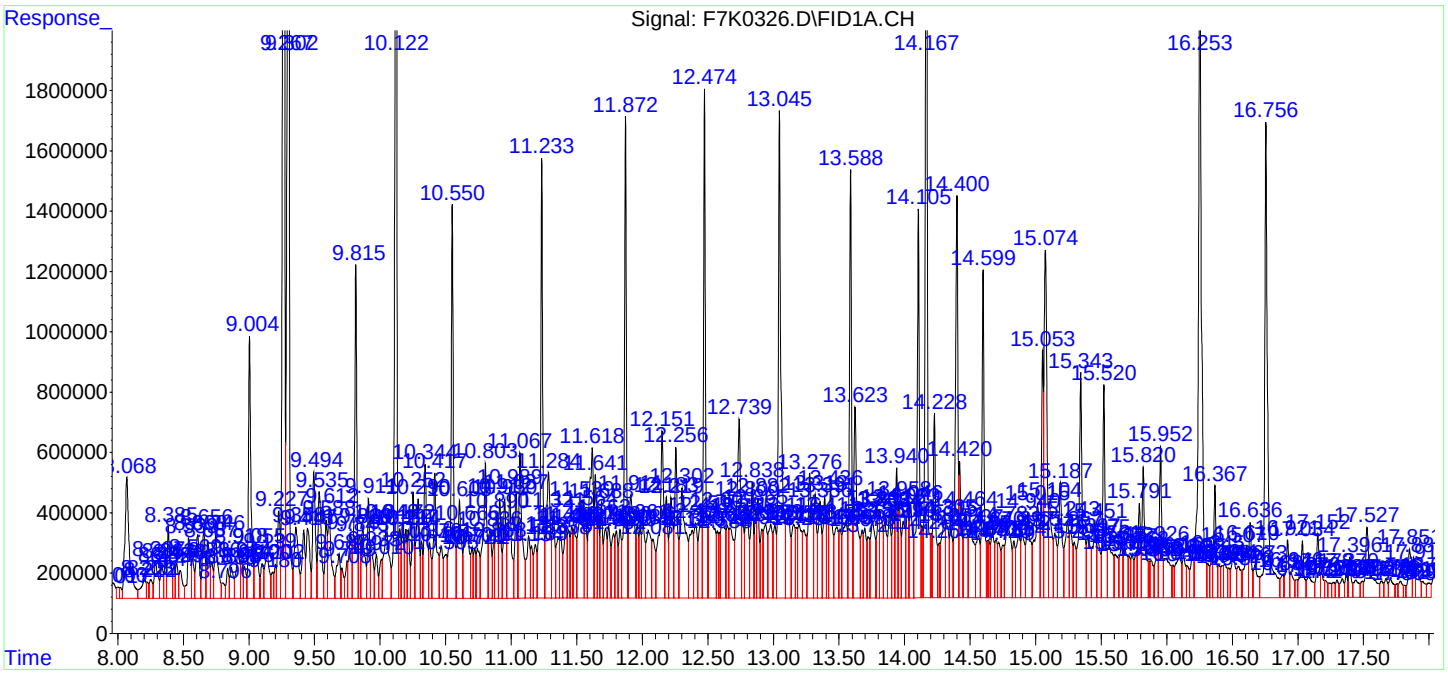
Quantitation Report
GEL Laboratories, LLC

DaData Path : C:\msdchem\1\DATA\110316_DRO\
DaData File : F7K0326.D
Signal(s) : FID1A.CH
Acq On : 04 Nov 2016 02:54
Operator : LXA1 InstName : FID7
Sample : |1203659995|1612127|1|DROQ|1|MSD|||
Misc : |FIDDROC4_S|SOIL|QC A|MIX[A]||
ALS Vial : 26 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 04 08:23:42 2016
Quant Method : C:\msdchem\1\DATA\110316_DRO\FID7_DRO_102516.m
Quant Title : DRO TPH SubList :
QLast Update : Tue Oct 25 14:51:13 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

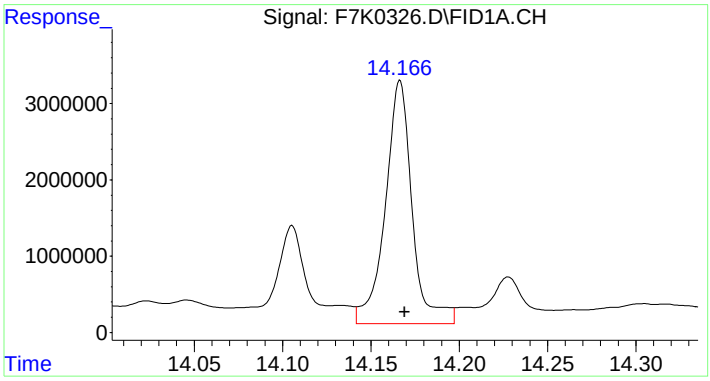
Volume Inj. : 1 ul
Signal Phase : DB-5MS
Signal Info : 30m x 250um x 0.25um



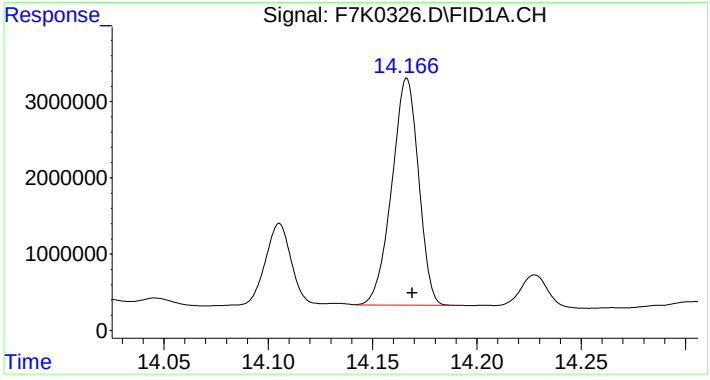


Compound: Diesel Range Organics

RT Range:	8.055: 17.937
Total TPH Resp:	1386214733
Total SMC/ISTD Resp:	26567932
Final Resp:	1359646801



#2 BEFORE analyst INTEGRATION
o-Terphenyl
R.T.: 14.167 min
Delta R.T.: -0.003 min
Response: 33701515
Conc: 17.85 mg/L



#2 AFTER analyst INTEGRATION
o-Terphenyl
R.T.: 14.166 min
Delta R.T.: -0.003 min
Response: 26567932
Conc: 14.07 mg/L MANUALLY INTEGRATED

Miscellaneous

Prep Logbook

Extraction of Semivolatile and Nonvolatile Organic Compounds from Soil, Sludge, and Other Miscellaneous Solid Samples

Batch ID: 1612126 **Verified by:** _____
Analyst: Mia DeLee
Method: SW846 3541

Lab SOP: GL-OA-E-010 REV# 26
Instrument: Semi-Volatiles Manual

Sample ID	Prep Date	Aliquot (g)	Prepped Aliquot (mL)	Prepped Factor (mL/g)
1203659992 MB	02-NOV-2016 12:26:00	30.048	1	0.03328
1203659993 LCS	02-NOV-2016 12:26:00	30.032	1	0.0333
409254040	02-NOV-2016 12:26:00	30.062	1	0.03326
1203659994 MS (409254040)	02-NOV-2016 12:26:00	30.002	1	0.03333
1203659995 MSD (409254040)	02-NOV-2016 12:26:00	30.015	1	0.03332
409254041	02-NOV-2016 12:26:00	30.025	1	0.03331
409254042	02-NOV-2016 12:26:00	30.004	1	0.03333
409254043	02-NOV-2016 12:26:00	30.015	1	0.03332
409411001	02-NOV-2016 12:26:00	30.042	1	0.03329

Type	Sample Id	Description	Serial Number	Spike Amt	Units
LCS	1203659993	TPH DRO LCS	UE160804-01	1	mL
MS	1203659994	TPH DRO LCS	UE160804-01	1	mL
MSD	1203659995	TPH DRO LCS	UE160804-01	1	mL
SURR	All	20 ppm surrogate	WE161012-06	1	mL
REGNT	All	Sand pure 40-100 mesh	160712-A	30	g
REGNT	All	Methylene Chloride	2470801	120	mL

Comments:

Final Solvent: CH2Cl2
Verified by: SJW

ORGANIC RUN LOG - INSTRUMENT ID#FID7

GEL ORGANIC RUN LOG

INSTRUMENT BATCH: 102516DRO

DATE: 25-Oct-16 METHOD: See Data OPERATOR: LXA1

Solvent Lot: 1784476-D.1
Injection Volume: 1.0 uL

Sequence Number: 102516DRO

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See Associated Data and Run Log
FID analysis of GEL SOP: GL-OA-E-003

Analysis Date	Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
10/25/2016	09:51	f7j2501.D	WFI161004-99	IB	BLANK	1	1	LXA1	USE
10/25/2016	10:30	f7j2502.D	WFI160617-99	FID_RT	RTCHECK	1	2	LXA1	USE
10/25/2016	11:33	f7j2503.D	UFI160222-11.2	DRO-ICAL-1	ICAL	1	3	LXA1	USE
10/25/2016	12:12	f7j2504.D	UFI160222-12.2	DRO-ICAL-2	ICAL	1	4	LXA1	USE
10/25/2016	12:51	f7j2505.D	UFI160222-13.2	DRO-ICAL-3	ICAL	1	5	LXA1	USE
10/25/2016	13:30	f7j2506.D	UFI160222-14.2	DRO-ICAL-4	ICAL	1	6	LXA1	USE
10/25/2016	14:09	f7j2507.D	UFI160222-15.2	DRO-ICAL-5	ICAL	1	7	LXA1	USE
10/25/2016	14:48	f7j2508.D	UFI150820-26.3	DRO_ICV	ICV	1	8	LXA1	USE

ORGANIC RUN LOG - INSTRUMENT ID#FID7

GEL ORGANIC RUN LOG

INSTRUMENT BATCH: 110316_DRO

DATE: 3-Nov-16 METHOD: See Data OPERATOR: LXA1

Solvent Lot: 1784476-D.1
Injection Volume: 1.0 uL

Sequence Number: 110316_DRO

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See Associated Data and Run Log
FID analysis of GEL SOP: GL-OA-E-003

Analysis Date	Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
11/03/2016	21:43	F7K0318.D	WFI160417-99	IB	BLANK	1	18	LXA1	USE
11/03/2016	22:22	F7K0319.D	WFI160617-99	FID_RT	RTCHECK	1	19	LXA1	USE
11/03/2016	23:01	F7K0320.D	UFI150820-26.36	DRO_CCV	CCV	1	20	LXA1	USE
11/03/2016	23:40	F7K0321.D	WFI161004-99	IB	BLANK	1	21	LXA1	USE
11/04/2016	00:19	F7K0322.D	1203659992	MB	1612127	1	22	LXA1	USE
11/04/2016	00:58	F7K0323.D	1203659993	LCS	1612127	1	23	LXA1	USE
11/04/2016	01:36	F7K0324.D	409254040	HAAL	1612127	1	24	LXA1	USE
11/04/2016	02:15	F7K0325.D	1203659994	MS	1612127	1	25	LXA1	USE
11/04/2016	02:54	F7K0326.D	1203659995	MSD	1612127	1	26	LXA1	USE
11/04/2016	03:33	F7K0327.D	409254041	HAAL	1612127	1	27	LXA1	USE
11/04/2016	04:12	F7K0328.D	409254042	HAAL	1612127	1	28	LXA1	USE
11/04/2016	04:51	F7K0329.D	409254043	HAAL	1612127	1	29	LXA1	USE
11/04/2016	05:29	F7K0330.D	409411001	SDCG	1612127	1	30	LXA1	USE
11/04/2016	06:08	F7K0331.D	UFI150820-26.36	DRO_CCV	CCV	1	31	LXA1	USE
11/04/2016	06:47	F7K0332.D	WFI161004-99	IB	BLANK	1	32	LXA1	USE

PCB Analysis

Case Narrative

GC Semivolatile PCB
Technical Case Narrative
Haley & Aldrich, Inc. (HAAL)
SDG #: 409254

Product: **Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method: SW846 3541/8082A
Analytical Procedure: GL-OA-E-040 REV# 23
Analytical Batch: 1614293

Preparation Method: SW846 3541
Preparation Procedure: GL-OA-E-066 REV# 7
Preparation Batch: 1614292

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
409254026	DP050113
409254027	DP050213
409254028	SS050100
409254029	DP020312
409254031	DP020312DUP
409254032	DP020413
409254034	DP020207
409254036	DP020209
409254038	DP020114
1203665373	Method Blank (MB)
1203665374	Laboratory Control Sample (LCS)
1203665375	409254026(DP050113) Matrix Spike (MS)
1203665376	409254026(DP050113) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) did not meet acceptance criteria for surrogate recovery due to dilution.

Sample	Analyte	Value
409254028 (SS050100)	4cmx	25* (30%-120%)

Technical Information

Preparation/Analytical Method Verification

All samples and QC in this batch were cleaned using alumina in order to remove oil and other high molecular weight interferences. All samples and QC in this batch were cleaned with activated copper in order to remove sulfur. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

Sample Dilutions
Sample 409254028 (SS050100) was diluted due to the thickness of the extract.

Miscellaneous Information

Manual integrations
Samples 1203665373 (MB), 1203665374 (LCS), 1203665375 (DP050113MS), 1203665376 (DP050113MSD), 409254026 (DP050113), 409254027 (DP050213), 409254028 (SS050100), 409254029 (DP020312), 409254031 (DP020312DUP), 409254032 (DP020413), 409254034 (DP020207), 409254036 (DP020209) and 409254038 (DP020114) required manual integration to correctly position the baseline as set in the calibration standard injections.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

HAAL002 Haley & Aldrich, Inc.

Client SDG: 409254 GEL Work Order: 409254

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 15 NOV 2016 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:14**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254026**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**19**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP050113**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 08:57**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.031 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0917.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0917.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.11	ug/kg	1.37	4.11	1
11104-28-2	Aroclor-1221	U	4.11	ug/kg	1.37	4.11	1
11141-16-5	Aroclor-1232	U	4.11	ug/kg	1.37	4.11	1
53469-21-9	Aroclor-1242	U	4.11	ug/kg	1.37	4.11	1
12672-29-6	Aroclor-1248	U	4.11	ug/kg	1.37	4.11	1
11097-69-1	Aroclor-1254	U	4.11	ug/kg	1.37	4.11	1
11096-82-5	Aroclor-1260	U	4.11	ug/kg	1.37	4.11	1

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:34**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254027**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**27.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP050213**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 09:40**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.048 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0920.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0920.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.60	ug/kg	1.53	4.60	1
11104-28-2	Aroclor-1221	U	4.60	ug/kg	1.53	4.60	1
11141-16-5	Aroclor-1232	U	4.60	ug/kg	1.53	4.60	1
53469-21-9	Aroclor-1242	U	4.60	ug/kg	1.53	4.60	1
12672-29-6	Aroclor-1248	U	4.60	ug/kg	1.53	4.60	1
11097-69-1	Aroclor-1254	U	4.60	ug/kg	1.53	4.60	1
11096-82-5	Aroclor-1260	U	4.60	ug/kg	1.53	4.60	1

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:48**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254028**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS050100**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**10**
Run Date:	**11/09/2016 09:55**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.118 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0921.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0921.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	37.3	ug/kg	12.4	37.3	1
11104-28-2	Aroclor-1221	U	37.3	ug/kg	12.4	37.3	1
11141-16-5	Aroclor-1232	U	37.3	ug/kg	12.4	37.3	1
53469-21-9	Aroclor-1242	U	37.3	ug/kg	12.4	37.3	1
12672-29-6	Aroclor-1248	U	37.3	ug/kg	12.4	37.3	1
11097-69-1	Aroclor-1254	U	37.3	ug/kg	12.4	37.3	1
11096-82-5	Aroclor-1260		49.0	ug/kg	12.4	37.3	1

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 10:46**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.12 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0924.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0924.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.49	ug/kg	1.50	4.49	1
11104-28-2	Aroclor-1221	U	4.49	ug/kg	1.50	4.49	1
11141-16-5	Aroclor-1232	U	4.49	ug/kg	1.50	4.49	1
53469-21-9	Aroclor-1242	U	4.49	ug/kg	1.50	4.49	1
12672-29-6	Aroclor-1248	U	4.49	ug/kg	1.50	4.49	1
11097-69-1	Aroclor-1254	U	4.49	ug/kg	1.50	4.49	1
11096-82-5	Aroclor-1260	U	4.49	ug/kg	1.50	4.49	1

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254031**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**24.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312DUP**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:00**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.006 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0925.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0925.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.44	ug/kg	1.48	4.44	1
11104-28-2	Aroclor-1221	U	4.44	ug/kg	1.48	4.44	1
11141-16-5	Aroclor-1232	U	4.44	ug/kg	1.48	4.44	1
53469-21-9	Aroclor-1242	U	4.44	ug/kg	1.48	4.44	1
12672-29-6	Aroclor-1248	U	4.44	ug/kg	1.48	4.44	1
11097-69-1	Aroclor-1254	U	4.44	ug/kg	1.48	4.44	1
11096-82-5	Aroclor-1260	U	4.44	ug/kg	1.48	4.44	1

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:14**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.082 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0926.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0926.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.04	ug/kg	1.34	4.04	1
11104-28-2	Aroclor-1221	U	4.04	ug/kg	1.34	4.04	1
11141-16-5	Aroclor-1232	U	4.04	ug/kg	1.34	4.04	1
53469-21-9	Aroclor-1242	U	4.04	ug/kg	1.34	4.04	1
12672-29-6	Aroclor-1248	U	4.04	ug/kg	1.34	4.04	1
11097-69-1	Aroclor-1254	U	4.04	ug/kg	1.34	4.04	1
11096-82-5	Aroclor-1260	U	4.04	ug/kg	1.34	4.04	1

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:29**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.042 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0927.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0927.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.17	ug/kg	1.39	4.17	1
11104-28-2	Aroclor-1221	U	4.17	ug/kg	1.39	4.17	1
11141-16-5	Aroclor-1232	U	4.17	ug/kg	1.39	4.17	1
53469-21-9	Aroclor-1242	U	4.17	ug/kg	1.39	4.17	1
12672-29-6	Aroclor-1248	U	4.17	ug/kg	1.39	4.17	1
11097-69-1	Aroclor-1254	U	4.17	ug/kg	1.39	4.17	1
11096-82-5	Aroclor-1260	U	4.17	ug/kg	1.39	4.17	1

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:43**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.044 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0928.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0928.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	3.73	ug/kg	1.24	3.73	1
11104-28-2	Aroclor-1221	U	3.73	ug/kg	1.24	3.73	1
11141-16-5	Aroclor-1232	U	3.73	ug/kg	1.24	3.73	1
53469-21-9	Aroclor-1242	U	3.73	ug/kg	1.24	3.73	1
12672-29-6	Aroclor-1248	U	3.73	ug/kg	1.24	3.73	1
11097-69-1	Aroclor-1254	U	3.73	ug/kg	1.24	3.73	1
11096-82-5	Aroclor-1260	U	3.73	ug/kg	1.24	3.73	1

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:57**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.089 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0929.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0929.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	3.39	ug/kg	1.13	3.39	1
11104-28-2	Aroclor-1221	U	3.39	ug/kg	1.13	3.39	1
11141-16-5	Aroclor-1232	U	3.39	ug/kg	1.13	3.39	1
53469-21-9	Aroclor-1242	U	3.39	ug/kg	1.13	3.39	1
12672-29-6	Aroclor-1248	U	3.39	ug/kg	1.13	3.39	1
11097-69-1	Aroclor-1254	U	3.39	ug/kg	1.13	3.39	1
11096-82-5	Aroclor-1260	U	3.39	ug/kg	1.13	3.39	1

Quality Control Summary

Surrogate Recovery Report

SDG Number: 409254

Matrix Type: SOLID

Sample ID	Client ID	4CMX 1 %REC #		4CMX 2 %REC #		DCB 1 %REC #		DCB 2 %REC #	
1203665373	MB for batch 1614292	70		76		81		81	
1203665374	LCS for batch 1614292	71		76		82		84	
409254026	DP050113	63		64		58		54	
1203665375	DP050113MS	73		78		71		78	
1203665376	DP050113MSD	73		80		72		83	
409254027	DP050213	69		77		72		71	
409254028	SS050100	33	D	25 *	D	46	D	42	D
409254029	DP020312	82		91		88		88	
409254031	DP020312DUP	68		74		79		79	
409254032	DP020413	73		80		86		86	
409254034	DP020207	70		77		73		70	
409254036	DP020209	82		88		89		92	
409254038	DP020114	73		80		69		78	

Surrogate		Acceptance Limits
4CMX	= 4cmx	(30%-120%)
DCB	= Decachlorobiphenyl	(32%-139%)

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

Quality Control Summary
Spike Recovery Report

SDG Number: **409254**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1614292**
Matrix: **MISC SOLID**
Lab Sample ID **1203665374**
Instrument: **ECD8A.I**
Analysis Date: **11/09/2016 08:02**
Dilution: **1**
Analyst: **JXM**
Prep Batch ID: **1614292**
Inj. Vol: **1 uL**
Batch ID: **1614293**

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg	Spike Conc. ug/kg	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	33.3	0.0	22.0	66	48-93
11096-82-5	LCS	Aroclor-1260	33.3	0.0	21.2	64	58-117

Quality Control Summary
Spike Recovery Report

SDG Number: **409254**
Client ID: **DP050113MS**
Lab Sample ID **1203665375**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **SOIL**
%Moisture: **19**
Analysis Date: **11/09/2016 09:11**
Prep Batch ID: **1614292**
Batch ID: **1614293**
Dilution: **1**

CAS No		Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	41.2	0.00	U	27.7	67	23-121
11096-82-5	MS	Aroclor-1260	41.2	0.00	U	28.3	69	35-135

Quality Control Summary
Spike Recovery Report

SDG Number: 409254
Client ID: DP050113MSD
Lab Sample ID 1203665376
Instrument: ECD8A.I
Analyst: JXM
Inj. Vol: 1 uL

Sample Type: Matrix Spike Duplicate
Matrix: SOIL
%Moisture: 19
Analysis Date: 11/09/2016 09:26
Prep Batch ID: 1614292
Batch ID: 1614293
Dilution: 1

CAS No	Parmname	Amount Added ug/kg	Sample Conc. ug/kg		Spike Conc. ug/kg	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD Aroclor-1016	41.1	0.00	U	30.4	74	23-121	9	0-29
11096-82-5	MSD Aroclor-1260	41.1	0.00	U	26.8	65	35-135	5	0-33

Method Blank Summary

SDG Number:	**409254**	**Client:**	**HAAL002**	**Matrix:**	**MISC SOLID**
Client ID:	**MB for batch 1614292**	**Instrument ID:**	**ECD8A.I_1**	**Data File:**	**110916.B\e8k0912.D**
			ECD8A.I_2		**110916.B\e8k0912.D**
Lab Sample ID:	**1203665373**			**Analyzed:**	**11/09/16 07:50**
Column:	**RTX-CLPEST1**	**Prep Date:**	**11/08/2016 10:54**		
	RTX-CLPEST2				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1614292	1203665374	110916.B\e8k0913.D	11/09/16	0802
02	DP050113	409254026	110916.B\e8k0917.D	11/09/16	0857
03	DP050113MS	1203665375	110916.B\e8k0918.D	11/09/16	0911
04	DP050113MSD	1203665376	110916.B\e8k0919.D	11/09/16	0926
05	DP050213	409254027	110916.B\e8k0920.D	11/09/16	0940
06	SS050100	409254028	110916.B\e8k0921.D	11/09/16	0955
07	DP020312	409254029	110916.B\e8k0924.D	11/09/16	1046
08	DP020312DUP	409254031	110916.B\e8k0925.D	11/09/16	1100
09	DP020413	409254032	110916.B\e8k0926.D	11/09/16	1114
10	DP020207	409254034	110916.B\e8k0927.D	11/09/16	1129
11	DP020209	409254036	110916.B\e8k0928.D	11/09/16	1143
12	DP020114	409254038	110916.B\e8k0929.D	11/09/16	1157

Identification Summary

SDG Number: 409254 **Client ID:** LCS for batch 1614292

Lab Sample ID: 1203665374

Data File:	110916.B\e8k0913.D	**Data File:**	110916.B\e8k0913.D
Inst:	ECD8A.I_1	**Inst:**	ECD8A.I_2
Column:	RTX-CLPEST1	**Column:**	RTX-CLPEST2
Analyzed:	09-NOV-16 08:02	**Analyzed:**	09-NOV-16 08:02

Analyte	Peak	RT	RT Window	Conc.	Ave Conc.	Units	RPD
Aroclor-1016							2.45
Column 1	1	2.7	2.67 - 2.73	23.7		ug/kg	
	2	3.14	3.11 - 3.17	23.6		ug/kg	
	3	3.18	3.15 - 3.21	22		ug/kg	
	4	3.28	3.25 - 3.31	20.6		ug/kg	
	5	3.44	3.41 - 3.47	20.1		ug/kg	
					22		
Column 2	1	3.31	3.28 - 3.34	22.6		ug/kg	
	2	3.76	3.73 - 3.79	25.6		ug/kg	
	3	3.84	3.81 - 3.87	22		ug/kg	
	4	3.91	3.88 - 3.94	20.9		ug/kg	
	5	4.11	4.08 - 4.14	21.8		ug/kg	
					22.6		
Aroclor-1260							10.9
Column 1	1	4.3	4.27 - 4.33	20.7		ug/kg	
	2	4.5	4.47 - 4.53	20.3		ug/kg	
	3	4.77	4.74 - 4.8	18.8		ug/kg	
	4	5.15	5.13 - 5.19	22.6		ug/kg	
	5	5.35	5.32 - 5.38	23.7		ug/kg	
					21.2		
Column 2	1	5.02	4.99 - 5.05	23.2		ug/kg	
	2	5.16	5.13 - 5.19	22.7		ug/kg	
	3	5.48	5.45 - 5.51	24.4		ug/kg	
	4	5.86	5.83 - 5.89	23.8		ug/kg	
	5	6.12	6.09 - 6.15	24.2		ug/kg	
					23.7		

Identification Summary

SDG Number: 409254 **Client ID:** DP050113MS

Lab Sample ID: 1203665375

Data File:	110916.B\e8k0918.D	**Data File:**	110916.B\e8k0918.D
Inst:	ECD8A.I_1	**Inst:**	ECD8A.I_2
Column:	RTX-CLPEST1	**Column:**	RTX-CLPEST2
Analyzed:	09-NOV-16 09:11	**Analyzed:**	09-NOV-16 09:11

Analyte	Peak	RT	RT Window	Conc.	Ave Conc.	Units	RPD
Aroclor-1016							6.07
Column 1	1	2.7	2.67 - 2.73	30.1		ug/kg	
	2	3.14	3.11 - 3.17	27.1		ug/kg	
	3	3.18	3.15 - 3.21	26.8		ug/kg	
	4	3.28	3.25 - 3.31	26.9		ug/kg	
	5	3.43	3.41 - 3.47	27.4		ug/kg	
					27.7		
Column 2	1	3.31	3.28 - 3.34	29.2		ug/kg	
	2	3.76	3.73 - 3.79	30.8		ug/kg	
	3	3.84	3.81 - 3.87	27.9		ug/kg	
	4	3.91	3.88 - 3.94	28		ug/kg	
	5	4.11	4.08 - 4.14	31		ug/kg	
					29.4		
Aroclor-1260							5.5
Column 1	1	4.3	4.27 - 4.33	26.8		ug/kg	
	2	4.49	4.47 - 4.53	27.5		ug/kg	
	3	4.77	4.74 - 4.8	25.9		ug/kg	
	4	5.15	5.13 - 5.19	30.2		ug/kg	
	5	5.35	5.32 - 5.38	31.2		ug/kg	
					28.3		
Column 2	1	5.02	4.99 - 5.05	31		ug/kg	
	2	5.16	5.13 - 5.19	29.9		ug/kg	
	3	5.48	5.45 - 5.51	28.8		ug/kg	
	4	5.86	5.83 - 5.89	30.7		ug/kg	
	5	6.12	6.09 - 6.15	29.1		ug/kg	
					29.9		

Identification Summary

SDG Number: 409254 **Client ID:** DP050113MSD

Lab Sample ID: 1203665376

Data File:	110916.B\e8k0919.D	**Data File:**	110916.B\e8k0919.D
Inst:	ECD8A.I_1	**Inst:**	ECD8A.I_2
Column:	RTX-CLPEST1	**Column:**	RTX-CLPEST2
Analyzed:	09-NOV-16 09:26	**Analyzed:**	09-NOV-16 09:26

Analyte	Peak	RT	RT Window	Conc.	Ave Conc.	Units	RPD
Aroclor-1016							.667
Column 1	1	2.7	2.67 - 2.73	24.5		ug/kg	
	2	3.14	3.11 - 3.17	35.9		ug/kg	
	3	3.18	3.15 - 3.21	34.5		ug/kg	
	4	3.27	3.25 - 3.31	32.8		ug/kg	
	5	3.43	3.41 - 3.47	24		ug/kg	
					30.4		
Column 2	1	3.31	3.28 - 3.34	36		ug/kg	
	2	3.76	3.73 - 3.79	31.2		ug/kg	
	3	3.84	3.81 - 3.87	28.4		ug/kg	
	4	3.91	3.88 - 3.94	26.7		ug/kg	
	5	4.11	4.08 - 4.14	30.5		ug/kg	
					30.6		
Aroclor-1260							10.5
Column 1	1	4.3	4.27 - 4.33	25.6		ug/kg	
	2	4.5	4.47 - 4.53	25.9		ug/kg	
	3	4.77	4.74 - 4.8	23.9		ug/kg	
	4	5.15	5.13 - 5.19	28.6		ug/kg	
	5	5.35	5.32 - 5.38	30		ug/kg	
					26.8		
Column 2	1	5.02	4.99 - 5.05	30.3		ug/kg	
	2	5.16	5.13 - 5.19	29.6		ug/kg	
	3	5.48	5.45 - 5.51	28		ug/kg	
	4	5.86	5.83 - 5.89	31.1		ug/kg	
	5	6.12	6.09 - 6.15	29.9		ug/kg	
					29.8		

Identification Summary

SDG Number: 409254 **Client ID:** SS050100

Lab Sample ID: 409254028

Data File:	**110916.B\e8k0921.D**	**Data File:**	**110916.B\e8k0921.D**
Inst:	**ECD8A.I_1**	**Inst:**	**ECD8A.I_2**
Column:	**RTX-CLPEST1**	**Column:**	**RTX-CLPEST2**
Analyzed:	**09-NOV-16 09:55**	**Analyzed:**	**09-NOV-16 09:55**

Analyte	Peak	RT	RT Window	Conc.	Ave Conc.	Units	RPD
Aroclor-1260							8.68
Column 1	1	4.38	4.27 - 4.33	34.2		ug/kg	
	2	4.57	4.47 - 4.53	56.7		ug/kg	
	3	4.83	4.74 - 4.8	40.9		ug/kg	
	4	5.21	5.13 - 5.19	60.1		ug/kg	
	5	5.39	5.32 - 5.38	53.1		ug/kg	
					49		
Column 2	1	5.06	4.99 - 5.05	55.5		ug/kg	
	2	5.21	5.13 - 5.19	55.1		ug/kg	
	3	5.51	5.45 - 5.51	54.6		ug/kg	
	4	5.89	5.83 - 5.89	58.4		ug/kg	
	5	6.14	6.09 - 6.15	43.7		ug/kg	
					53.5		

Sample Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:14**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254026**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**19**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP050113**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 08:57**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.031 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0917.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0917.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.11	ug/kg	1.37	4.11	1
11104-28-2	Aroclor-1221	U	4.11	ug/kg	1.37	4.11	1
11141-16-5	Aroclor-1232	U	4.11	ug/kg	1.37	4.11	1
53469-21-9	Aroclor-1242	U	4.11	ug/kg	1.37	4.11	1
12672-29-6	Aroclor-1248	U	4.11	ug/kg	1.37	4.11	1
11097-69-1	Aroclor-1254	U	4.11	ug/kg	1.37	4.11	1
11096-82-5	Aroclor-1260	U	4.11	ug/kg	1.37	4.11	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0917.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 08:57 (#1); 09 Nov 2016   8:57 (#2)
Operator : JXM   InstName : ECD8
Sample   : |409254026|1614293|1|SVA|1|HAAL|||
Misc   : |ECD4X2A_1S|SOIL|DP050113|||
ALS Vial : 17 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 10:30:33 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.140	-0.010	6068616411	126.269m	2.584	2.580	-0.004	792141360	128.097m
DCB	6.104	6.101	-0.003	4413371971	115.179m	6.924	6.924	0.000	493731992	107.420

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	63%	64%
DCB	200.000	No Limits	58%	54%

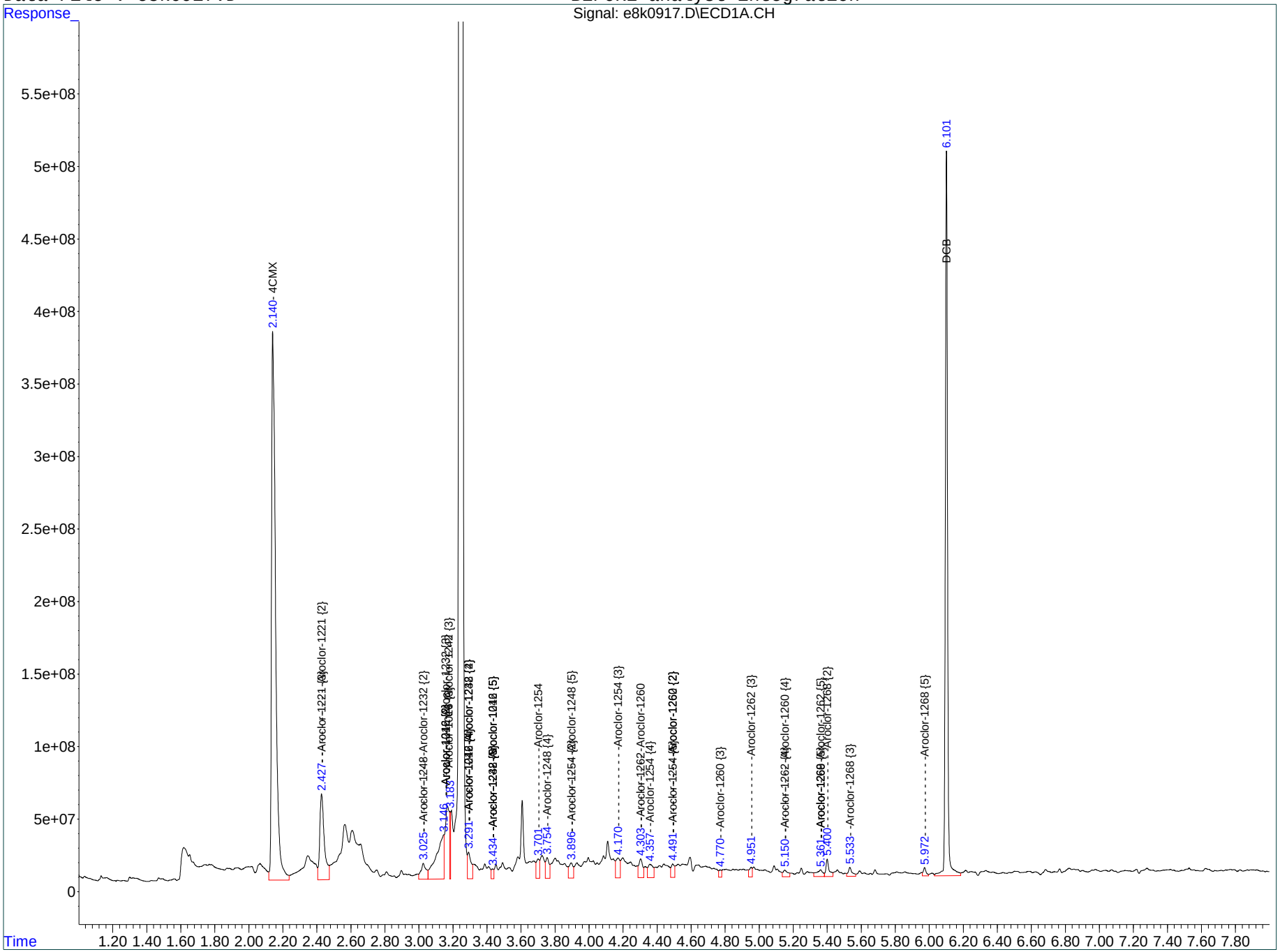
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

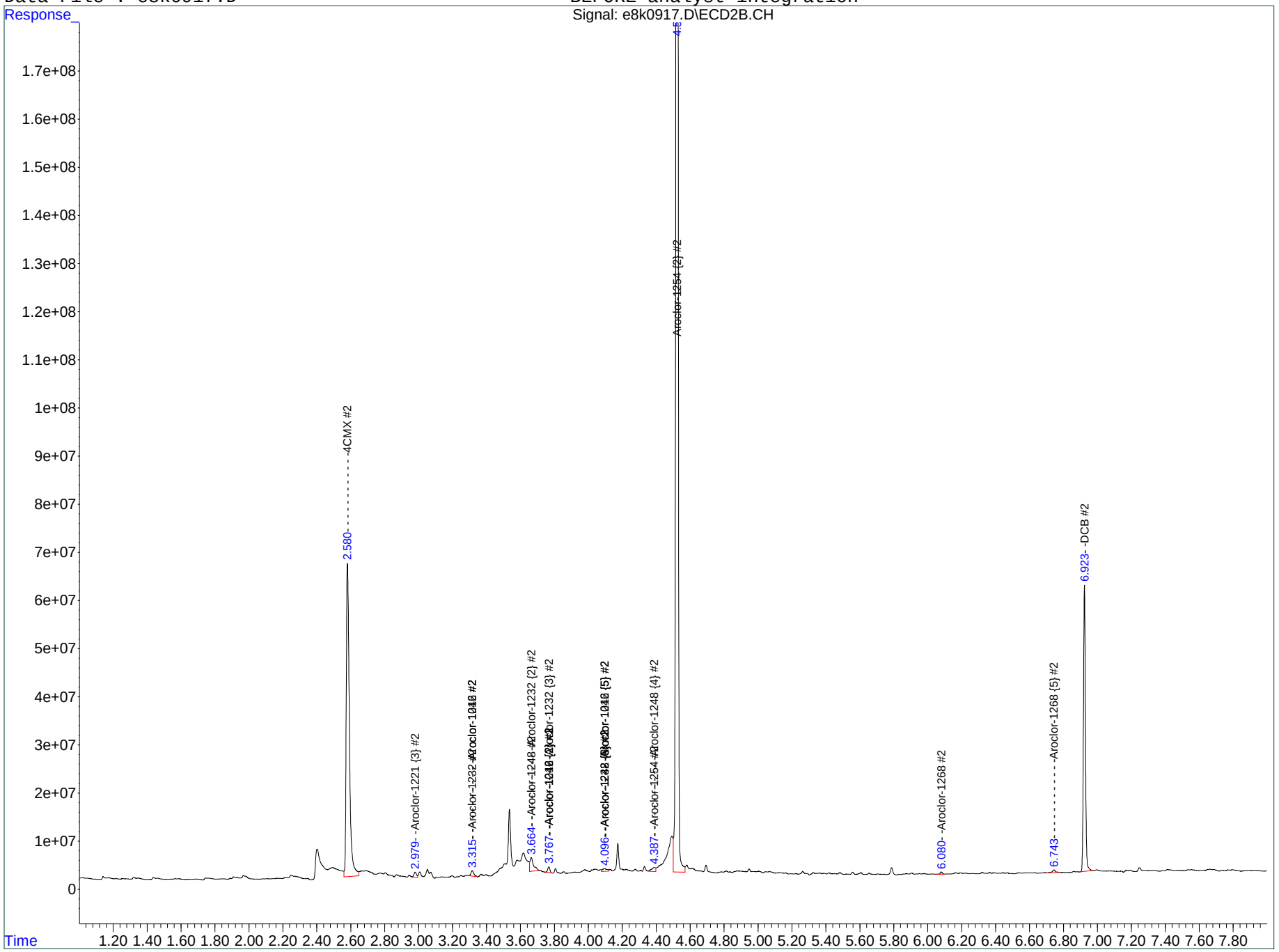
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0917.D

BEFORE analyst integration



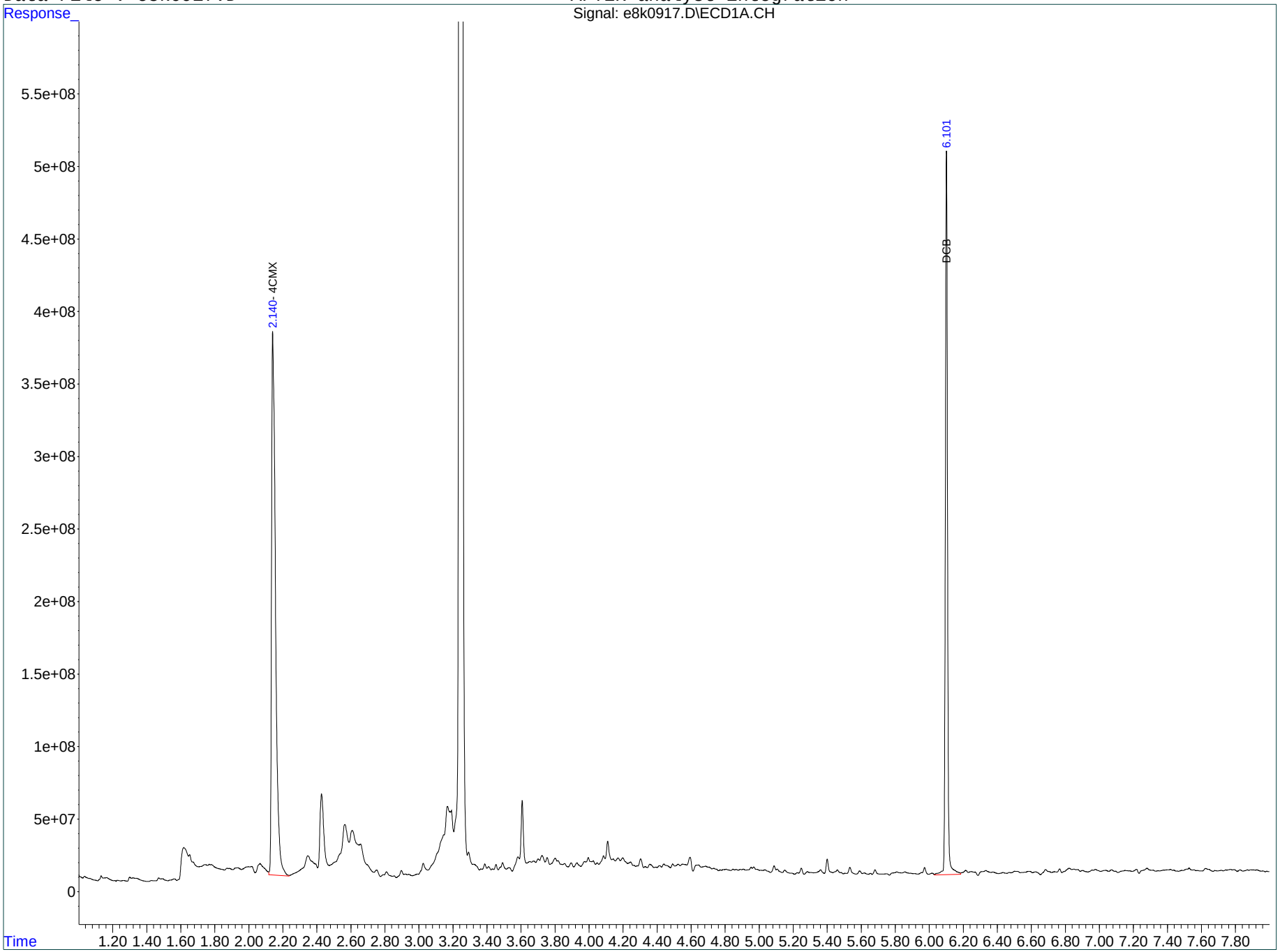
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0917.D

BEFORE analyst integration



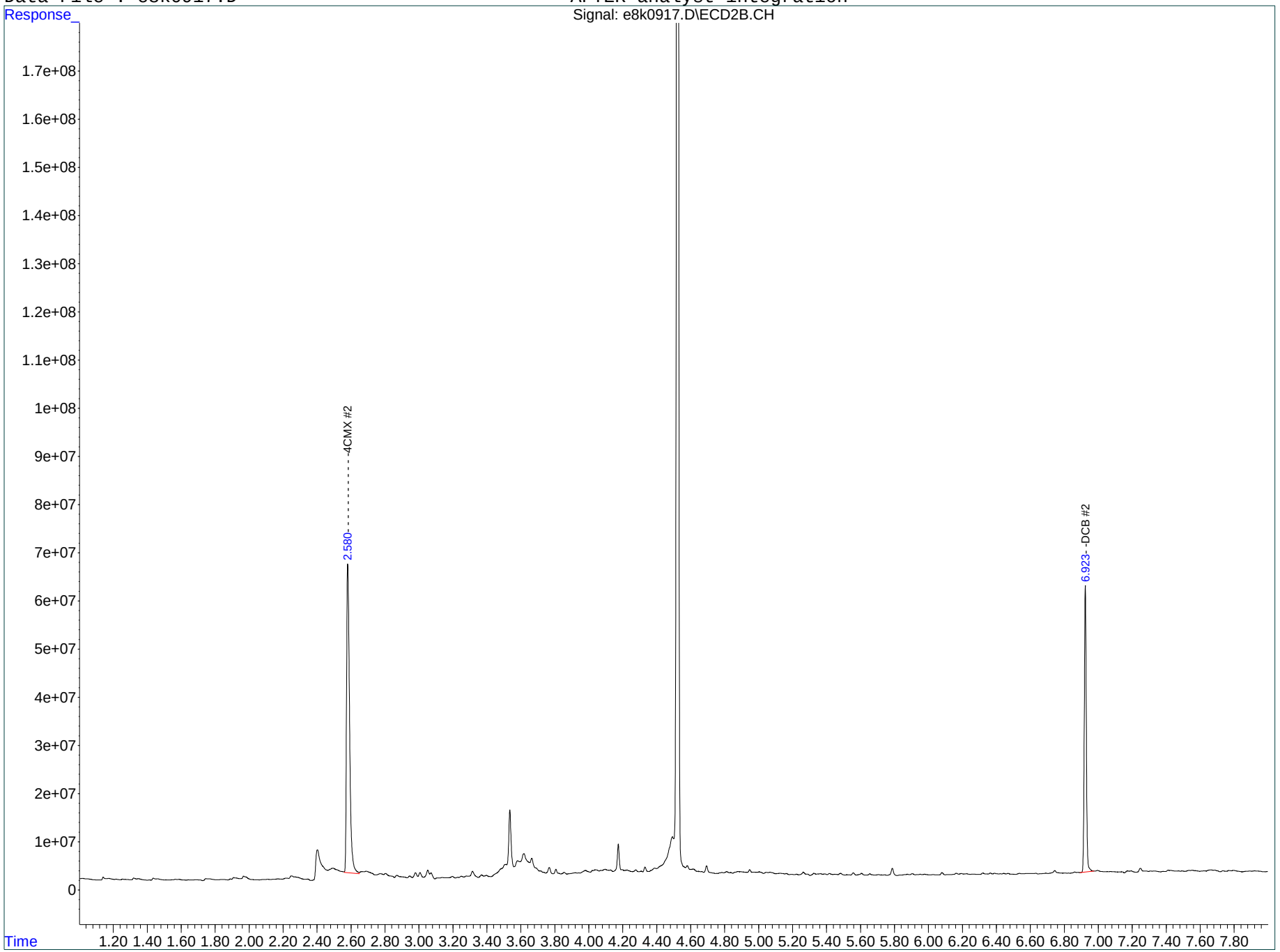
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0917.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0917.D

AFTER analyst integration



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:34**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254027**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**27.6**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP050213**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 09:40**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.048 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0920.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0920.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.60	ug/kg	1.53	4.60	1
11104-28-2	Aroclor-1221	U	4.60	ug/kg	1.53	4.60	1
11141-16-5	Aroclor-1232	U	4.60	ug/kg	1.53	4.60	1
53469-21-9	Aroclor-1242	U	4.60	ug/kg	1.53	4.60	1
12672-29-6	Aroclor-1248	U	4.60	ug/kg	1.53	4.60	1
11097-69-1	Aroclor-1254	U	4.60	ug/kg	1.53	4.60	1
11096-82-5	Aroclor-1260	U	4.60	ug/kg	1.53	4.60	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0920.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 09:40 (#1); 09 Nov 2016   9:40 (#2)
Operator : JXM   InstName : ECD8
Sample   : |409254027|1614293|1|SVA|1|HAAL|||
Misc   : |ECD4X2A_1S|SOIL|DP050213|||
ALS Vial : 20 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 10:14:12 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.149	-0.001	6607411890	137.480m	2.584	2.583	-0.001	949515676	153.545m
DCB	6.104	6.102	-0.002	5551618262	144.885	6.924	6.924	0.000	650182890	141.458

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	69%	77%
DCB	200.000	No Limits	72%	71%

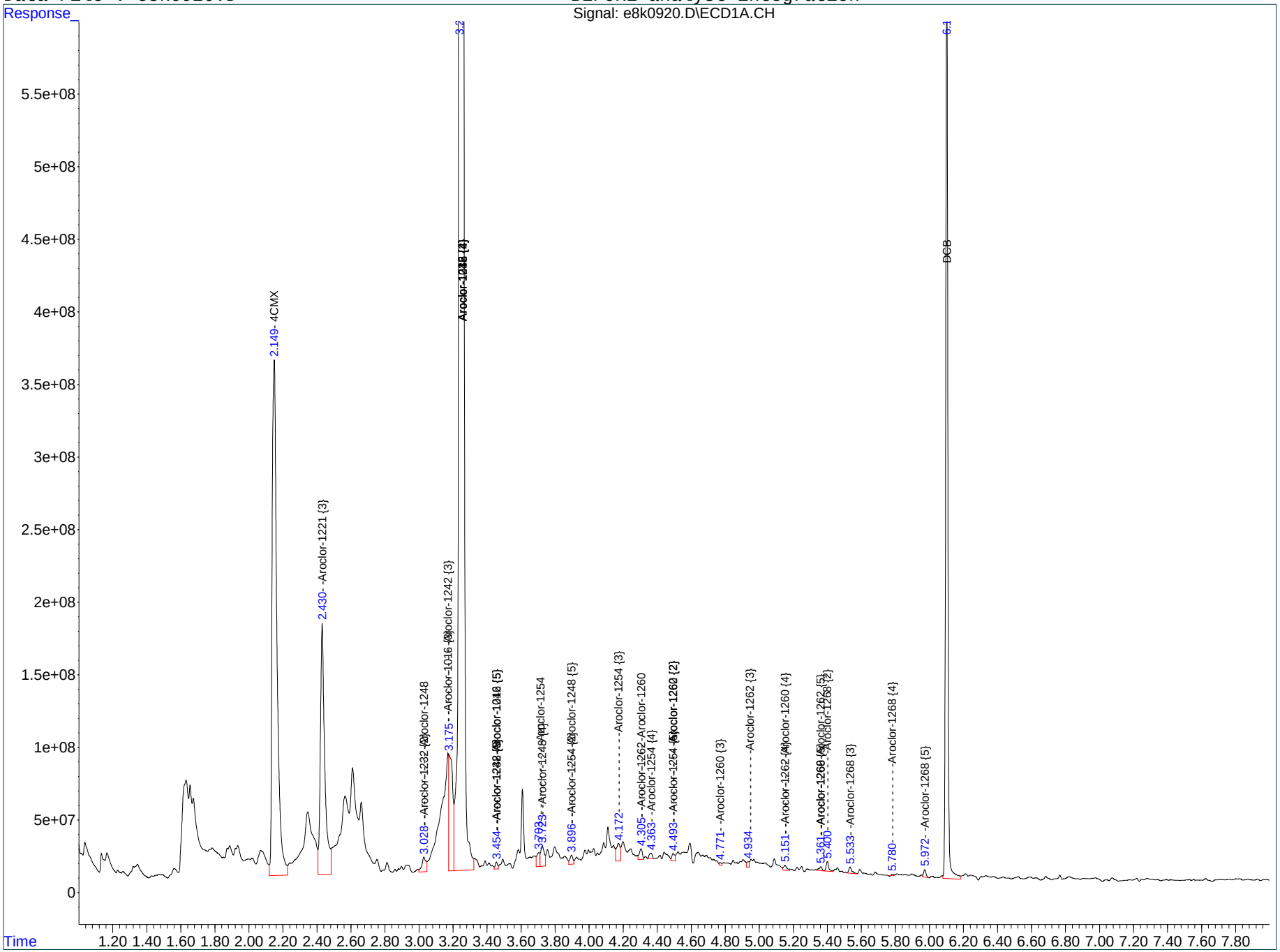
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

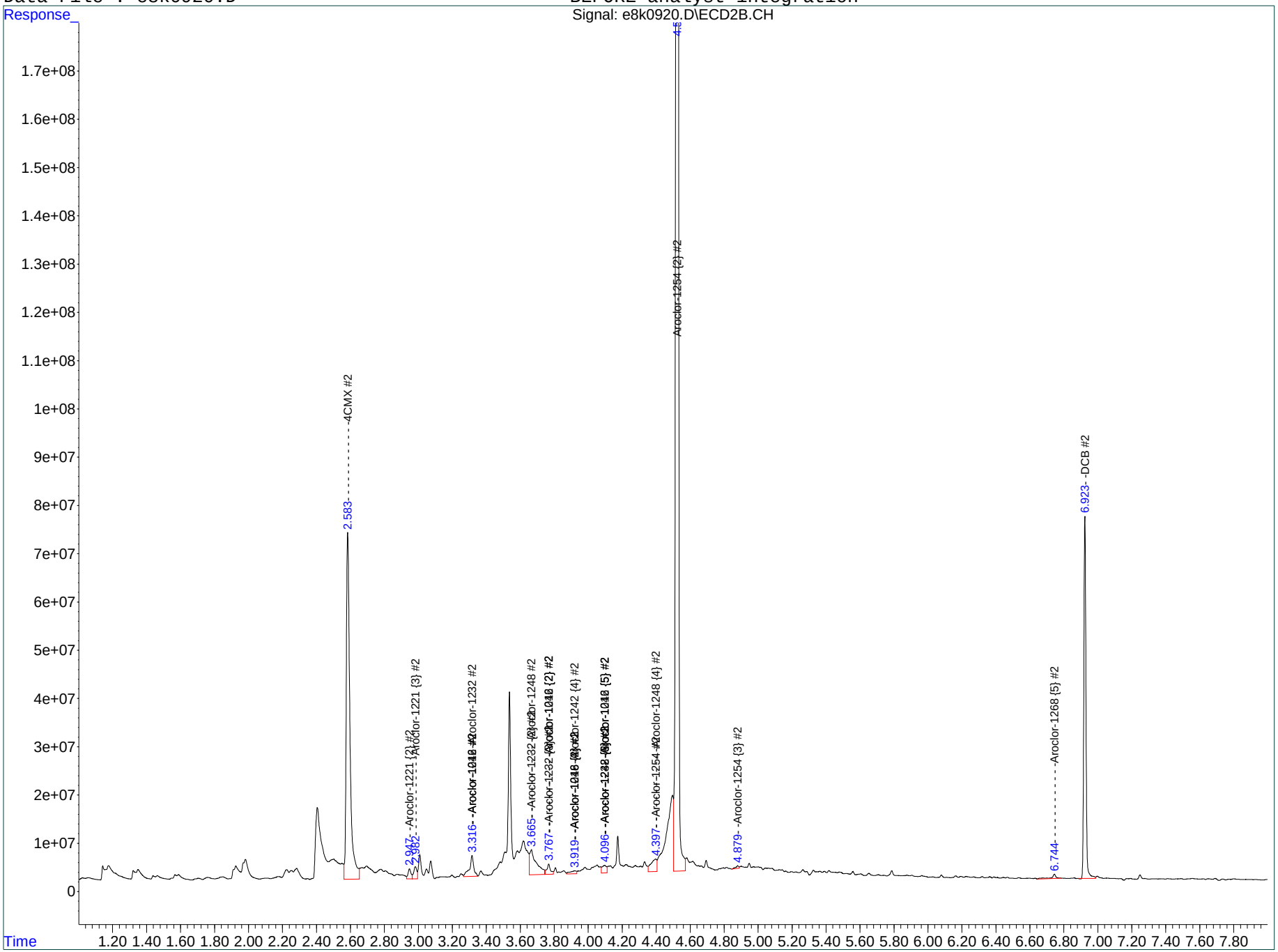
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0920.D

BEFORE analyst integration



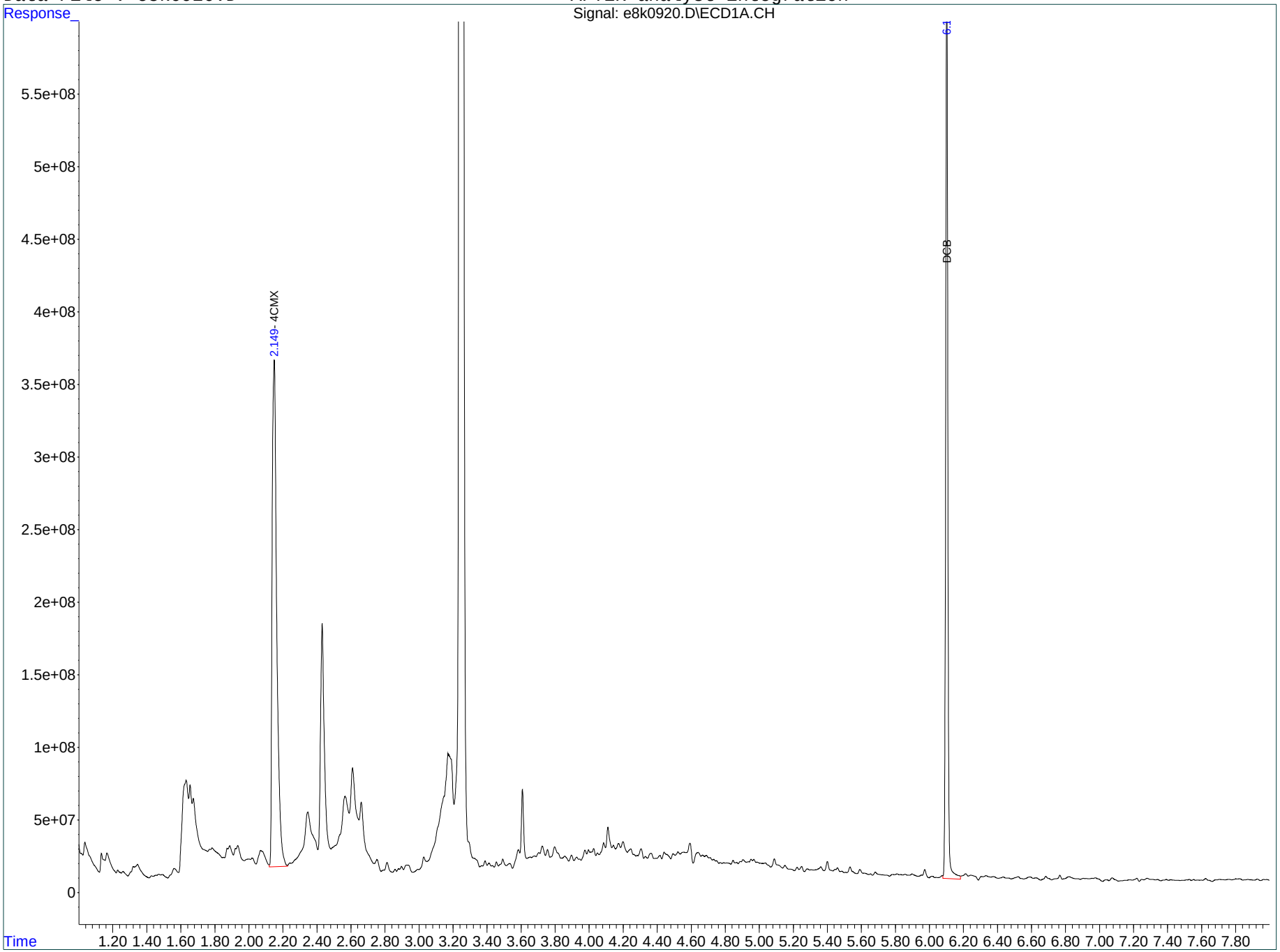
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0920.D

BEFORE analyst integration



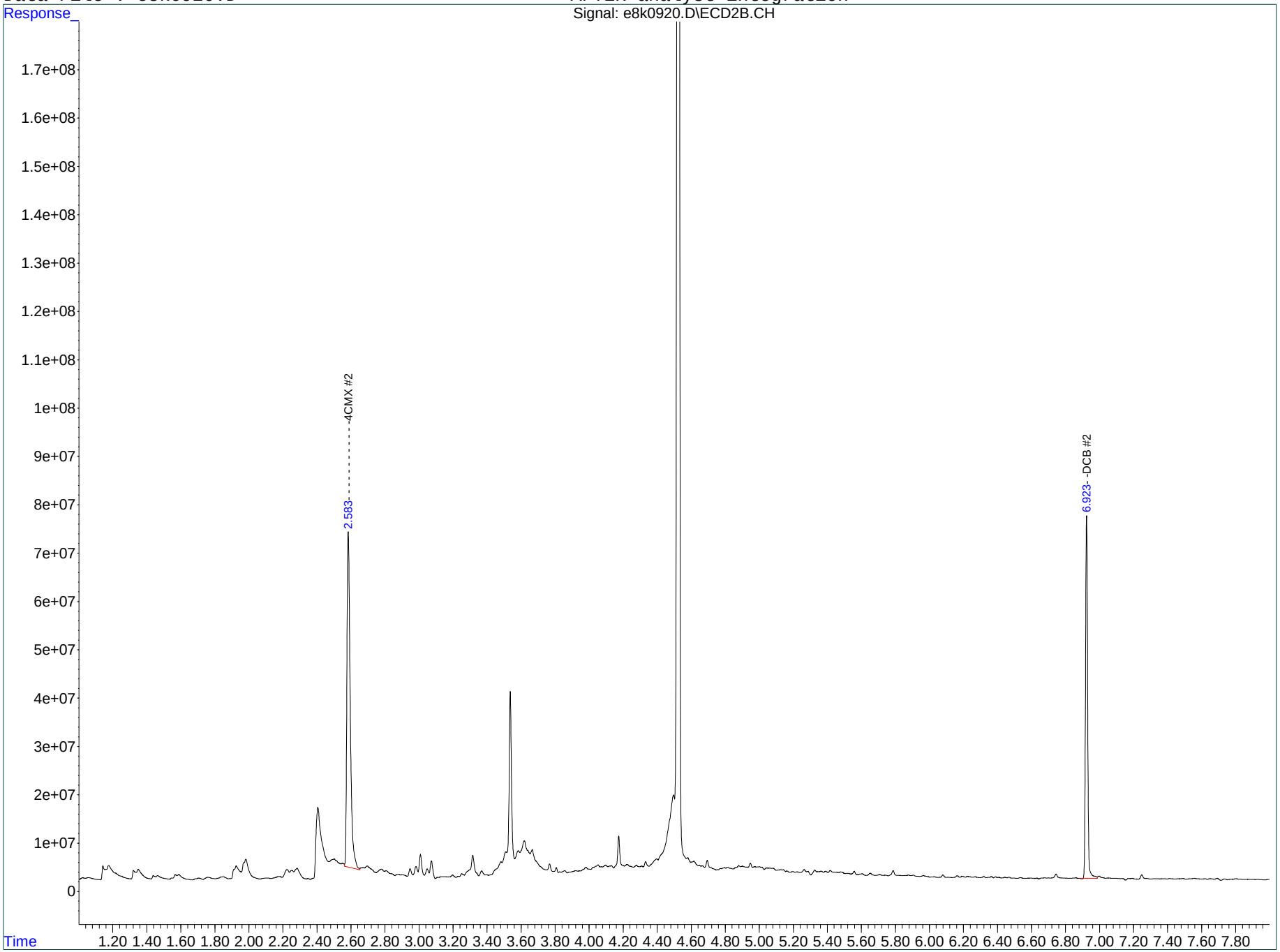
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0920.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0920.D

AFTER analyst integration



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:48**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254028**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**SS050100**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**10**
Run Date:	**11/09/2016 09:55**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.118 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0921.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0921.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	37.3	ug/kg	12.4	37.3	1
11104-28-2	Aroclor-1221	U	37.3	ug/kg	12.4	37.3	1
11141-16-5	Aroclor-1232	U	37.3	ug/kg	12.4	37.3	1
53469-21-9	Aroclor-1242	U	37.3	ug/kg	12.4	37.3	1
12672-29-6	Aroclor-1248	U	37.3	ug/kg	12.4	37.3	1
11097-69-1	Aroclor-1254	U	37.3	ug/kg	12.4	37.3	1
11096-82-5	Aroclor-1260		49.0	ug/kg	12.4	37.3	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0921.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 09:55 (#1); 09 Nov 2016 9:55 (#2)
Operator : JXM InstName : ECD8
Sample : |409254028|1614293|10|SVA|1|HAAL|||
Misc : |ECD4X2A_1S|SOIL|SS050100|||
ALS Vial : 21 (Sig #1); 0 (Sig #2) Sample Multiplier: 10

Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 10:16:12 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.173	0.023f	321332541	66.859m	2.584	2.618	0.034f	31313281	50.636m
DCB	6.104	6.126	0.022f	354490180	92.514m	6.924	6.935	0.011	38417441	83.584m

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	33%	25%
DCB	200.000	No Limits	46%	42%

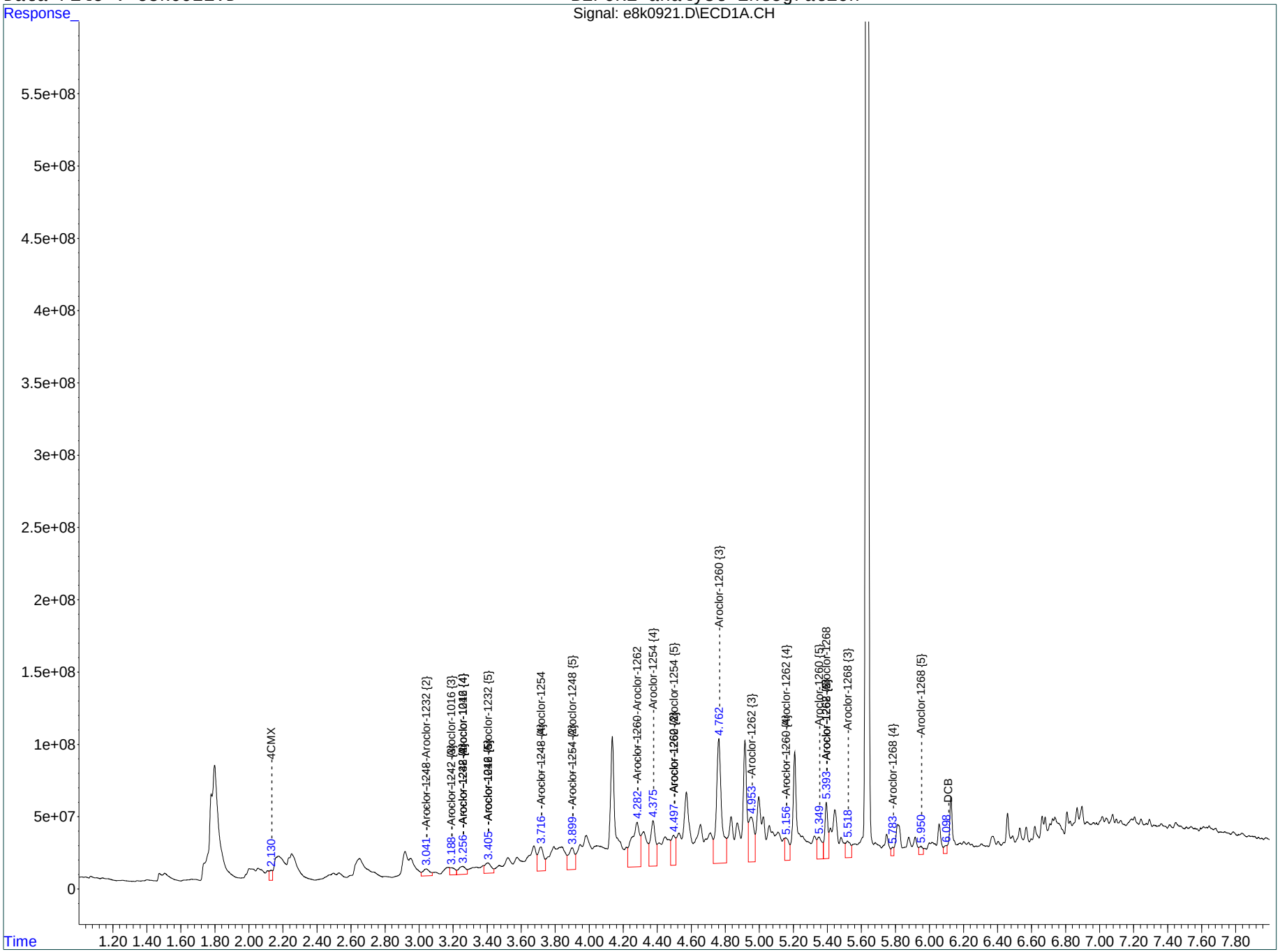
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1260	4.301	4.375	0.074f	229043022	91.788m	5.018	5.058	0.040f	44694682	148.870m
Aroclor-1260 {2}	4.496	4.571	0.075f	571738277	152.210m	5.163	5.206	0.043f	55096099	147.830m
Aroclor-1260 {3}	4.770	4.834	0.064f	211336749	109.804m	5.479	5.513	0.034f	37931554	146.563m
Aroclor-1260 {4}	5.155	5.208	0.053f	744242076	161.311m	5.859	5.888	0.029f	90481434	156.548m
Aroclor-1260 {5}	5.350	5.393	0.043f	349896080	142.337m	6.118	6.139	0.021f	47968438	117.275m
Sum Aroclor-1260				2106256204	657.450				276172208	717.087
Average Aroclor-1260					131.490					143.417

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

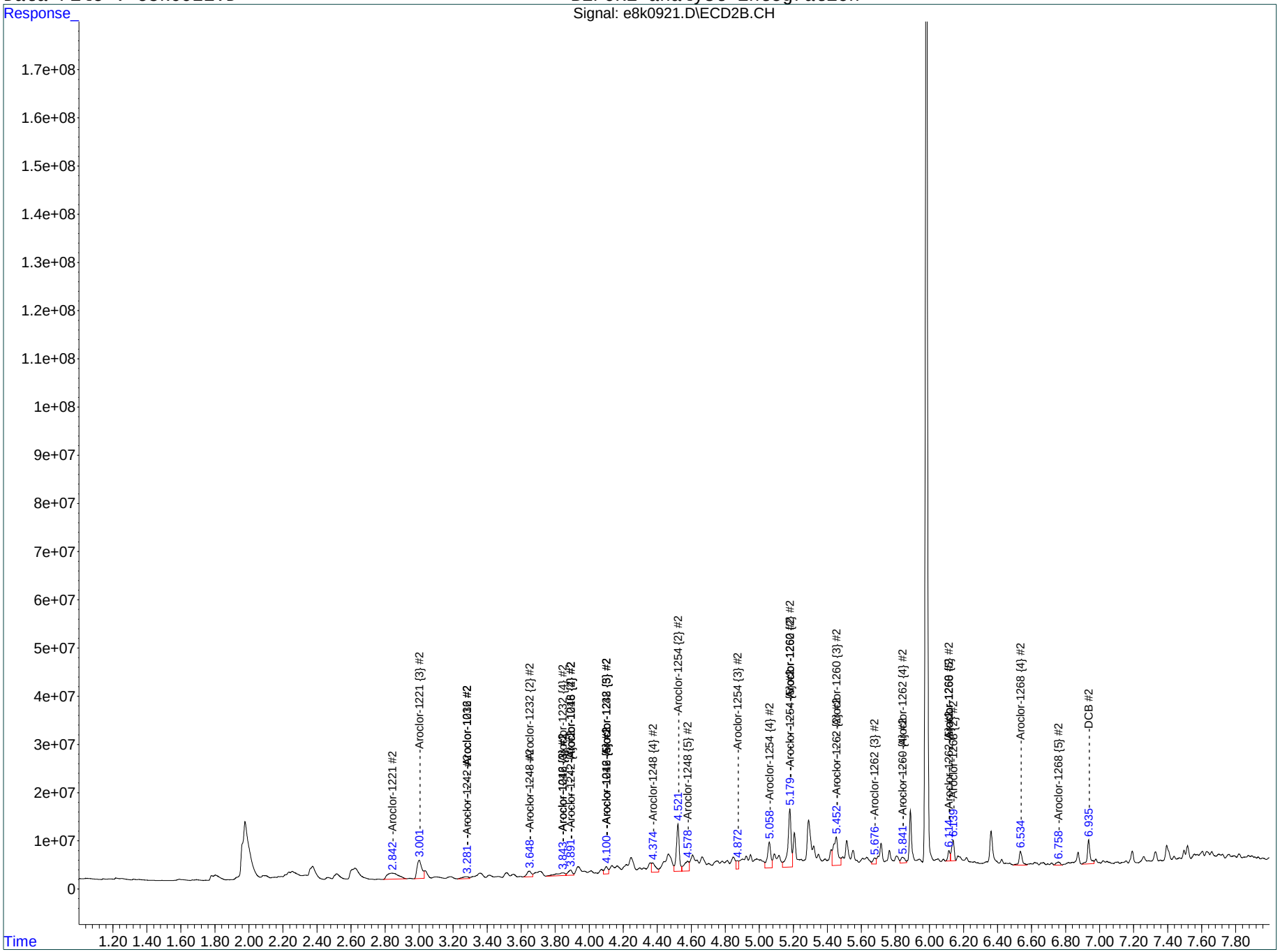
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0921.D

BEFORE analyst integration



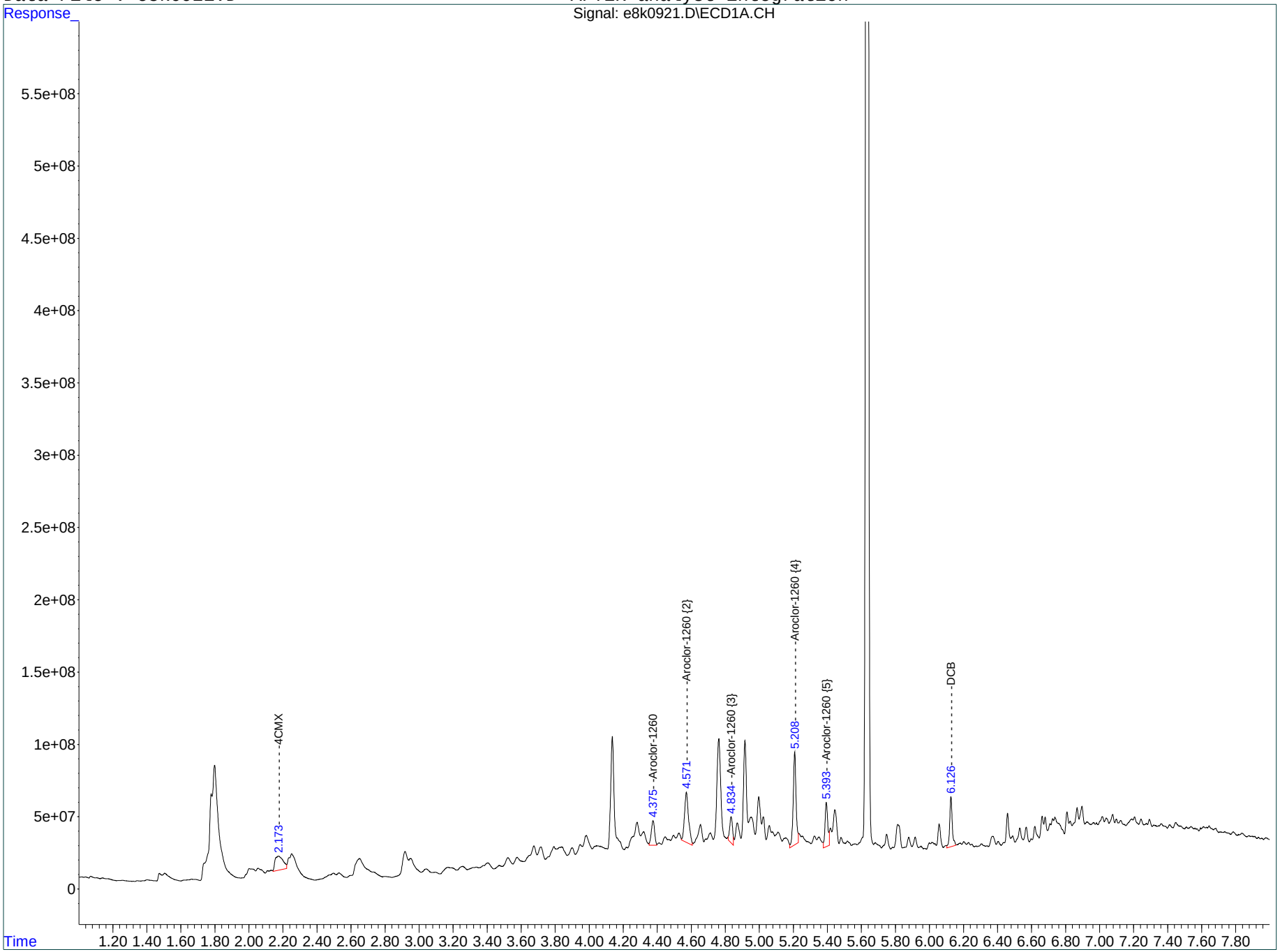
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0921.D

BEFORE analyst integration



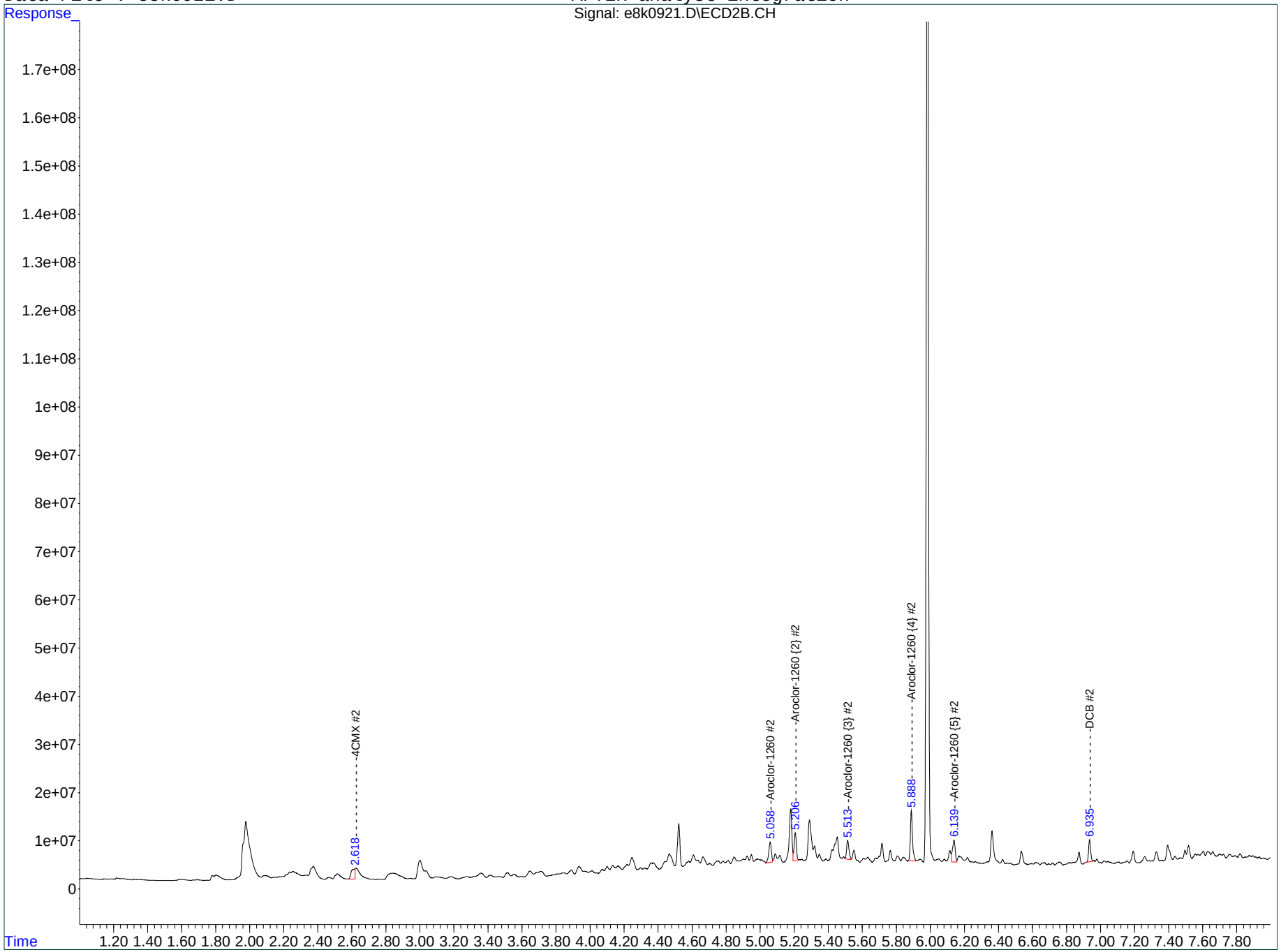
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0921.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0921.D

AFTER analyst integration



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254029**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**26.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 10:46**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.12 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0924.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0924.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.49	ug/kg	1.50	4.49	1
11104-28-2	Aroclor-1221	U	4.49	ug/kg	1.50	4.49	1
11141-16-5	Aroclor-1232	U	4.49	ug/kg	1.50	4.49	1
53469-21-9	Aroclor-1242	U	4.49	ug/kg	1.50	4.49	1
12672-29-6	Aroclor-1248	U	4.49	ug/kg	1.50	4.49	1
11097-69-1	Aroclor-1254	U	4.49	ug/kg	1.50	4.49	1
11096-82-5	Aroclor-1260	U	4.49	ug/kg	1.50	4.49	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0924.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 10:46 (#1); 09 Nov 2016 10:46 (#2)
Operator : JXM   InstName : ECD8
Sample   : |409254029|1614293|1|SVA|1|HAAL|||
Misc   : |ECD4X2A_1S|SOIL|DP020312|||
ALS Vial : 24 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 11:42:05 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.151	0.001	7857955690	163.500m	2.584	2.585	0.001	1123841215	181.735
DCB	6.104	6.102	-0.002	6742759850	175.971m	6.924	6.924	0.000	808829521	175.975

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	82%	91%
DCB	200.000	No Limits	88%	88%

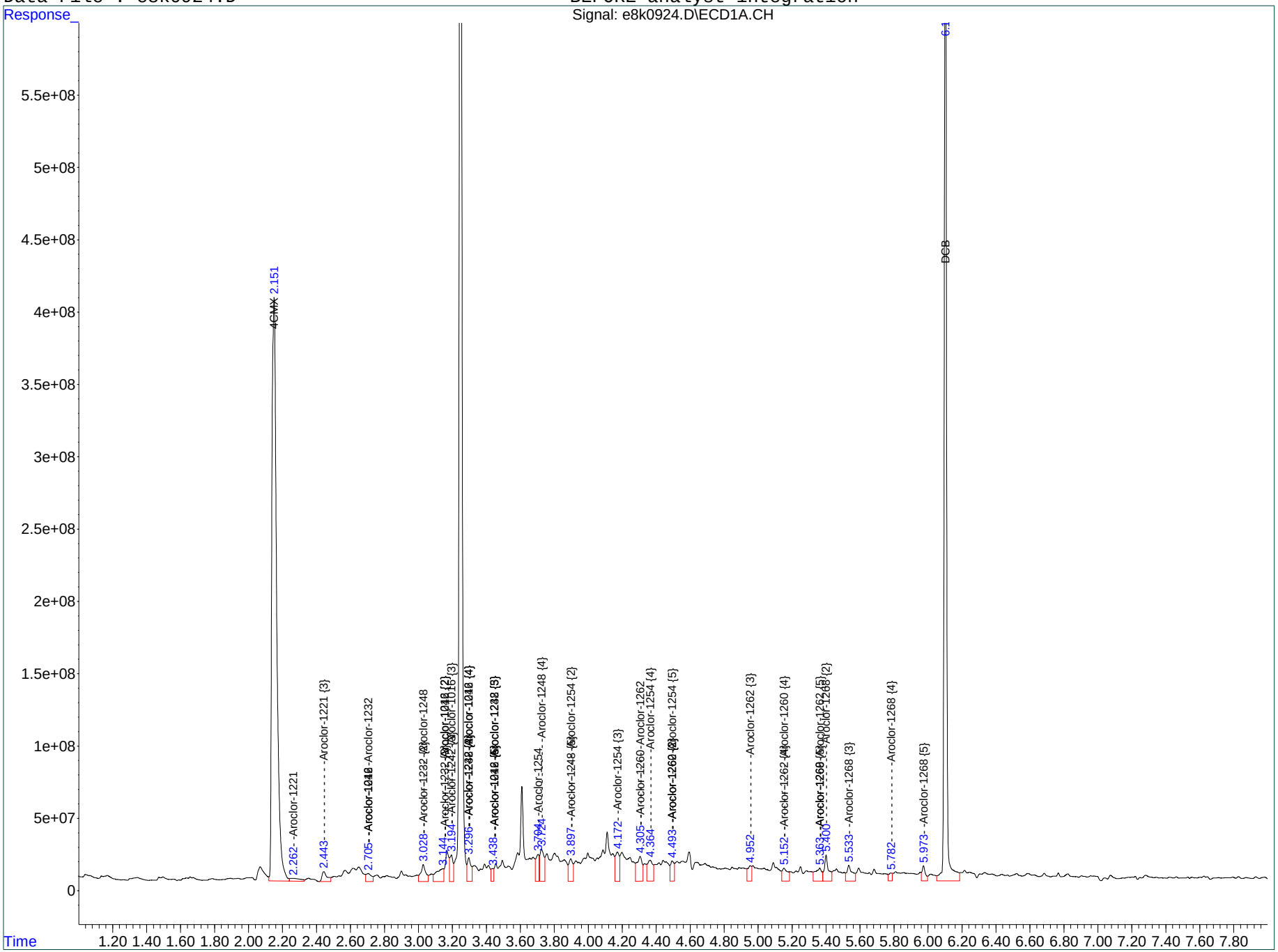
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

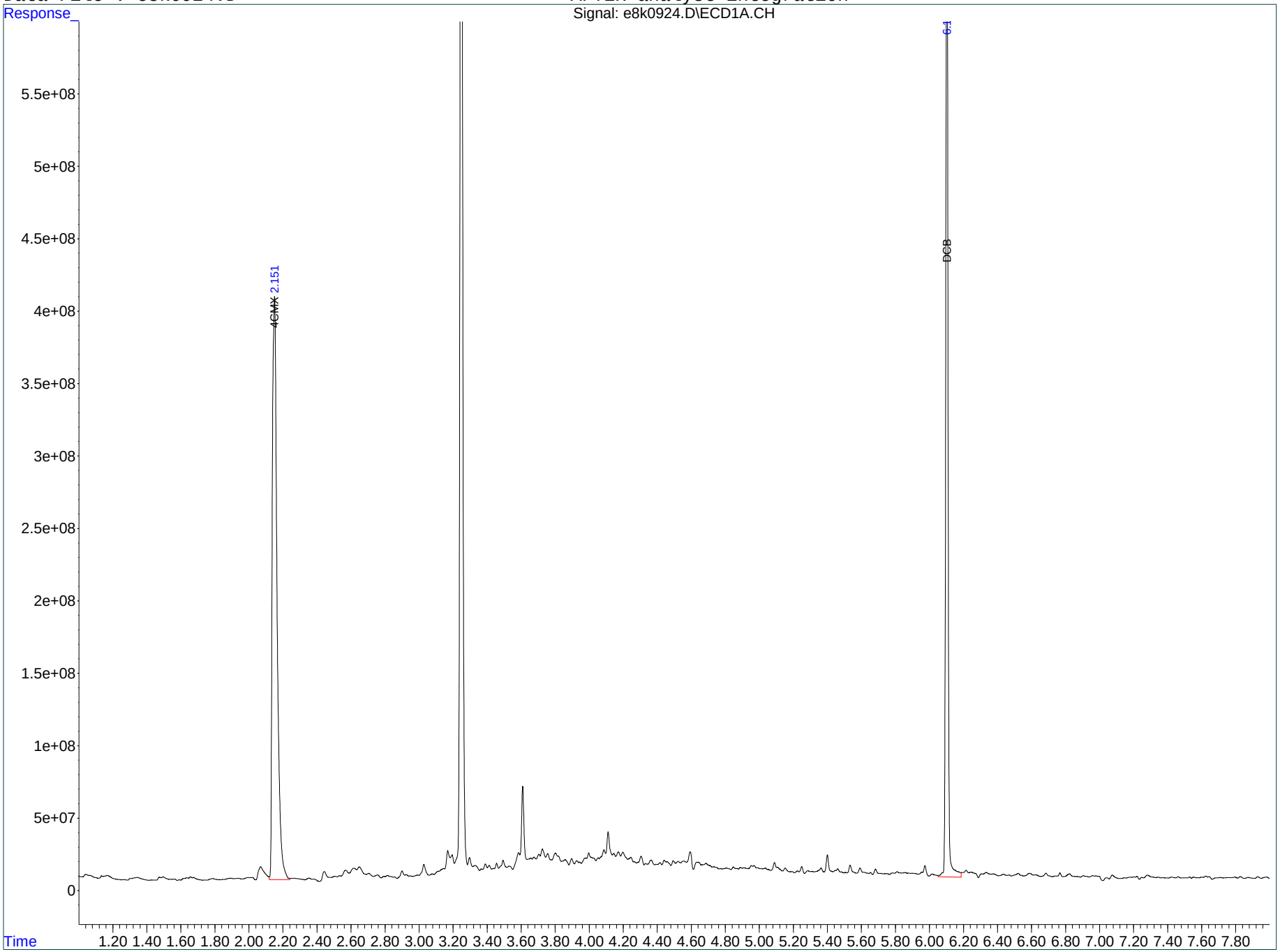
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0924.D

BEFORE analyst integration

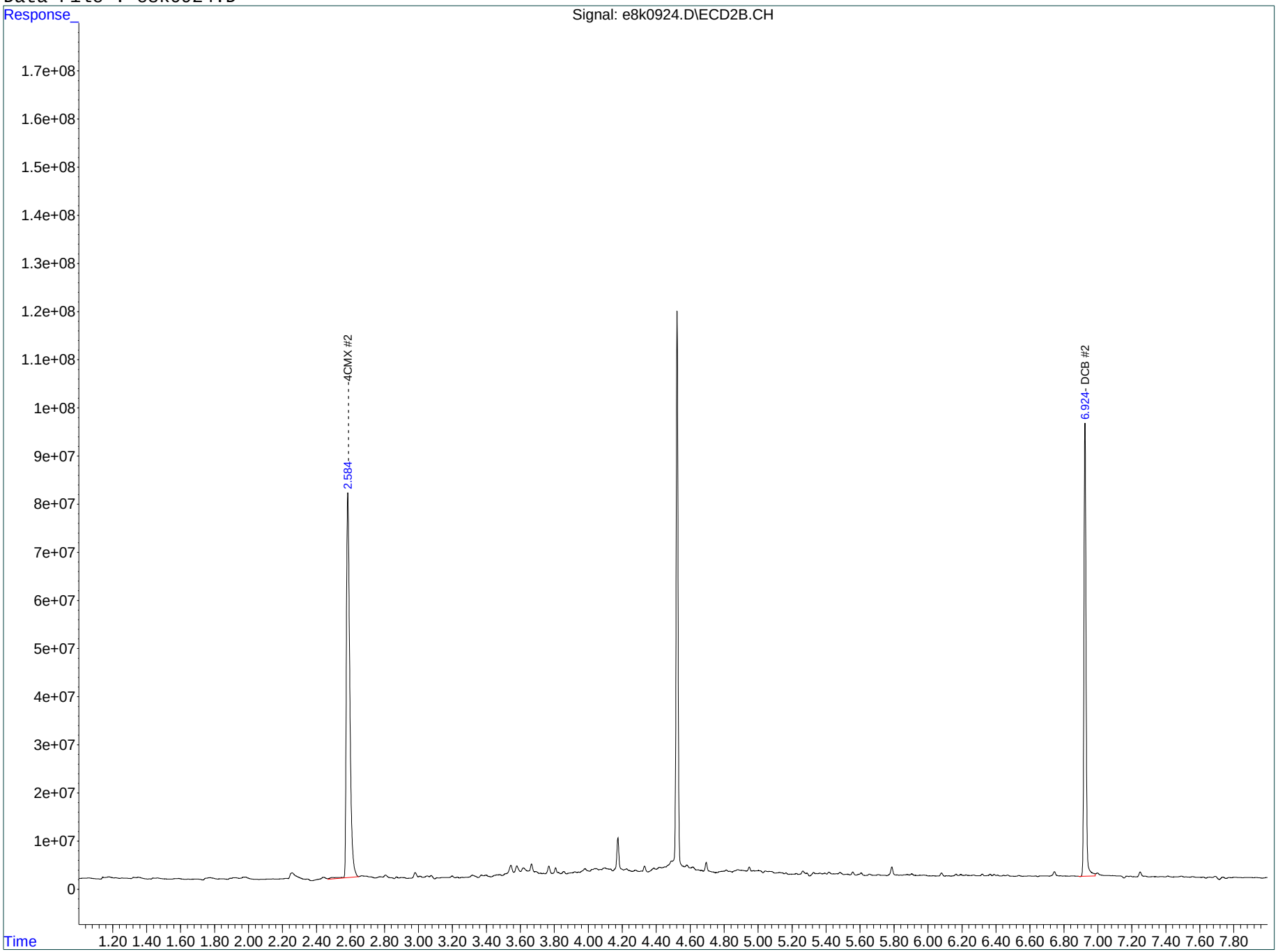


Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0924.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0924.D



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 13:25**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254031**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**24.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020312DUP**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:00**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.006 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0925.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0925.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.44	ug/kg	1.48	4.44	1
11104-28-2	Aroclor-1221	U	4.44	ug/kg	1.48	4.44	1
11141-16-5	Aroclor-1232	U	4.44	ug/kg	1.48	4.44	1
53469-21-9	Aroclor-1242	U	4.44	ug/kg	1.48	4.44	1
12672-29-6	Aroclor-1248	U	4.44	ug/kg	1.48	4.44	1
11097-69-1	Aroclor-1254	U	4.44	ug/kg	1.48	4.44	1
11096-82-5	Aroclor-1260	U	4.44	ug/kg	1.48	4.44	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0925.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 11:00 (#1); 09 Nov 2016 11:00 (#2)
Operator : JXM   InstName : ECD8
Sample   : |409254031|1614293|1|SVA|1|HAAL|||
Misc   : |ECD4X2A_1S|SOIL|DP020312DUP|||
ALS Vial : 25 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 11:43:54 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.149	-0.001	6519535081	135.651	2.584	2.584	0.000	909115608	147.012
DCB	6.104	6.102	-0.002	6044789680	157.756m	6.924	6.925	0.001	724310560	157.586

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	68%	74%
DCB	200.000	No Limits	79%	79%

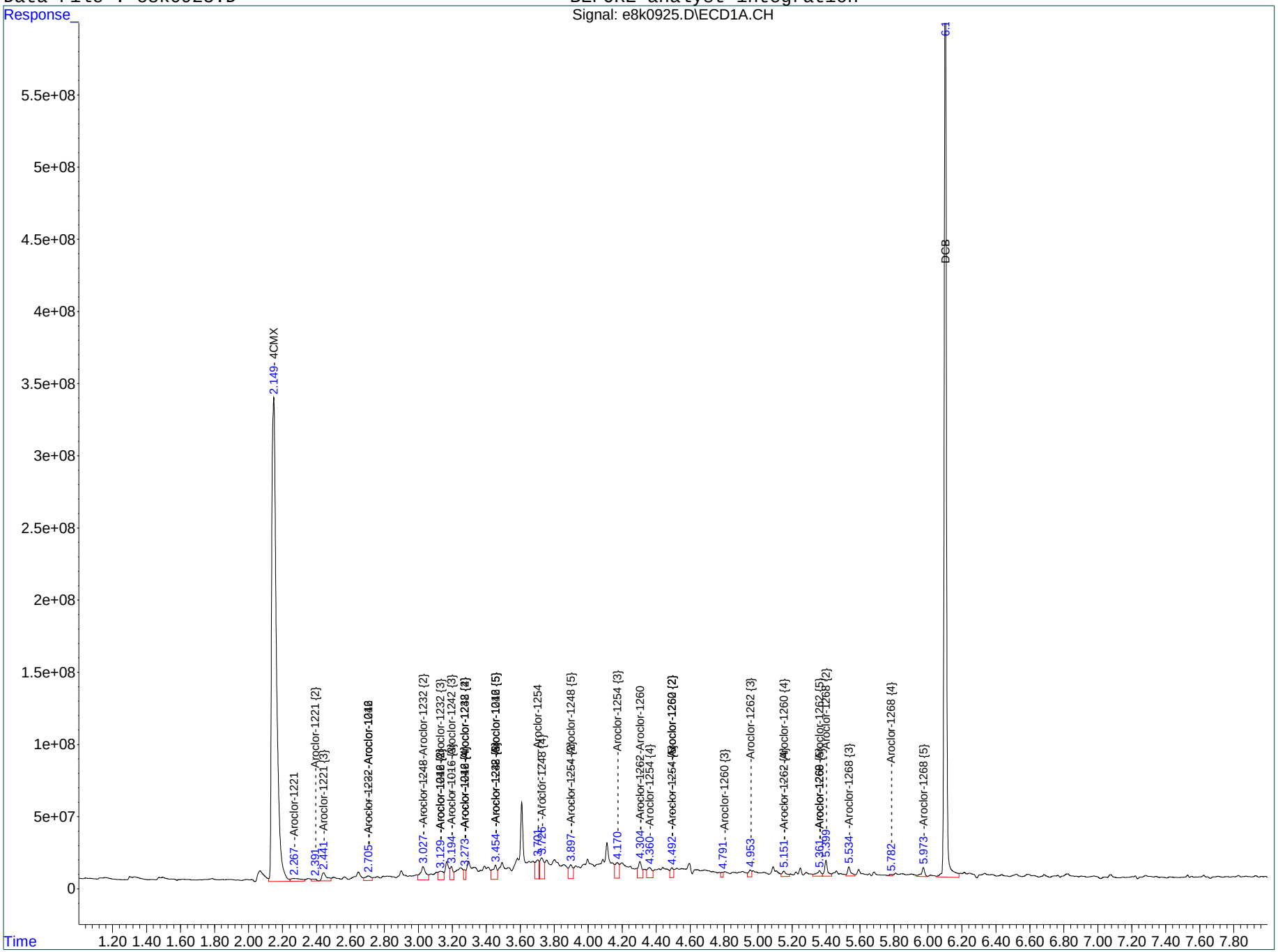
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

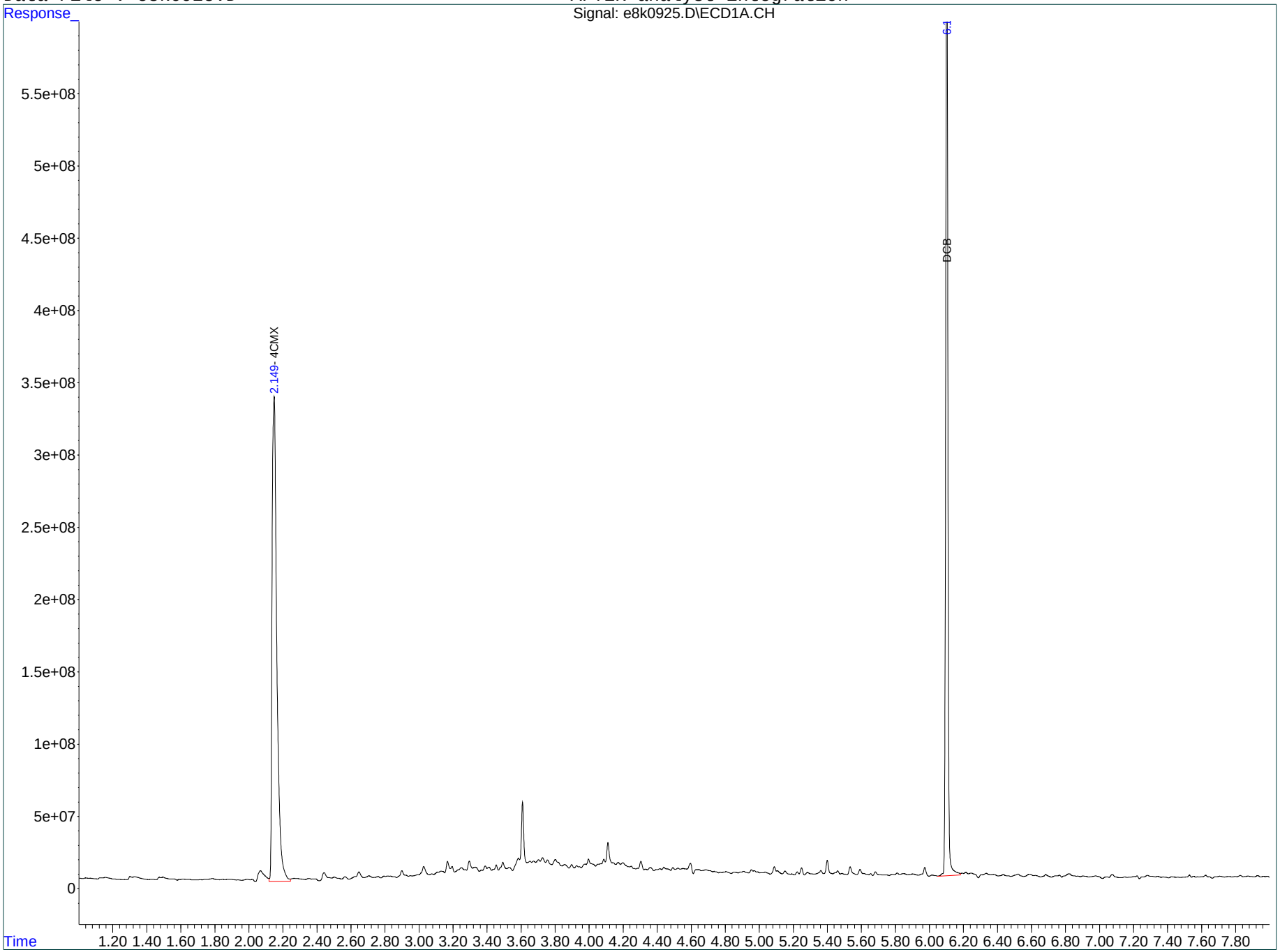
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0925.D

BEFORE analyst integration

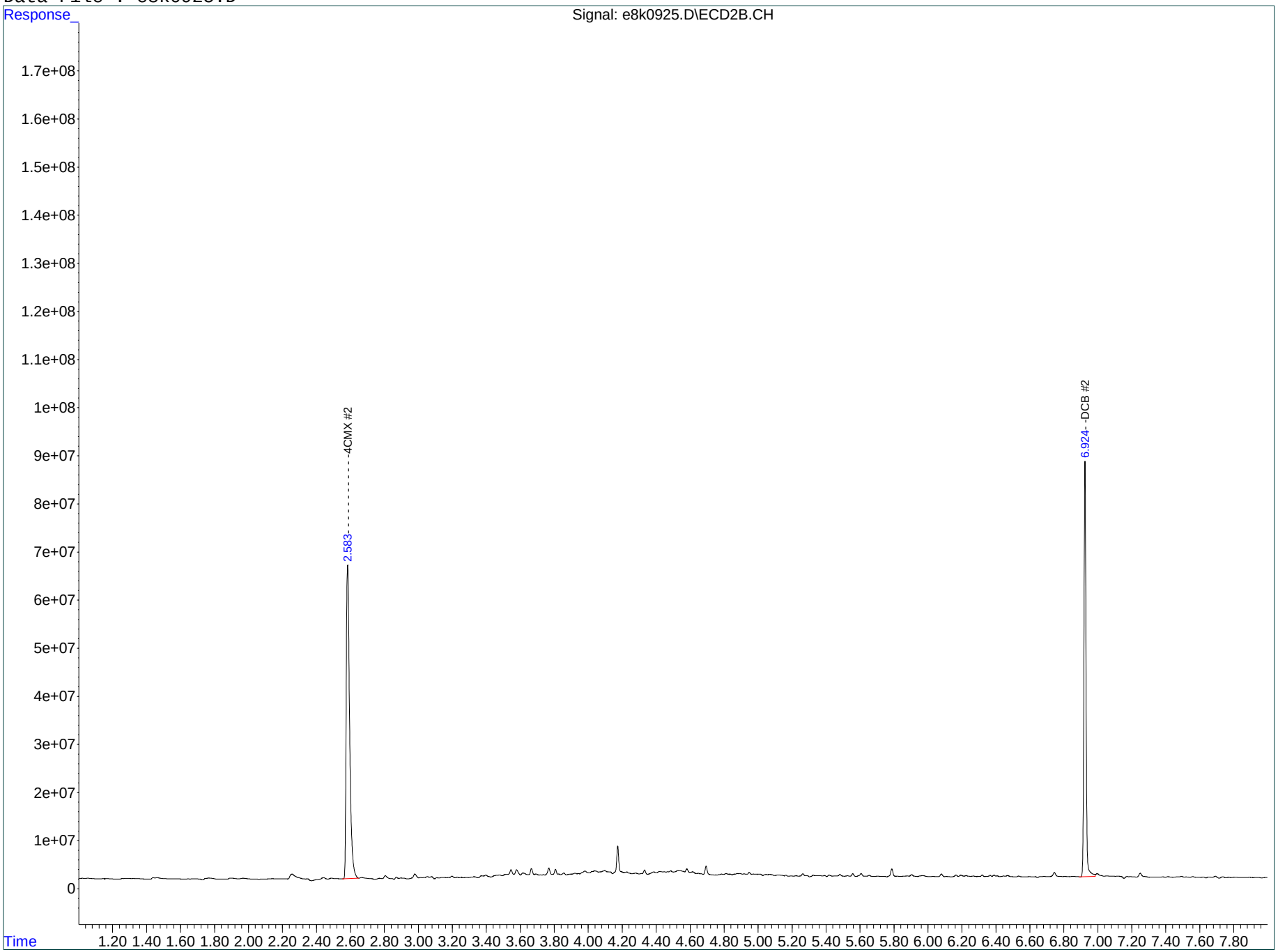


Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0925.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0925.D



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 14:00**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254032**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**17.7**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020413**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:14**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.082 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0926.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0926.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.04	ug/kg	1.34	4.04	1
11104-28-2	Aroclor-1221	U	4.04	ug/kg	1.34	4.04	1
11141-16-5	Aroclor-1232	U	4.04	ug/kg	1.34	4.04	1
53469-21-9	Aroclor-1242	U	4.04	ug/kg	1.34	4.04	1
12672-29-6	Aroclor-1248	U	4.04	ug/kg	1.34	4.04	1
11097-69-1	Aroclor-1254	U	4.04	ug/kg	1.34	4.04	1
11096-82-5	Aroclor-1260	U	4.04	ug/kg	1.34	4.04	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0926.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 11:14 (#1); 09 Nov 2016 11:14 (#2)
Operator : JXM   InstName : ECD8
Sample   : |409254032|1614293|1|SVA|1|HAAL|||
Misc   : |ECD4X2A_1S|SOIL|DP020413|||
ALS Vial : 26 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 11:45:30 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.149	-0.001	7041190697	146.506m	2.584	2.584	0.000	983953171	159.114
DCB	6.104	6.102	-0.002	6560562708	171.216	6.924	6.924	0.000	794166972	172.785

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	73%	80%
DCB	200.000	No Limits	86%	86%

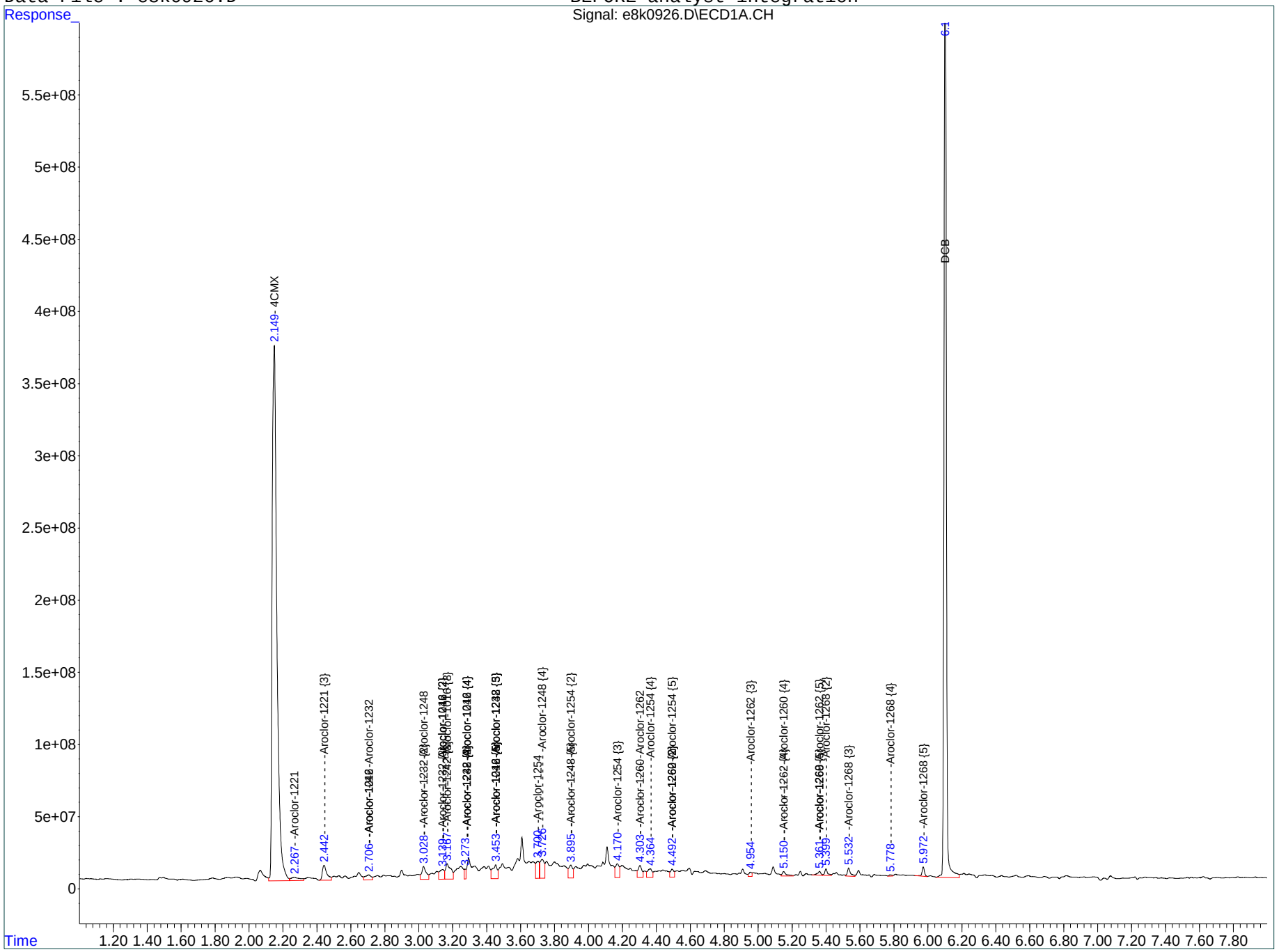
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

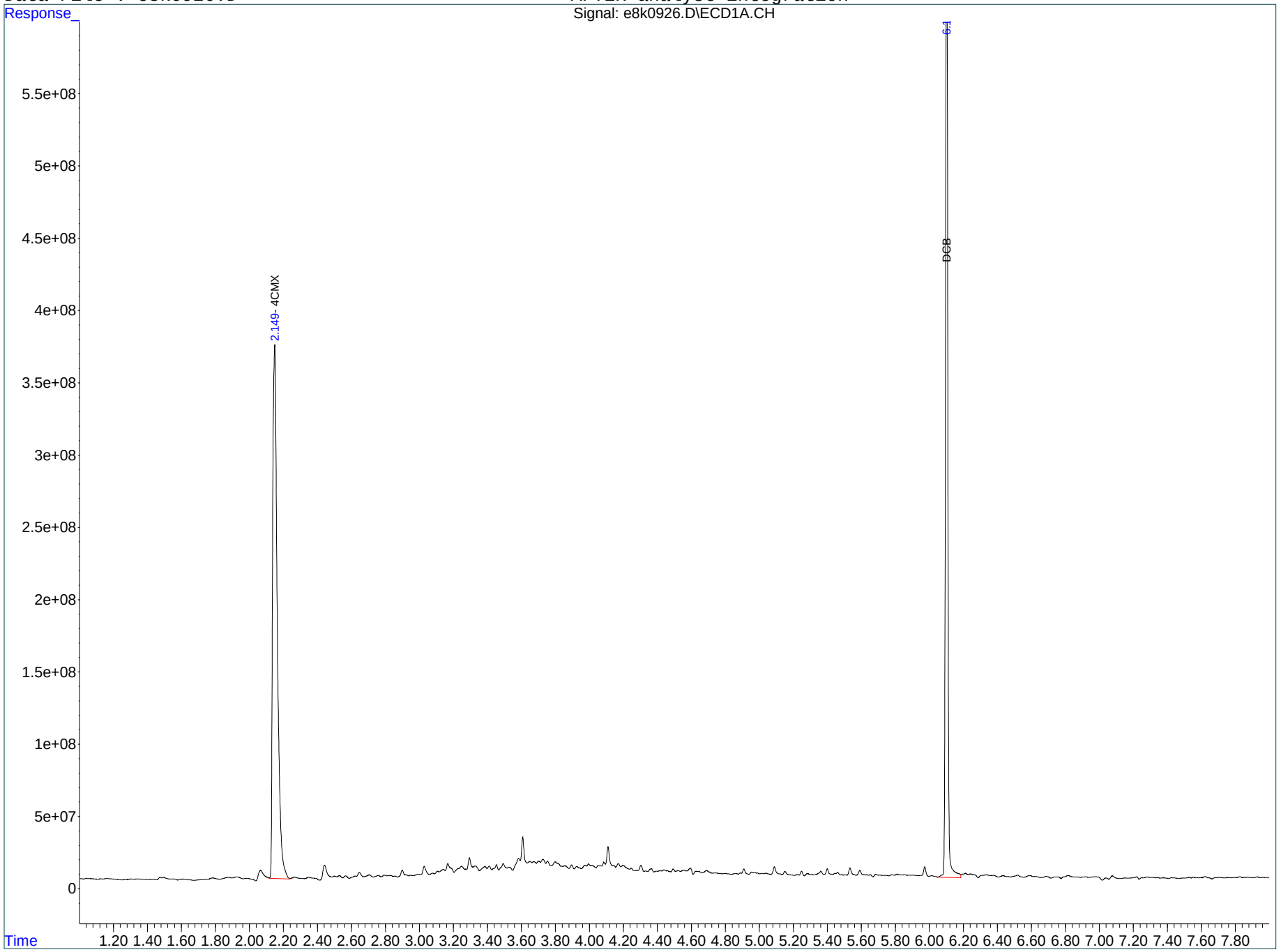
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0926.D

BEFORE analyst integration

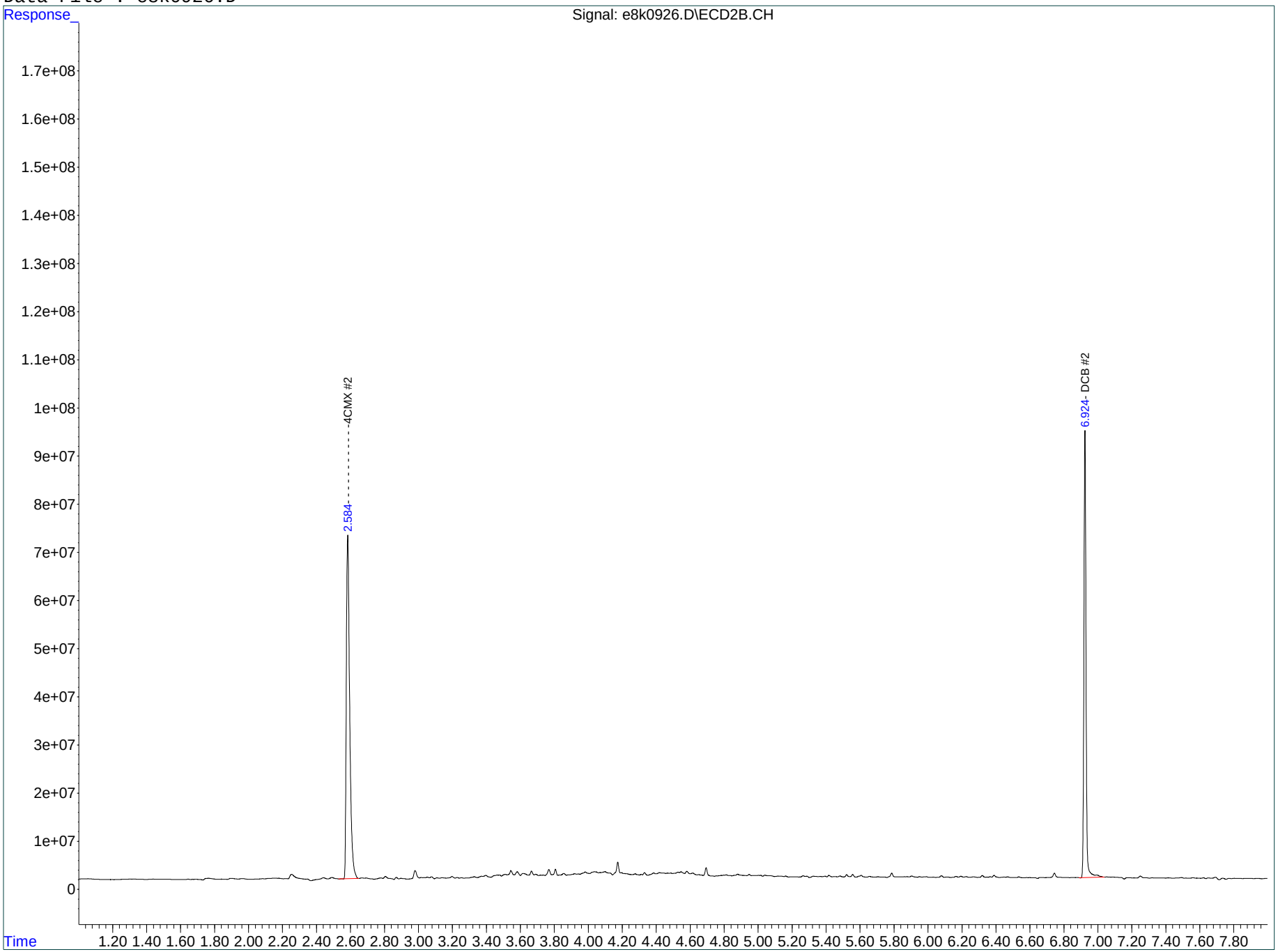


Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0926.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0926.D



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:46**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254034**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**20.1**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020207**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:29**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.042 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0927.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0927.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	4.17	ug/kg	1.39	4.17	1
11104-28-2	Aroclor-1221	U	4.17	ug/kg	1.39	4.17	1
11141-16-5	Aroclor-1232	U	4.17	ug/kg	1.39	4.17	1
53469-21-9	Aroclor-1242	U	4.17	ug/kg	1.39	4.17	1
12672-29-6	Aroclor-1248	U	4.17	ug/kg	1.39	4.17	1
11097-69-1	Aroclor-1254	U	4.17	ug/kg	1.39	4.17	1
11096-82-5	Aroclor-1260	U	4.17	ug/kg	1.39	4.17	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0927.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 11:29 (#1); 09 Nov 2016 11:29 (#2)
Operator : JXM   InstName : ECD8
Sample   : |409254034|1614293|1|SVA|1|HAAL|||
Misc   : |ECD4X2A_1S|SOIL|DP020207|||
ALS Vial : 27 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 11:47:04 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.149	-0.001	6754700607	140.545m	2.584	2.584	0.000	954591268	154.366
DCB	6.104	6.101	-0.003	5604043123	146.253m	6.924	6.924	0.000	643526367	140.010

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	70%	77%
DCB	200.000	No Limits	73%	70%

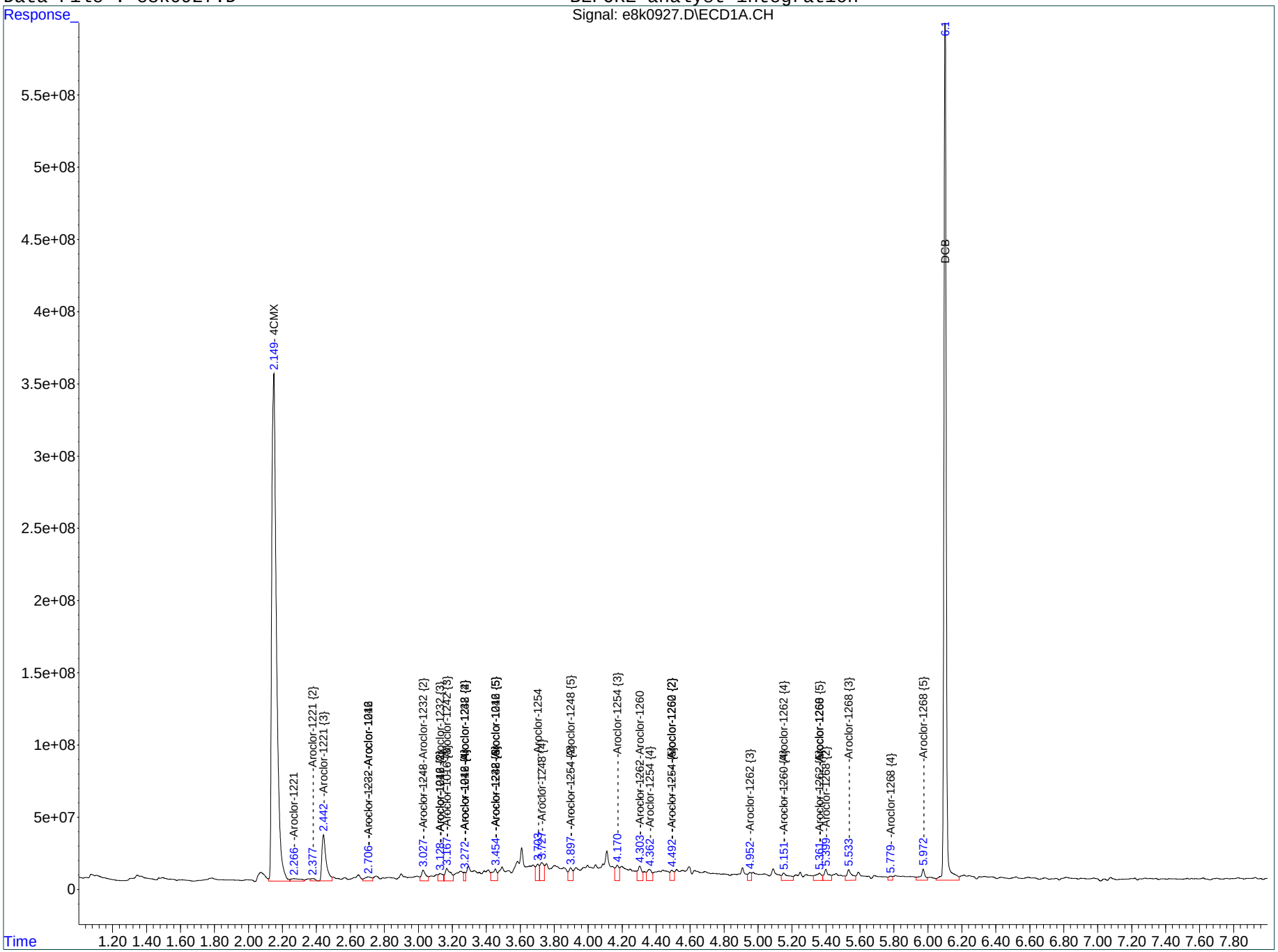
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

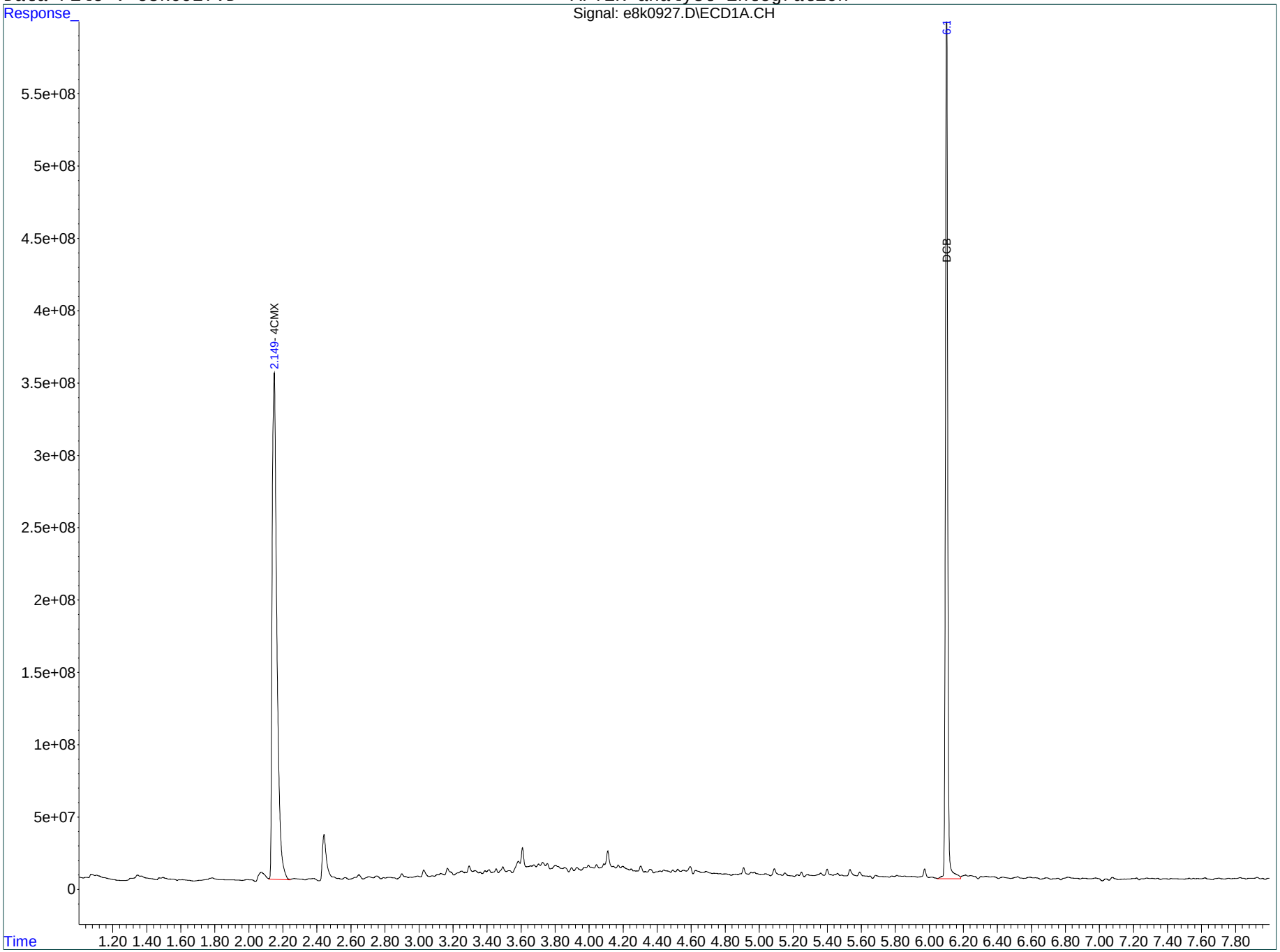
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0927.D

BEFORE analyst integration

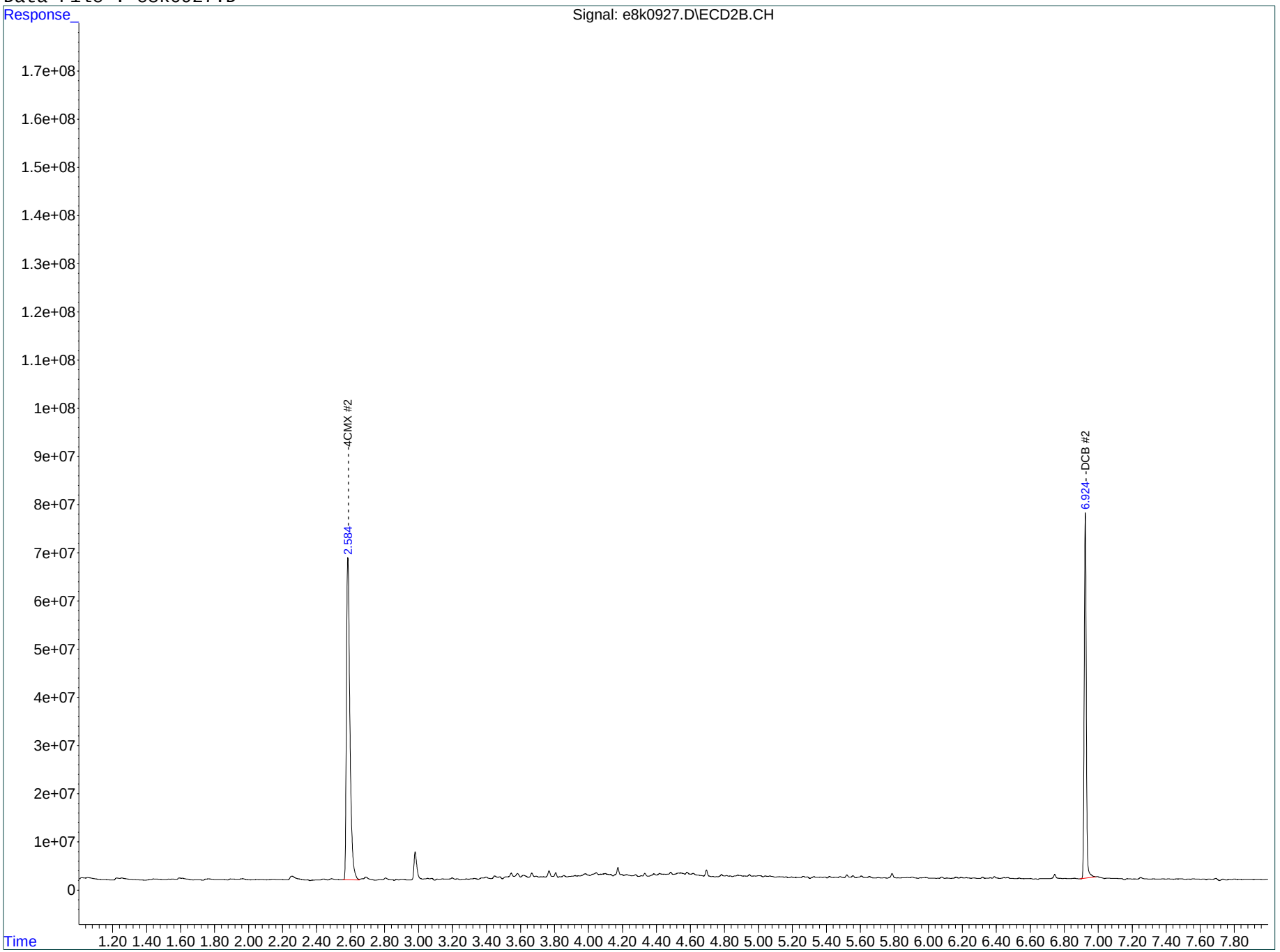


Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0927.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0927.D



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 09:53**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254036**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**10.9**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020209**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:43**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.044 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0928.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0928.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	3.73	ug/kg	1.24	3.73	1
11104-28-2	Aroclor-1221	U	3.73	ug/kg	1.24	3.73	1
11141-16-5	Aroclor-1232	U	3.73	ug/kg	1.24	3.73	1
53469-21-9	Aroclor-1242	U	3.73	ug/kg	1.24	3.73	1
12672-29-6	Aroclor-1248	U	3.73	ug/kg	1.24	3.73	1
11097-69-1	Aroclor-1254	U	3.73	ug/kg	1.24	3.73	1
11096-82-5	Aroclor-1260	U	3.73	ug/kg	1.24	3.73	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0928.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 11:43 (#1); 09 Nov 2016 11:43 (#2)
Operator : JXM   InstName : ECD8
Sample   : |409254036|1614293|1|SVA|1|HAAL|||
Misc   : |ECD4X2A_1S|SOIL|DP020209|||
ALS Vial : 28 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 12:02:08 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.148	-0.002	7911612753	164.616	2.584	2.583	-0.001	1089023111	176.105
DCB	6.104	6.102	-0.002	6854981639	178.900	6.924	6.924	0.000	843133552	183.438

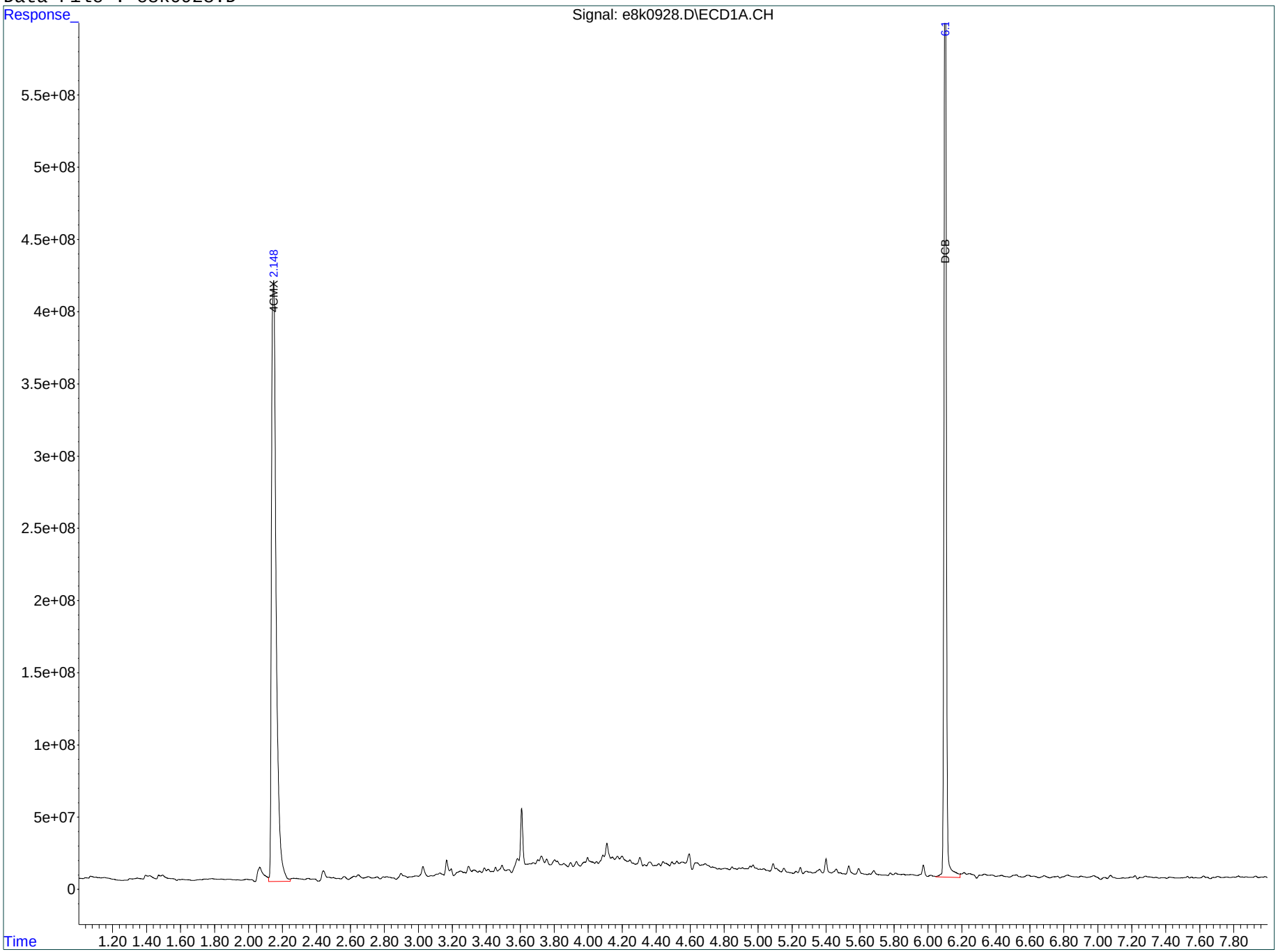
Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	82%	88%
DCB	200.000	No Limits	89%	92%

Target Compounds

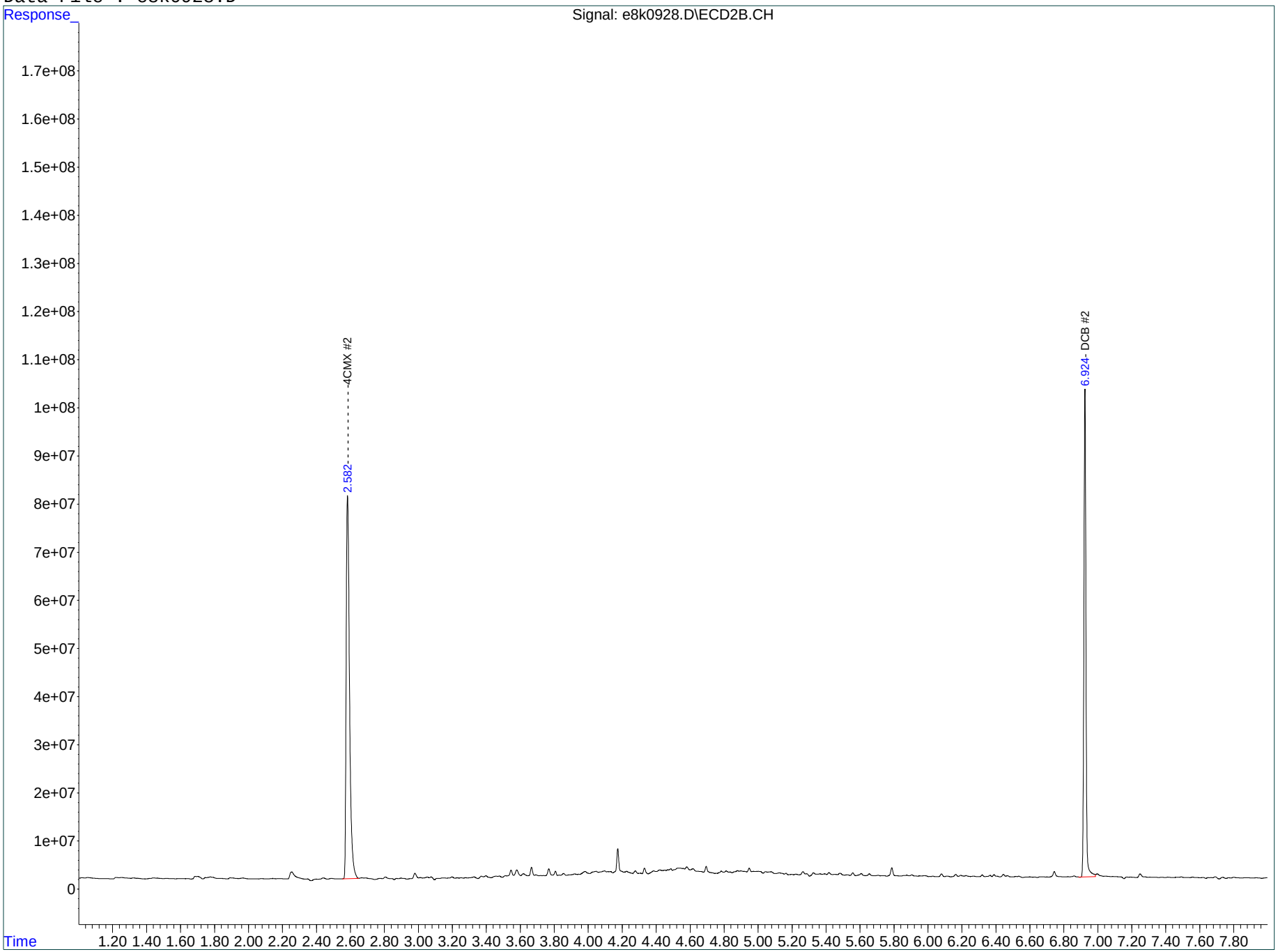
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0928.D



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0928.D



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/26/2016 10:54**	**Matrix:**	**SOIL**
Lab Sample ID:	**409254038**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**2**
		Client:	**HAAL002**	**Project:**	**HAAL00201**
Client ID:	**DP020114**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 11:57**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.089 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0929.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0929.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	3.39	ug/kg	1.13	3.39	1
11104-28-2	Aroclor-1221	U	3.39	ug/kg	1.13	3.39	1
11141-16-5	Aroclor-1232	U	3.39	ug/kg	1.13	3.39	1
53469-21-9	Aroclor-1242	U	3.39	ug/kg	1.13	3.39	1
12672-29-6	Aroclor-1248	U	3.39	ug/kg	1.13	3.39	1
11097-69-1	Aroclor-1254	U	3.39	ug/kg	1.13	3.39	1
11096-82-5	Aroclor-1260	U	3.39	ug/kg	1.13	3.39	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0929.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 11:57 (#1); 09 Nov 2016 11:57 (#2)
Operator : JXM   InstName : ECD8
Sample   : |409254038|1614293|1|SVA|1|HAAL|||
Misc   : |ECD4X2A_1S|SOIL|DP020114|||
ALS Vial : 29 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 12:13:46 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.149	-0.001	7042653589	146.536m	2.584	2.584	0.000	992874837	160.557
DCB	6.104	6.102	-0.002	5318905145	138.812m	6.924	6.924	0.000	721303329	156.932

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	73%	80%
DCB	200.000	No Limits	69%	78%

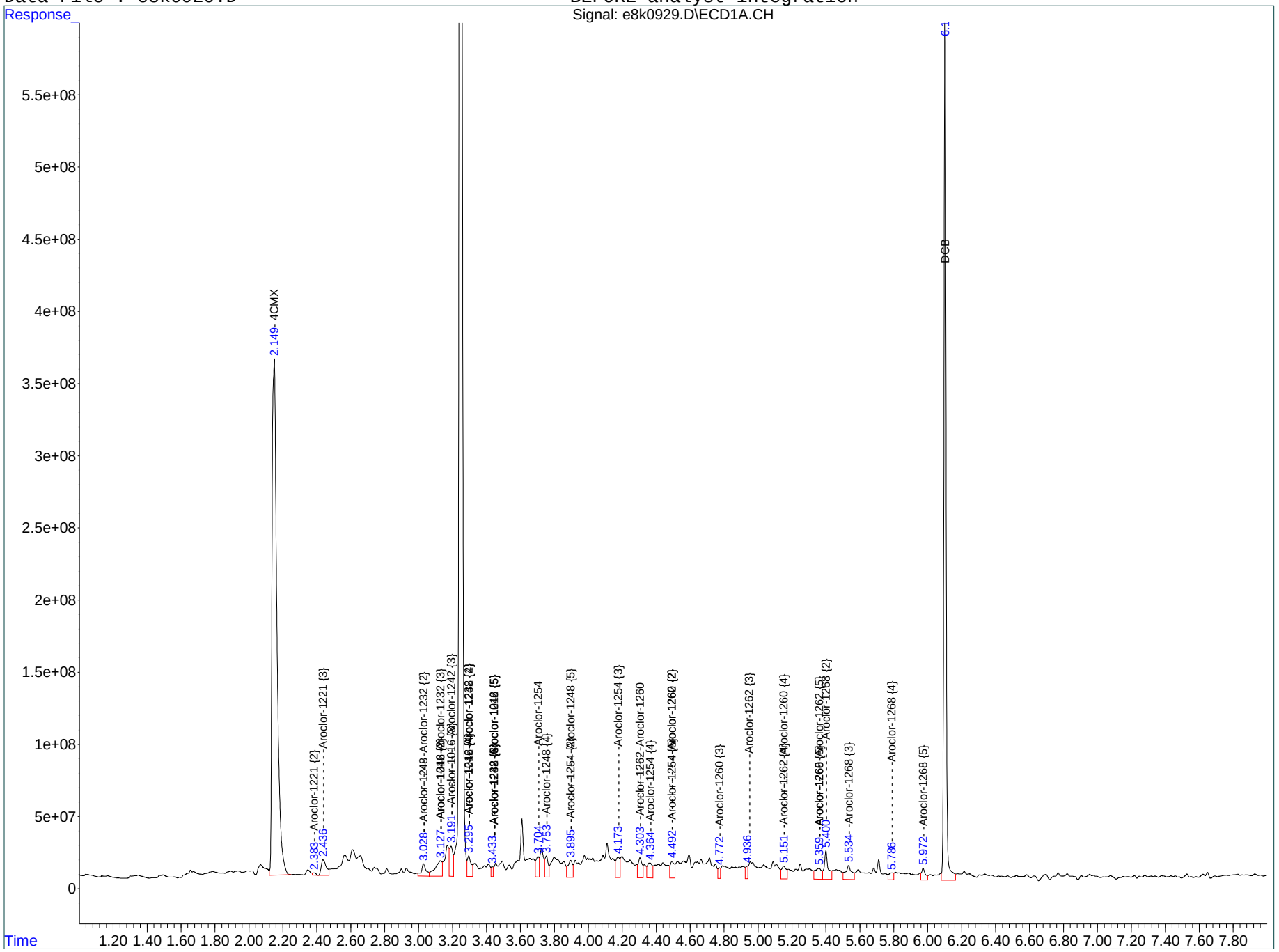
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

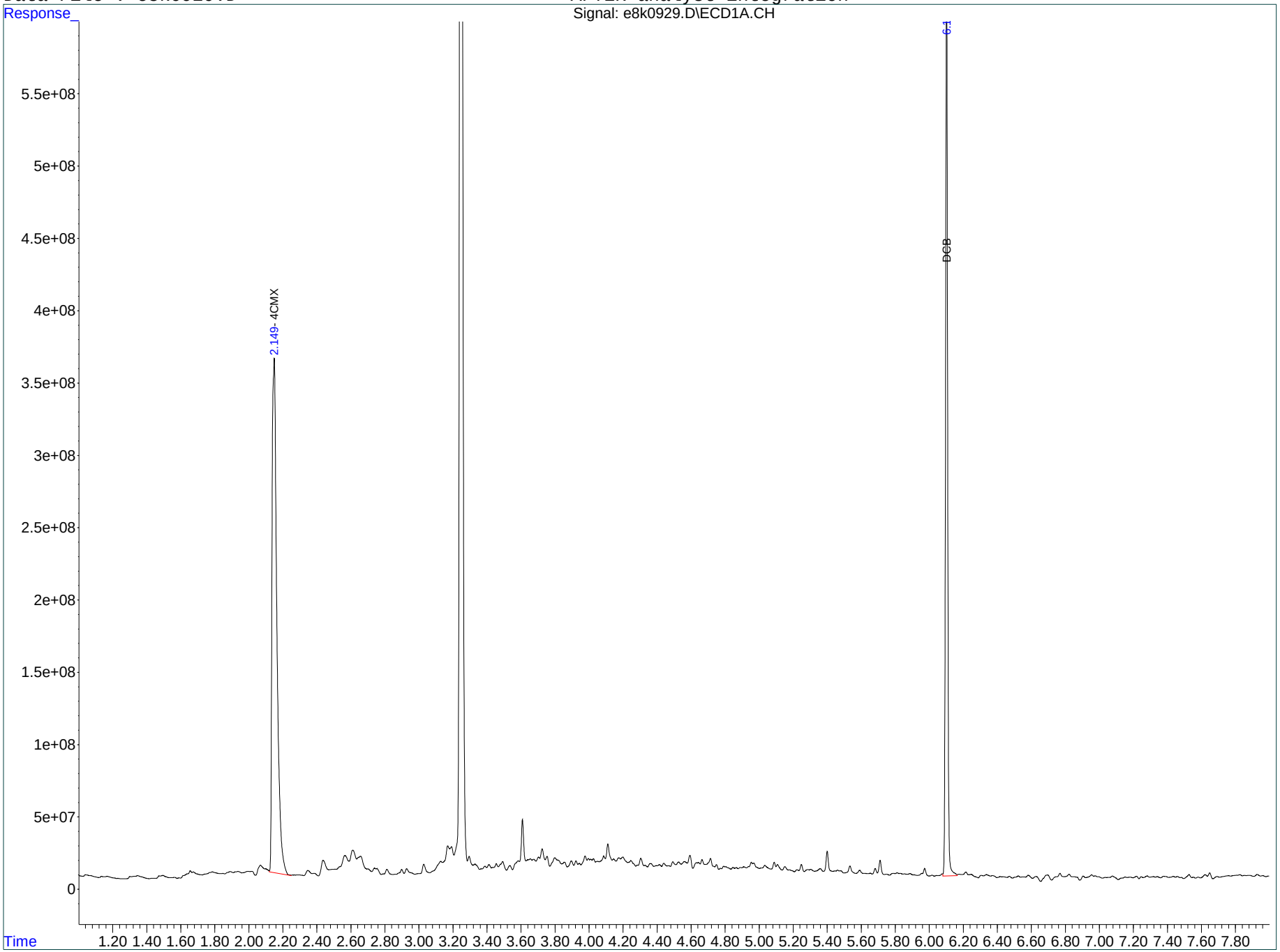
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0929.D

BEFORE analyst integration

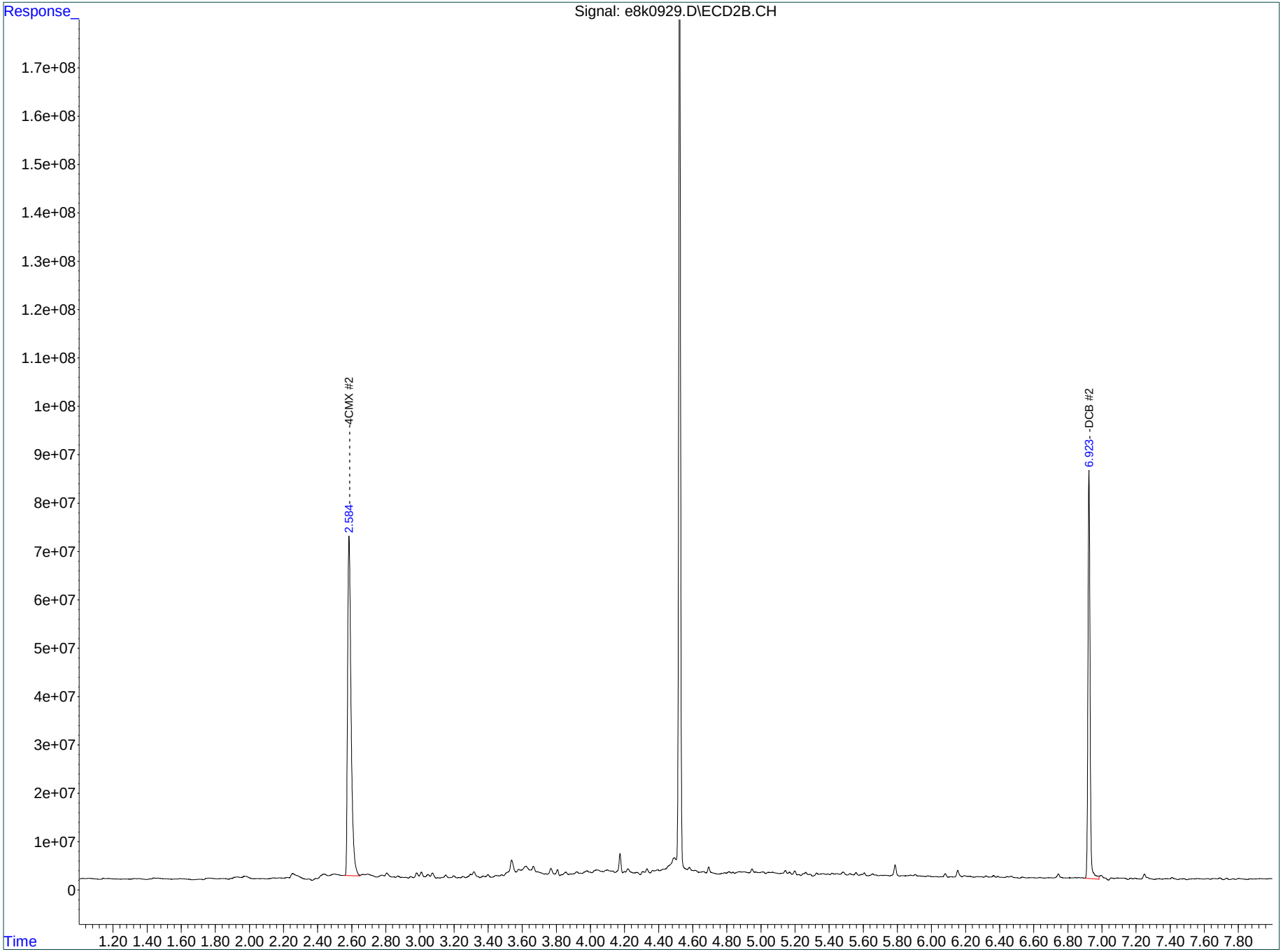


Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0929.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0929.D



Standards

Calibration History Report ECD8
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

Cal Lvl:1 Amt:10.00 Last Updated with: C:\msdchem\1\DATA\103116.B\e8j3131.D

Injection Date	Mix	Calibration File
31 Oct 2016 09:17	A	C:\msdchem\1\DATA\103116.B\e8j3113.D
31 Oct 2016 10:31	B	C:\msdchem\1\DATA\103116.B\e8j3119.D
31 Oct 2016 11:45	D	C:\msdchem\1\DATA\103116.B\e8j3125.D
31 Oct 2016 12:58	E	C:\msdchem\1\DATA\103116.B\e8j3131.D
03 Oct 2016 11:34	O	C:\msdchem\1\DATA\100316.B\e8j0327.D
03 Oct 2016 10:20	K	C:\msdchem\1\DATA\100316.B\e8j0321.D

Cal Lvl:2 Amt:25.00 Last Updated with: C:\msdchem\1\DATA\103116.B\e8j3132.D

Injection Date	Mix	Calibration File
31 Oct 2016 09:30	A	C:\msdchem\1\DATA\103116.B\e8j3114.D
31 Oct 2016 10:43	B	C:\msdchem\1\DATA\103116.B\e8j3120.D
31 Oct 2016 11:57	D	C:\msdchem\1\DATA\103116.B\e8j3126.D
31 Oct 2016 13:11	E	C:\msdchem\1\DATA\103116.B\e8j3132.D
03 Oct 2016 11:46	O	C:\msdchem\1\DATA\100316.B\e8j0328.D
03 Oct 2016 10:33	K	C:\msdchem\1\DATA\100316.B\e8j0322.D

Cal Lvl:3 Amt:50.00 Last Updated with: C:\msdchem\1\DATA\103116.B\e8j3133.D

Injection Date	Mix	Calibration File
31 Oct 2016 09:42	A	C:\msdchem\1\DATA\103116.B\e8j3115.D
31 Oct 2016 10:56	B	C:\msdchem\1\DATA\103116.B\e8j3121.D
31 Oct 2016 12:09	D	C:\msdchem\1\DATA\103116.B\e8j3127.D
31 Oct 2016 13:23	E	C:\msdchem\1\DATA\103116.B\e8j3133.D
03 Oct 2016 11:59	O	C:\msdchem\1\DATA\100316.B\e8j0329.D
03 Oct 2016 10:45	K	C:\msdchem\1\DATA\100316.B\e8j0323.D

Cal Lvl:4 Amt:100.00 Last Updated with: C:\msdchem\1\DATA\103116.B\e8j3134.D

Injection Date	Mix	Calibration File
31 Oct 2016 09:54	A	C:\msdchem\1\DATA\103116.B\e8j3116.D
31 Oct 2016 11:08	B	C:\msdchem\1\DATA\103116.B\e8j3122.D
31 Oct 2016 12:22	D	C:\msdchem\1\DATA\103116.B\e8j3128.D
31 Oct 2016 13:35	E	C:\msdchem\1\DATA\103116.B\e8j3134.D
01 Sep 2016 06:36	J	C:\msdchem\1\DATA\090116.B\e8i0104.D
03 Oct 2016 12:11	O	C:\msdchem\1\DATA\100316.B\e8j0330.D
10 Oct 2016 12:28	X	C:\msdchem\1\DATA\101016.B\e81002.D
01 Sep 2016 06:24	F	C:\msdchem\1\DATA\090116.B\e8i0103.D
03 Oct 2016 10:57	K	C:\msdchem\1\DATA\100316.B\e8j0324.D

Cal Lvl:5 Amt:400.00 Last Updated with: C:\msdchem\1\DATA\103116.B\e8j3135.D

Injection Date	Mix	Calibration File
31 Oct 2016 10:07	A	C:\msdchem\1\DATA\103116.B\e8j3117.D
31 Oct 2016 11:20	B	C:\msdchem\1\DATA\103116.B\e8j3123.D
31 Oct 2016 12:34	D	C:\msdchem\1\DATA\103116.B\e8j3129.D
31 Oct 2016 13:47	E	C:\msdchem\1\DATA\103116.B\e8j3135.D
03 Oct 2016 12:23	O	C:\msdchem\1\DATA\100316.B\e8j0331.D
03 Oct 2016 11:10	K	C:\msdchem\1\DATA\100316.B\e8j0325.D

ECD8_8082_103116.m Wed Nov 09 10:09:06 2016

Response Factor Report ECD8
GEL Laboratories, LLC

Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
b m1 m2										
1)SA 4CMX	5.1313104	4.8851688	4.7339020	4.7673689	4.5127134		4.8061	AVRG	E7	4.7081
2)MAL1 Aroclor-1016	2.1515589	1.9597915	1.8161984	1.7471230	1.5165452		1.8382	AVRG	E6	12.9083
3)MAL1 Aroclor-1016 {2}	1.7646493	1.6170643	1.5077647	1.4864129	1.3783751		1.5509	AVRG	E6	9.4465
4)MAL1 Aroclor-1016 {3}	1.0785420	1.0050742	0.9304325	0.9199038	0.8724322		0.9613	AVRG	E6	8.4234
5)MAL1 Aroclor-1016 {4}	9.4564524	8.7087937	8.0901493	8.0660093	7.6796221		8.4002	AVRG	E5	8.2861
6)MAL1 Aroclor-1016 {5}	1.3091633	1.2029954	1.1419990	1.1350243	1.0736053		1.1726	AVRG	E6	7.5948
7)JL2 Aroclor-1221				2.2032253			2.2032	AVRG	E5	0.0000
8)JL2 Aroclor-1221 {2}				1.2062478			1.2062	AVRG	E5	0.0000
9)JL2 Aroclor-1221 {3}				5.0111913			5.0112	AVRG	E5	0.0000
10)FL3 Aroclor-1232				2.8888519			2.8889	AVRG	E5	0.0000
11)FL3 Aroclor-1232 {2}				3.5765750			3.5766	AVRG	E5	0.0000
12)FL3 Aroclor-1232 {3}				2.4340676			2.4341	AVRG	E5	0.0000
13)FL3 Aroclor-1232 {4}				1.1105331			1.1105	AVRG	E5	0.0000
14)FL3 Aroclor-1232 {5}				1.6672514			1.6673	AVRG	E5	0.0000
15)DL4 Aroclor-1242	1.8300747	1.7038356	1.5937079	1.5139356	1.3584208		1.6000	AVRG	E6	11.2467

Response Factor Report ECD8
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
b m1 m2										
16)DL4 Aroclor-1242 {2}	1.4160247	1.3047344	1.2284038	1.1895290	1.1351674		1.2548	AVRG	E6	8.7080
17)DL4 Aroclor-1242 {3}	8.9100294	8.1378247	7.6073455	7.3392241	7.2423989		7.8474	AVRG	E5	8.7720
18)DL4 Aroclor-1242 {4}	7.2576883	6.7037916	6.3012798	6.0414070	5.9445562		6.4497	AVRG	E5	8.3541
19)DL4 Aroclor-1242 {5}	1.0769665	1.0009568	0.9547220	0.9266783	0.9138144		0.9746	AVRG	E6	6.7982
20)EL5 Aroclor-1248	1.2045615	1.0970721	1.0471170	1.0062530	0.9892631		1.0689	AVRG	E6	8.0941
21)EL5 Aroclor-1248 {2}	1.2901356	1.1857907	1.1404519	1.1254349	1.0952552		1.1674	AVRG	E6	6.5088
22)EL5 Aroclor-1248 {3}	1.6896148	1.5701232	1.5134900	1.4946734	1.4096367		1.5355	AVRG	E6	6.7478
23)EL5 Aroclor-1248 {4}	1.8218872	1.7444636	1.6923263	1.7289754	1.7109405		1.7397	AVRG	E6	2.8688
24)EL5 Aroclor-1248 {5}	1.5312786	1.4032824	1.3496305	1.3614220	1.2978986		1.3887	AVRG	E6	6.3451
25)BL6 Aroclor-1254	1.7950672	1.6918540	1.5744579	1.6060634	1.5123208		1.6360	AVRG	E6	6.7241
26)BL6 Aroclor-1254 {2}	2.2616877	2.2077588	2.0267666	2.0726699	1.7829973		2.0704	AVRG	E6	9.0351
27)BL6 Aroclor-1254 {3}	2.9915179	2.9067705	2.7550322	2.8744481	2.7323449		2.8520	AVRG	E6	3.7881
28)BL6 Aroclor-1254 {4}	2.1744947	2.1278442	2.0590375	2.0755535	1.9230848		2.0720	AVRG	E6	4.5773
29)BL6 Aroclor-1254 {5}	2.3591020	2.2163733	2.1422020	2.1302528	1.9829337		2.1662	AVRG	E6	6.3290
30)MAL7 Aroclor-1260	2.7112384	2.5649867	2.4452837	2.4503833	2.3048106					

Response Factor Report ECD8
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound b | m1 | m2	1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
							2.4953	AVRG	E6	6.0872
31)MAL7 Aroclor-1260 {2}	3.9727187	3.8358152	3.7230356	3.7477586	3.5018518		3.7562	AVRG	E6	4.5935
32)MAL7 Aroclor-1260 {3}	2.0954546	1.9849963	1.8776078	1.8737577	1.7915836		1.9247	AVRG	E6	6.1105
33)MAL7 Aroclor-1260 {4}	4.7850001	4.7048453	4.5725979	4.6158495	4.3902769		4.6137	AVRG	E6	3.2378
34)MAL7 Aroclor-1260 {5}	2.5322945	2.5069427	2.3983590	2.4393155	2.4142039		2.4582	AVRG	E6	2.3841
35)KL8 Aroclor-1262	1.1743954	1.1354930	1.0962243	1.0350307	0.9994003		1.0881	AVRG	E6	6.5701
36)KL8 Aroclor-1262 {2}	1.5956044	1.5051866	1.4611054	1.4025885	1.3763586		1.4682	AVRG	E6	5.9369
37)KL8 Aroclor-1262 {3}	1.7891372	1.7336085	1.6807427	1.6161778	1.5751502		1.6790	AVRG	E6	5.1449
38)KL8 Aroclor-1262 {4}	3.4757231	3.4299054	3.3927104	3.2725787	3.1691819		3.3480	AVRG	E6	3.7391
39)KL8 Aroclor-1262 {5}	1.5055850	1.4182226	1.3887630	1.3111514	1.2991542		1.3846	AVRG	E6	6.0944
40)OL9 Aroclor-1268	4.7921162	4.6377124	4.6077846	4.5934612	4.3071382		4.5876	AVRG	E6	3.8292
41)OL9 Aroclor-1268 {2}	4.3678816	4.2592601	4.1723062	4.1568307	3.9344961		4.1782	AVRG	E6	3.8301
42)OL9 Aroclor-1268 {3}	3.3322581	3.2092942	3.1707669	3.1732174	2.9972182		3.1766	AVRG	E6	3.7751
43)OL9 Aroclor-1268 {4}	1.4359122	1.3877367	1.3539733	1.3491263	1.3362639		1.3726	AVRG	E6	2.9269
44)OL9 Aroclor-1268 {5}	9.2443416	8.9887597	8.9596006	8.9656012	6.3797488		8.5076	AVRG	E6	14.0512

Response Factor Report ECD8
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
b m1 m2										
45)X 4,4' DDT				1.5485573						
							1.5486	AVRG	E7	0.0000
46)X 4,4' DDD				2.4526826						
							2.4527	AVRG	E7	0.0000
47)X 4,4' DDE				2.9073910						
							2.9074	AVRG	E7	0.0000
48)SA DCB	4.0486125	3.9450541	3.7388968	3.8084369	3.6176778					
							3.8317	AVRG	E7	4.4224

----------COLUMN #2----------

Compound	1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
b m1 m2										
1)SA 4CMX	6.5125240	6.2440213	6.0894229	6.1449923	5.9287492					
							6.1839	AVRG	E6	3.4978
2)MAL1 Aroclor-1016	3.0609455	2.8473598	2.6291883	2.5031612	2.2457574					
							2.6573	AVRG	E5	11.7954
3)MAL1 Aroclor-1016 {2}	2.0714190	1.8930851	1.8819086	1.8483273	1.7349348					
							1.8859	AVRG	E5	6.4227
4)MAL1 Aroclor-1016 {3}	1.2835571	1.1934213	1.1271988	1.1023049	1.0698974					
							1.1553	AVRG	E5	7.3442
5)MAL1 Aroclor-1016 {4}	1.4541345	1.3227122	1.2195655	1.1904026	1.1174577					
							1.2609	AVRG	E5	10.3724
6)MAL1 Aroclor-1016 {5}	1.7748171	1.6524227	1.5423555	1.5091715	1.4326736					
							1.5823	AVRG	E5	8.4385
7)JL2 Aroclor-1221				6.1487244						
							6.1487	AVRG	E4	0.0000
8)JL2 Aroclor-1221 {2}				3.9304193						
							3.9304	AVRG	E4	0.0000
9)JL2 Aroclor-1221 {3}				1.4145160						

Response Factor Report ECD8
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
b m1 m2										
							1.4145	AVRG	E5	0.0000
10)FL3 Aroclor-1232				8.9854291			8.9854	AVRG	E4	0.0000
11)FL3 Aroclor-1232 {2}				9.2069054			9.2069	AVRG	E4	0.0000
12)FL3 Aroclor-1232 {3}				6.3681130			6.3681	AVRG	E4	0.0000
13)FL3 Aroclor-1232 {4}				3.9939633			3.9940	AVRG	E4	0.0000
14)FL3 Aroclor-1232 {5}				4.7575951			4.7576	AVRG	E4	0.0000
15)DL4 Aroclor-1242	2.5532256	2.3863508	2.1999846	2.0771923	1.8889029		2.2211	AVRG	E5	11.6781
16)DL4 Aroclor-1242 {2}	1.7381236	1.5689792	1.5692855	1.5169314	1.4506813		1.5688	AVRG	E5	6.7844
17)DL4 Aroclor-1242 {3}	1.0546247	0.9729525	0.9239074	0.9010344	0.8891574		0.9483	AVRG	E5	7.1206
18)DL4 Aroclor-1242 {4}	1.1625456	1.0534988	0.9769973	0.9339785	0.8937314		1.0042	AVRG	E5	10.6070
19)DL4 Aroclor-1242 {5}	1.5005875	1.3695637	1.3033932	1.2693949	1.2207774		1.3327	AVRG	E5	8.1281
20)EL5 Aroclor-1248	1.4585462	1.3286663	1.2410163	1.2325192	1.1937557		1.2909	AVRG	E5	8.2041
21)EL5 Aroclor-1248 {2}	2.0256486	1.8214212	1.7013872	1.6453914	1.5479625		1.7484	AVRG	E5	10.5152
22)EL5 Aroclor-1248 {3}	2.3614569	2.1319916	2.0118395	1.9788445	1.8778388		2.0724	AVRG	E5	8.9425
23)EL5 Aroclor-1248 {4}	2.4709603	2.3164496	2.2143397	2.2059324	2.1677228		2.2751	AVRG	E5	5.3868

Response Factor Report ECD8
GEL Laboratories, LLC

Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
b m1 m2										
24)EL5 Aroclor-1248 {5}	2.5059822	2.3057449	2.2521557	2.1914245	2.2703310		2.3051	AVRG	E5	5.1917
25)BL6 Aroclor-1254	2.7431401	2.6260224	2.4697202	2.4150185	2.2712778		2.5050	AVRG	E5	7.3425
26)BL6 Aroclor-1254 {2}	2.9690234	2.7484398	2.5680445	2.5975366	2.5118942		2.6790	AVRG	E5	6.8780
27)BL6 Aroclor-1254 {3}	3.8063929	3.6908703	3.5876232	3.6368325	3.5211739		3.6486	AVRG	E5	2.9640
28)BL6 Aroclor-1254 {4}	2.7090604	2.5815891	2.6140724	2.5218891	2.4864824		2.5826	AVRG	E5	3.3481
29)BL6 Aroclor-1254 {5}	1.8623325	1.7484016	1.6917753	1.6882835	1.6233151		1.7228	AVRG	E5	5.2059
30)MAL7 Aroclor-1260	2.9551701	3.1517751	2.9961193	3.0452529	2.8629760		3.0023	AVRG	E5	3.5664
31)MAL7 Aroclor-1260 {2}	4.0410024	3.6704148	3.7230775	3.6798681	3.5205570		3.7270	AVRG	E5	5.1376
32)MAL7 Aroclor-1260 {3}	2.7954522	2.6770693	2.5528768	2.5285102	2.3864259		2.5881	AVRG	E5	5.9976
33)MAL7 Aroclor-1260 {4}	5.8991764	5.9384139	5.7354831	5.7769092	5.5489358		5.7798	AVRG	E5	2.6619
34)MAL7 Aroclor-1260 {5}	4.4402466	4.1456397	3.9672999	3.9640611	3.9340733		4.0903	AVRG	E5	5.2006
35)KL8 Aroclor-1262	2.5737152	2.3491708	2.2967839	2.1903452	2.2034906		2.3227	AVRG	E5	6.6736
36)KL8 Aroclor-1262 {2}	3.6980049	3.4708152	3.4228642	3.3634248	3.3103302		3.4531	AVRG	E5	4.3350
37)KL8 Aroclor-1262 {3}	3.3532231	3.1390538	3.1110262	3.0501050	2.9978067		3.1302	AVRG	E5	4.3490
38)KL8 Aroclor-1262 {4}	6.2071804	5.9628376	6.0331156	5.9864738	5.9905163		6.0360	AVRG	E5	1.6398

Response Factor Report ECD8
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

For Linear Calibration: x = concentration ratio, y = response ratio. y = b + m1(x) + m2(xE2)

Compound	1	2	3	4	5		Avg	Curve	Exp	%RSD/r2
b m1 m2										
39)KL8 Aroclor-1262 {5}	4.6344219	4.3679039	4.3267313	4.2803334	4.1911916					
							4.3601	AVRG	E5	3.8261
40)OL9 Aroclor-1268	8.7425210	8.4330129	8.3948752	8.4717853	8.4701980					
							8.5025	AVRG	E5	1.6213
41)OL9 Aroclor-1268 {2}	7.6083650	7.2703510	7.2271715	7.3504920	7.4628907					
							7.3839	AVRG	E5	2.0893
42)OL9 Aroclor-1268 {3}	5.9597957	5.7978851	5.7761733	5.8646730	5.9684242					
							5.8734	AVRG	E5	1.5163
43)OL9 Aroclor-1268 {4}	2.6451366	2.4835789	2.3262956	2.3419515	2.4323409					
							2.4459	AVRG	E5	5.2681
44)OL9 Aroclor-1268 {5}	1.6150473	1.6065393	1.6180702	1.6633004	1.7192889					
							1.6444	AVRG	E6	2.8771
45)X 4,4' DDT				1.6641672						
							1.6642	AVRG	E6	0.0000
46)X 4,4' DDD				2.7383781						
							2.7384	AVRG	E6	0.0000
47)X 4,4' DDE				3.7621182						
							3.7621	AVRG	E6	0.0000
48)SA DCB	5.1195834	4.6132425	4.3339771	4.5205898	4.3940294					
							4.5963	AVRG	E6	6.7898

(#) = Out of Range ($) = Individual RF Out of Range ### Number of calibration levels exceeded format ###
AVRG = Average, LINR = Linear Regression, 1/x = the inverse of concentration, 1/x^2 = the inverse square of concentration

COMPOUND LISTING
GEL Laboratories, LLC
Method File : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Last Update : Tue Nov 01 04:35:57 2016
Integrator : (ChemStation Integrator) Response via : Initial Calibration

Integration Parameter File: autoint1.e

*** Integrator Events ***
Initial Threshold 20.0
Initial Peak Width 0.003
Initial Area Reject 0.0
Shoulders OFF
2.600 Peak Width 0.010

Integration Parameter File: autoint2.e

*** Integrator Events ***
Initial Threshold 20.0
Initial Peak Width 0.005
Initial Area Reject 0.0
Shoulders OFF

Compound	RT	RT Window
1)SA 4CMX	2.150	2.120- 2.180
2)MAL1Aroclor-1016	2.698	2.668- 2.728
3)MAL1Aroclor-1016 {2}	3.138	3.108- 3.168
4)MAL1Aroclor-1016 {3}	3.184	3.154- 3.214
5)MAL1Aroclor-1016 {4}	3.276	3.246- 3.306
6)MAL1Aroclor-1016 {5}	3.436	3.406- 3.466
7)JL2 Aroclor-1221	2.290	2.260- 2.320
8)JL2 Aroclor-1221 {2}	2.401	2.371- 2.431
9)JL2 Aroclor-1221 {3}	2.432	2.402- 2.462
10)FL3 Aroclor-1232	2.697	2.667- 2.727
11)FL3 Aroclor-1232 {2}	3.042	3.012- 3.072
12)FL3 Aroclor-1232 {3}	3.138	3.108- 3.168
13)FL3 Aroclor-1232 {4}	3.276	3.246- 3.306
14)FL3 Aroclor-1232 {5}	3.435	3.405- 3.465
15)DL4 Aroclor-1242	2.698	2.668- 2.728
16)DL4 Aroclor-1242 {2}	3.138	3.108- 3.168
17)DL4 Aroclor-1242 {3}	3.184	3.154- 3.214
18)DL4 Aroclor-1242 {4}	3.276	3.246- 3.306
19)DL4 Aroclor-1242 {5}	3.435	3.405- 3.465
20)EL5 Aroclor-1248	3.043	3.013- 3.073
21)EL5 Aroclor-1248 {2}	3.277	3.247- 3.307
22)EL5 Aroclor-1248 {3}	3.436	3.406- 3.466
23)EL5 Aroclor-1248 {4}	3.740	3.710- 3.770
24)EL5 Aroclor-1248 {5}	3.897	3.867- 3.927
25)BL6 Aroclor-1254	3.708	3.678- 3.738
26)BL6 Aroclor-1254 {2}	3.894	3.864- 3.924
27)BL6 Aroclor-1254 {3}	4.173	4.143- 4.203
28)BL6 Aroclor-1254 {4}	4.368	4.338- 4.398
29)BL6 Aroclor-1254 {5}	4.497	4.467- 4.527
30)MAL7Aroclor-1260	4.301	4.271- 4.331
31)MAL7Aroclor-1260 {2}	4.496	4.466- 4.526
32)MAL7Aroclor-1260 {3}	4.770	4.740- 4.800
33)MAL7Aroclor-1260 {4}	5.155	5.125- 5.185
34)MAL7Aroclor-1260 {5}	5.350	5.320- 5.380
35)KL8 Aroclor-1262	4.300	4.275- 4.330
36)KL8 Aroclor-1262 {2}	4.495	4.470- 4.525
37)KL8 Aroclor-1262 {3}	4.939	4.914- 4.969
38)KL8 Aroclor-1262 {4}	5.155	5.130- 5.185
39)KL8 Aroclor-1262 {5}	5.373	5.348- 5.403
40)OL9 Aroclor-1268	5.374	5.349- 5.404
41)OL9 Aroclor-1268 {2}	5.400	5.375- 5.430

42)OL9 Aroclor-1268 {3}	5.533	5.508- 5.563
43)OL9 Aroclor-1268 {4}	5.778	5.753- 5.808
44)OL9 Aroclor-1268 {5}	5.974	5.949- 6.004
45)X 4,4' DDT	4.716	4.691- 4.746
46)X 4,4' DDD	4.522	4.497- 4.552
47)X 4,4' DDE	4.103	4.073- 4.133
48)SA DCB	6.104	6.074- 6.134
49) Column #2	4.816	4.786- 4.846
50)SA 4CMX #2	2.584	2.554- 2.614
51)MAL1Aroclor-1016 #2	3.309	3.279- 3.339
52)MAL1Aroclor-1016 {2} #2	3.762	3.732- 3.792
53)MAL1Aroclor-1016 {3} #2	3.838	3.808- 3.868
54)MAL1Aroclor-1016 {4} #2	3.910	3.880- 3.940
55)MAL1Aroclor-1016 {5} #2	4.109	4.079- 4.139
56)JL2 Aroclor-1221 #2	2.828	2.798- 2.858
57)JL2 Aroclor-1221 {2} #2	2.943	2.913- 2.973
58)JL2 Aroclor-1221 {3} #2	2.991	2.961- 3.021
59)FL3 Aroclor-1232 #2	3.308	3.278- 3.338
60)FL3 Aroclor-1232 {2} #2	3.661	3.631- 3.691
61)FL3 Aroclor-1232 {3} #2	3.761	3.731- 3.791
62)FL3 Aroclor-1232 {4} #2	3.839	3.809- 3.869
63)FL3 Aroclor-1232 {5} #2	4.109	4.079- 4.139
64)DL4 Aroclor-1242 #2	3.309	3.279- 3.339
65)DL4 Aroclor-1242 {2} #2	3.761	3.731- 3.791
66)DL4 Aroclor-1242 {3} #2	3.839	3.809- 3.869
67)DL4 Aroclor-1242 {4} #2	3.910	3.880- 3.940
68)DL4 Aroclor-1242 {5} #2	4.109	4.079- 4.139
69)EL5 Aroclor-1248 #2	3.648	3.618- 3.678
70)EL5 Aroclor-1248 {2} #2	3.911	3.881- 3.941
71)EL5 Aroclor-1248 {3} #2	4.109	4.079- 4.139
72)EL5 Aroclor-1248 {4} #2	4.384	4.354- 4.414
73)EL5 Aroclor-1248 {5} #2	4.582	4.552- 4.612
74)BL6 Aroclor-1254 #2	4.414	4.384- 4.444
75)BL6 Aroclor-1254 {2} #2	4.550	4.520- 4.580
76)BL6 Aroclor-1254 {3} #2	4.880	4.850- 4.910
77)BL6 Aroclor-1254 {4} #2	5.039	5.009- 5.069
78)BL6 Aroclor-1254 {5} #2	5.162	5.132- 5.197
79)MAL7Aroclor-1260 #2	5.018	4.988- 5.048
80)MAL7Aroclor-1260 {2} #2	5.163	5.133- 5.193
81)MAL7Aroclor-1260 {3} #2	5.479	5.449- 5.509
82)MAL7Aroclor-1260 {4} #2	5.859	5.830- 5.890
83)MAL7Aroclor-1260 {5} #2	6.118	6.088- 6.148
84)KL8 Aroclor-1262 #2	5.162	5.132- 5.192
85)KL8 Aroclor-1262 {2} #2	5.478	5.448- 5.508
86)KL8 Aroclor-1262 {3} #2	5.686	5.656- 5.716
87)KL8 Aroclor-1262 {4} #2	5.859	5.829- 5.889
88)KL8 Aroclor-1262 {5} #2	6.111	6.081- 6.141
89)OL9 Aroclor-1268 #2	6.110	6.080- 6.140
90)OL9 Aroclor-1268 {2} #2	6.142	6.112- 6.172
91)OL9 Aroclor-1268 {3} #2	6.320	6.290- 6.350
92)OL9 Aroclor-1268 {4} #2	6.516	6.486- 6.546
93)OL9 Aroclor-1268 {5} #2	6.744	6.714- 6.774
94)X 4,4' DDT #2	5.415	5.385- 5.445
95)X 4,4' DDD #2	5.196	5.166- 5.226
96)X 4,4' DDE #2	4.783	4.483- 5.083
97)SA DCB #2	6.924	6.894- 6.954

ECD8_8082_103116.m Wed Nov 09 10:08:58 2016

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3113.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 31 Oct 2016 09:17 (#1); 31 Oct 2016 9:17 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR161031-01|ICAL|1|SVA|1|1660-1
Misc : |MIX[A]
ALS Vial : 13 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

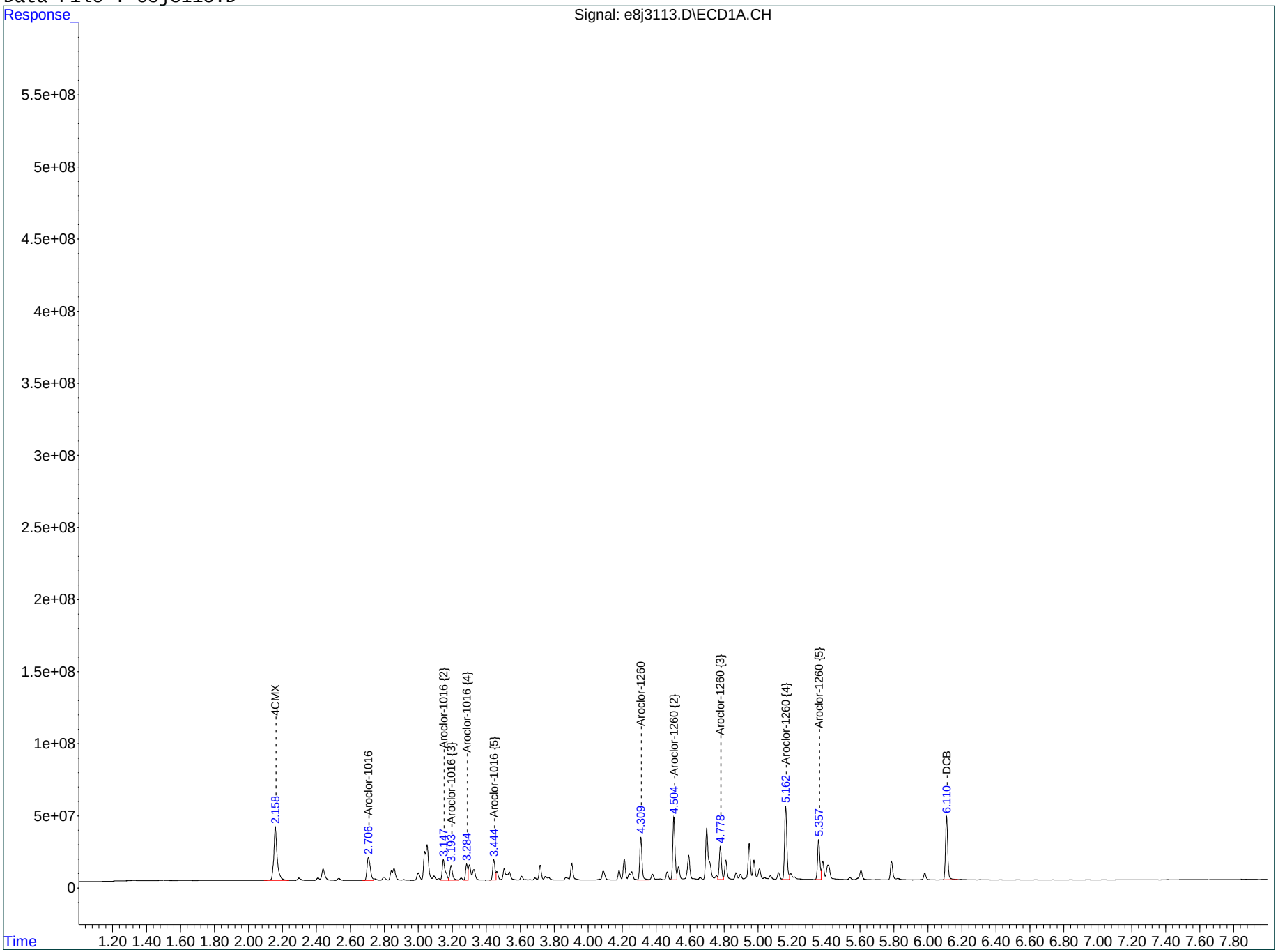
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 01 04:14:11 2016
Quant Method : C:\msdchem\1\DATA\103116.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:13:33 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

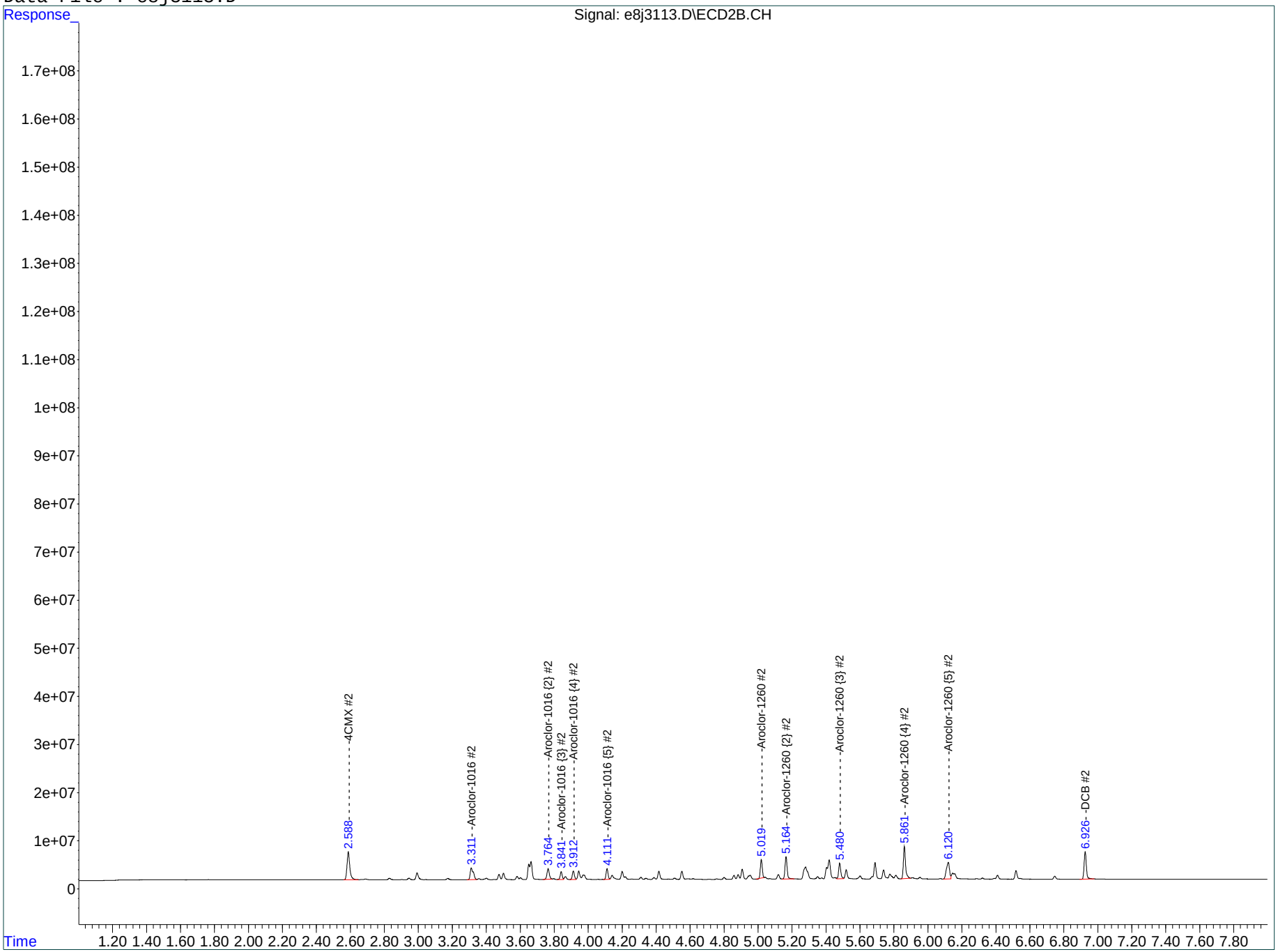
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.154	2.158	0.004	513131036	10.677	2.587	2.588	0.001	65125240	10.531
DCB	6.103	6.110	0.007	404861249	10.566	6.923	6.926	0.003	51195834	11.139
Target Compounds										
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.700	2.706	0.006	215155886	117.044	3.310	3.312	0.002	30609455	115.191
Aroclor-1016 {2}	3.140	3.148	0.008	176464932	113.786	3.762	3.765	0.003	20714190	109.835
Aroclor-1016 {3}	3.186	3.193	0.007	107854197	112.199	3.839	3.841	0.002	12835571	111.104
Aroclor-1016 {4}	3.278	3.285	0.007	94564524	112.574	3.911	3.913	0.002	14541345	115.329
Aroclor-1016 {5}	3.437	3.444	0.007	130916331	111.650	4.109	4.111	0.002	17748171	112.168
Sum Aroclor-1016				724955870	567.253				96448734	563.627
Average Aroclor-1016					113.451					112.725
Aroclor-1260	4.303	4.310	0.007	271123845	108.652	5.017	5.019	0.002	29551701	98.432
Aroclor-1260 {2}	4.497	4.504	0.007	397271868	105.763	5.162	5.165	0.003	40410024	108.426
Aroclor-1260 {3}	4.770	4.778	0.008	209545459	108.873	5.478	5.480	0.002	27954522	108.013
Aroclor-1260 {4}	5.155	5.162	0.007	478500006	103.713	5.859	5.862	0.003	58991764	102.066
Aroclor-1260 {5}	5.350	5.357	0.007	253229452	103.013	6.117	6.120	0.003	44402466	108.556
Sum Aroclor-1260				1609670630	530.014				201310478	525.492
Average Aroclor-1260					106.003					105.098

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3113.D



Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3113.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3114.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 31 Oct 2016 09:30 (#1); 31 Oct 2016 9:30 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR161031-02|ICAL|1|SVA|1|1660-2
Misc : |MIX[A]
ALS Vial : 14 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

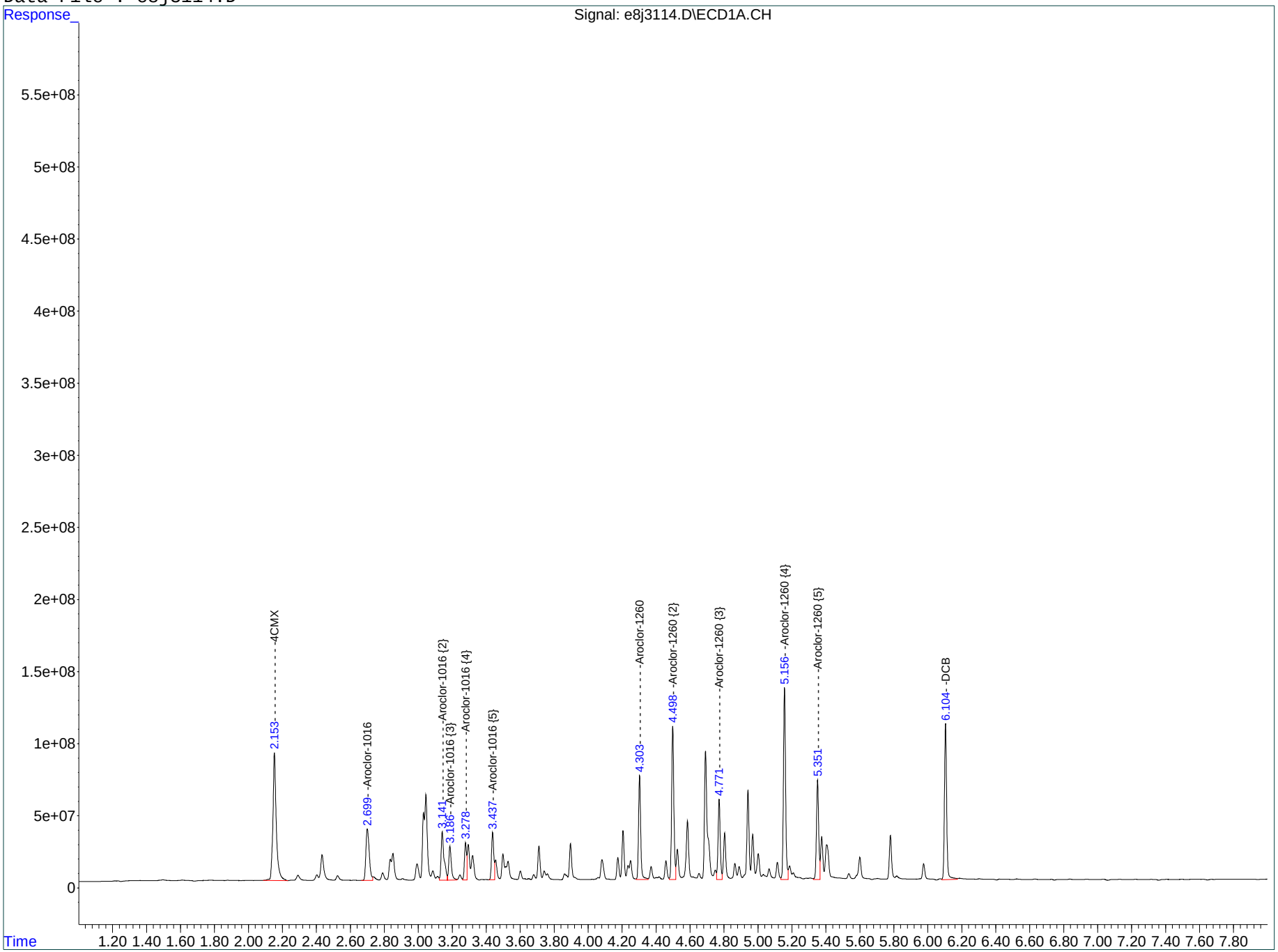
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 01 04:14:14 2016
Quant Method : C:\msdchem\1\DATA\103116.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:13:33 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

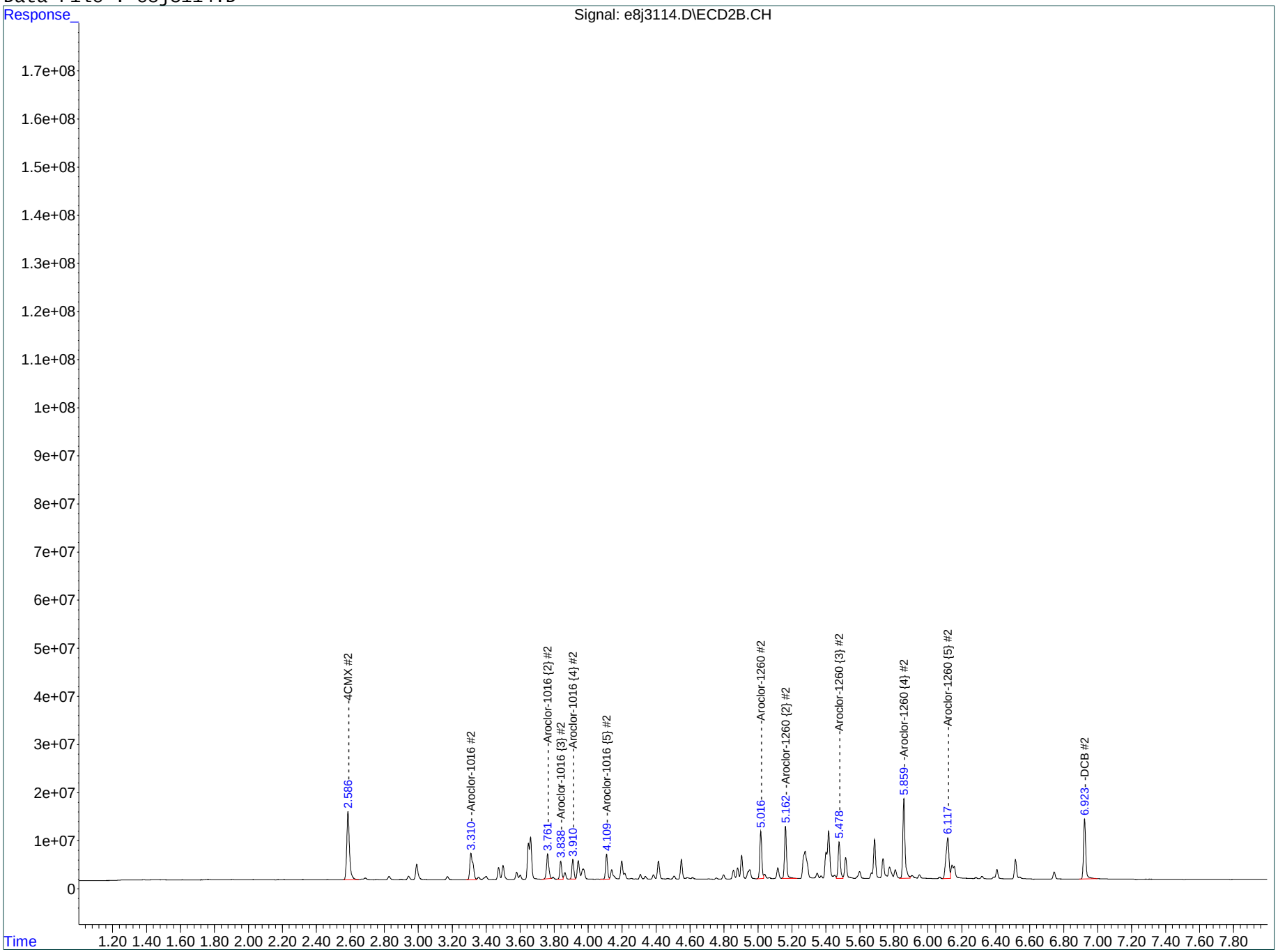
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.154	2.153	-0.001	1221292189	25.411	2.587	2.586	-0.001	156100532	25.243
DCB	6.103	6.105	0.002	986263525	25.739	6.923	6.923	0.000	115331061	25.092
Target Compounds										
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.700	2.700	0.000	489947879	266.530	3.310	3.310	0.000	71183996	267.883
Aroclor-1016 {2}	3.140	3.141	0.001	404266063	260.673	3.762	3.762	0.000	47327128	250.948
Aroclor-1016 {3}	3.186	3.186	0.000	251268550	261.390	3.839	3.839	0.000	29835533	258.255
Aroclor-1016 {4}	3.278	3.278	0.000	217719843	259.184	3.911	3.910	-0.001	33067806	262.265
Aroclor-1016 {5}	3.437	3.438	0.001	300748844	256.490	4.109	4.109	0.000	41310566	261.081
Sum Aroclor-1016				1663951178	1304.268				222725029	1300.431
Average Aroclor-1016					260.854					260.086
Aroclor-1260	4.303	4.303	0.000	641246669	256.978	5.017	5.017	0.000	78794376	262.450
Aroclor-1260 {2}	4.497	4.498	0.001	958953805	255.296	5.162	5.162	0.000	91760369	246.205
Aroclor-1260 {3}	4.770	4.772	0.002	496249066	257.835	5.478	5.478	0.000	66926731	258.597
Aroclor-1260 {4}	5.155	5.156	0.001	1176211322	254.938	5.859	5.859	0.000	148460348	256.861
Aroclor-1260 {5}	5.350	5.351	0.001	626735665	254.955	6.117	6.118	0.001	103640994	253.385
Sum Aroclor-1260				3899396527	1280.001				489582818	1277.499
Average Aroclor-1260					256.000					255.500

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3114.D



Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3114.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3115.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 31 Oct 2016 09:42 (#1); 31 Oct 2016 9:42 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR161031-03|ICAL|1|SVA|1|1660-3
Misc : |MIX[A]
ALS Vial : 15 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

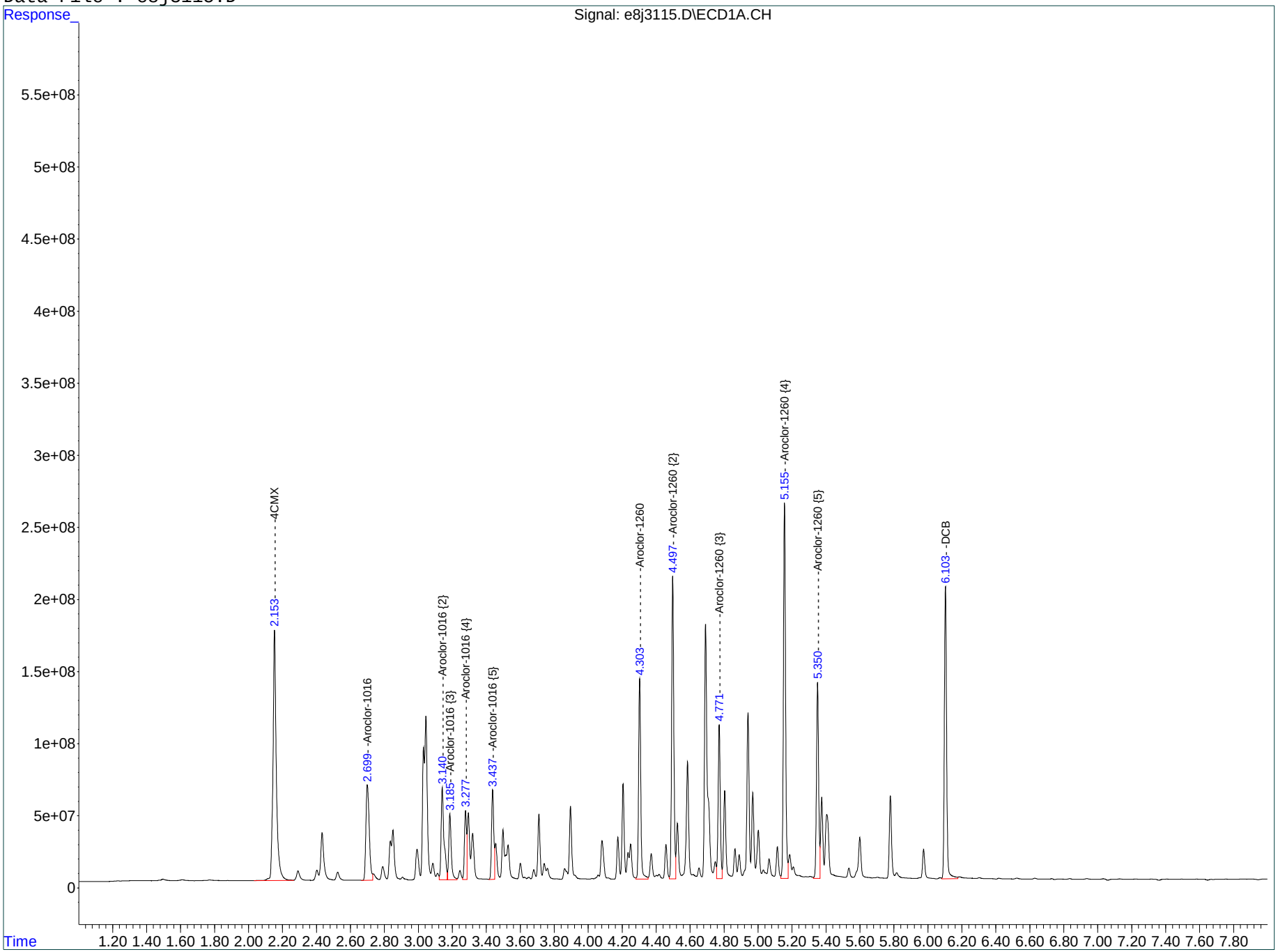
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 01 04:14:17 2016
Quant Method : C:\msdchem\1\DATA\103116.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:13:33 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

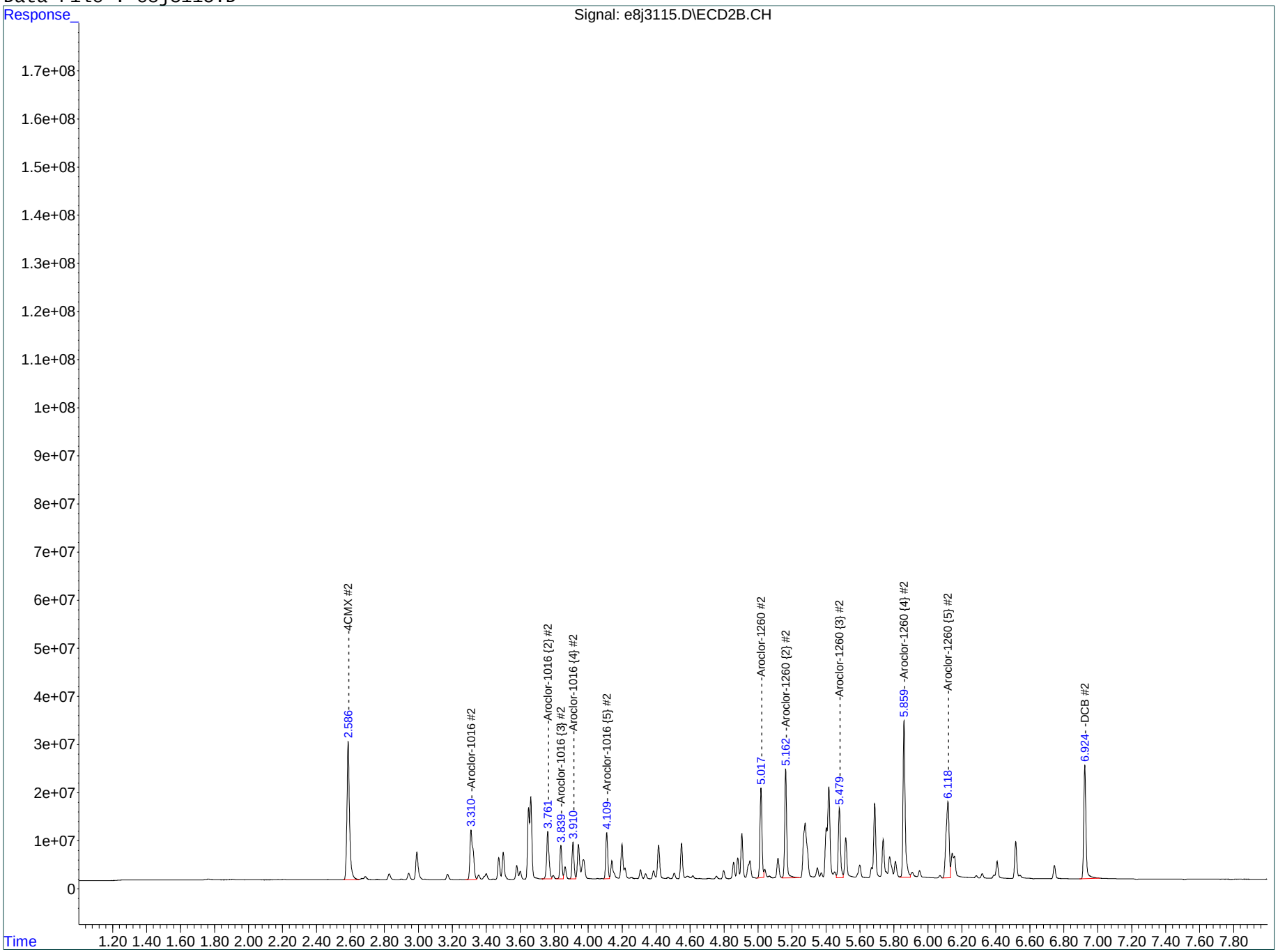
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.154	2.153	-0.001	2366950988	49.249	2.587	2.587	0.000	304471146	49.236
DCB	6.103	6.104	0.001	1869448379	48.789	6.923	6.924	0.001	216698856	47.147
Target Compounds										
Aroclor-1016	2.700	2.699	-0.001	908099181	494.004	3.310	3.310	0.000	131459417	494.714
Aroclor-1016 {2}	3.140	3.141	0.001	753882329	486.108	3.762	3.762	0.000	94095428	498.933
Aroclor-1016 {3}	3.186	3.186	0.000	465216251	483.957	3.839	3.839	0.000	56359942	487.848
Aroclor-1016 {4}	3.278	3.278	0.000	404507466	481.545	3.911	3.911	0.000	60978274	483.627
Aroclor-1016 {5}	3.437	3.437	0.000	570999519	486.969	4.109	4.109	0.000	77117776	487.381
Sum Aroclor-1016				3102704746	2432.582				420010837	2452.503
Average Aroclor-1016					486.516					490.501
Aroclor-1260	4.303	4.303	0.000	1222641834	489.970	5.017	5.017	0.000	149805965	498.978
Aroclor-1260 {2}	4.497	4.498	0.001	1861517824	495.581	5.162	5.163	0.001	186153877	499.476
Aroclor-1260 {3}	4.770	4.771	0.001	938803917	487.771	5.478	5.479	0.001	127643839	493.201
Aroclor-1260 {4}	5.155	5.156	0.001	2286298961	495.544	5.859	5.860	0.001	286774157	496.168
Aroclor-1260 {5}	5.350	5.351	0.001	1199179518	487.824	6.117	6.118	0.001	198364996	484.969
Sum Aroclor-1260				7508442053	2456.690				948742834	2472.791
Average Aroclor-1260					491.338					494.558

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3115.D



Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3115.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3116.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 31 Oct 2016 09:54 (#1); 31 Oct 2016 9:54 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR161031-04|ICAL|1|SVA|1|1660-4
Misc : |MIX[A]
ALS Vial : 16 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

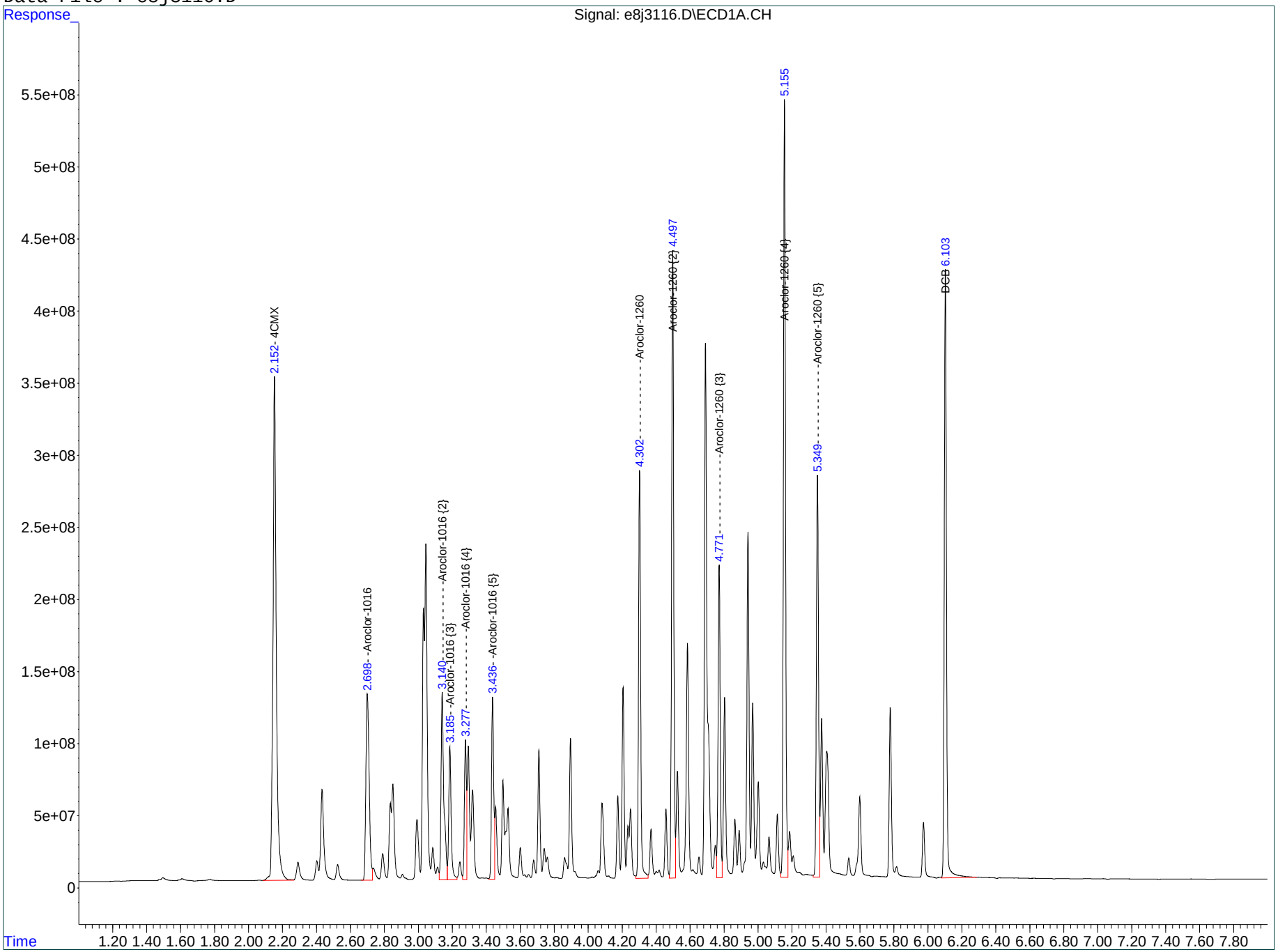
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 01 04:14:20 2016
Quant Method : C:\msdchem\1\DATA\103116.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:13:33 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

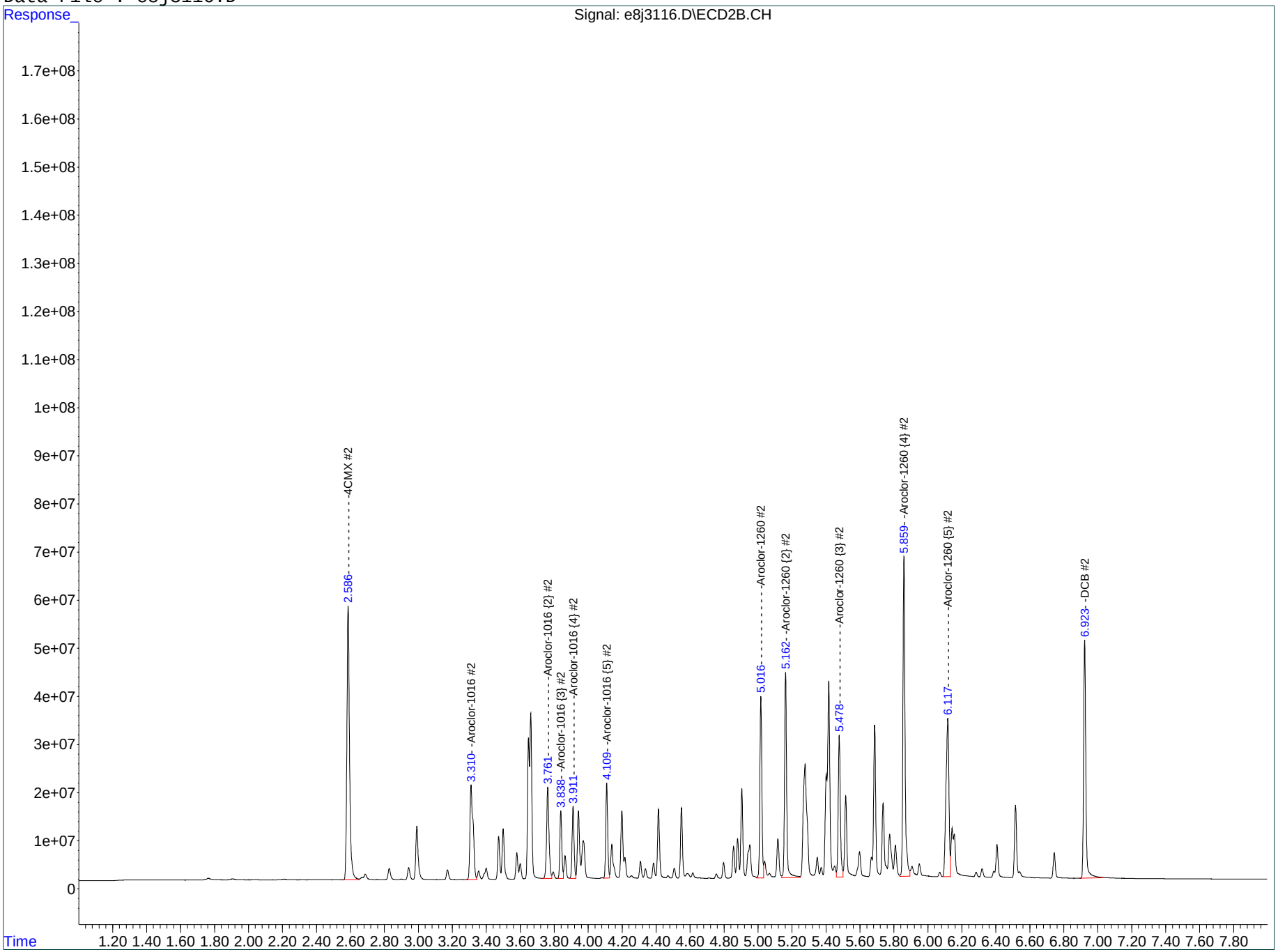
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.154	2.153	-0.001	4767368924	99.194	2.587	2.586	-0.001	614499229	99.370
DCB	6.103	6.103	0.000	3808436867	99.392	6.923	6.923	0.000	452058979	98.353
Target Compounds										
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.700	2.699	-0.001	1747122980	950.431	3.310	3.310	0.000	250316119	942.000
Aroclor-1016 {2}	3.140	3.140	0.000	1486412935	958.448	3.762	3.762	0.000	184832731	980.059
Aroclor-1016 {3}	3.186	3.185	-0.001	919903842	956.960	3.839	3.839	0.000	110230490	954.149
Aroclor-1016 {4}	3.278	3.277	-0.001	806600929	960.216	3.911	3.911	0.000	119040262	944.124
Aroclor-1016 {5}	3.437	3.437	0.000	1135024324	967.990	4.109	4.109	0.000	150917149	953.791
Sum Aroclor-1016				6095065009	4794.046				815336752	4774.122
Average Aroclor-1016					958.809					954.824
Aroclor-1260	4.303	4.302	-0.001	2450383281	981.984	5.017	5.016	-0.001	304525287	1014.321
Aroclor-1260 {2}	4.497	4.498	0.001	3747758620	997.743	5.162	5.162	0.000	367986807	987.358
Aroclor-1260 {3}	4.770	4.771	0.001	1873757691	973.542	5.478	5.478	0.000	252851021	976.988
Aroclor-1260 {4}	5.155	5.155	0.000	4615849535	1000.463	5.859	5.859	0.000	577690920	999.503
Aroclor-1260 {5}	5.350	5.350	0.000	2439315522	992.308	6.117	6.117	0.000	396406107	969.146
Sum Aroclor-1260				15127064649	4946.040				1899460142	4947.315
Average Aroclor-1260					989.208					989.463

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3116.D



Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3116.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3117.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 31 Oct 2016 10:07 (#1); 31 Oct 2016 10:07 (#2)
Operator : JXM InstName : ECD8
Sample : |IAR160926-01|ICAL|1|SVA|1|1660-5
Misc : |MIX[A]
ALS Vial : 17 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

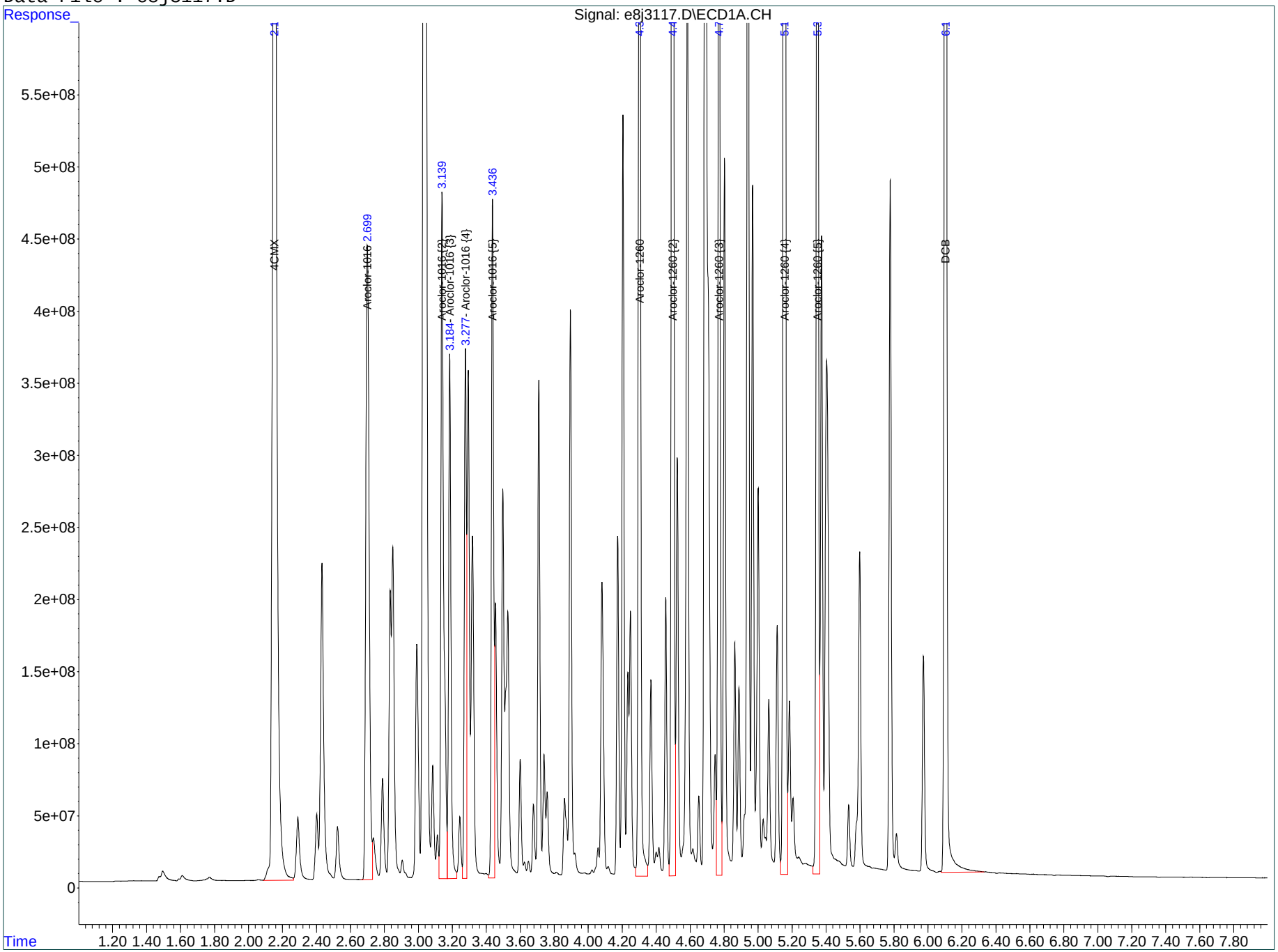
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 01 04:14:24 2016
Quant Method : C:\msdchem\1\DATA\103116.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:13:33 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

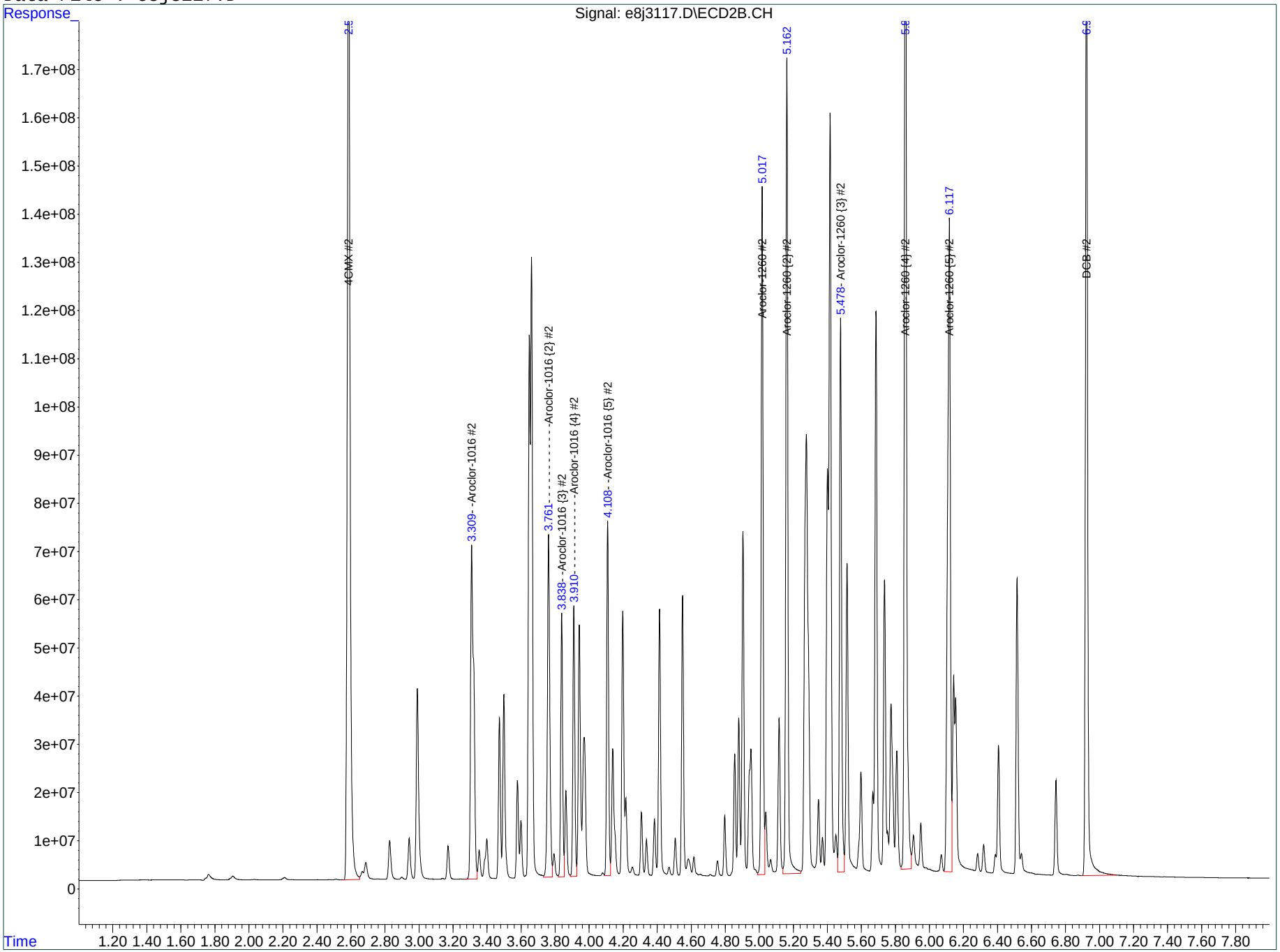
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.154	2.154	0.000	18050853630	375.583	2.587	2.586	-0.001	2371499679	383.493
DCB	6.103	6.104	0.001	14470711163	377.654	6.923	6.923	0.000	1757611760	382.398
Target Compounds										
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.700	2.700	0.000	6066180738	3299.988	3.310	3.309	-0.001	898302949	3380.532
Aroclor-1016 {2}	3.140	3.139	-0.001	5513500297	3555.140	3.762	3.761	-0.001	693973914	3679.734
Aroclor-1016 {3}	3.186	3.185	-0.001	3489728807	3630.305	3.839	3.839	0.000	427958976	3704.388
Aroclor-1016 {4}	3.278	3.277	-0.001	3071848829	3656.873	3.911	3.910	-0.001	446983074	3545.081
Aroclor-1016 {5}	3.437	3.437	0.000	4294421128	3662.440	4.109	4.109	0.000	573069459	3621.777
Sum Aroclor-1016				22435679799	17804.746				3040288372	17931.512
Average Aroclor-1016					3560.949					3586.302
Aroclor-1260	4.303	4.302	-0.001	9219242366	3694.583	5.017	5.017	0.000	1145190387	3814.429
Aroclor-1260 {2}	4.497	4.497	0.000	14007407254	3729.107	5.162	5.162	0.000	1408222787	3778.451
Aroclor-1260 {3}	4.770	4.771	0.001	7166334243	3723.390	5.478	5.478	0.000	954570371	3688.353
Aroclor-1260 {4}	5.155	5.156	0.001	17561107772	3806.284	5.859	5.859	0.000	2219574316	3840.238
Aroclor-1260 {5}	5.350	5.349	-0.001	9656815617	3928.372	6.117	6.118	0.001	1573629306	3847.256
Sum Aroclor-1260				57610907253	18881.737				7301187167	18968.727
Average Aroclor-1260					3776.347					3793.745

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3117.D



Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3117.D



Continuing Calibration Summary

Instrument ID: ECD8A.I_1

Client SDG: 409254

Injection Date: 31-OCT-16 10:19

Data File: 103116.B\e8j3118.D

Init. Cal. Date(s): NA

Lab Sample ID WAR160926-60

Method: 103116.B\ECD8_8082_103116.m

Column ID: RTX-CLPEST1

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Aroclor-1016	1838243.38	1871910.3	1000	1.83	20		Averaged
Aroclor-1016(2)	1550853.25	1507531.05	1000	-2.79	20		Averaged
Aroclor-1016(3)	961276.94	978912.53	1000	1.83	20		Averaged
Aroclor-1016(4)	840020.53	810346.74	1000	-3.53	20		Averaged
Aroclor-1016(5)	1172557.47	1160226.17	1000	-1.05	20		Averaged
Aroclor-1260	2495340.53	2361004.57	1000	-5.38	20		Averaged
Aroclor-1260(2)	3756236	3598154.62	1000	-4.21	20		Averaged
Aroclor-1260(3)	1924679.99	1800820.35	1000	-6.44	20		Averaged
Aroclor-1260(4)	4613713.95	4442881.33	1000	-3.7	20		Averaged
Aroclor-1260(5)	2458223.13	2383296.78	1000	-3.05	20		Averaged
4cmx(Surr)	48060926.84	49418700.97	100	2.83	20		Averaged
Decachlorobiphenyl(Surr)	38317356.01	37870286.89	100	-1.17	20		Averaged

Continuing Calibration Summary

Client SDG: 409254

Instrument ID: ECD8A.I_2

Injection Date: 31-OCT-16 10:19

Data File: 103116.B\e8j3118.D

Init. Cal. Date(s): NA

Lab Sample ID WAR160926-60

Method: 103116.B\ECD8_8082_103116.m

Column ID: RTX-CLPEST2

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Aroclor-1016	265728.24	253090.52	1000	-4.76	20		Averaged
Aroclor-1016(2)	188593.5	185185.31	1000	-1.81	20		Averaged
Aroclor-1016(3)	115527.59	113002.23	1000	-2.19	20		Averaged
Aroclor-1016(4)	126085.45	121094.81	1000	-3.96	20		Averaged
Aroclor-1016(5)	158228.81	153697.78	1000	-2.86	20		Averaged
Aroclor-1260	300225.87	293982	1000	-2.08	20		Averaged
Aroclor-1260(2)	372698.4	339074.76	1000	-9.02	20		Averaged
Aroclor-1260(3)	258806.69	244748.18	1000	-5.43	20		Averaged
Aroclor-1260(4)	577978.37	559173.42	1000	-3.25	20		Averaged
Aroclor-1260(5)	409026.41	389026.69	1000	-4.89	20		Averaged
4cmx(Surr)	6183941.94	6443174.16	100	4.19	20		Averaged
Decachlorobiphenyl(Surr)	4596284.43	4269341.04	100	-7.11	20		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3118.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 31 Oct 2016 10:19 (#1); 31 Oct 2016 10:19 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160926-60|ICV|1|SVA|1|1660
Misc : |MIX[A]
ALS Vial : 18 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

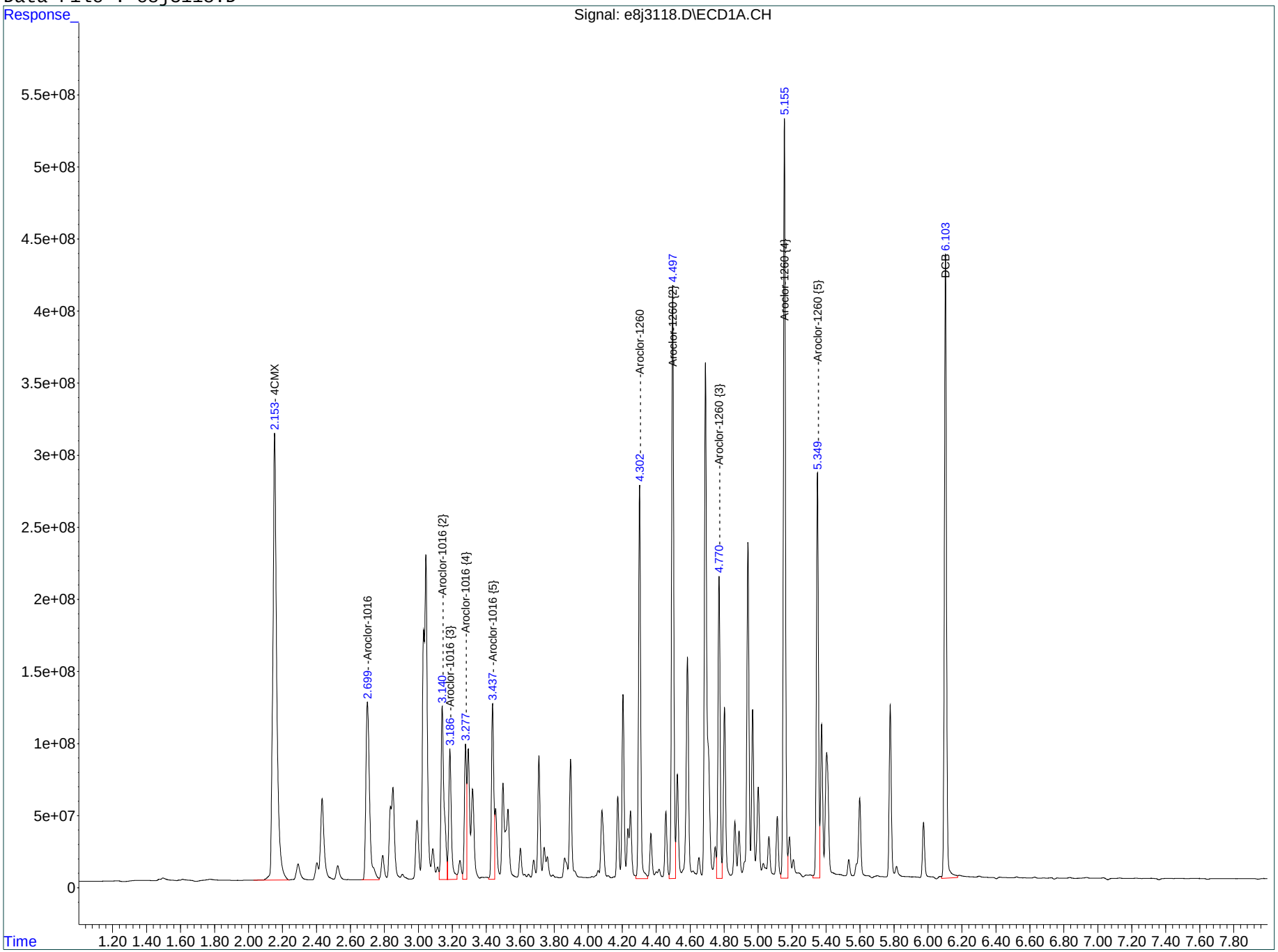
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 01 04:44:10 2016
Quant Method : C:\msdchem\1\DATA\103116.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

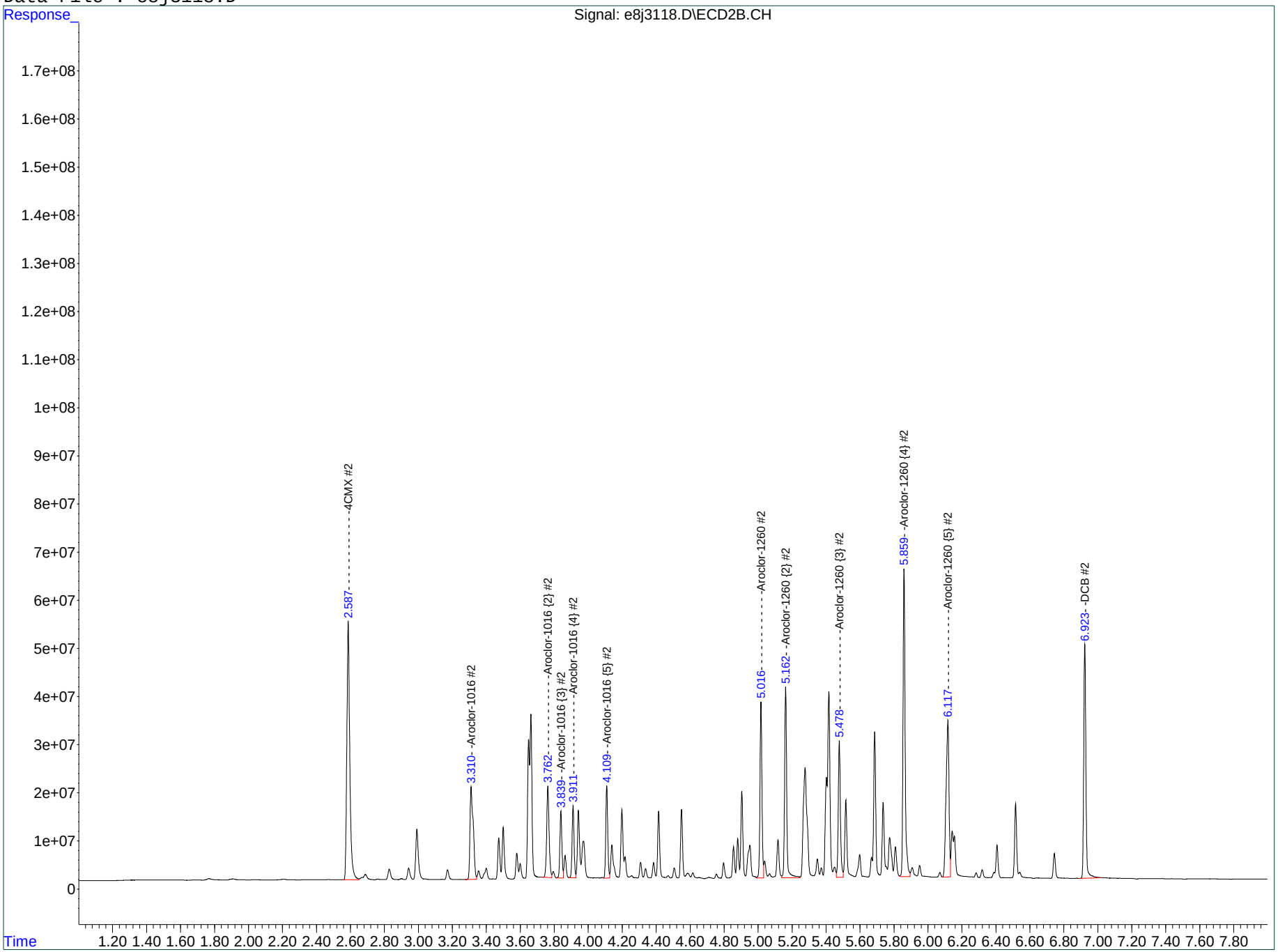
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.154	2.154	0.000	4941870097	102.825	2.587	2.587	0.000	644317416	104.192
DCB	6.103	6.103	0.000	3787028689	98.833	6.923	6.923	0.000	426934104	92.887
Target Compounds										
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.700	2.700	0.000	1871910298	1018.315	3.310	3.310	0.000	253090520	952.441
Aroclor-1016 {2}	3.140	3.140	0.000	1507531048	972.066	3.762	3.762	0.000	185185305	981.928
Aroclor-1016 {3}	3.186	3.186	0.000	978912527	1018.346	3.839	3.839	0.000	113002229	978.141
Aroclor-1016 {4}	3.278	3.278	0.000	810346741	964.675	3.911	3.911	0.000	121094810	960.419
Aroclor-1016 {5}	3.437	3.437	0.000	1160226170	989.483	4.109	4.109	0.000	153697778	971.364
Sum Aroclor-1016				6328926783	4962.885				826070642	4844.293
Average Aroclor-1016					992.577					968.859
Aroclor-1260	4.303	4.303	0.000	2361004568	946.165	5.017	5.017	0.000	293981999	979.203
Aroclor-1260 {2}	4.497	4.497	0.000	3598154615	957.915	5.162	5.162	0.000	339074756	909.783
Aroclor-1260 {3}	4.770	4.770	0.000	1800820346	935.647	5.478	5.478	0.000	244748182	945.680
Aroclor-1260 {4}	5.155	5.155	0.000	4442881331	962.973	5.859	5.859	0.000	559173418	967.464
Aroclor-1260 {5}	5.350	5.350	0.000	2383296777	969.520	6.117	6.117	0.000	389026690	951.104
Sum Aroclor-1260				14586157636	4772.220				1826005046	4753.234
Average Aroclor-1260					954.444					950.647

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3118.D



Data Path : C:\msdchem\1\DATA\103116.B\
Data File : e8j3118.D



Continuing Calibration Summary

Instrument ID: ECD8A.I_1

Client SDG: 409254

Injection Date: 09-NOV-16 05:59

Data File: 110916.B\e8k0903.D

Init. Cal. Date(s): NA

Lab Sample ID WAR160926-60

Method: 110916.B\ECD8_8082_103116.m

Column ID: RTX-CLPEST1

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Aroclor-1016	1838243.38	1976573.04	1000	7.53	20		Averaged
Aroclor-1016(2)	1550853.25	1560841.58	1000	0.64	20		Averaged
Aroclor-1016(3)	961276.94	949529.02	1000	-1.22	20		Averaged
Aroclor-1016(4)	840020.53	808677.87	1000	-3.73	20		Averaged
Aroclor-1016(5)	1172557.47	1167443.81	1000	-0.44	20		Averaged
Aroclor-1260	2495340.53	2305881.02	1000	-7.59	20		Averaged
Aroclor-1260(2)	3756236	3472037.22	1000	-7.57	20		Averaged
Aroclor-1260(3)	1924679.99	1698862.72	1000	-11.73	20		Averaged
Aroclor-1260(4)	4613713.95	4167227.39	1000	-9.68	20		Averaged
Aroclor-1260(5)	2458223.13	2209599.57	1000	-10.11	20		Averaged
4cmx(Surr)	48060926.84	53035137.41	100	10.35	20		Averaged
Decachlorobiphenyl(Surr)	38317356.01	37967787.77	100	-0.91	20		Averaged

Continuing Calibration Summary

Client SDG: 409254

Instrument ID: ECD8A.I_2

Injection Date: 09-NOV-16 05:59

Data File: 110916.B\e8k0903.D

Init. Cal. Date(s): NA

Lab Sample ID WAR160926-60

Method: 110916.B\ECD8_8082_103116.m

Column ID: RTX-CLPEST2

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Aroclor-1016	265728.24	272623.46	1000	2.59	20		Averaged
Aroclor-1016(2)	188593.5	196798.33	1000	4.35	20		Averaged
Aroclor-1016(3)	115527.59	116528.71	1000	0.87	20		Averaged
Aroclor-1016(4)	126085.45	125654.62	1000	-0.34	20		Averaged
Aroclor-1016(5)	158228.81	158417.54	1000	0.12	20		Averaged
Aroclor-1260	300225.87	297481.13	1000	-0.91	20		Averaged
Aroclor-1260(2)	372698.4	356403.56	1000	-4.37	20		Averaged
Aroclor-1260(3)	258806.69	235608.86	1000	-8.96	20		Averaged
Aroclor-1260(4)	577978.37	528066.6	1000	-8.64	20		Averaged
Aroclor-1260(5)	409026.41	350051.82	1000	-14.42	20		Averaged
4cmx(Surr)	6183941.94	6984263.02	100	12.94	20		Averaged
Decachlorobiphenyl(Surr)	4596284.43	4263804.56	100	-7.23	20		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0903.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 05:59 (#1); 09 Nov 2016 5:59 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160926-60|CCV|1|SVA|1|1660
Misc : |MIX[A]
ALS Vial : 3 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

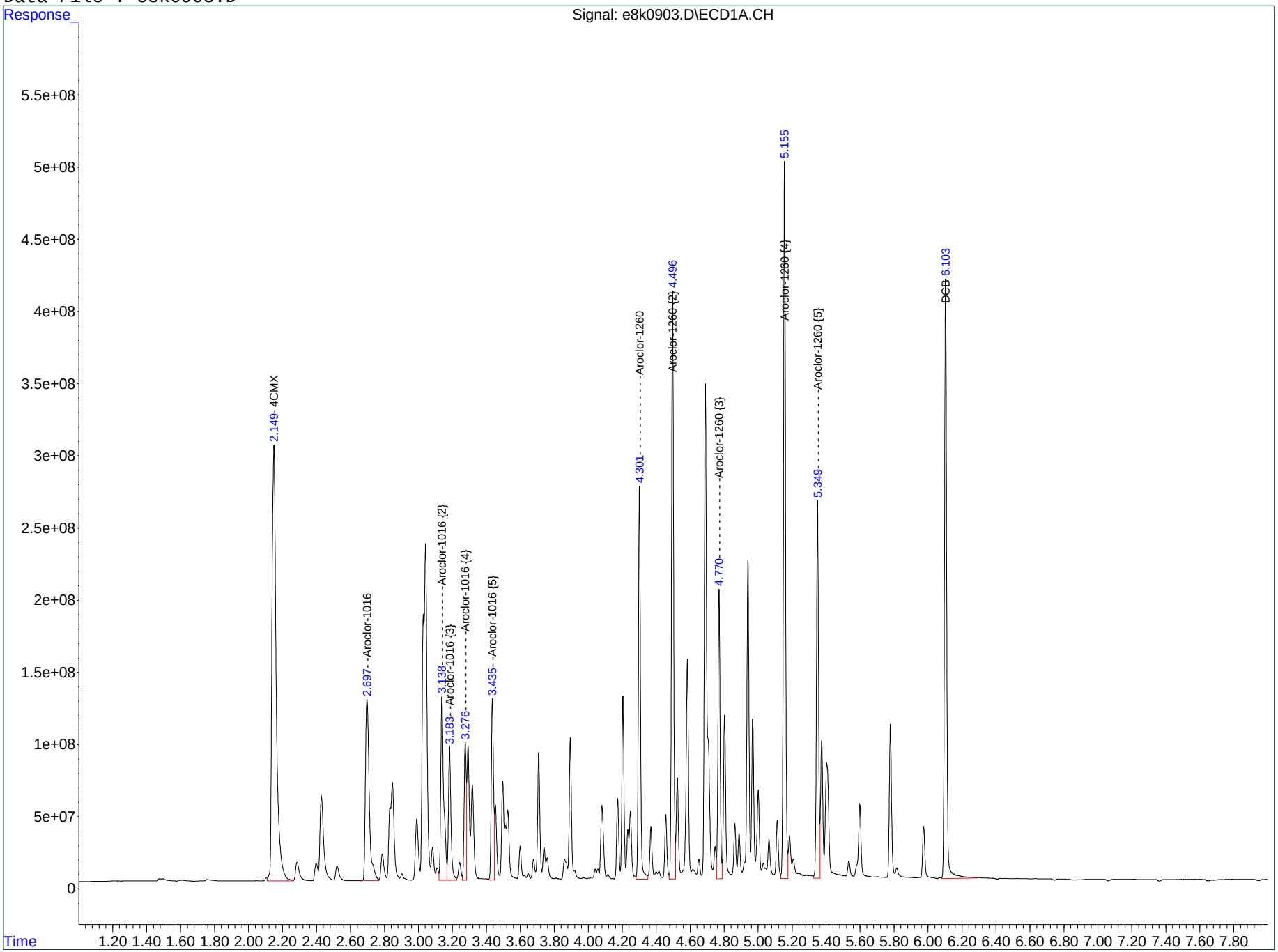
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 06:15:13 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

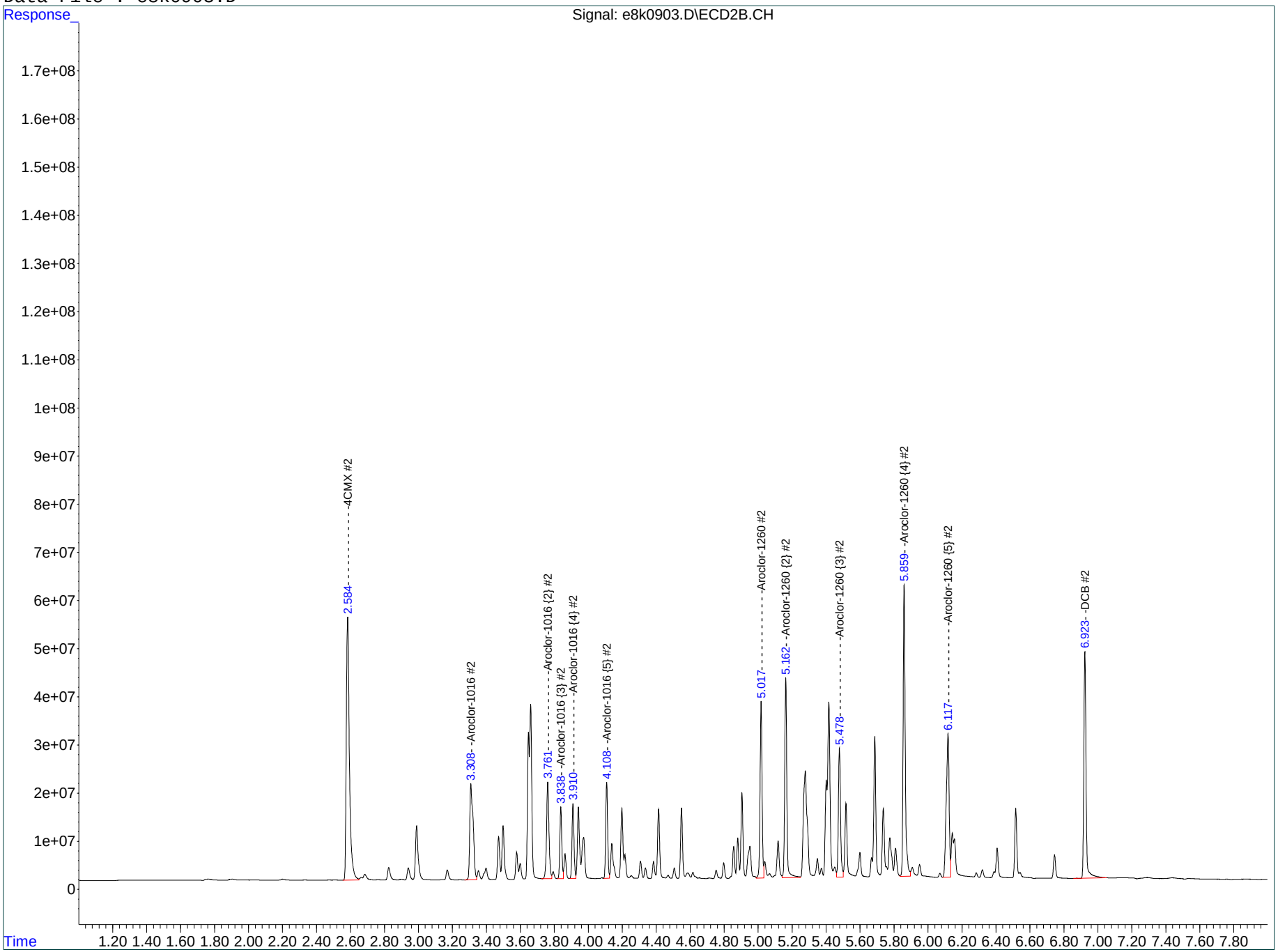
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.150	0.000	5303513741	110.350	2.584	2.584	0.000	698426302	112.942
DCB	6.104	6.104	0.000	3796778777	99.088	6.924	6.924	0.000	426380456	92.766
Target Compounds										
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.698	2.698	0.000	1976573044	1075.251	3.309	3.309	0.000	272623460	1025.948
Aroclor-1016 {2}	3.138	3.138	0.000	1560841584	1006.441	3.762	3.762	0.000	196798333	1043.505
Aroclor-1016 {3}	3.184	3.184	0.000	949529023	987.779	3.838	3.838	0.000	116528709	1008.666
Aroclor-1016 {4}	3.276	3.276	0.000	808677870	962.688	3.910	3.910	0.000	125654621	996.583
Aroclor-1016 {5}	3.436	3.436	0.000	1167443812	995.639	4.109	4.109	0.000	158417539	1001.193
Sum Aroclor-1016				6463065334	5027.797				870022663	5075.895
Average Aroclor-1016					1005.559					1015.179
Aroclor-1260	4.301	4.301	0.000	2305881017	924.075	5.018	5.018	0.000	297481128	990.858
Aroclor-1260 {2}	4.496	4.496	0.000	3472037222	924.339	5.163	5.163	0.000	356403558	956.279
Aroclor-1260 {3}	4.770	4.770	0.000	1698862716	882.673	5.479	5.479	0.000	235608858	910.366
Aroclor-1260 {4}	5.155	5.155	0.000	4167227390	903.226	5.859	5.859	0.000	528066600	913.644
Aroclor-1260 {5}	5.350	5.350	0.000	2209599569	898.860	6.118	6.118	0.000	350051824	855.817
Sum Aroclor-1260				13853607915	4533.174				1767611968	4626.964
Average Aroclor-1260					906.635					925.393

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0903.D



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0903.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0904.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 06:11 (#1); 09 Nov 2016 6:11 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160721-54|CCV|1|SVA|1|1254
Misc : |MIX[B]
ALS Vial : 4 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

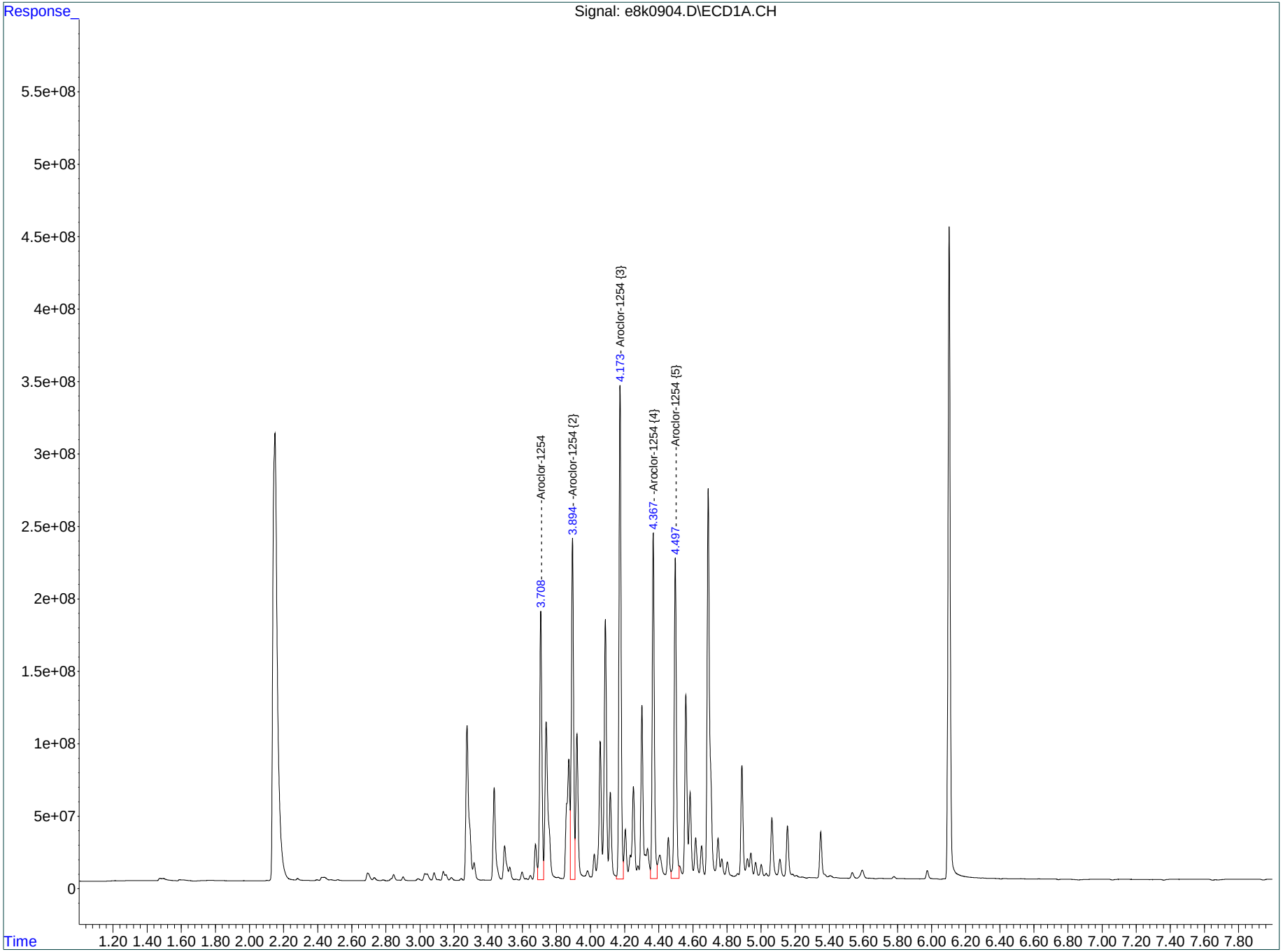
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 06:21:02 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

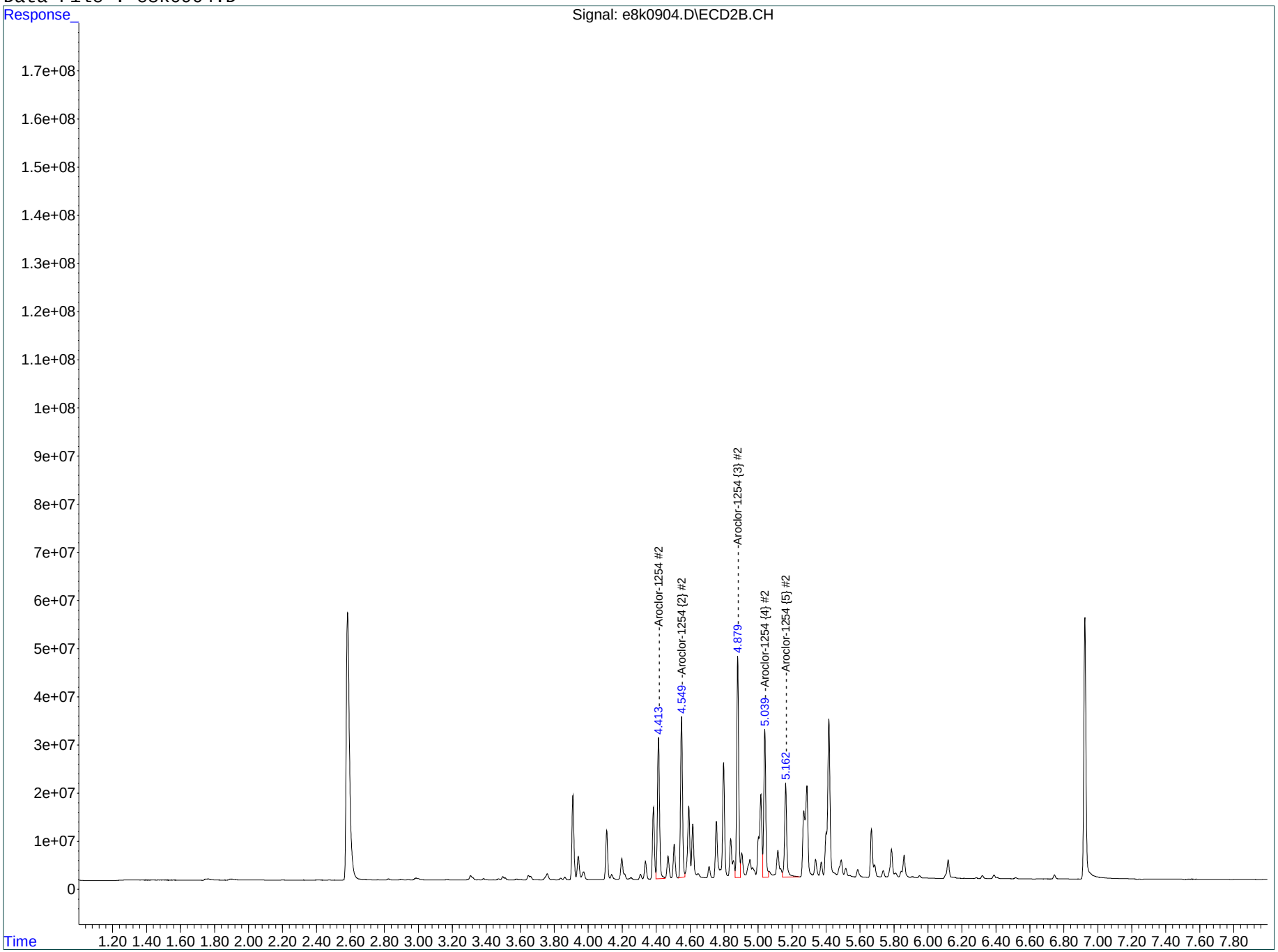
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
Target Compounds										
Aroclor-1254	3.708	3.708	0.000	1659238306	1014.234	4.414	4.414	0.000	251745172	1004.956
Aroclor-1254 {2}	3.894	3.894	0.000	2104122886	1016.300	4.550	4.550	0.000	266593137	995.126
Aroclor-1254 {3}	4.173	4.173	0.000	2880783453	1010.084	4.880	4.880	0.000	364262638	998.369
Aroclor-1254 {4}	4.368	4.368	0.000	2070734528	999.388	5.039	5.039	0.000	252583117	978.012
Aroclor-1254 {5}	4.497	4.497	0.000	2005333295	925.749	5.162	5.162	0.000	169098880	981.523
Sum Aroclor-1254				10720212468	4965.755				1304282945	4957.986
Average Aroclor-1254					993.151					991.597

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0904.D



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0904.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0905.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 06:24 (#1); 09 Nov 2016 6:24 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160728-42|CCV|1|SVA|1|1242
Misc : |MIX[D]
ALS Vial : 5 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

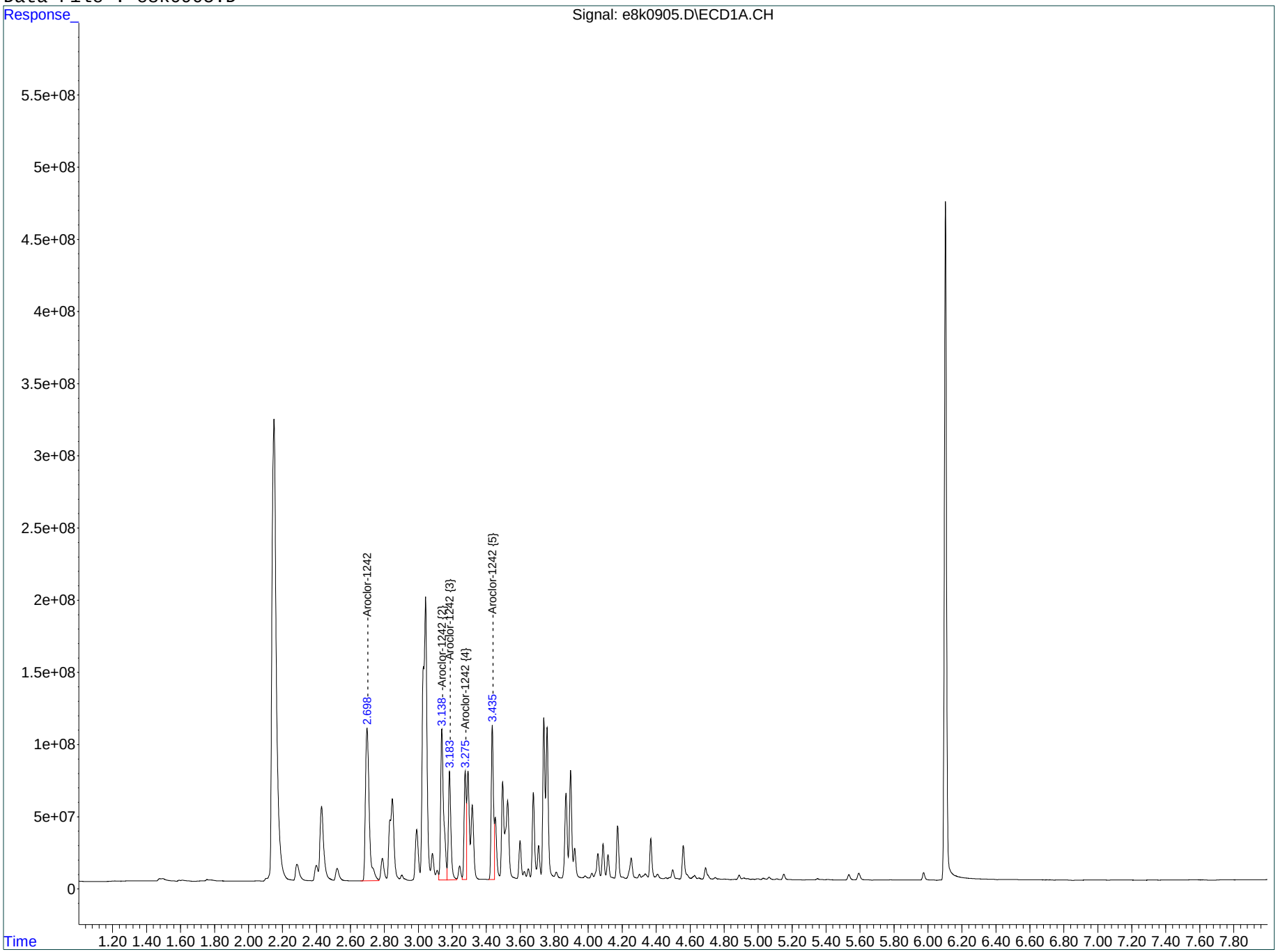
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 06:56:52 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

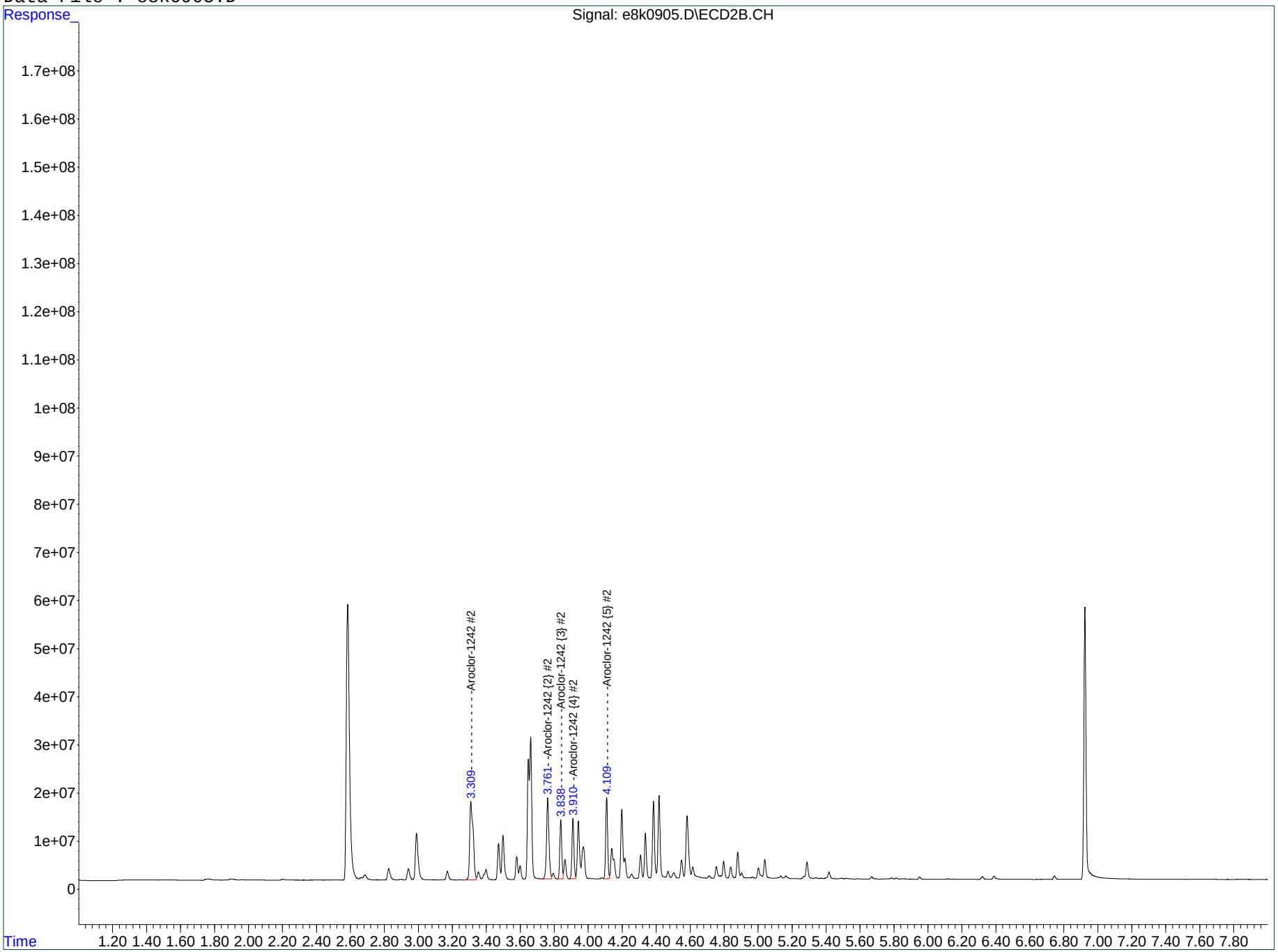
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
Target Compounds										
Aroclor-1242	2.698	2.698	0.000	1643575206	1027.238	3.309	3.309	0.000	227656083	1024.956
Aroclor-1242 {2}	3.138	3.138	0.000	1287422993	1026.022	3.761	3.761	0.000	165387705	1054.231
Aroclor-1242 {3}	3.184	3.184	0.000	773885518	986.173	3.839	3.839	0.000	97218759	1025.152
Aroclor-1242 {4}	3.276	3.276	0.000	635890706	985.916	3.910	3.910	0.000	99857406	994.447
Aroclor-1242 {5}	3.435	3.435	0.000	982926139	1008.515	4.109	4.109	0.000	135292705	1015.144
Sum Aroclor-1242				5323700562	5033.863				725412657	5113.929
Average Aroclor-1242					1006.773					1022.786

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0905.D



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0905.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0906.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 06:36 (#1); 09 Nov 2016 6:36 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160728-48|CCV|1|SVA|1|1248
Misc : |MIX[E]
ALS Vial : 6 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

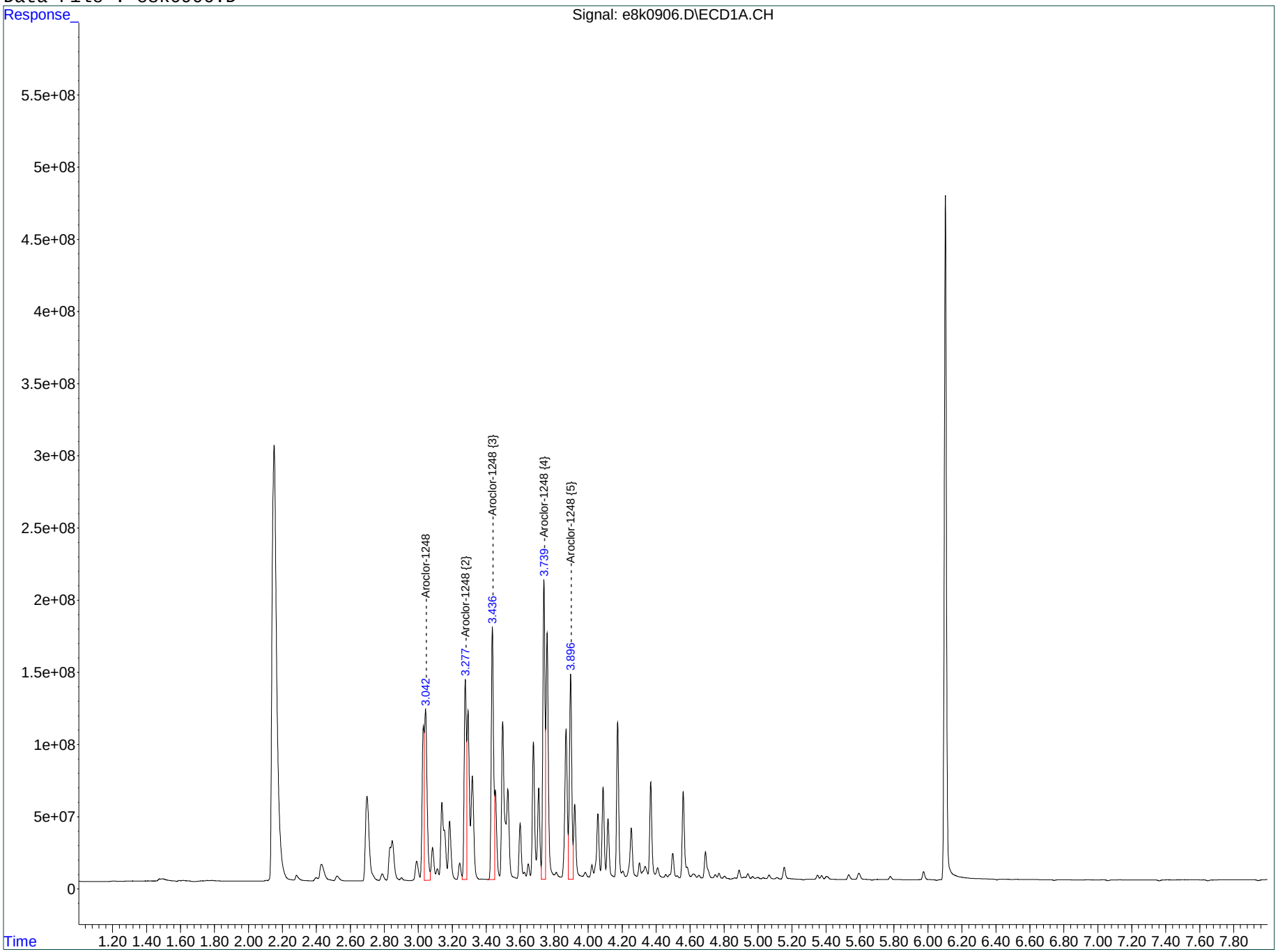
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 06:57:26 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

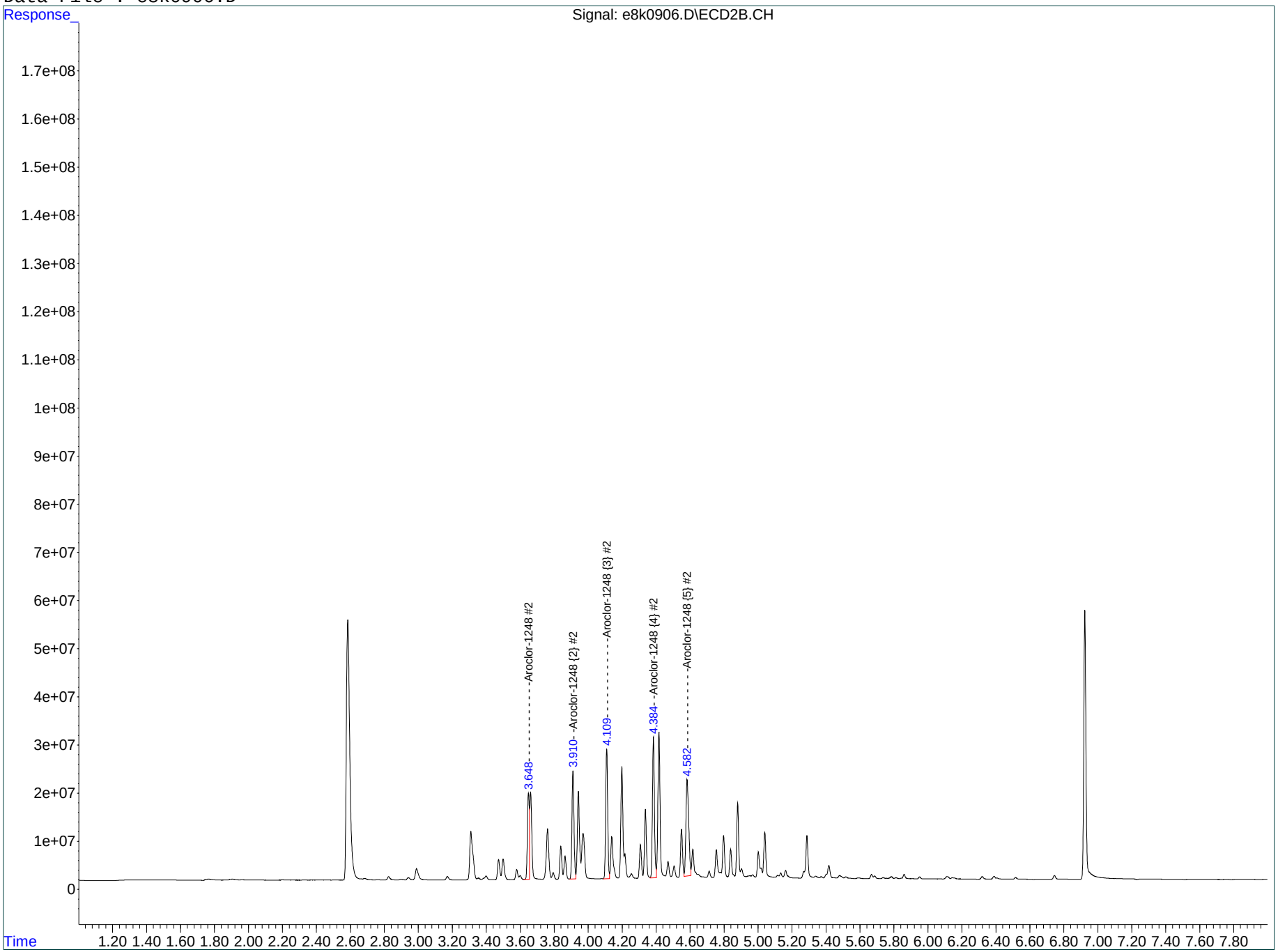
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
Target Compounds										
Aroclor-1248	3.043	3.043	0.000	1276465976	1194.239	3.648	3.648	0.000	138748632	1074.820
Aroclor-1248 {2}	3.277	3.277	0.000	1245355785	1066.765	3.911	3.911	0.000	186876551	1068.866
Aroclor-1248 {3}	3.436	3.436	0.000	1642000329	1069.353	4.109	4.109	0.000	221375337	1068.211
Aroclor-1248 {4}	3.740	3.740	0.000	1818044380	1045.022	4.384	4.384	0.000	234232508	1029.557
Aroclor-1248 {5}	3.897	3.897	0.000	1348320304	970.921	4.582	4.582	0.000	228485710	991.206
Sum Aroclor-1248				7330186773	5346.300				1009718738	5232.660
Average Aroclor-1248					1069.260					1046.532

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0906.D



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0906.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0909.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 07:13 (#1); 09 Nov 2016 7:13 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160809-32|CCV|1|SVA|1|1232
Misc : |MIX[F]
ALS Vial : 9 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

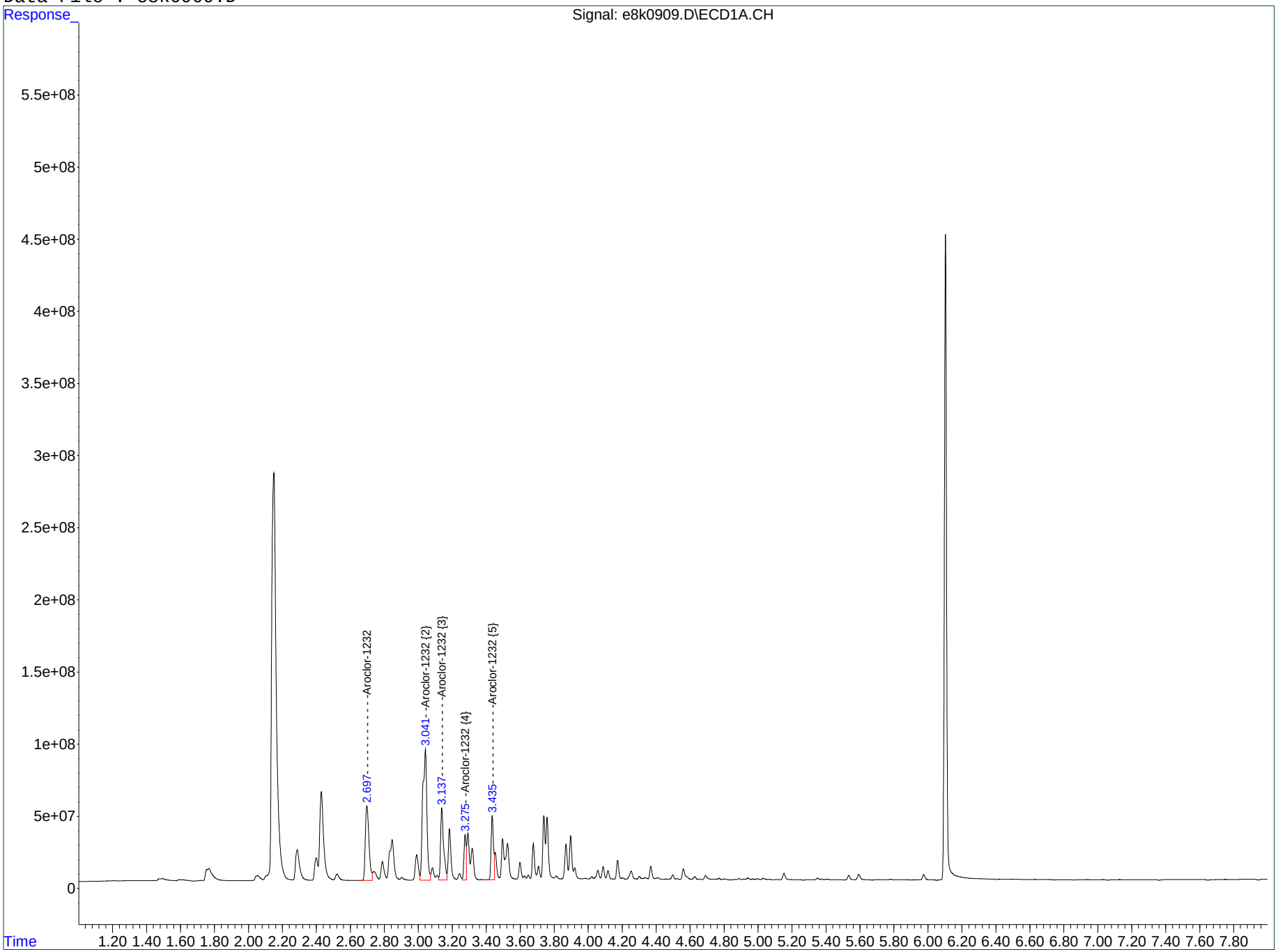
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 10:06:56 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

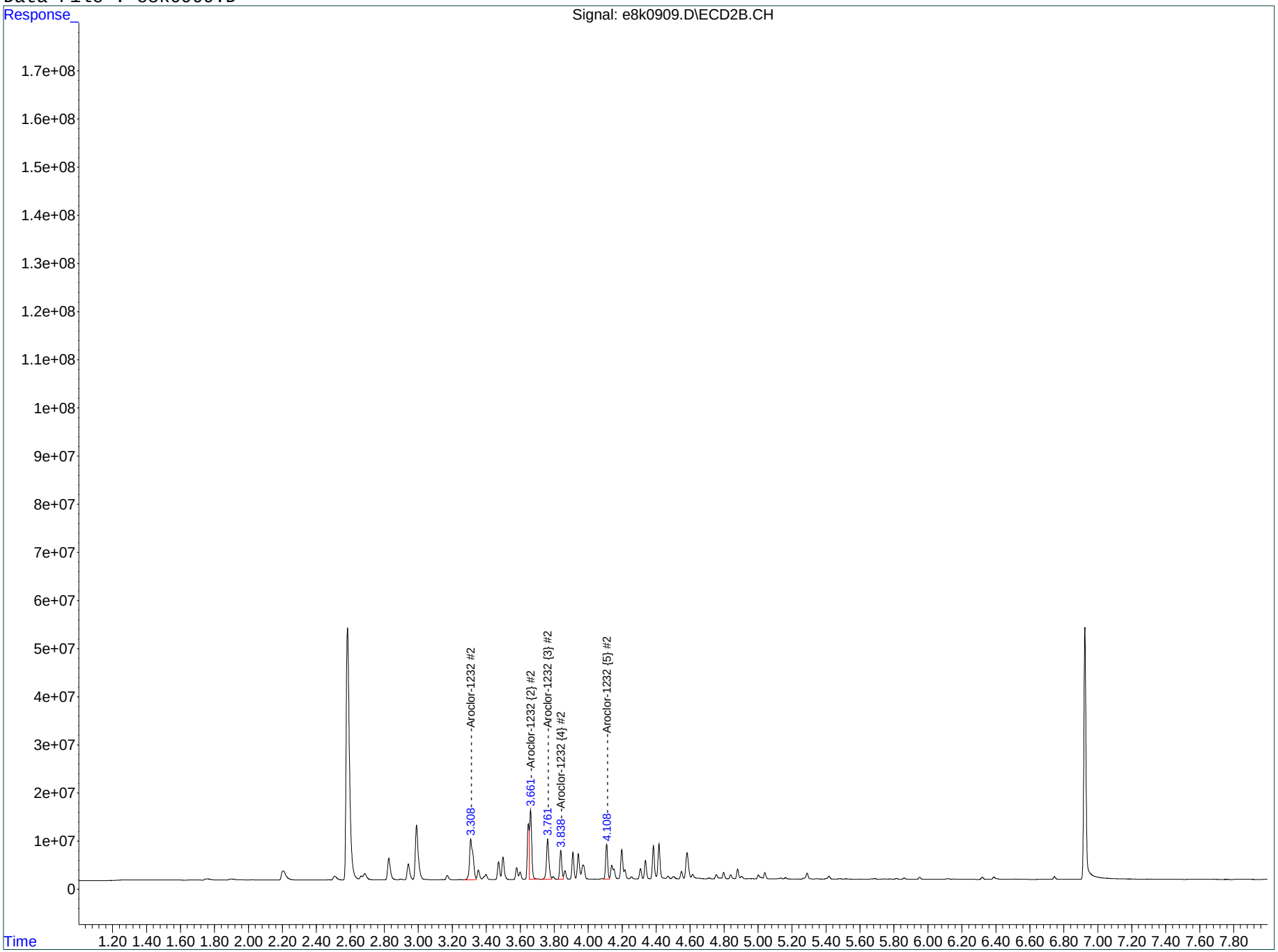
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
Target Compounds										
Aroclor-1232	2.697	2.697	0.000	765514025	2649.890 A	3.308	3.308	0.000	119601195	1331.057 A
Aroclor-1232 {2}	3.042	3.042	0.000	1530484536	4279.190 A	3.661	3.661	0.000	123273267	1338.922 A
Aroclor-1232 {3}	3.138	3.138	0.000	621450964	2553.138 A	3.761	3.761	0.000	82331121	1292.865 A
Aroclor-1232 {4}	3.276	3.276	0.000	269669187	2428.286 A	3.839	3.839	0.000	48885924	1223.995 A
Aroclor-1232 {5}	3.435	3.435	0.000	425562392	2552.479 A	4.109	4.109	0.000	59432574	1249.215 A
Sum Aroclor-1232				3612681104	14462.983				433524080	6436.054 #
Average Aroclor-1232					2892.597					1287.211 #

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0909.D



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0909.D



Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0910.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 07:25 (#1); 09 Nov 2016 7:25 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160628-21|CCV|1|SVA|1|1221
Misc : |MIX[J]
ALS Vial : 10 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

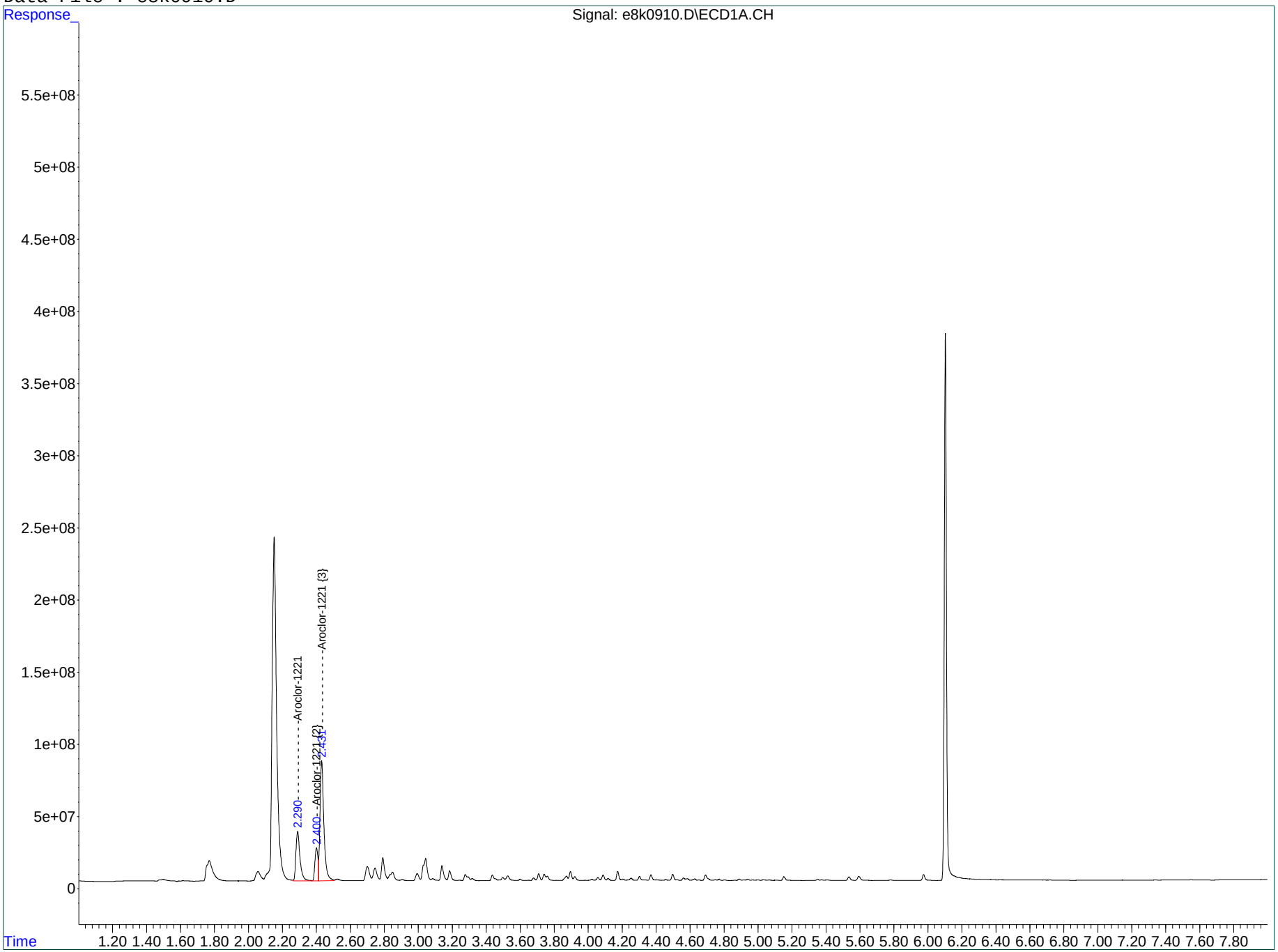
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 10:07:41 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

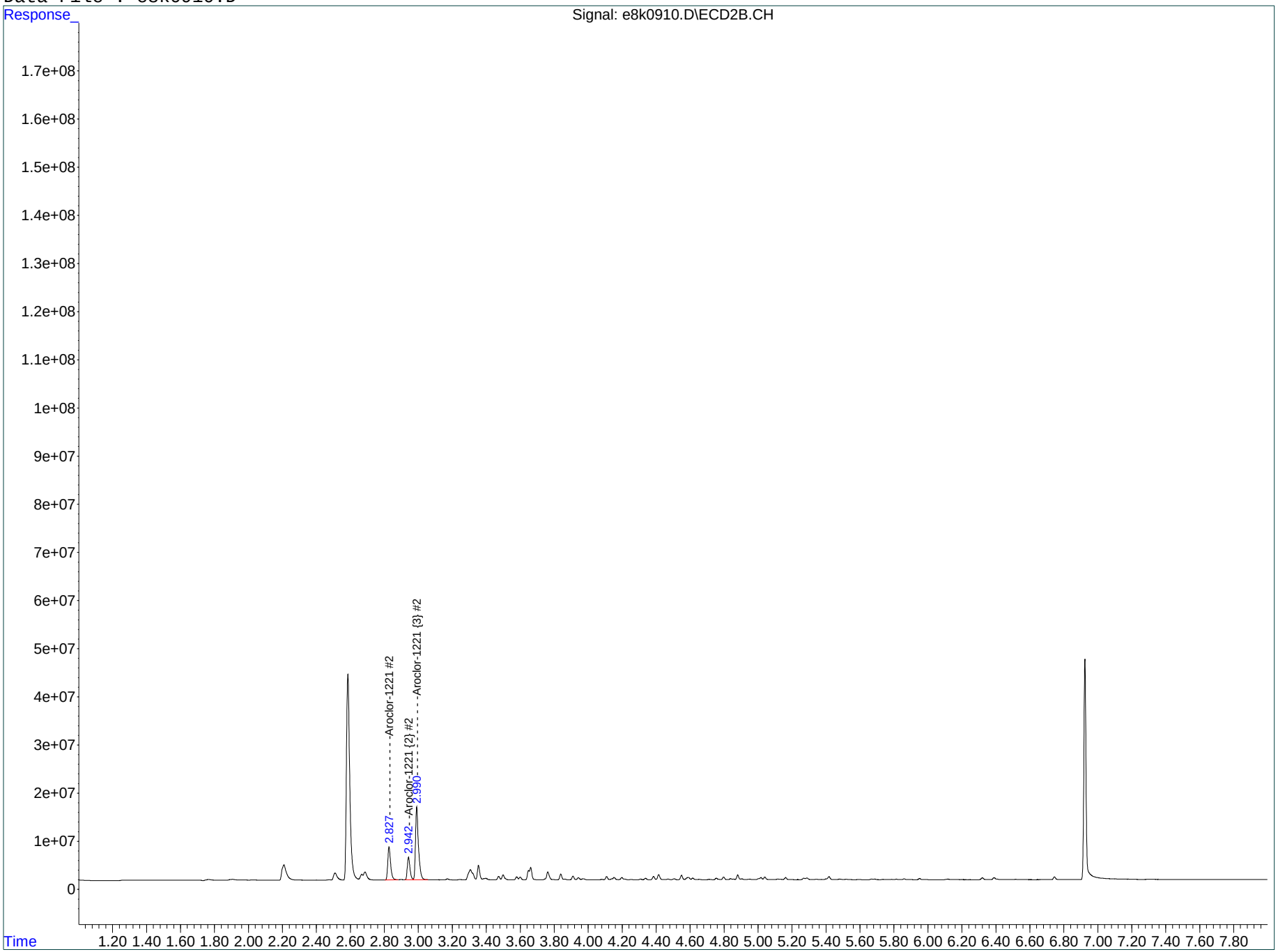
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
Target Compounds										
Aroclor-1221	2.290	2.290	0.000	571085460	2592.043 A	2.828	2.828	0.000	79724600	1296.604 A
Aroclor-1221 {2}	2.401	2.401	0.000	271297240	2249.100 A	2.943	2.943	0.000	51332175	1306.023 A
Aroclor-1221 {3}	2.432	2.432	0.000	1317261914	2628.640 A	2.991	2.991	0.000	181778285	1285.092 A
Sum Aroclor-1221				2159644614	7469.784				312835060	3887.719 #
Average Aroclor-1221					2489.928					1295.906 #

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0910.D



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0910.D



Continuing Calibration Summary

Instrument ID: ECD8A.I_1

Client SDG: 409254

Injection Date: 09-NOV-16 10:21

Data File: 110916.B\e8k0922.D

Init. Cal. Date(s): NA

Lab Sample ID WAR160926-60

Method: 110916.B\ECD8_8082_103116.m

Column ID: RTX-CLPEST1

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Aroclor-1016	1838243.38	1966198.11	1000	6.96	20		Averaged
Aroclor-1016(2)	1550853.25	1580050.46	1000	1.88	20		Averaged
Aroclor-1016(3)	961276.94	972780.33	1000	1.2	20		Averaged
Aroclor-1016(4)	840020.53	906781.57	1000	7.95	20		Averaged
Aroclor-1016(5)	1172557.47	1186254.62	1000	1.17	20		Averaged
Aroclor-1260	2495340.53	2338202.74	1000	-6.3	20		Averaged
Aroclor-1260(2)	3756236	3594997.55	1000	-4.29	20		Averaged
Aroclor-1260(3)	1924679.99	1743366.07	1000	-9.42	20		Averaged
Aroclor-1260(4)	4613713.95	4322414.67	1000	-6.31	20		Averaged
Aroclor-1260(5)	2458223.13	2324285.64	1000	-5.45	20		Averaged
4cmx(Surr)	48060926.84	52911032.54	100	10.09	20		Averaged
Decachlorobiphenyl(Surr)	38317356.01	40030142.56	100	4.47	20		Averaged

Continuing Calibration Summary

Client SDG: 409254

Instrument ID: ECD8A.I_2

Injection Date: 09-NOV-16 10:21

Data File: 110916.B\e8k0922.D

Init. Cal. Date(s): NA

Lab Sample ID WAR160926-60

Method: 110916.B\ECD8_8082_103116.m

Column ID: RTX-CLPEST2

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Aroclor-1016	265728.24	278015.66	1000	4.62	20		Averaged
Aroclor-1016(2)	188593.5	204825.48	1000	8.61	20		Averaged
Aroclor-1016(3)	115527.59	123678.52	1000	7.06	20		Averaged
Aroclor-1016(4)	126085.45	131519.35	1000	4.31	20		Averaged
Aroclor-1016(5)	158228.81	167141	1000	5.63	20		Averaged
Aroclor-1260	300225.87	307466.3	1000	2.41	20		Averaged
Aroclor-1260(2)	372698.4	367962.25	1000	-1.27	20		Averaged
Aroclor-1260(3)	258806.69	244090.98	1000	-5.69	20		Averaged
Aroclor-1260(4)	577978.37	557969.62	1000	-3.46	20		Averaged
Aroclor-1260(5)	409026.41	386990.16	1000	-5.39	20		Averaged
4cmx(Surr)	6183941.94	6988828.31	100	13.02	20		Averaged
Decachlorobiphenyl(Surr)	4596284.43	4817851.73	100	4.82	20		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0922.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 10:21 (#1); 09 Nov 2016 10:21 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160926-60|CCV|1|SVA|1|1660
Misc : |MIX[A]
ALS Vial : 22 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 10:37:00 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

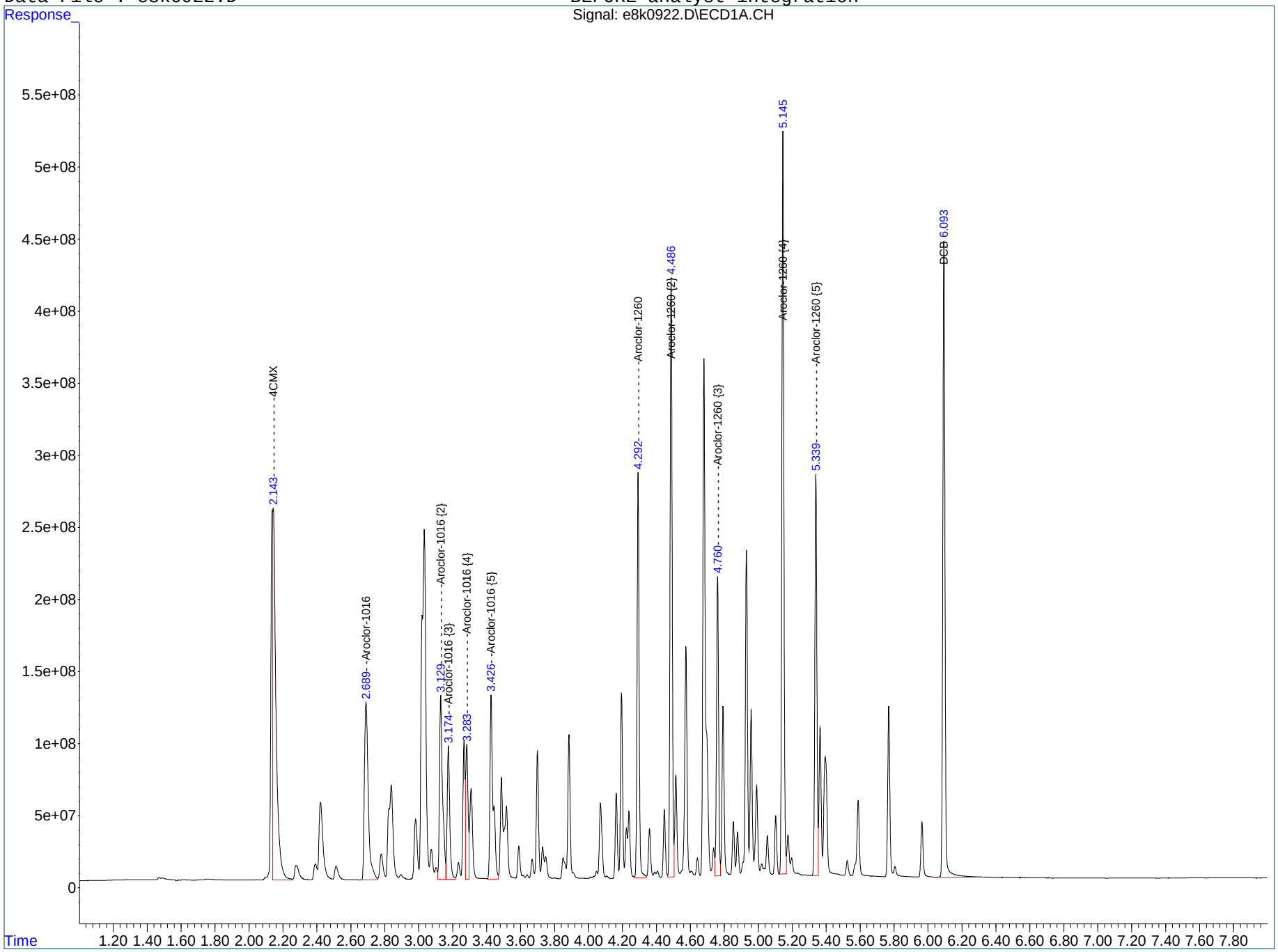
Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.143	-0.007	5291103254	110.092m	2.584	2.583	-0.001	698882831	113.016
DCB	6.104	6.093	-0.011	4003014256	104.470	6.924	6.920	-0.004	481785173	104.821
Target Compounds										
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.698	2.689	-0.009	1966198111	1069.607	3.309	3.308	-0.001	278015656	1046.241
Aroclor-1016 {2}	3.138	3.129	-0.009	1580050463	1018.827	3.762	3.759	-0.003	204825482	1086.069
Aroclor-1016 {3}	3.184	3.174	-0.010	972780334	1011.967	3.838	3.836	-0.002	123678518	1070.554
Aroclor-1016 {4}	3.276	3.283	0.007	906781569	1079.475	3.910	3.908	-0.002	131519347	1043.097
Aroclor-1016 {5}	3.436	3.426	-0.010	1186254619	1011.681m	4.109	4.106	-0.003	167141001	1056.325
Sum Aroclor-1016				6612065096	5191.557				905180003	5302.285
Average Aroclor-1016					1038.311					1060.457
Aroclor-1260	4.301	4.292	-0.009	2338202738	937.028	5.018	5.013	-0.005	307466302	1024.117
Aroclor-1260 {2}	4.496	4.487	-0.009	3594997551	957.074	5.163	5.159	-0.004	367962250	987.292
Aroclor-1260 {3}	4.770	4.760	-0.010	1743366065	905.795	5.479	5.474	-0.005	244090979	943.140
Aroclor-1260 {4}	5.155	5.145	-0.010	4322414665	936.862	5.859	5.855	-0.004	557969617	965.381
Aroclor-1260 {5}	5.350	5.340	-0.010	2324285643	945.515	6.118	6.113	-0.005	386990162	946.125
Sum Aroclor-1260				14323266661	4682.274				1864479311	4866.056
Average Aroclor-1260					936.455					973.211

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

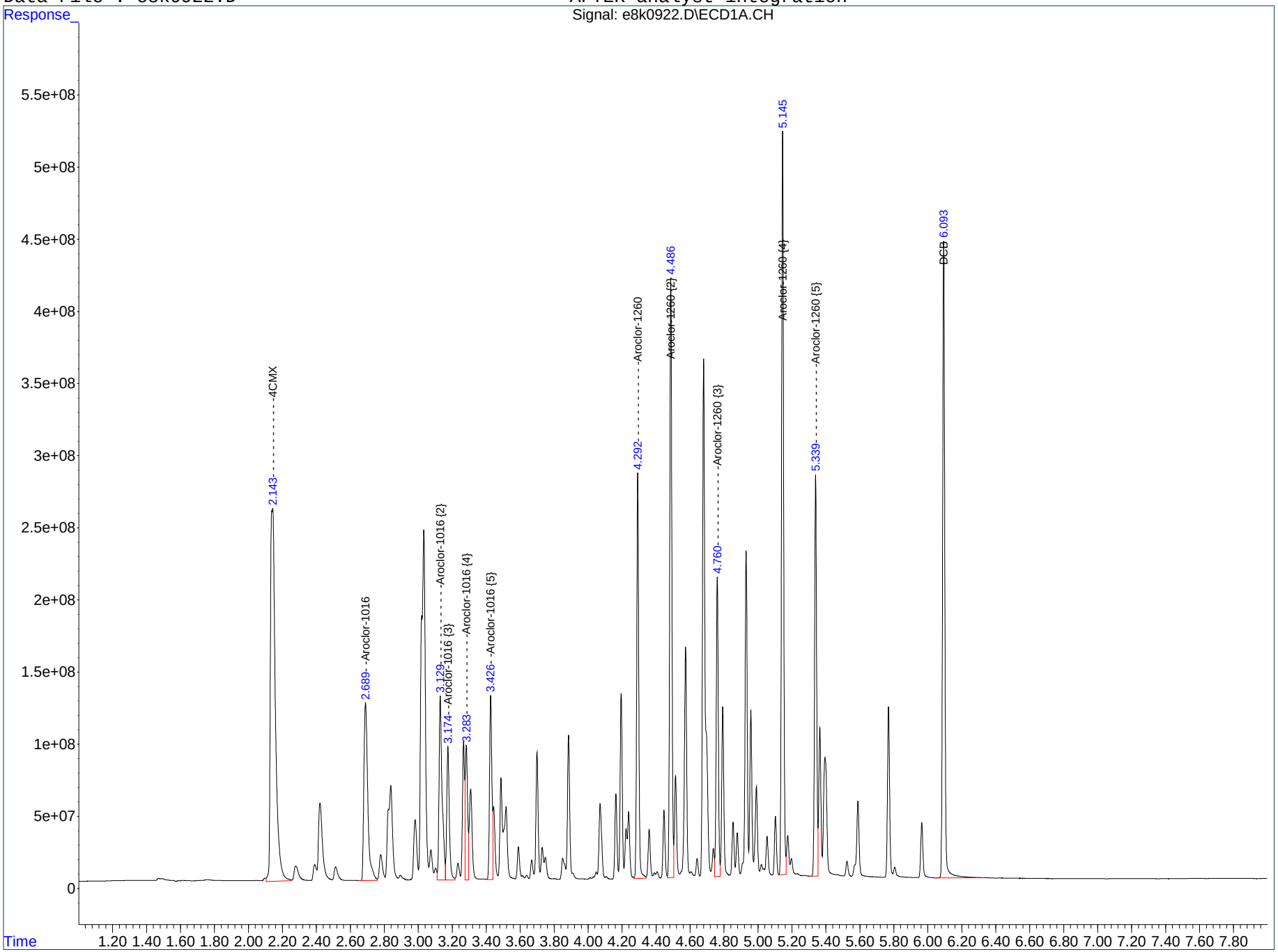
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0922.D

BEFORE analyst integration

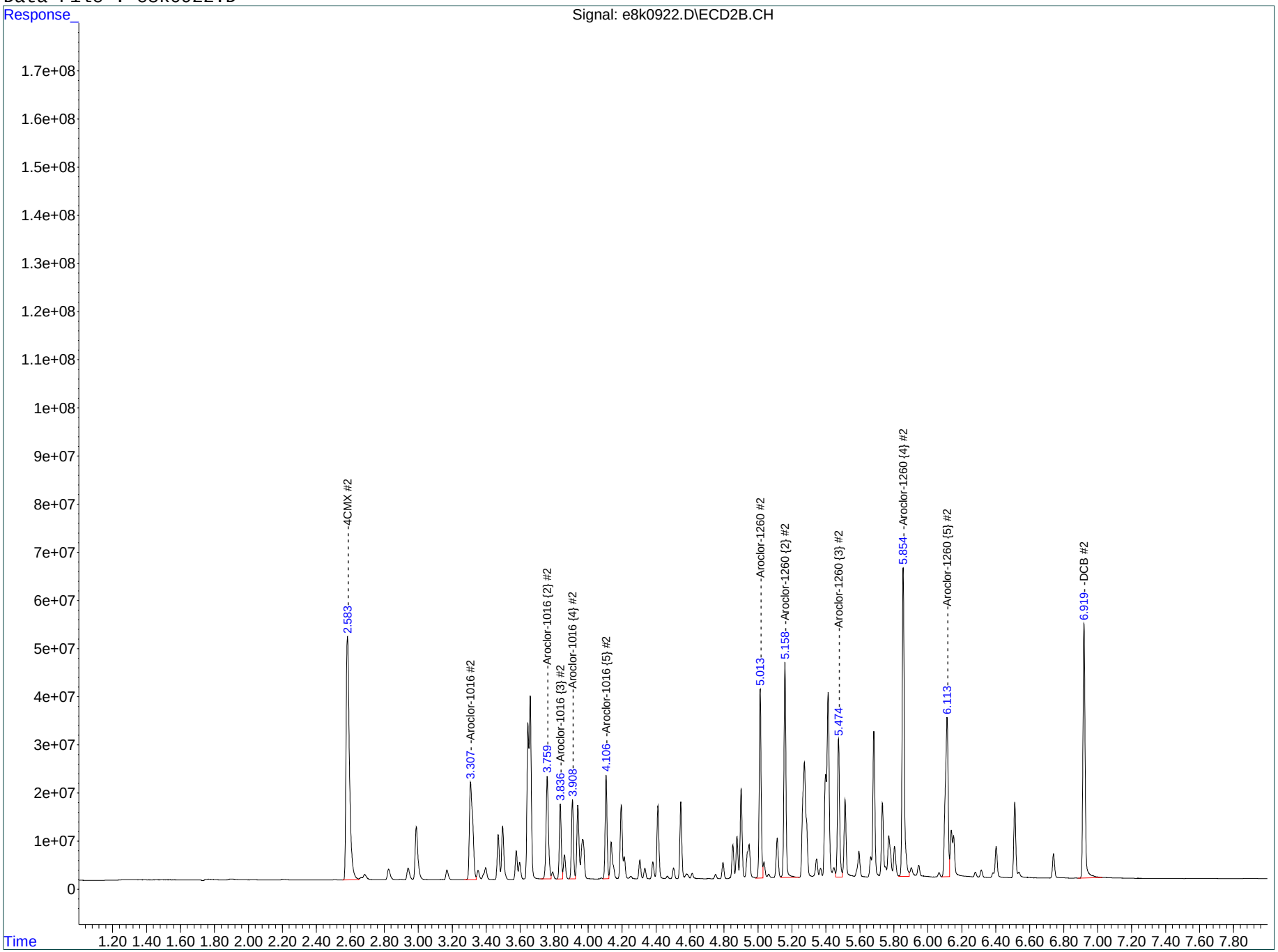


Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0922.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0922.D



Continuing Calibration Summary

Instrument ID: ECD8A.I_1

Client SDG: 409254

Injection Date: 09-NOV-16 12:12

Data File: 110916.B\e8k0930.D

Init. Cal. Date(s): NA

Lab Sample ID WAR160926-60

Method: 110916.B\ECD8_8082_103116.m

Column ID: RTX-CLPEST1

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Aroclor-1016	1838243.38	1971700.5	1000	7.26	20		Averaged
Aroclor-1016(2)	1550853.25	1567067.13	1000	1.05	20		Averaged
Aroclor-1016(3)	961276.94	958269.7	1000	-0.31	20		Averaged
Aroclor-1016(4)	840020.53	803678.08	1000	-4.33	20		Averaged
Aroclor-1016(5)	1172557.47	1186506.11	1000	1.19	20		Averaged
Aroclor-1260	2495340.53	2349730.52	1000	-5.84	20		Averaged
Aroclor-1260(2)	3756236	3587433.99	1000	-4.49	20		Averaged
Aroclor-1260(3)	1924679.99	1758808.7	1000	-8.62	20		Averaged
Aroclor-1260(4)	4613713.95	4370207.51	1000	-5.28	20		Averaged
Aroclor-1260(5)	2458223.13	2329394.74	1000	-5.24	20		Averaged
4cmx(Surr)	48060926.84	53151361.49	100	10.59	20		Averaged
Decachlorobiphenyl(Surr)	38317356.01	39982438.78	100	4.35	20		Averaged

Continuing Calibration Summary

Client SDG: 409254

Instrument ID: ECD8A.I_2

Injection Date: 09-NOV-16 12:12

Data File: 110916.B\e8k0930.D

Init. Cal. Date(s): NA

Lab Sample ID WAR160926-60

Method: 110916.B\ECD8_8082_103116.m

Column ID: RTX-CLPEST2

Quant Type: ESTD

Compound	AVECF / Amount	CF CCV	Nominal CCV	%D / %Drift	Max	Drift Q	Curve Type
Aroclor-1016	265728.24	279167.88	1000	5.06	20		Averaged
Aroclor-1016(2)	188593.5	204495.28	1000	8.43	20		Averaged
Aroclor-1016(3)	115527.59	123552.71	1000	6.95	20		Averaged
Aroclor-1016(4)	126085.45	131282.84	1000	4.12	20		Averaged
Aroclor-1016(5)	158228.81	165646.19	1000	4.69	20		Averaged
Aroclor-1260	300225.87	297519.29	1000	-0.9	20		Averaged
Aroclor-1260(2)	372698.4	363279.92	1000	-2.53	20		Averaged
Aroclor-1260(3)	258806.69	242497.27	1000	-6.3	20		Averaged
Aroclor-1260(4)	577978.37	552886.38	1000	-4.34	20		Averaged
Aroclor-1260(5)	409026.41	375231.18	1000	-8.26	20		Averaged
4cmx(Surr)	6183941.94	7111960.45	100	15.01	20		Averaged
Decachlorobiphenyl(Surr)	4596284.43	4574737.46	100	-0.47	20		Averaged

Quantitation Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0930.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 12:12 (#1); 09 Nov 2016 12:12 (#2)
Operator : JXM InstName : ECD8
Sample : |WAR160926-60|CCV|1|SVA|1|1660
Misc : |MIX[A]
ALS Vial : 30 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

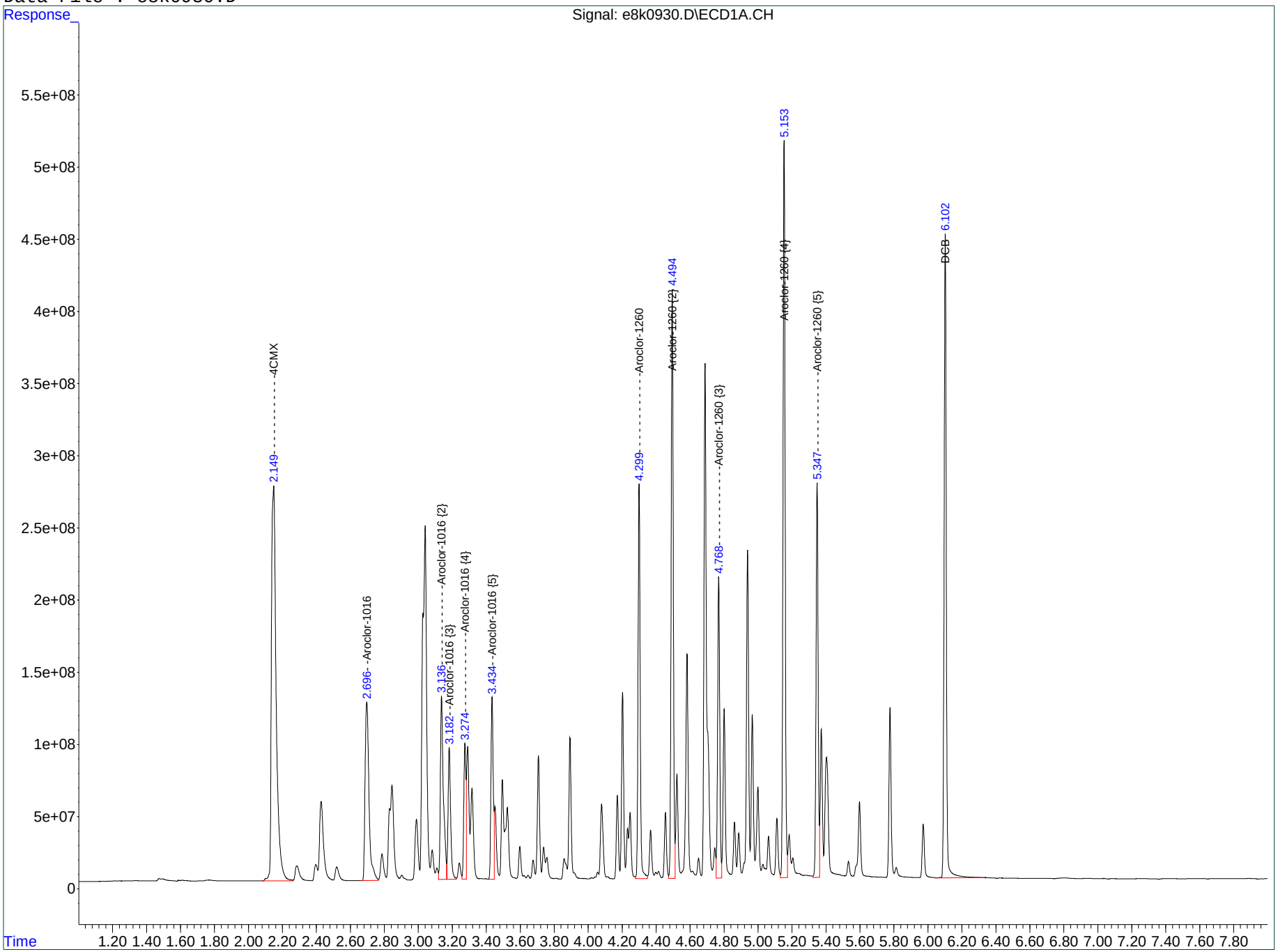
Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 12:26:24 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

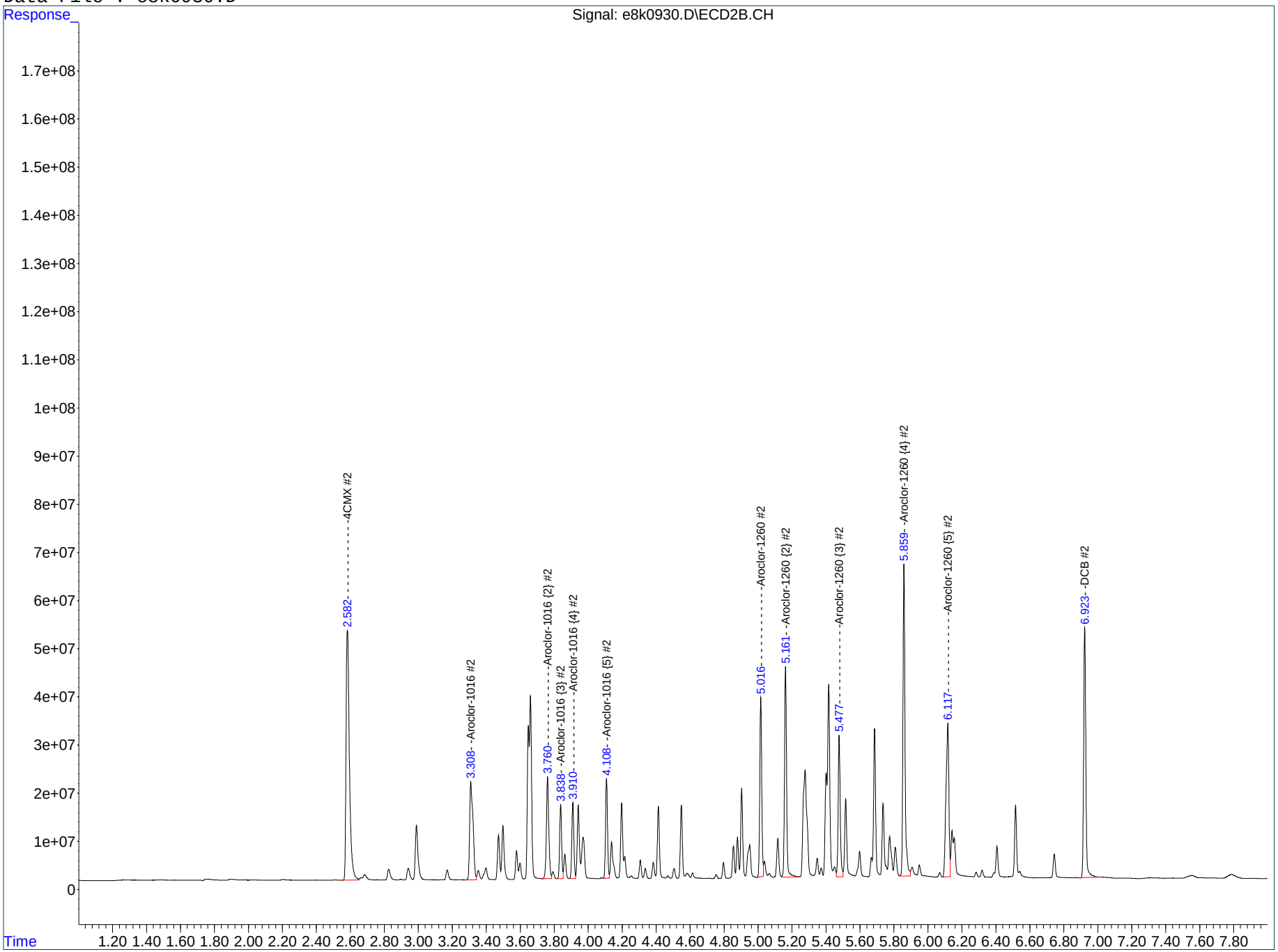
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.149	-0.001	5315136149	110.592	2.584	2.583	-0.001	711196045	115.007
DCB	6.104	6.102	-0.002	3998243878	104.346	6.924	6.923	-0.001	457473746	99.531
Target Compounds										
Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.698	2.696	-0.002	1971700500	1072.600	3.309	3.309	0.000	279167881	1050.577
Aroclor-1016 {2}	3.138	3.137	-0.001	1567067127	1010.455	3.762	3.761	-0.001	204495278	1084.318
Aroclor-1016 {3}	3.184	3.182	-0.002	958269695	996.872	3.838	3.838	0.000	123552713	1069.465
Aroclor-1016 {4}	3.276	3.274	-0.002	803678083	956.736	3.910	3.910	0.000	131282835	1041.221
Aroclor-1016 {5}	3.436	3.434	-0.002	1186506110	1011.896	4.109	4.108	-0.001	165646189	1046.878
Sum Aroclor-1016				6487221515	5048.559				904144896	5292.458
Average Aroclor-1016					1009.712					1058.492
Aroclor-1260	4.301	4.300	-0.001	2349730519	941.647	5.018	5.016	-0.002	297519292	990.985
Aroclor-1260 {2}	4.496	4.495	-0.001	3587433994	955.061	5.163	5.162	-0.001	363279919	974.729
Aroclor-1260 {3}	4.770	4.768	-0.002	1758808697	913.819	5.479	5.477	-0.002	242497274	936.982
Aroclor-1260 {4}	5.155	5.154	-0.001	4370207514	947.221	5.859	5.859	0.000	552886383	956.587
Aroclor-1260 {5}	5.350	5.348	-0.002	2329394738	947.593	6.118	6.117	-0.001	375231183	917.376
Sum Aroclor-1260				14395575462	4705.341				1831414051	4776.659
Average Aroclor-1260					941.068					955.332

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0930.D



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0930.D



Lab Name: GEL Laboratories LLC **Client SDG:** 409254

GC Column: RTX-CLPEST1

Instrument ID: ECD8A.

Analytical Sequence for Performance Evaluation Mixtures, Blanks, Samples, and Standards is given below:

Mean Surrogate RT From Initial Calibration: **RT Range Based on Calibration Verification:**				2.15 2.12 2.18 #	6.1 6.07 6.13 #
File	**Sample Number**	**Lab Sample ID**	**Analysis Date**	**4cmx**	**Decachlorobiphenyl**
e8j3113.D	ICAL	WAR161031-01	31-OCT-16 09:17	2.16	6.11
e8j3114.D	ICAL	WAR161031-02	31-OCT-16 09:30	2.15	6.11
e8j3115.D	ICAL	WAR161031-03	31-OCT-16 09:42	2.15	6.1
e8j3116.D	ICAL	WAR161031-04	31-OCT-16 09:54	2.15	6.1
e8j3117.D	ICAL	IAR160926-01	31-OCT-16 10:07	2.15	6.1
e8j3118.D	ICV	WAR160926-60	31-OCT-16 10:19	2.15	6.1

Column used to flag retention time values with an asterisk.

Lab Name: GEL Laboratories LLC **Client SDG:** 409254

GC Column: RTX-CLPEST2

Instrument ID: ECD8A.

Analytical Sequence for Performance Evaluation Mixtures, Blanks, Samples, and Standards is given below:

Mean Surrogate RT From Initial Calibration:				2.59	6.92
RT Range Based on Calibration Verification:				2.56 2.62 #	6.89 6.95 #
File	**Sample Number**	**Lab Sample ID**	**Analysis Date**	**4cmx**	**Decachlorobiphenyl**
e8j3113.D	ICAL	WAR161031-01	31-OCT-16 09:17	2.59	6.93
e8j3114.D	ICAL	WAR161031-02	31-OCT-16 09:30	2.59	6.92
e8j3115.D	ICAL	WAR161031-03	31-OCT-16 09:42	2.59	6.92
e8j3116.D	ICAL	WAR161031-04	31-OCT-16 09:54	2.59	6.92
e8j3117.D	ICAL	IAR160926-01	31-OCT-16 10:07	2.59	6.92
e8j3118.D	ICV	WAR160926-60	31-OCT-16 10:19	2.59	6.92

Column used to flag retention time values with an asterisk.

Lab Name: GEL Laboratories LLC **Client SDG:** 409254

GC Column: RTX-CLPEST1

Instrument ID: ECD8A.

Analytical Sequence for Performance Evaluation Mixtures, Blanks, Samples, and Standards is given below:

Mean Surrogate RT From Initial Calibration:				2.15	6.1
RT Range Based on Calibration Verification:				2.12 2.18 #	6.07 6.13 #
File	**Sample Number**	**Lab Sample ID**	**Analysis Date**	**4cmx**	**Decachlorobiphenyl**
e8k0901.D	CCB	WAR160712-99	09-NOV-16 05:35	2.16	6.11
e8k0902.D	ZZZZZZZ	ZZZZZZZ	09-NOV-16 05:47	NA	NA
e8k0903.D	CCV	WAR160926-60	09-NOV-16 05:59	2.15	6.1
e8k0904.D	CCV	WAR160721-54	09-NOV-16 06:11	NA	NA
e8k0905.D	CCV	WAR160728-42	09-NOV-16 06:24	NA	NA
e8k0906.D	CCV	WAR160728-48	09-NOV-16 06:36	NA	NA
e8k0907.D	CCV	WAR160922-62	09-NOV-16 06:48	NA	NA
e8k0908.D	CCV	WAR160809-68	09-NOV-16 07:00	NA	NA
e8k0909.D	CCV	WAR160809-32	09-NOV-16 07:13	NA	NA
e8k0910.D	CCV	WAR160628-21	09-NOV-16 07:25	NA	NA
e8k0911.D	CCB	WAR160712-99	09-NOV-16 07:37	2.15	6.1
e8k0912.D	MB	1203665373	09-NOV-16 07:50	2.15	6.1
e8k0913.D	BLK01LCS	1203665374	09-NOV-16 08:02	2.15	6.1
e8k0914.D	ZZZZZZZ	ZZZZZZZ	09-NOV-16 08:14	2.15	6.11
e8k0915.D	ZZZZZZZ	ZZZZZZZ	09-NOV-16 08:28	2.14	6.1
e8k0916.D	ZZZZZZZ	ZZZZZZZ	09-NOV-16 08:43	2.15	6.11
e8k0917.D	DP050113	409254026	09-NOV-16 08:57	2.14	6.1
e8k0918.D	DP050113MS	1203665375	09-NOV-16 09:11	2.15	6.1
e8k0919.D	DP050113MSD	1203665376	09-NOV-16 09:26	2.15	6.1
e8k0920.D	DP050213	409254027	09-NOV-16 09:40	2.15	6.1
e8k0921.D	SS050100	409254028	09-NOV-16 09:55	2.17	6.13
e8k0922.D	CCV	WAR160926-60	09-NOV-16 10:21	2.14	6.09
e8k0923.D	CCB	WAR160712-99	09-NOV-16 10:33	2.15	6.1
e8k0924.D	DP020312	409254029	09-NOV-16 10:46	2.15	6.1
e8k0925.D	DP020312DUP	409254031	09-NOV-16 11:00	2.15	6.1
e8k0926.D	DP020413	409254032	09-NOV-16 11:14	2.15	6.1
e8k0927.D	DP020207	409254034	09-NOV-16 11:29	2.15	6.1
e8k0928.D	DP020209	409254036	09-NOV-16 11:43	2.15	6.1
e8k0929.D	DP020114	409254038	09-NOV-16 11:57	2.15	6.1

Column used to flag retention time values with an asterisk.

Lab Name: GEL Laboratories LLC **Client SDG:** 409254

GC Column: RTX-CLPEST1

Instrument ID: ECD8A.

Analytical Sequence for Performance Evaluation Mixtures, Blanks, Samples, and Standards is given below:

Mean Surrogate RT From Initial Calibration:				2.15	6.1
RT Range Based on Calibration Verification:				2.12 2.18 #	6.07 6.13 #
	Sample Number	**Lab Sample ID**	**Analysis Date**	**4cmx**	**Decachlorobiphenyl**
e8k0930.D	CCV	WAR160926-60	09-NOV-16 12:12	2.15	6.1
e8k0931.D	CCB	WAR160712-99	09-NOV-16 12:24	2.15	6.1

Column used to flag retention time values with an asterisk.

Lab Name: GEL Laboratories LLC **Client SDG:** 409254

GC Column: RTX-CLPEST2

Instrument ID: ECD8A.

Analytical Sequence for Performance Evaluation Mixtures, Blanks, Samples, and Standards is given below:

Mean Surrogate RT From Initial Calibration:				2.58	6.92
RT Range Based on Calibration Verification:				2.55 2.61 #	6.89 6.95 #
File	**Sample Number**	**Lab Sample ID**	**Analysis Date**	**4cmx**	**Decachlorobiphenyl**
e8k0901.D	CCB	WAR160712-99	09-NOV-16 05:35	2.59	6.93
e8k0902.D	ZZZZZZZ	ZZZZZZZ	09-NOV-16 05:47	NA	NA
e8k0903.D	CCV	WAR160926-60	09-NOV-16 05:59	2.58	6.92
e8k0904.D	CCV	WAR160721-54	09-NOV-16 06:11	NA	NA
e8k0905.D	CCV	WAR160728-42	09-NOV-16 06:24	NA	NA
e8k0906.D	CCV	WAR160728-48	09-NOV-16 06:36	NA	NA
e8k0907.D	CCV	WAR160922-62	09-NOV-16 06:48	NA	NA
e8k0908.D	CCV	WAR160809-68	09-NOV-16 07:00	NA	NA
e8k0909.D	CCV	WAR160809-32	09-NOV-16 07:13	NA	NA
e8k0910.D	CCV	WAR160628-21	09-NOV-16 07:25	NA	NA
e8k0911.D	CCB	WAR160712-99	09-NOV-16 07:37	2.58	6.92
e8k0912.D	MB	1203665373	09-NOV-16 07:50	2.58	6.92
e8k0913.D	BLK01LCS	1203665374	09-NOV-16 08:02	2.58	6.92
e8k0914.D	ZZZZZZZ	ZZZZZZZ	09-NOV-16 08:14	2.59	6.93
e8k0915.D	ZZZZZZZ	ZZZZZZZ	09-NOV-16 08:28	2.58	6.93
e8k0916.D	ZZZZZZZ	ZZZZZZZ	09-NOV-16 08:43	2.59	6.93
e8k0917.D	DP050113	409254026	09-NOV-16 08:57	2.58	6.92
e8k0918.D	DP050113MS	1203665375	09-NOV-16 09:11	2.59	6.92
e8k0919.D	DP050113MSD	1203665376	09-NOV-16 09:26	2.59	6.92
e8k0920.D	DP050213	409254027	09-NOV-16 09:40	2.58	6.92
e8k0921.D	SS050100	409254028	09-NOV-16 09:55	2.62 *	6.94
e8k0922.D	CCV	WAR160926-60	09-NOV-16 10:21	2.58	6.92
e8k0923.D	CCB	WAR160712-99	09-NOV-16 10:33	2.58	6.92
e8k0924.D	DP020312	409254029	09-NOV-16 10:46	2.59	6.92
e8k0925.D	DP020312DUP	409254031	09-NOV-16 11:00	2.58	6.93
e8k0926.D	DP020413	409254032	09-NOV-16 11:14	2.58	6.92
e8k0927.D	DP020207	409254034	09-NOV-16 11:29	2.58	6.92
e8k0928.D	DP020209	409254036	09-NOV-16 11:43	2.58	6.92
e8k0929.D	DP020114	409254038	09-NOV-16 11:57	2.58	6.92

Column used to flag retention time values with an asterisk.

Lab Name: GEL Laboratories LLC **Client SDG:** 409254

GC Column: RTX-CLPEST2

Instrument ID: ECD8A.

Analytical Sequence for Performance Evaluation Mixtures, Blanks, Samples, and Standards is given below:

Mean Surrogate RT From Initial Calibration:				2.58	6.92
RT Range Based on Calibration Verification:				2.55 2.61 #	6.89 6.95 #
	Sample Number	**Lab Sample ID**	**Analysis Date**	**4cmx**	**Decachlorobiphenyl**
e8k0930.D	CCV	WAR160926-60	09-NOV-16 12:12	2.58	6.92
e8k0931.D	CCB	WAR160712-99	09-NOV-16 12:24	2.58	6.92

Column used to flag retention time values with an asterisk.

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**MISC SOLID**
Lab Sample ID:	**1203665373**				
Client Sample:	**QC for batch 1614292**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**MB for batch 1614292**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 07:50**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.048 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0912.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0912.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	3.33	ug/kg	1.11	3.33	1
11104-28-2	Aroclor-1221	U	3.33	ug/kg	1.11	3.33	1
11141-16-5	Aroclor-1232	U	3.33	ug/kg	1.11	3.33	1
53469-21-9	Aroclor-1242	U	3.33	ug/kg	1.11	3.33	1
12672-29-6	Aroclor-1248	U	3.33	ug/kg	1.11	3.33	1
11097-69-1	Aroclor-1254	U	3.33	ug/kg	1.11	3.33	1
11096-82-5	Aroclor-1260	U	3.33	ug/kg	1.11	3.33	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0912.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On   : 09 Nov 2016 07:50 (#1); 09 Nov 2016   7:50 (#2)
Operator : JXM   InstName : ECD8
Sample   : |1203665373|1614293|1|SVA|1|MB|||
Misc   : |ECD4X2A_1S|MISC SOLID|QC A|||
ALS Vial : 12 (Sig #1); 0 (Sig #2)   Sample Multiplier: 1

Integration Files signal 1: autoint1.e   signal 2: autoint2.e
Quant Time: Nov 09 10:17:04 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8   SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation   6890 Scale Mode: Large solvent peaks clipped

Volume Inj.   : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1   Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um   Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.147	-0.003	6703641561	139.482m	2.584	2.583	-0.001	933947648	151.028
DCB	6.104	6.103	-0.001	6197400369	161.739	6.924	6.924	0.000	747909078	162.720

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	70%	76%
DCB	200.000	No Limits	81%	81%

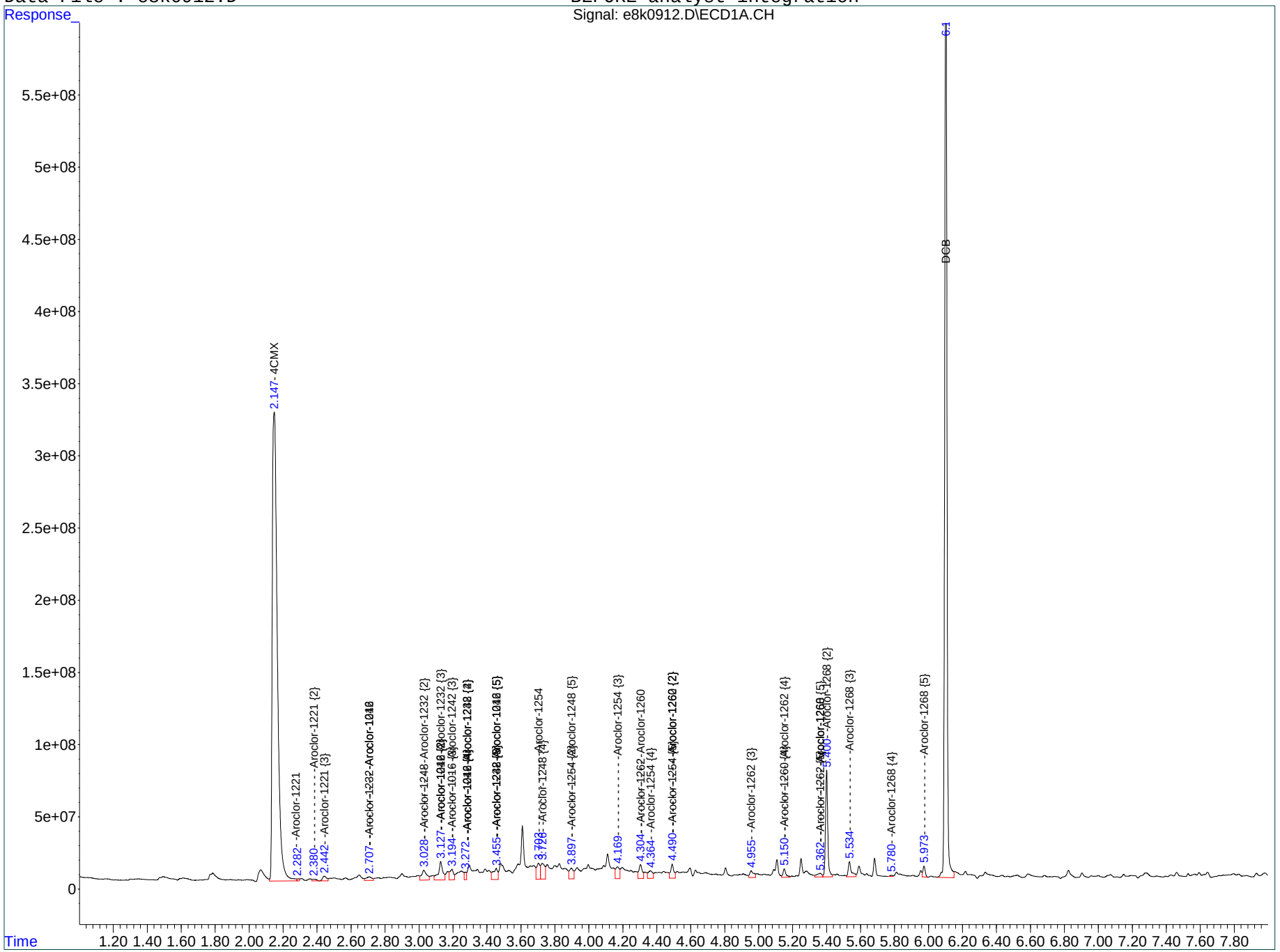
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

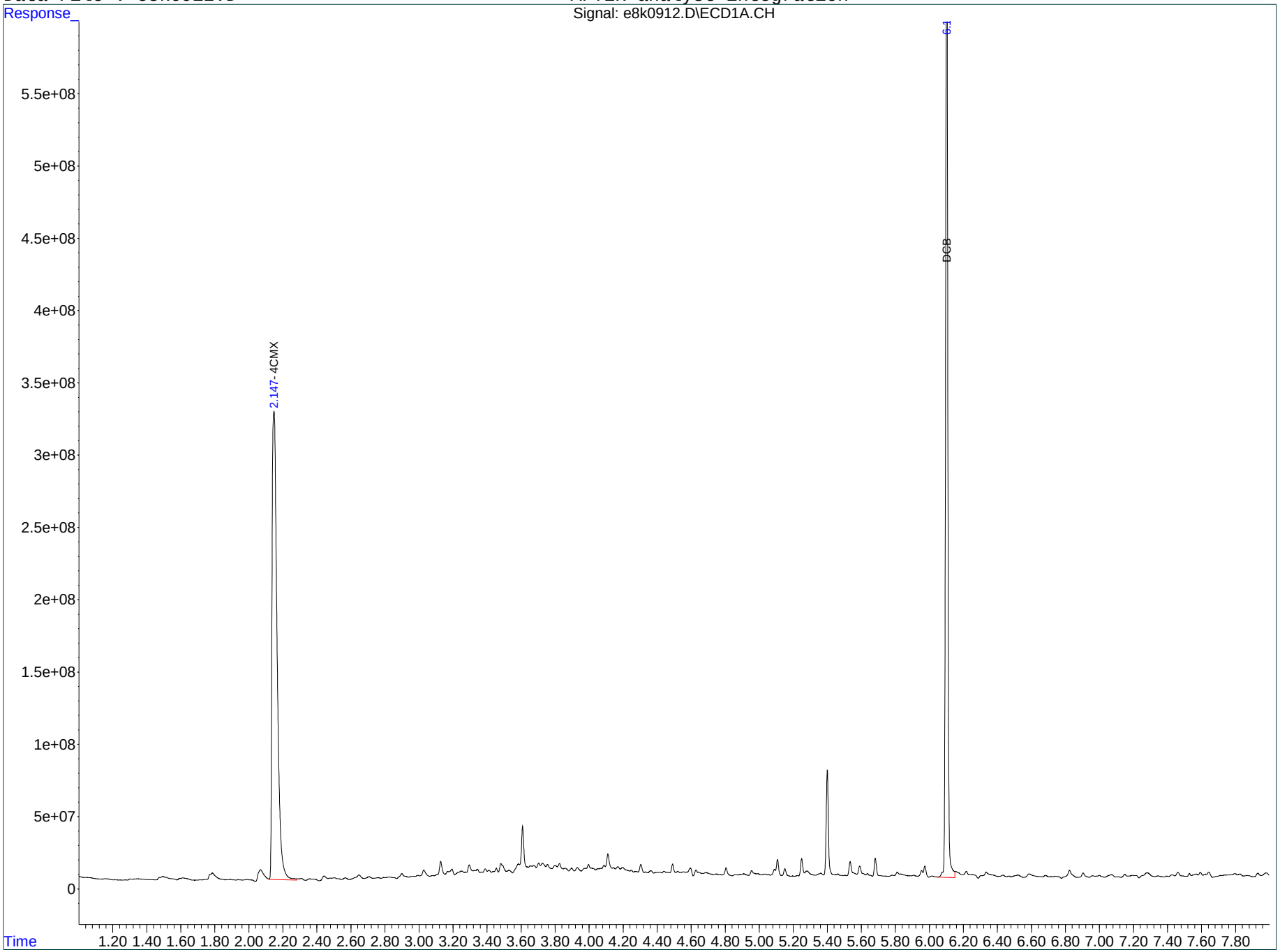
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0912.D

BEFORE analyst integration

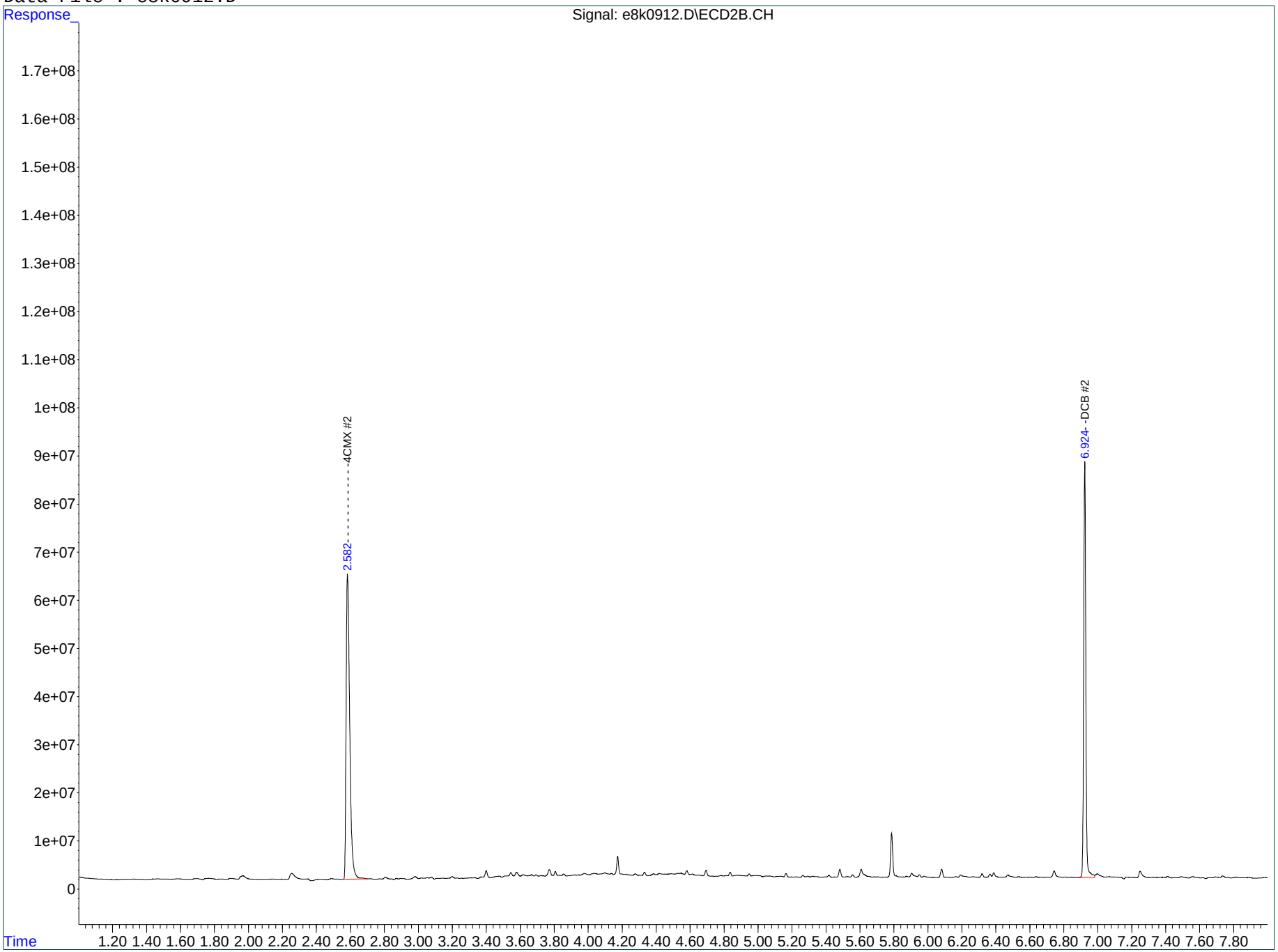


Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0912.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0912.D



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**			**Matrix:**	**MISC SOLID**
Lab Sample ID:	**1203665374**				
Client Sample:	**QC for batch 1614292**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**LCS for batch 1614292**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 08:02**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.015 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0913.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0913.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		22.0	ug/kg	1.11	3.33	1
11104-28-2	Aroclor-1221	U	3.33	ug/kg	1.11	3.33	1
11141-16-5	Aroclor-1232	U	3.33	ug/kg	1.11	3.33	1
53469-21-9	Aroclor-1242	U	3.33	ug/kg	1.11	3.33	1
12672-29-6	Aroclor-1248	U	3.33	ug/kg	1.11	3.33	1
11097-69-1	Aroclor-1254	U	3.33	ug/kg	1.11	3.33	1
11096-82-5	Aroclor-1260		21.2	ug/kg	1.11	3.33	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0913.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 08:02 (#1); 09 Nov 2016 8:02 (#2)
Operator : JXM InstName : ECD8
Sample : |1203665374|1614293|1|SVA|1|LCS|||
Misc : |ECD4X2A_1S|MISC SOLID|QC A|||
ALS Vial : 13 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 10:20:59 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.150	0.000	6794870703	141.380m	2.584	2.584	0.000	937965909	151.678
DCB	6.104	6.102	-0.002	6300016859	164.417m	6.924	6.924	0.000	774836145	168.579

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	71%	76%
DCB	200.000	No Limits	82%	84%

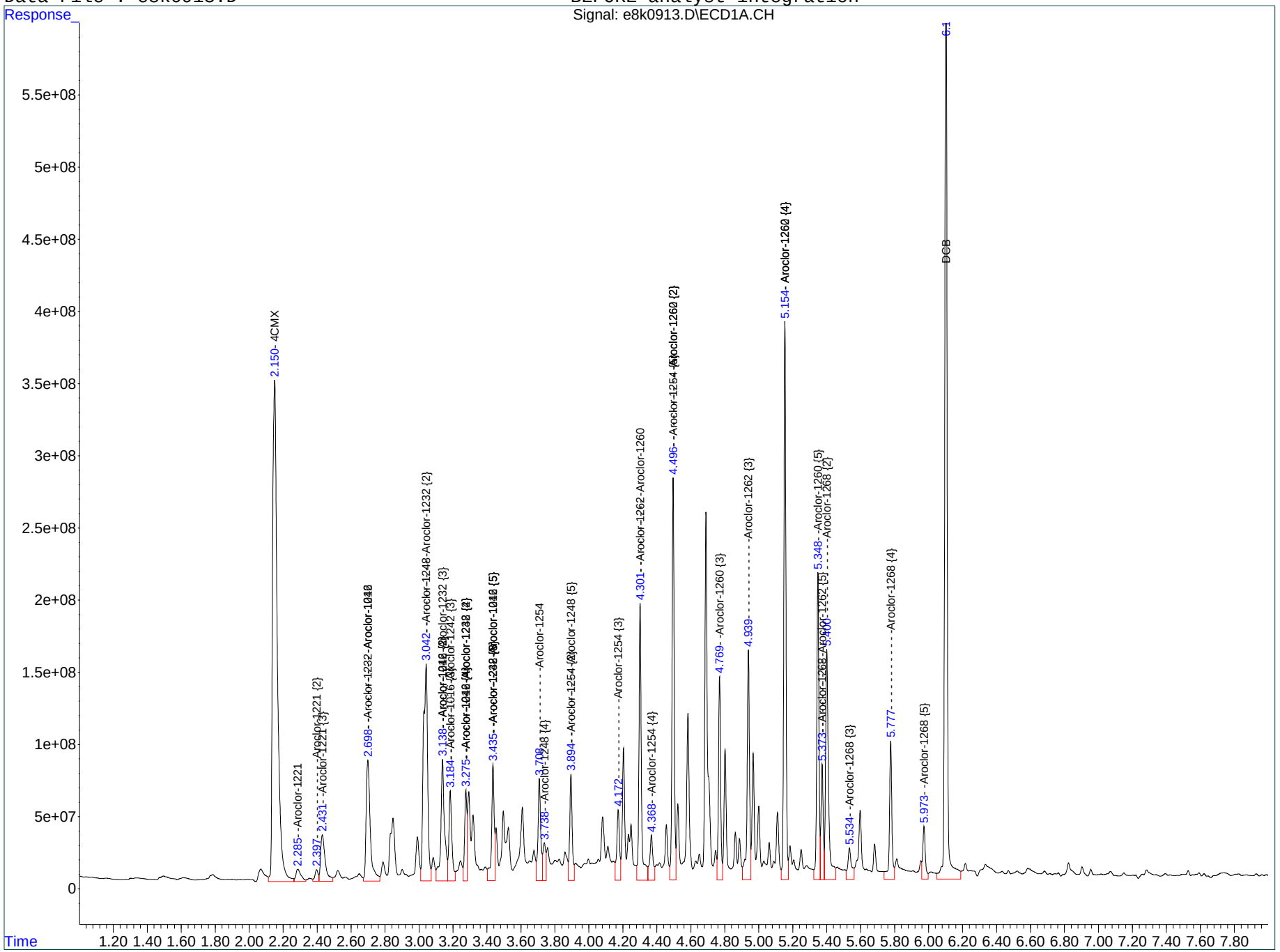
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.698	2.698	0.000	1309934962	712.601m	3.309	3.309	0.000	180044709	677.552
Aroclor-1016 {2}	3.138	3.138	0.000	1097832808	707.890m	3.762	3.762	0.000	144669925	767.099
Aroclor-1016 {3}	3.184	3.184	0.000	634778738	660.349m	3.838	3.839	0.001	76120347	658.893
Aroclor-1016 {4}	3.276	3.275	-0.001	519536904	618.481m	3.910	3.910	0.000	79195245	628.108
Aroclor-1016 {5}	3.436	3.435	-0.001	708024476	603.829m	4.109	4.109	0.000	103409115	653.542
Sum Aroclor-1016				4270107888	3303.151				583439341	3385.194
Average Aroclor-1016					660.630					677.039
Aroclor-1260	4.301	4.301	0.000	1550953392	621.540m	5.018	5.017	-0.001	208661439	695.015
Aroclor-1260 {2}	4.496	4.496	0.000	2283845581	608.014m	5.163	5.163	0.000	254143530	681.901
Aroclor-1260 {3}	4.770	4.769	-0.001	1085164259	563.815m	5.479	5.479	0.000	189650711	732.789
Aroclor-1260 {4}	5.155	5.154	-0.001	3133959269	679.270m	5.859	5.859	0.000	413278587	715.042
Aroclor-1260 {5}	5.350	5.348	-0.002	1745510483	710.070m	6.118	6.117	-0.001	297121489	726.411
Sum Aroclor-1260				9799432984	3182.710				1362855755	3551.158
Average Aroclor-1260					636.542					710.232

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

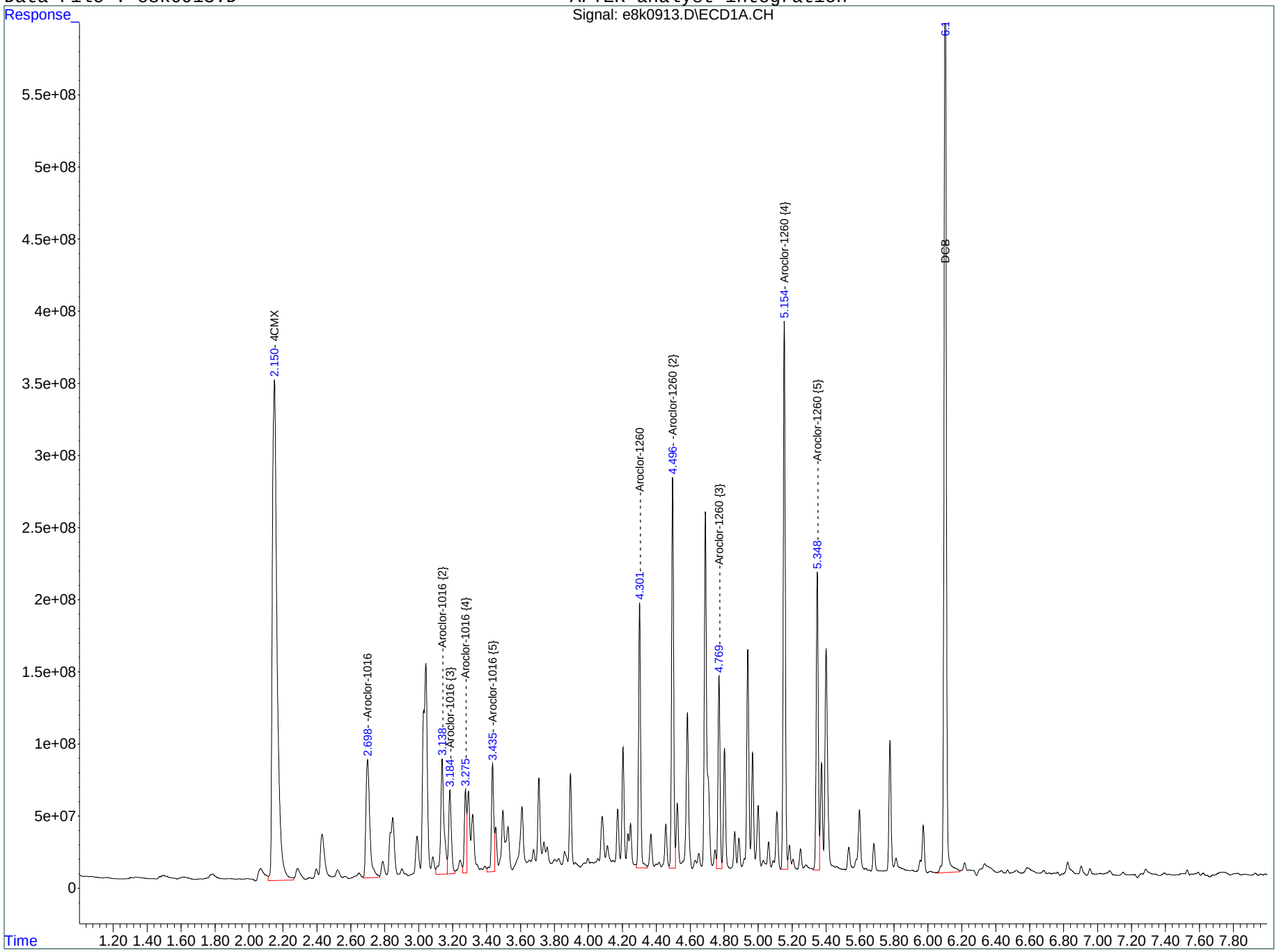
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0913.D

BEFORE analyst integration

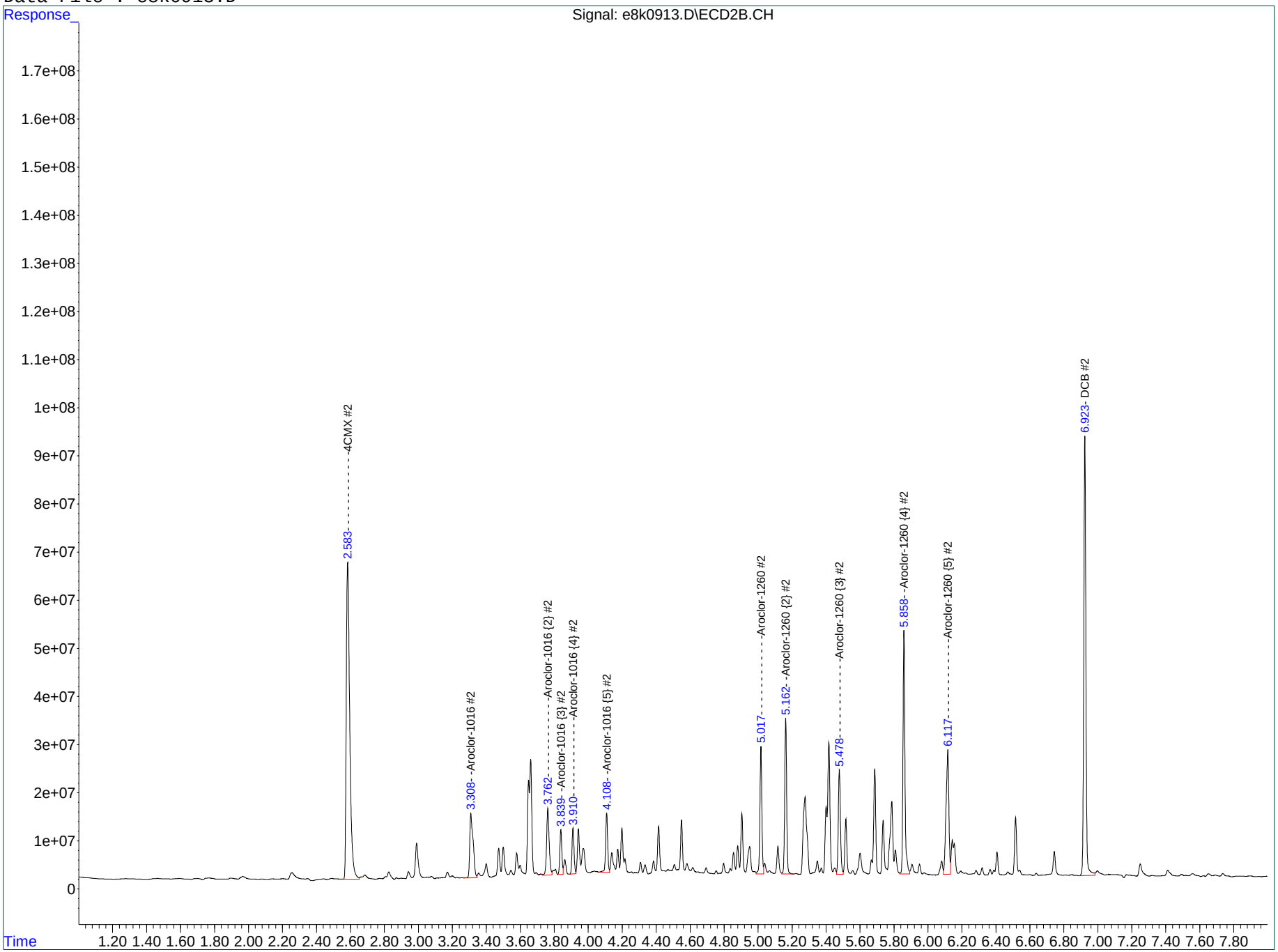


Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0913.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0913.D



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:14**	**Matrix:**	**SOIL**
Lab Sample ID:	**1203665375**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**19**
Client Sample:	**QC for batch 1614292**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**DP050113MS**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 09:11**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.003 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0918.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0918.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		27.7	ug/kg	1.37	4.12	1
11104-28-2	Aroclor-1221	U	4.12	ug/kg	1.37	4.12	1
11141-16-5	Aroclor-1232	U	4.12	ug/kg	1.37	4.12	1
53469-21-9	Aroclor-1242	U	4.12	ug/kg	1.37	4.12	1
12672-29-6	Aroclor-1248	U	4.12	ug/kg	1.37	4.12	1
11097-69-1	Aroclor-1254	U	4.12	ug/kg	1.37	4.12	1
11096-82-5	Aroclor-1260		28.3	ug/kg	1.37	4.12	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0918.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 09:11 (#1); 09 Nov 2016 9:11 (#2)
Operator : JXM InstName : ECD8
Sample : |1203665375|1614293|1|SVA|1|MS|||
Misc : |ECD4X2A_1S|SOIL|QC A|||
ALS Vial : 18 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 10:32:10 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.150	0.000	7025803652	146.185m	2.584	2.586	0.002	963789893	155.854
DCB	6.104	6.101	-0.003	5406157987	141.089m	6.924	6.923	-0.001	718088251	156.232

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	73%	78%
DCB	200.000	No Limits	71%	78%

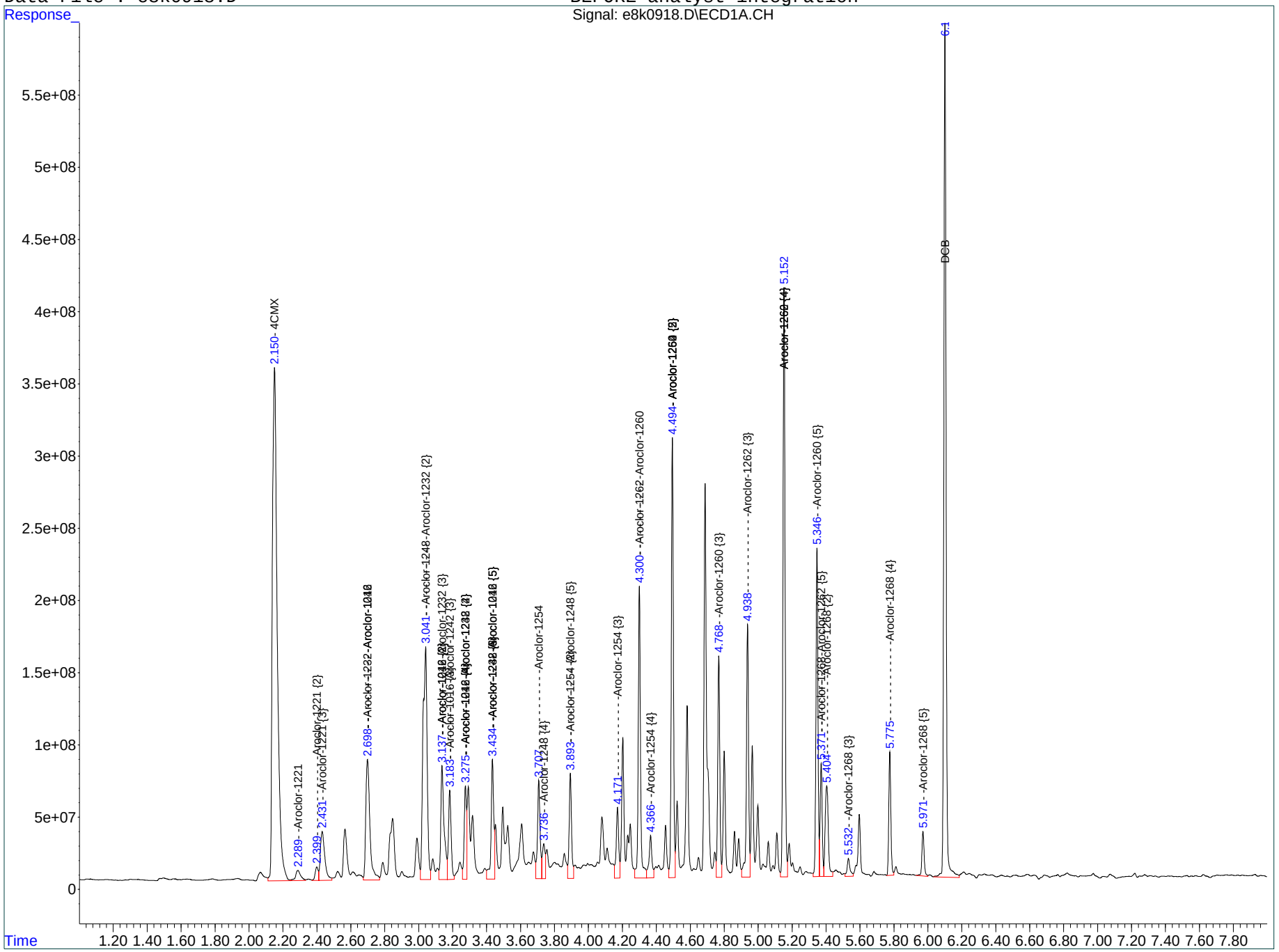
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.698	2.698	0.000	1343031231	730.606m	3.309	3.310	0.001	188688334	710.080
Aroclor-1016 {2}	3.138	3.137	-0.001	1019398317	657.314m	3.762	3.762	0.000	141144807	748.408
Aroclor-1016 {3}	3.184	3.183	-0.001	625358820	650.550m	3.838	3.839	0.001	78424773	678.840
Aroclor-1016 {4}	3.276	3.275	-0.001	549046119	653.610m	3.910	3.911	0.001	85664209	679.414
Aroclor-1016 {5}	3.436	3.434	-0.002	781150507	666.194m	4.109	4.109	0.000	118976252	751.925
Sum Aroclor-1016				4317984994	3358.275				612898374	3568.667
Average Aroclor-1016					671.655					713.733
Aroclor-1260	4.301	4.300	-0.001	1624602336	651.054m	5.018	5.016	-0.002	225853906	752.280
Aroclor-1260 {2}	4.496	4.494	-0.002	2509308470	668.038m	5.163	5.162	-0.001	270555527	725.937
Aroclor-1260 {3}	4.770	4.768	-0.002	1209794549	628.569m	5.479	5.478	-0.001	181313656	700.576
Aroclor-1260 {4}	5.155	5.152	-0.003	3383389549	733.333m	5.859	5.859	0.000	431596723	746.735
Aroclor-1260 {5}	5.350	5.346	-0.004	1860077519	756.676m	6.118	6.117	-0.001	288956944	706.451
Sum Aroclor-1260				10587172423	3437.670				1398276756	3631.978
Average Aroclor-1260					687.534					726.396

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0918.D

BEFORE analyst integration



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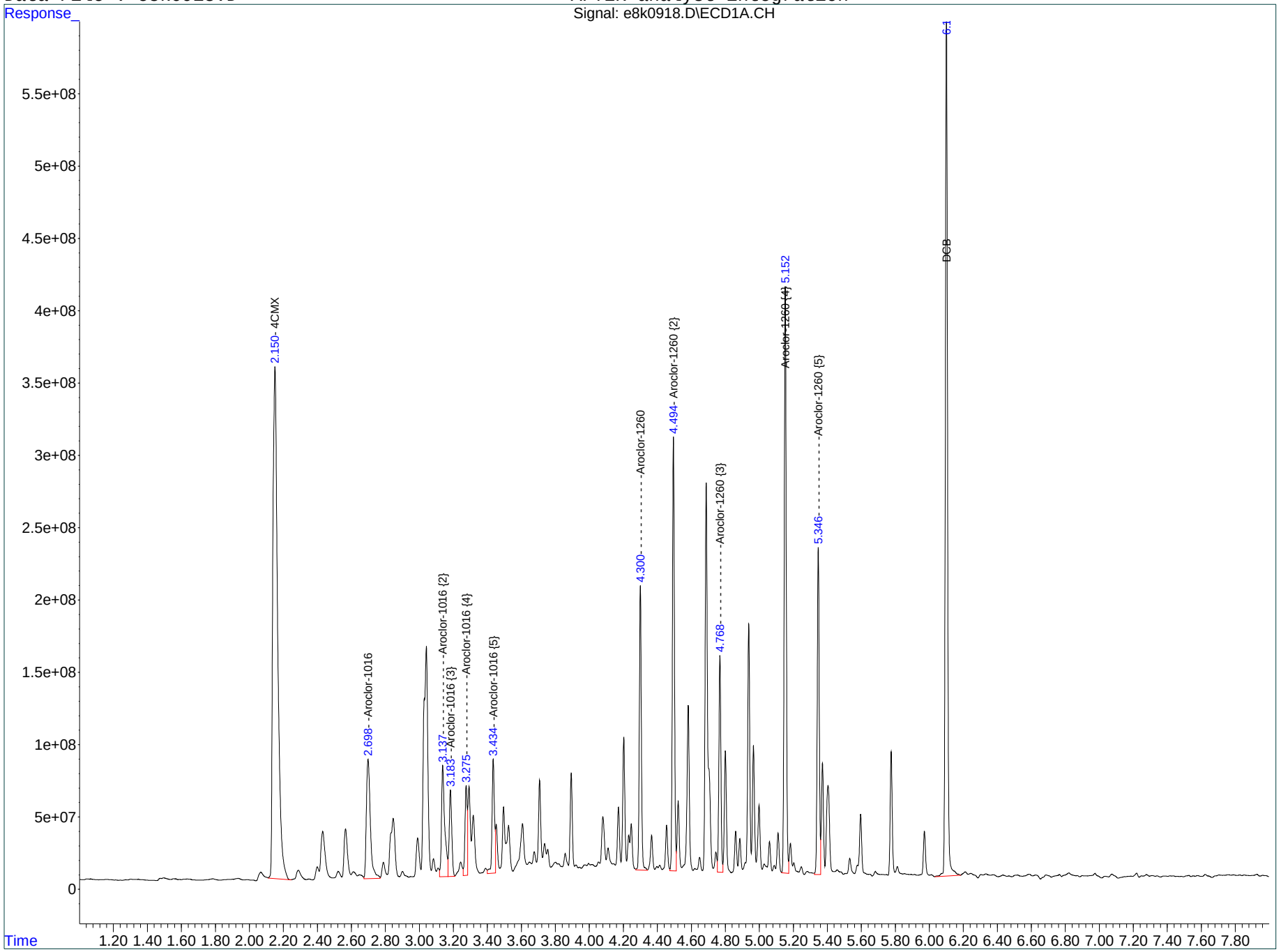
AFTER analyst integration



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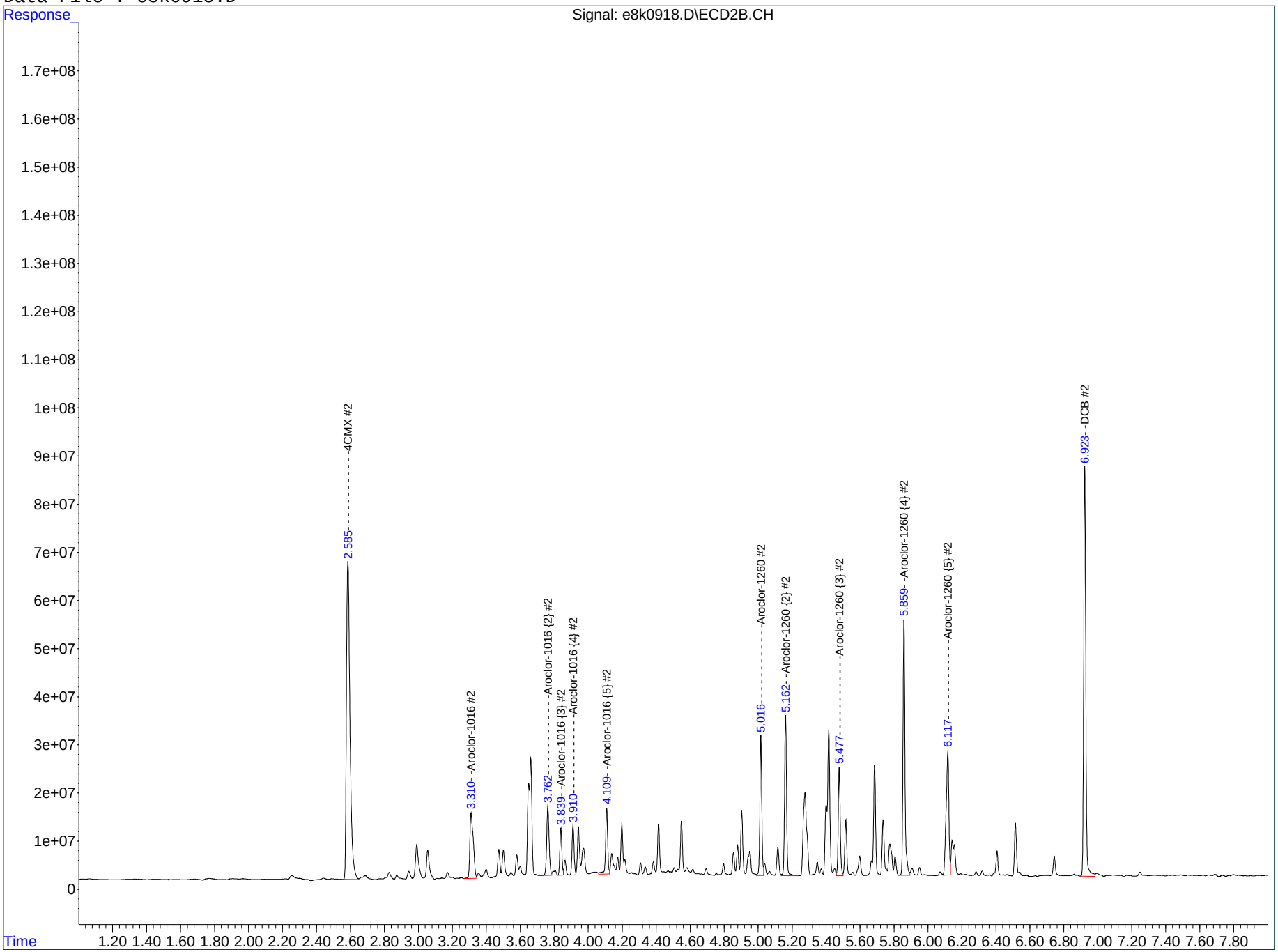
Data File : e8k0918.D



PCB
Certificate of Analysis
Sample Summary

SDG Number:	**409254**	**Date Collected:**	**10/25/2016 12:14**	**Matrix:**	**SOIL**
Lab Sample ID:	**1203665376**	**Date Received:**	**10/27/2016 09:00**	**%Moisture:**	**19**
Client Sample:	**QC for batch 1614292**	**Client:**	**HAAL002**	**Project:**	**QC**
Client ID:	**DP050113MSD**	**Method:**	**SW846 3541/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1614293**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/09/2016 09:26**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2016 10:54**	**Aliquot:**	**30.023 g**	**Final Volume:**	**1 mL**
Data File:	**110916.B\e8k0919.D**	**Column:**	**1 RTX-CLPEST1**		
	110916.B\e8k0919.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		30.4	ug/kg	1.37	4.11	1
11104-28-2	Aroclor-1221	U	4.11	ug/kg	1.37	4.11	1
11141-16-5	Aroclor-1232	U	4.11	ug/kg	1.37	4.11	1
53469-21-9	Aroclor-1242	U	4.11	ug/kg	1.37	4.11	1
12672-29-6	Aroclor-1248	U	4.11	ug/kg	1.37	4.11	1
11097-69-1	Aroclor-1254	U	4.11	ug/kg	1.37	4.11	1
11096-82-5	Aroclor-1260		26.8	ug/kg	1.37	4.11	1

Quantitation (Manual Int.) Report
GEL Laboratories, LLC

Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0919.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 09 Nov 2016 09:26 (#1); 09 Nov 2016 9:26 (#2)
Operator : JXM InstName : ECD8
Sample : |1203665376|1614293|1|SVA|1|MSD|||
Misc : |ECD4X2A_1S|SOIL|QC A|||
ALS Vial : 19 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration Files signal 1: autoint1.e signal 2: autoint2.e
Quant Time: Nov 09 10:12:55 2016
Quant Method : C:\msdchem\1\DATA\110916.B\ECD8_8082_103116.m
Quant Title : ECD8 SubList :
QLast Update : Tue Nov 01 04:35:57 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0 ul
Signal #1 Phase : RTX-CLPEST 1 Signal #2 Phase: RTX-CLPEST 2
Signal #1 Info : 250 um Signal #2 Info : 250 um

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
System Monitoring Compounds										
4CMX	2.150	2.152	0.002	6981300862	145.259m	2.584	2.586	0.002	987539494	159.694m
DCB	6.104	6.102	-0.002	5523698257	144.157	6.924	6.924	0.000	763226428	166.053

Compound	Amount	Range	Recovery1	Recovery2
4CMX	200.000	No Limits	73%	80%
DCB	200.000	No Limits	72%	83%

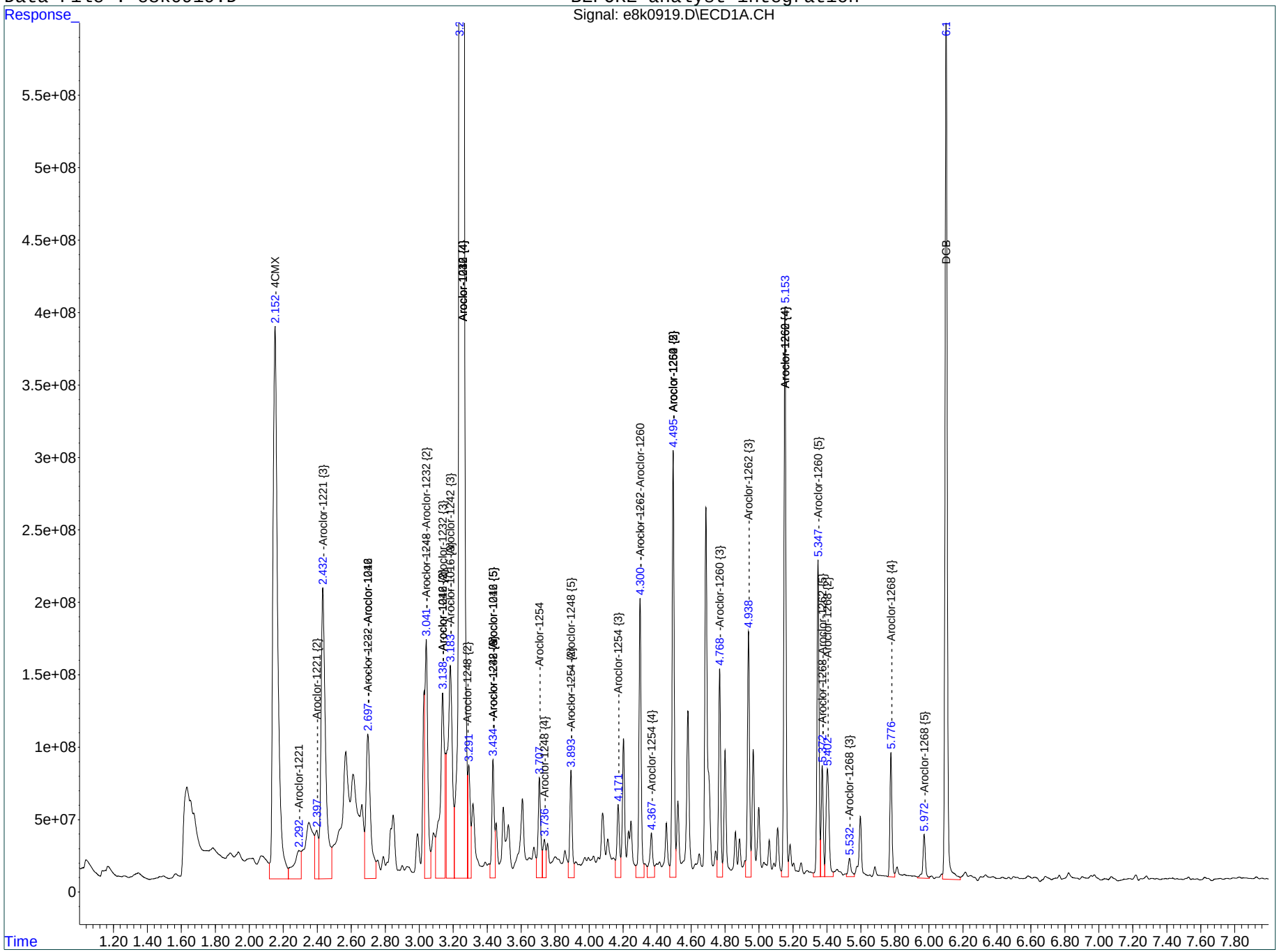
Target Compounds

Compound	Exp#1	RT#1	Dlt#1	Resp#1	ug/L#1	Exp#2	RT#2	Dlt#2	Resp#2	ug/L#2
Aroclor-1016	2.698	2.697	-0.001	1096334662	596.403m	3.309	3.310	0.001	232498289	874.948m
Aroclor-1016 {2}	3.138	3.138	0.000	1353317919	872.628m	3.762	3.762	0.000	143031905	758.414m
Aroclor-1016 {3}	3.184	3.184	0.000	806170390	838.645m	3.838	3.838	0.000	79847686	691.157m
Aroclor-1016 {4}	3.276	3.271	-0.005	670582397	798.293m	3.910	3.911	0.001	81863167	649.267m
Aroclor-1016 {5}	3.436	3.434	-0.002	684212714	583.522m	4.109	4.109	0.000	117152058	740.397m
Sum Aroclor-1016				4610618081	3689.491				654393105	3714.182
Average Aroclor-1016					737.898					742.836
Aroclor-1260	4.301	4.300	-0.001	1555141881	623.218m	5.018	5.017	-0.001	220786408	735.401m
Aroclor-1260 {2}	4.496	4.495	-0.001	2361414761	628.665m	5.163	5.161	-0.002	268325038	719.952m
Aroclor-1260 {3}	4.770	4.768	-0.002	1116192342	579.937m	5.479	5.478	-0.001	175972930	679.940m
Aroclor-1260 {4}	5.155	5.153	-0.002	3207575503	695.226m	5.859	5.858	-0.001	436639561	755.460
Aroclor-1260 {5}	5.350	5.347	-0.003	1793361529	729.536m	6.118	6.118	0.000	296752555	725.510
Sum Aroclor-1260				10033686016	3256.582				1398476491	3616.262
Average Aroclor-1260					651.316					723.252

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int. (A) = Over the calibration range (d) = deleted

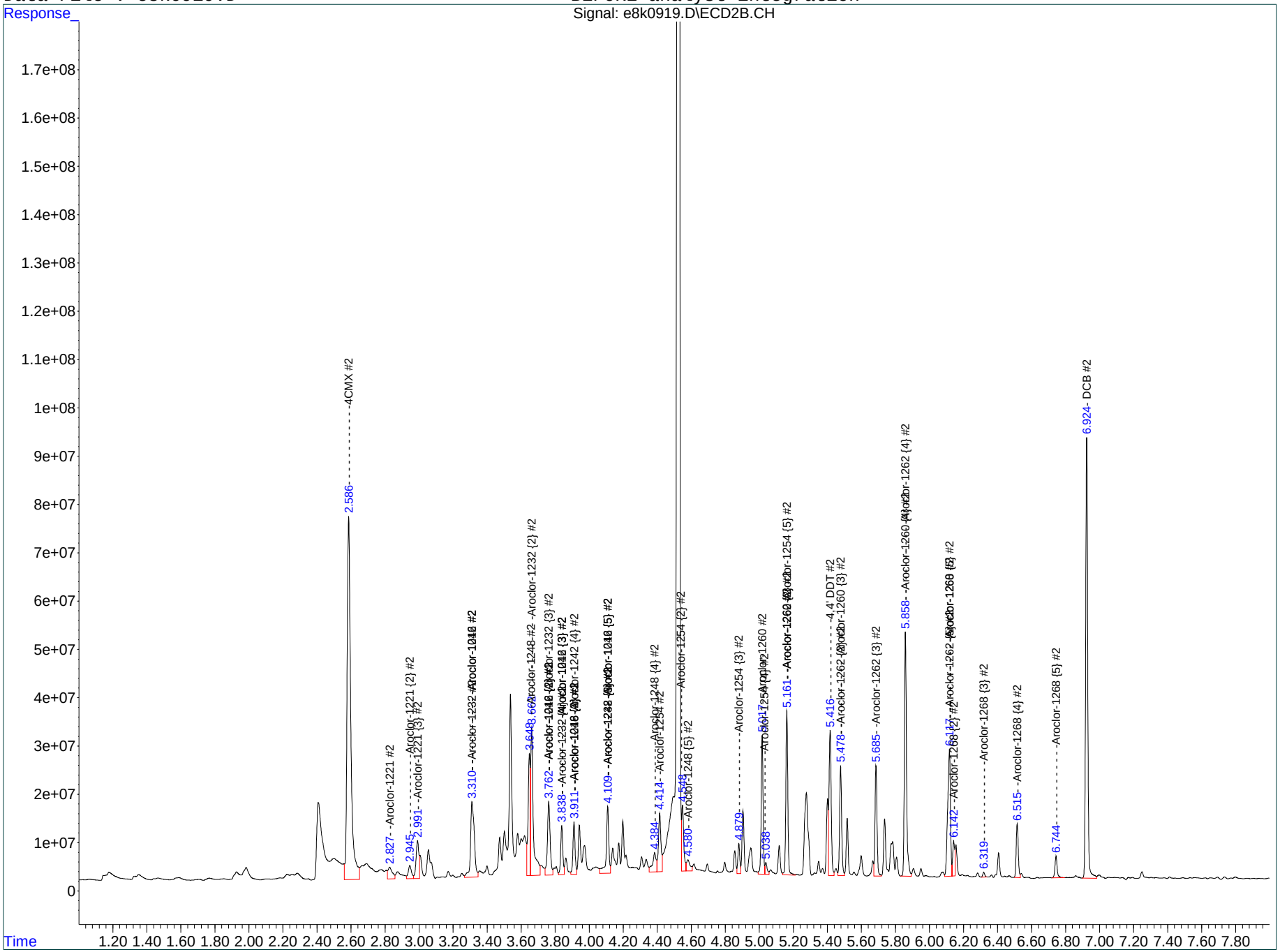
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0919.D

BEFORE analyst integration



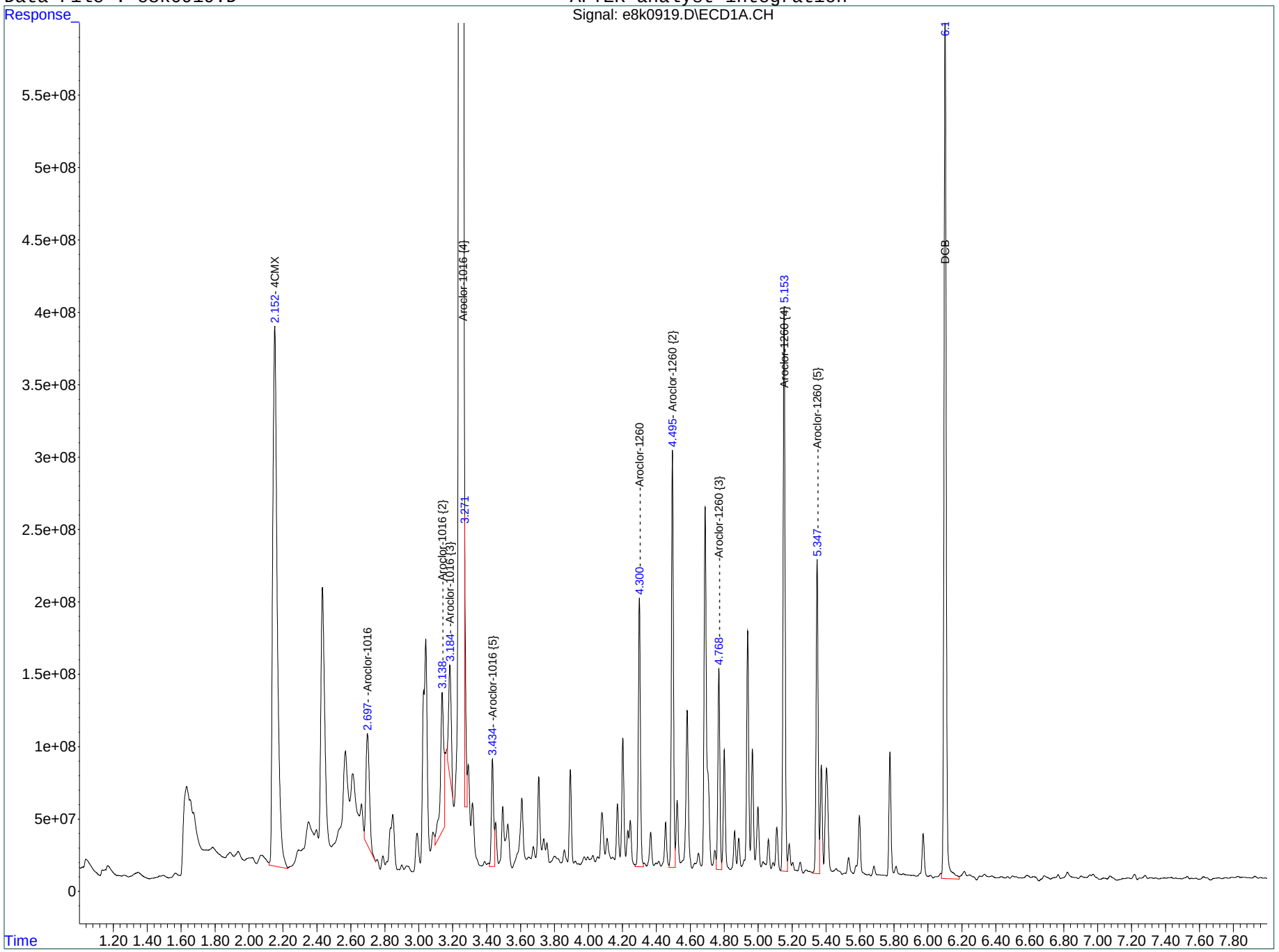
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0919.D

BEFORE analyst integration



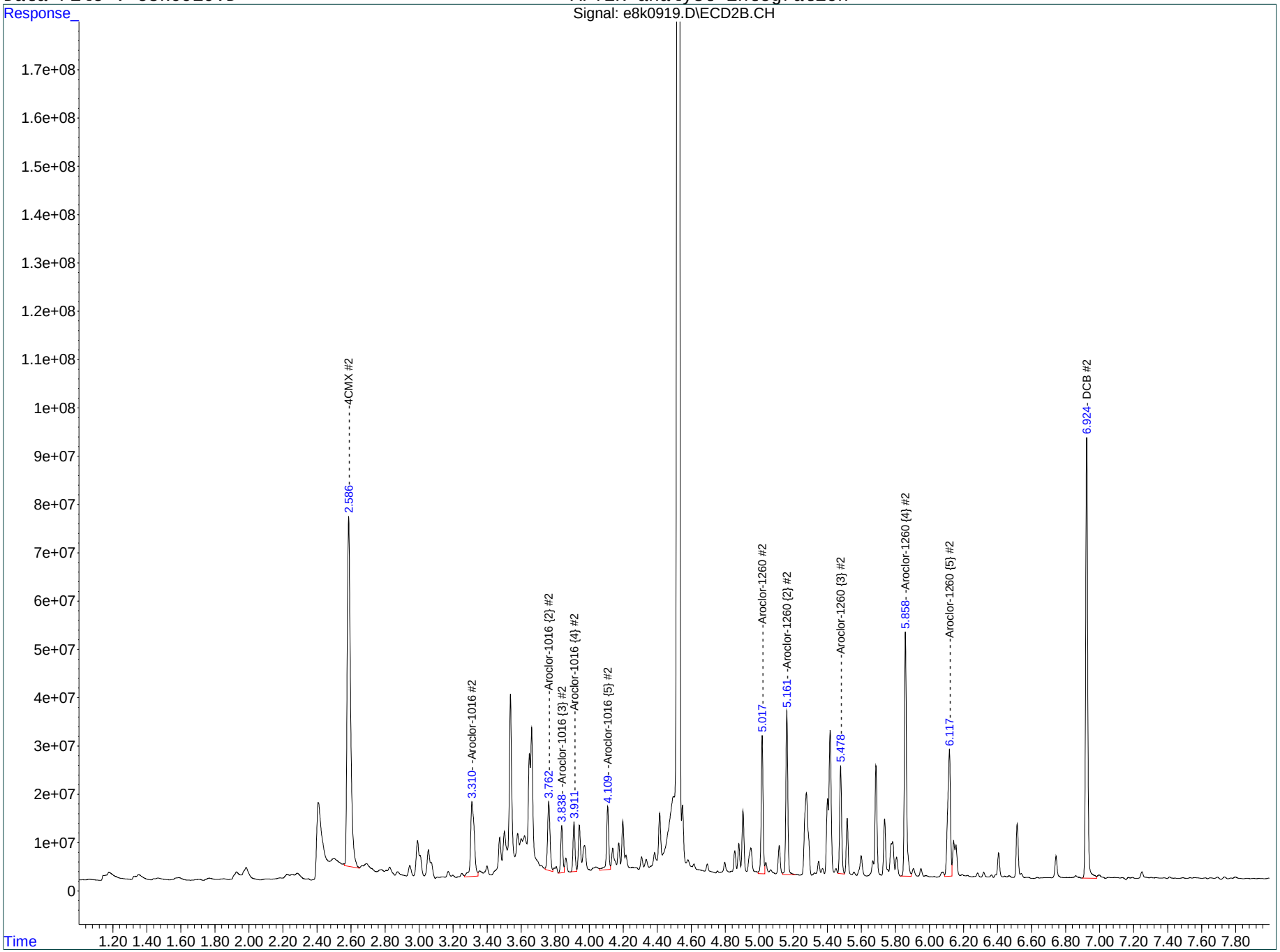
Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0919.D

AFTER analyst integration



Data Path : C:\msdchem\1\DATA\110916.B\
Data File : e8k0919.D

AFTER analyst integration



Miscellaneous

Prep Logbook

Automated Soxhlet Extraction

Batch ID: 1614292 **Verified by:** _____
Analyst: Mia DeLee
Method: SW846 3541

Lab SOP: GL-OA-E-066 REV# 7
Instrument: Semi-Volatiles Manual

Sample ID	Prep Date	Aliquot (g)	Clean Up 1	Clean Up Amount 1 (mL)	Post Clean Up Amount 1 (mL)	Final Volume (mL)	Prepped Factor (mL/g)
1203665373 MB	08-NOV-2016 10:54:00	30.048	H2SO4/KMnO4	2	9	1	0.03328
1203665374 LCS	08-NOV-2016 10:54:00	30.015	H2SO4/KMnO4	2	9	1	0.03332
408430001	08-NOV-2016 10:54:00	30.015	H2SO4/KMnO4	2	9	1	0.03332
408605019	08-NOV-2016 10:54:00	30.019	H2SO4/KMnO4	2	9	1	0.03331
408825001	08-NOV-2016 10:54:00	10.285	H2SO4/KMnO4	2	9	1	0.09723
409254026	08-NOV-2016 10:54:00	30.031	H2SO4/KMnO4	2	9	1	0.0333
1203665375 MS (409254026)	08-NOV-2016 10:54:00	30.003	H2SO4/KMnO4	2	9	1	0.03333
1203665376 MSD (409254026)	08-NOV-2016 10:54:00	30.023	H2SO4/KMnO4	2	9	1	0.03331
409254027	08-NOV-2016 10:54:00	30.048	H2SO4/KMnO4	2	9	1	0.03328
409254028	08-NOV-2016 10:54:00	30.118	H2SO4/KMnO4	2	9	1	0.0332
409254029	08-NOV-2016 10:54:00	30.12	H2SO4/KMnO4	2	9	1	0.0332
409254031	08-NOV-2016 10:54:00	30.006	H2SO4/KMnO4	2	9	1	0.03333
409254032	08-NOV-2016 10:54:00	30.082	H2SO4/KMnO4	2	9	1	0.03324
409254034	08-NOV-2016 10:54:00	30.042	H2SO4/KMnO4	2	9	1	0.03329
409254036	08-NOV-2016 10:54:00	30.044	H2SO4/KMnO4	2	9	1	0.03328
409254038	08-NOV-2016 10:54:00	30.089	H2SO4/KMnO4	2	9	1	0.03323

Type	Sample Id	Description	Serial Number	Spike Amt	Units
LCS	1203665374	PCB Laboratory Control	WE160924-06	1	mL
MS	1203665375	PCB Laboratory Control	WE160924-06	1	mL
MSD	1203665376	PCB Laboratory Control	WE160924-06	1	mL
SURR	All	PEST LOW LEVEL SURROGATE 200 UG/L	WE160924-02	1	mL
REGNT	All	Sand pure 40-100 mesh	160712-A	30	g
REGNT	All	Hexane	161025	120	mL
REGNT	All	1:1 sulfuric acid	2472041	5	mL
WORK	All	5% Potassium Permanganate	160831	5	mL

Comments:

Final Solvent: Hexane
Verified by: SR

Clean-up: H2SO4/KMnO4
Prior to clean-up: 2mL
Clean-up initials: MD
Clean-up SOP: GL-OA-E-037 Rev.7
Clean-up date: 11-08-16

Sample 408825001 contained strips of absorbent material soaked in a red liquid.

ORGANIC RUN LOG - INSTRUMENT ID#ECD8

GEL ORGANIC RUN LOG 103116.B

DATE: 31-Oct-16 METHOD: See Data OPERATOR: JXM

Solvent ID: 2415029
Alumina ID: 160524A
Copper ID: 2419596-B

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See associated data and run log
GEL SOP: GL-OA-E-040

Sequence Number: 103116.B

Analysis Date Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
10/31/2016 06:31	e8j3101.D	WAR160712-99	IBLK	BLANK	1	1	JXM	CLEAN
10/31/2016 06:43	e8j3102.D	WAR160606-DDT	DDT	ICS	1	2	JXM	DDT
10/31/2016 06:55	e8j3103.D	WAR160926-60	1660	CCV	1	3	JXM	DUSE
10/31/2016 07:11	e8j3104.D	WAR160721-54	1254	CCV	1	4	JXM	DUSE
10/31/2016 07:23	e8j3105.D	WAR160926-60	1660	CCV	1	5	JXM	DUSE
10/31/2016 07:36	e8j3106.D	WAR160728-42	1242	CCV	1	6	JXM	DUSE
10/31/2016 07:48	e8j3107.D	WAR160728-48	1248	CCV	1	7	JXM	DUSE
10/31/2016 08:00	e8j3108.D	WAR160926-60	1660	CCV	1	8	JXM	DUSE
10/31/2016 08:15	e8j3109.D	WAR160922-62	1262	CCV	1	9	JXM	HIGH ON FRONT
10/31/2016 08:27	e8j3110.D	WAR160809-68	1268	CCV	1	10	JXM	HIGH ON FRONT
10/31/2016 08:39	e8j3111.D	WAR160809-32	1232	CCV	1	11	JXM	PATTERN ONLY
10/31/2016 08:52	e8j3112.D	WAR160628-21	1221	CCV	1	12	JXM	PATTERN ONLY
10/31/2016 09:17	e8j3113.D	WAR161031-01	1660-1	ICAL	1	13	JXM	1660 LEVEL 1
10/31/2016 09:30	e8j3114.D	WAR161031-02	1660-2	ICAL	1	14	JXM	1660 LEVEL 2
10/31/2016 09:42	e8j3115.D	WAR161031-03	1660-3	ICAL	1	15	JXM	1660 LEVEL 3
10/31/2016 09:54	e8j3116.D	WAR161031-04	1660-4	ICAL	1	16	JXM	1660 LEVEL 4
10/31/2016 10:07	e8j3117.D	IAR160926-01	1660-5	ICAL	1	17	JXM	1660 LEVEL 5
10/31/2016 10:19	e8j3118.D	WAR160926-60	1660	ICV	1	18	JXM	PASSES BOTH COLUMNS
10/31/2016 10:31	e8j3119.D	WAR161031-05	1254-1	ICAL	1	19	JXM	1254 LEVEL 1
10/31/2016 10:43	e8j3120.D	WAR161031-06	1254-2	ICAL	1	20	JXM	1254 LEVEL 2
10/31/2016 10:56	e8j3121.D	WAR161031-07	1254-3	ICAL	1	21	JXM	1254 LEVEL 3
10/31/2016 11:08	e8j3122.D	WAR161031-08	1254-4	ICAL	1	22	JXM	1254 LEVEL 4
10/31/2016 11:20	e8j3123.D	IAR160907-01	1254-5	ICAL	1	23	JXM	1254 LEVEL 5
10/31/2016 11:32	e8j3124.D	WAR160721-54	1254	ICV	1	24	JXM	PASSES BOTH COLUMNS
10/31/2016 11:45	e8j3125.D	WAR161031-09	1242-1	ICAL	1	25	JXM	1242 LEVEL 1
10/31/2016 11:57	e8j3126.D	WAR161031-10	1242-2	ICAL	1	26	JXM	1242 LEVEL 2
10/31/2016 12:09	e8j3127.D	WAR161031-11	1242-3	ICAL	1	27	JXM	1242 LEVEL 3
10/31/2016 12:22	e8j3128.D	WAR161031-12	1242-4	ICAL	1	28	JXM	1242 LEVEL 4

ORGANIC RUN LOG - INSTRUMENT ID#ECD8

GEL ORGANIC RUN LOG 103116.B

10/31/2016 12:34	e8j3129.D	IAR160729-02	1242-5	ICAL	1	29	JXM	1242 LEVEL 5
10/31/2016 12:46	e8j3130.D	WAR160728-42	1242	ICV	1	30	JXM	PASSES BOTH COLUMNS
10/31/2016 12:58	e8j3131.D	WAR161031-13	1248-1	ICAL	1	31	JXM	1248 LEVEL 1
10/31/2016 13:11	e8j3132.D	WAR161031-14	1248-2	ICAL	1	32	JXM	1248 LEVEL 2
10/31/2016 13:23	e8j3133.D	WAR161031-15	1248-3	ICAL	1	33	JXM	1248 LEVEL 3
10/31/2016 13:35	e8j3134.D	WAR161031-16	1248-4	ICAL	1	34	JXM	1248 LEVEL 4
10/31/2016 13:47	e8j3135.D	IAR161003-02	1248-5	ICAL	1	35	JXM	1248 LEVEL 5
10/31/2016 14:00	e8j3136.D	WAR160728-48	1248	ICV	1	36	JXM	PASSES BOTH COLUMNS
10/31/2016 14:12	e8j3137.D	WAR160712-99	IBLK	BLANK	1	37	JXM	CLEAN
10/31/2016 14:24	e8j3138.D	1203658238	MB	1611397	1	38	JXM	USE: LOWER, Cu and alumina cleanup
10/31/2016 14:37	e8j3139.D	1203658239	LCS	1611397	1	39	JXM	USE: LOWER, Cu and alumina cleanup
10/31/2016 14:49	e8j3140.D	1203658240	LCSD	1611397	1	40	JXM	USE: LOWER, Cu and alumina cleanup
10/31/2016 15:01	e8j3141.D	409171002	ARSL	1611397	1	41	JXM	USE: LOWER, Cu and alumina cleanup
10/31/2016 15:15	e8j3142.D	409171003	ARSL	1611397	1	42	JXM	USE: LOWER, Cu and alumina cleanup
10/31/2016 15:30	e8j3143.D	WAR160926-60	1660	CCV	1	43	JXM	PASSES BOTH COLUMNS
10/31/2016 15:42	e8j3144.D	WAR160712-99	IBLK	BLANK	1	44	JXM	CLEAN

ORGANIC RUN LOG - INSTRUMENT ID#ECD8

GEL ORGANIC RUN LOG 110916.B

DATE: 9-Nov-16 METHOD: See Data OPERATOR: JXM

Solvent ID: 2415029
Alumina ID: 160524A
Copper ID: 2419596-B

Calibration Information:
Initial Calibration Dates: See Calibration History
Initial Calibration Std ID's: See associated data and run log
GEL SOP: GL-OA-E-040

Sequence Number: 110916.B

Analysis Date Time	Data File	Lab Sample ID	Client	Batch #	Dil. Factor	AS Slot #	Analyst	Comments
11/09/2016 05:35	e8k0901.D	WAR160712-99	IBLK	BLANK	1	1	JXM	CLEAN
11/09/2016 05:47	e8k0902.D	WAR160606-DDT	DDT	ICS	1	2	JXM	DDT
11/09/2016 05:59	e8k0903.D	WAR160926-60	1660	CCV	1	3	JXM	PASSES BOTH COLUMNS
11/09/2016 06:11	e8k0904.D	WAR160721-54	1254	CCV	1	4	JXM	PASSES BOTH COLUMNS
11/09/2016 06:24	e8k0905.D	WAR160728-42	1242	CCV	1	5	JXM	PASSES BOTH COLUMNS
11/09/2016 06:36	e8k0906.D	WAR160728-48	1248	CCV	1	6	JXM	PASSES BOTH COLUMNS
11/09/2016 06:48	e8k0907.D	WAR160922-62	1262	CCV	1	7	JXM	HIGH ON FRONT
11/09/2016 07:00	e8k0908.D	WAR160809-68	1268	CCV	1	8	JXM	HIGH ON FRONT
11/09/2016 07:13	e8k0909.D	WAR160809-32	1232	CCV	1	9	JXM	PATTERN ONLY
11/09/2016 07:25	e8k0910.D	WAR160628-21	1221	CCV	1	10	JXM	PATTERN ONLY
11/09/2016 07:37	e8k0911.D	WAR160712-99	IBLK	BLANK	1	11	JXM	CLEAN
11/09/2016 07:50	e8k0912.D	1203665373	MB	1614293	1	12	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 08:02	e8k0913.D	1203665374	LCS	1614293	1	13	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 08:14	e8k0914.D	408430001	ATKG	1614293	5	14	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 08:28	e8k0915.D	408605019	PTQA	1614293	50	15	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 08:43	e8k0916.D	408825001	ATKG	1614293	5	16	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 08:57	e8k0917.D	409254026	HAAL	1614293	1	17	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 09:11	e8k0918.D	1203665375	MS	1614293	1	18	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 09:26	e8k0919.D	1203665376	MSD	1614293	1	19	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 09:40	e8k0920.D	409254027	HAAL	1614293	1	20	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 09:55	e8k0921.D	409254028	HAAL	1614293	10	21	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 10:21	e8k0922.D	WAR160926-60	1660	CCV	1	22	JXM	PASSES BOTH COLUMNS
11/09/2016 10:33	e8k0923.D	WAR160712-99	IBLK	BLANK	1	23	JXM	CLEAN
11/09/2016 10:46	e8k0924.D	409254029	HAAL	1614293	1	24	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 11:00	e8k0925.D	409254031	HAAL	1614293	1	25	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 11:14	e8k0926.D	409254032	HAAL	1614293	1	26	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 11:29	e8k0927.D	409254034	HAAL	1614293	1	27	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 11:43	e8k0928.D	409254036	HAAL	1614293	1	28	JXM	USE: COLUMN 1, Cu and alumina cleanup

ORGANIC RUN LOG - INSTRUMENT ID#ECD8

GEL ORGANIC RUN LOG 110916.B

11/09/2016 11:57	e8k0929.D	409254038	HAAL	1614293	1	29	JXM	USE: COLUMN 1, Cu and alumina cleanup
11/09/2016 12:12	e8k0930.D	WAR160926-60	1660	CCV	1	30	JXM	PASSES BOTH COLUMNS
11/09/2016 12:24	e8k0931.D	WAR160712-99	IBLK	BLANK	1	31	JXM	CLEAN

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
10-NOV-16	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
GC/ECD	SW846 3541/8082, SW846 3541/8082A	Solid	ATKG, HAAL
Batch ID:	**Sample Numbers:**		
1614293	See Below		

Potentially affected work order(s)(SDG): 408825(408819-1),409254

Application Issues:

Failed Yield for Surrogates

Specification and Requirements Exception Description:	**DER Disposition:**
1. Samples 408825001 and 409254028 did not meet acceptance criteria for surrogate recovery.	1. Samples (See Below) did not meet acceptance criteria for surrogate recovery due to dilution. 408825001 (17A-1192-16) Decachlorobiphenyl [28* (32%-139%)]. 409254028 (SS050100) 4cmx [25* (30%-120%)].

Originator's Name:

James Maestas 10-NOV-16

Data Validator/Group Leader:

Jimin Cao 10-NOV-16

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
Haley & Aldrich, Inc. (HAAL)
SDG #: 409254

Product: **Determination of Metals by ICP**
Analytical Method: SW846 3050B/6010C
Analytical Procedure: GL-MA-E-013 REV# 26
Analytical Batches: 1611117 and 1611119

Product: **Determination of Metals by ICP**
Analytical Method: SW846 3010A/6010C
Analytical Procedure: GL-MA-E-013 REV# 26
Analytical Batch: 1611348

Product: **Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**
Analytical Method: SW846 7471B
Analytical Procedure: GL-MA-E-010 REV# 31
Analytical Batch: 1614669

Product: **Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**
Analytical Method: SW846 7470A
Analytical Procedure: GL-MA-E-010 REV# 31
Analytical Batch: 1614671

Preparation Method: SW846 3050B
Preparation Procedure: GL-MA-E-009 REV# 26
Preparation Batches: 1611116 and 1611118

Preparation Method: SW846 3010A
Preparation Procedure: GL-MA-E-008 REV# 18
Preparation Batch: 1611344

Preparation Method: SW846 7471B Prep
Preparation Procedure: GL-MA-E-010 REV# 31
Preparation Batch: 1614668

Preparation Method: SW846 7470A Prep
Preparation Procedure: GL-MA-E-010 REV# 31
Preparation Batch: 1614670

TCLP Preparation Method: EPA 1312
TCLP Preparation Procedure: GL-LB-E-024 REV# 11
TCLP Preparation Batch: 1611084

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
409254001	DP110100
409254002	DP110102
409254003	DP110104
409254004	DP110106

409254005	DP110113
409254006	DP110200
409254007	DP110202
409254008	DP110204
409254009	DP110206
409254010	DP110214
409254011	SS110100
409254012	SS110200
409254013	SD140300
409254014	SD140200
409254015	SD140100
409254016	SD140100DUP
409254017	DP100113
409254018	DP100212
409254019	DP100310
409254020	DP010216
409254021	DP010216
409254022	DP010109
409254023	DP010109
409254024	DP010307
409254025	DP010307
409254029	DP020312
409254030	DP020312
409254032	DP020413
409254033	DP020413
409254034	DP020207
409254035	DP020207
409254036	DP020209
409254037	DP020209
409254038	DP020114
409254039	DP020114
1203657517	TCLP Blank (TB)
1203657595	Method Blank (MB)**ICP**
1203657600	Method Blank (MB)**ICP**
1203658086	Method Blank (MB)**ICP**
1203657596	Laboratory Control Sample (LCS)
1203657601	Laboratory Control Sample (LCS)
1203658087	Laboratory Control Sample (LCS)
1203657599	409254001(DP110100L) Serial Dilution (SD)
1203657604	409254022(DP010109L) Serial Dilution (SD)
1203658090	409254021(DP010216L) Serial Dilution (SD)
1203657597	409254001(DP110100D) Sample Duplicate (DUP)
1203657602	409254022(DP010109D) Sample Duplicate (DUP)
1203658088	409254021(DP010216D) Sample Duplicate (DUP)
1203657516	409254021(DP010216S) Matrix Spike (MS)
1203657598	409254001(DP110100S) Matrix Spike (MS)
1203657603	409254022(DP010109S) Matrix Spike (MS)
1203668749	409254001(DP110100PS) Post Spike (PS)
1203671682	409254022(DP010109PS) Post Spike (PS)
1203666305	Method Blank (MB)**CVAA**
1203666311	Method Blank (MB)**CVAA**
1203666306	Laboratory Control Sample (LCS)
1203666312	Laboratory Control Sample (LCS)
1203666309	409254011(SS110100L) Serial Dilution (SD)
1203666315	409254021(DP010216L) Serial Dilution (SD)
1203666307	409254011(SS110100D) Sample Duplicate (DUP)

1203666313	409254021(DP010216D) Sample Duplicate (DUP)
1203657516	409254021(DP010216S) Matrix Spike (MS)
1203666308	409254011(SS110100S) Matrix Spike (MS)
1203666317	409254021(DP010216PS) Post Spike (PS)

Samples 409254001,002,003,004,005,006,007,008,009,010,011,012,013,014,015,016,017,018,019,020,022,024,029,032,034,036 and 038 in this SDG were analyzed for metals and mercury on a "dry weight corrected" basis. Samples 409254021,023,025,030,033,035,037 and 039 in this SDG were analyzed for metals and mercury on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

CRDL/PQL Requirements
The PQL standard recoveries for SW846 6010C or 6010D met the control limits with the exception of antimony. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. 409254011 (SS110100), 409254012 (SS110200), 409254013 (SD140300), 409254014 (SD140200), 409254015 (SD140100), 409254016 (SD140100DUP), 409254017 (DP100113), 409254018 (DP100212), 409254019 (DP100310) and 409254020 (DP010216)-ICP.

Quality Control (QC) Information

Matrix Spike (MS/MSD) Recovery Statement
The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analytes. The post spike recoveries were within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recoveries may be attributed to possible sample matrix interference and/or non-homogeneity.

Sample	Analyte	Value
1203657516 (DP010216MS)	Mercury	48.1* (75%-125%)
1203657598 (DP110100MS)	Barium	149* (75%-125%)
	Potassium	189* (75%-125%)
	Zinc	65.7* (75%-125%)
1203657603 (DP010109MS)	Antimony	73.2* (75%-125%)
	Potassium	133* (75%-125%)

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. Not all the applicable analyte RPD values were within the acceptance criteria.

Sample	Analyte	Value

1203657597 (DP110100DUP)	Antimony	abs(4030 - 2730)* (+/-1040 ug/kg)
	Lead	153* (0%-20%)
	Manganese	20.4* (0%-20%)
1203657602 (DP010109DUP)	Aluminum	21.8* (0%-20%)
	Barium	23.4* (0%-20%)
	Copper	24.1* (0%-20%)
	Lead	20.8* (0%-20%)

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. Not all the applicable analytes were within the established acceptance criteria. Matrix suppression may be suspected. The data has been qualified.

Sample	Analyte	Value
1203657599 (DP110100SDILT)	Copper	17.4 *(0%-10%)

Technical Information

Preparation/Analytical Method Verification
Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Sample Dilutions
Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. Sample was diluted in order to bring raw values within the linear range of the instrument for calcium, and for the analytes interfered with, in order to ensure that the inter-element correction factors were valid for silver, aluminum and potassium. 409254011 (SS110100)-ICP. Samples required dilutions in order to minimize suppression of beryllium, thallium and antimony due to matrix interferences. 409254011 (SS110100), 409254012 (SS110200), 409254013 (SD140300), 409254014 (SD140200), 409254015 (SD140100), 409254016 (SD140100DUP), 409254018 (DP100212), 409254019 (DP100310) and 409254020 (DP010216)-ICP.

Analyte	409254									
	011	012	013	014	015	016	017	018	019	020
Several	10X 1X	10X 1X	10X 1X	10X 1X	10X 1X	10X 1X	10X 1X	10X 1X	10X 1X	20X 10X 1X

Preparation Information
The samples and associated matrix QC were prepared at a ten times dilution factor or greater to minimize potential interferences arising from the SPLP leaching solution. ICP and CVAA.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

HAAL002 Haley & Aldrich, Inc.

Client SDG: 409254 GEL Work Order: 409254

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
B Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
J Value is estimated
N Metals--The Matrix spike sample recovery is not within specified control limits
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Jamie Johnson**

Date: 18 NOV 2016 **Title: Group Leader**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254001 **CLIENT ID:** DP110100

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 87

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	2230000	ug/Kg		*	P	365	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254002 **CLIENT ID:** DP110102

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 82

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	11900	ug/Kg		*	P	386	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254003 **CLIENT ID:** DP110104

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 82

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	10100	ug/Kg		*	P	360	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254004 **CLIENT ID:** DP110106

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 94.9

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	4820	ug/Kg		*	P	336	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254005 **CLIENT ID:** DP110113

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 77

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	6690	ug/Kg		*	P	390	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254006 **CLIENT ID:** DP110200

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 82

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	9170	ug/Kg		*	P	369	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254007 **CLIENT ID:** DP110202

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 79

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	10800	ug/Kg		*	P	354	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254008 **CLIENT ID:** DP110204

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 83

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	5000	ug/Kg		*	P	381	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254009 **CLIENT ID:** DP110206

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 79

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	6570	ug/Kg		*	P	371	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254010 **CLIENT ID:** DP110214

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 81

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−92−1	Lead	4800	ug/Kg		*	P	380	1	OPTIMA4	111116−3

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254011 **CLIENT ID:** SS110100

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 95.8

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	2950000	ug/kg		*	P	68100	10	OPTIMA4	111116−3
7440−36−0	Antimony	2110	ug/kg		*N	P	331	1	OPTIMA4	111116−3
7440−38−2	Arsenic	4500	ug/kg			P	501	1	OPTIMA4	111116−3
7440−39−3	Barium	89200	ug/kg		*N	P	100	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1000	ug/kg	U		P	1000	10	OPTIMA4	111116−3
7440−43−9	Cadmium	360	ug/kg	B		P	100	1	OPTIMA4	111116−3
7440−70−2	Calcium	183000000	ug/kg			P	80100	10	OPTIMA4	111116−3
7440−47−3	Chromium	7890	ug/kg			P	150	1	OPTIMA4	111116−3
7440−48−4	Cobalt	3720	ug/kg			P	150	1	OPTIMA4	111116−3
7440−50−8	Copper	21000	ug/kg		*E	P	301	1	OPTIMA4	111116−3
7439−89−6	Iron	10600000	ug/kg			P	8010	1	OPTIMA4	111116−3
7439−92−1	Lead	105000	ug/kg		*	P	331	1	OPTIMA4	111116−3
7439−95−4	Magnesium	4820000	ug/kg			P	8520	1	OPTIMA4	111116−3
7439−96−5	Manganese	294000	ug/kg		*	P	200	1	OPTIMA4	111116−3
7439−97−6	Mercury	11.5	ug/kg	B		AV	4.11	1	HG3	111016S1−4
7440−02−0	Nickel	12400	ug/kg			P	150	1	OPTIMA4	111116−3
7440−09−7	Potassium	678000	ug/kg		N	P	64100	10	OPTIMA4	111116−3
7782−49−2	Selenium	1200	ug/kg	B		P	501	1	OPTIMA4	111116−3
7440−22−4	Silver	1000	ug/kg	U		P	1000	10	OPTIMA4	111116−3
7440−23−5	Sodium	399000	ug/kg			P	7010	1	OPTIMA4	111116−3
7440−28−0	Thallium	501	ug/kg	U		P	501	1	OPTIMA4	111116−3
7440−62−2	Vanadium	10800	ug/kg			P	100	1	OPTIMA4	111116−3
7440−66−6	Zinc	56600	ug/kg		N	P	401	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254012 **CLIENT ID:** SS110200

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 83

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	8030000	ug/kg		*	P	8020	1	OPTIMA4	111116−3
7440−36−0	Antimony	389	ug/kg	U	*N	P	389	1	OPTIMA4	111116−3
7440−38−2	Arsenic	11900	ug/kg			P	590	1	OPTIMA4	111116−3
7440−39−3	Barium	265000	ug/kg		*N	P	118	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1180	ug/kg	U		P	1180	10	OPTIMA4	111116−3
7440−43−9	Cadmium	703	ug/kg			P	118	1	OPTIMA4	111116−3
7440−70−2	Calcium	19100000	ug/kg			P	9440	1	OPTIMA4	111116−3
7440−47−3	Chromium	13300	ug/kg			P	177	1	OPTIMA4	111116−3
7440−48−4	Cobalt	10400	ug/kg			P	177	1	OPTIMA4	111116−3
7440−50−8	Copper	23400	ug/kg		*E	P	354	1	OPTIMA4	111116−3
7439−89−6	Iron	18300000	ug/kg			P	9440	1	OPTIMA4	111116−3
7439−92−1	Lead	32200	ug/kg		*	P	389	1	OPTIMA4	111116−3
7439−95−4	Magnesium	9960000	ug/kg			P	10000	1	OPTIMA4	111116−3
7439−96−5	Manganese	853000	ug/kg		*	P	236	1	OPTIMA4	111116−3
7439−97−6	Mercury	30.6	ug/kg			AV	4.71	1	HG3	111016S1−4
7440−02−0	Nickel	24200	ug/kg			P	177	1	OPTIMA4	111116−3
7440−09−7	Potassium	1520000	ug/kg		N	P	7550	1	OPTIMA4	111116−3
7782−49−2	Selenium	590	ug/kg	U		P	590	1	OPTIMA4	111116−3
7440−22−4	Silver	341	ug/kg	B		P	118	1	OPTIMA4	111116−3
7440−23−5	Sodium	835000	ug/kg			P	8260	1	OPTIMA4	111116−3
7440−28−0	Thallium	5900	ug/kg	U		P	5900	10	OPTIMA4	111116−3
7440−62−2	Vanadium	29300	ug/kg			P	118	1	OPTIMA4	111116−3
7440−66−6	Zinc	75500	ug/kg		N	P	472	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254013 **CLIENT ID:** SD140300

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 63

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	9630000	ug/kg		*	P	9820	1	OPTIMA4	111116−3
7440−36−0	Antimony	477	ug/kg	U	*N	P	477	1	OPTIMA4	111116−3
7440−38−2	Arsenic	12300	ug/kg			P	722	1	OPTIMA4	111116−3
7440−39−3	Barium	222000	ug/kg		*N	P	144	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1440	ug/kg	U		P	1440	10	OPTIMA4	111116−3
7440−43−9	Cadmium	585	ug/kg	B		P	144	1	OPTIMA4	111116−3
7440−70−2	Calcium	23100000	ug/kg			P	11600	1	OPTIMA4	111116−3
7440−47−3	Chromium	14500	ug/kg			P	217	1	OPTIMA4	111116−3
7440−48−4	Cobalt	9080	ug/kg			P	217	1	OPTIMA4	111116−3
7440−50−8	Copper	23800	ug/kg		*E	P	433	1	OPTIMA4	111116−3
7439−89−6	Iron	19800000	ug/kg			P	11600	1	OPTIMA4	111116−3
7439−92−1	Lead	14500	ug/kg		*	P	477	1	OPTIMA4	111116−3
7439−95−4	Magnesium	7010000	ug/kg			P	12300	1	OPTIMA4	111116−3
7439−96−5	Manganese	663000	ug/kg		*	P	289	1	OPTIMA4	111116−3
7439−97−6	Mercury	34.2	ug/kg			AV	6.23	1	HG3	111016S1−4
7440−02−0	Nickel	21900	ug/kg			P	217	1	OPTIMA4	111116−3
7440−09−7	Potassium	2050000	ug/kg		N	P	9250	1	OPTIMA4	111116−3
7782−49−2	Selenium	1380	ug/kg	B		P	722	1	OPTIMA4	111116−3
7440−22−4	Silver	311	ug/kg	B		P	144	1	OPTIMA4	111116−3
7440−23−5	Sodium	195000	ug/kg			P	10100	1	OPTIMA4	111116−3
7440−28−0	Thallium	722	ug/kg	U		P	722	1	OPTIMA4	111116−3
7440−62−2	Vanadium	30700	ug/kg			P	144	1	OPTIMA4	111116−3
7440−66−6	Zinc	87500	ug/kg		N	P	578	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254014 **CLIENT ID:** SD140200

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 56

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	11100000	ug/kg		*	P	11400	1	OPTIMA4	111116−3
7440−36−0	Antimony	553	ug/kg	U	*N	P	553	1	OPTIMA4	111116−3
7440−38−2	Arsenic	9950	ug/kg			P	837	1	OPTIMA4	111116−3
7440−39−3	Barium	263000	ug/kg		*N	P	167	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1670	ug/kg	U		P	1670	10	OPTIMA4	111116−3
7440−43−9	Cadmium	788	ug/kg	B		P	167	1	OPTIMA4	111116−3
7440−70−2	Calcium	29700000	ug/kg			P	13400	1	OPTIMA4	111116−3
7440−47−3	Chromium	17000	ug/kg			P	251	1	OPTIMA4	111116−3
7440−48−4	Cobalt	9960	ug/kg			P	251	1	OPTIMA4	111116−3
7440−50−8	Copper	26600	ug/kg		*E	P	502	1	OPTIMA4	111116−3
7439−89−6	Iron	21100000	ug/kg			P	13400	1	OPTIMA4	111116−3
7439−92−1	Lead	16600	ug/kg		*	P	553	1	OPTIMA4	111116−3
7439−95−4	Magnesium	9470000	ug/kg			P	14200	1	OPTIMA4	111116−3
7439−96−5	Manganese	784000	ug/kg		*	P	335	1	OPTIMA4	111116−3
7439−97−6	Mercury	42.2	ug/kg			AV	6.29	1	HG3	111016S1−4
7440−02−0	Nickel	24700	ug/kg			P	251	1	OPTIMA4	111116−3
7440−09−7	Potassium	2370000	ug/kg		N	P	10700	1	OPTIMA4	111116−3
7782−49−2	Selenium	2210	ug/kg	B		P	837	1	OPTIMA4	111116−3
7440−22−4	Silver	348	ug/kg	B		P	167	1	OPTIMA4	111116−3
7440−23−5	Sodium	221000	ug/kg			P	11700	1	OPTIMA4	111116−3
7440−28−0	Thallium	837	ug/kg	U		P	837	1	OPTIMA4	111116−3
7440−62−2	Vanadium	35700	ug/kg			P	167	1	OPTIMA4	111116−3
7440−66−6	Zinc	112000	ug/kg		N	P	670	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254015 **CLIENT ID:** SD140100

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 62

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	10300000	ug/kg		*	P	9900	1	OPTIMA4	111116−3
7440−36−0	Antimony	480	ug/kg	U	*N	P	480	1	OPTIMA4	111116−3
7440−38−2	Arsenic	10900	ug/kg			P	728	1	OPTIMA4	111116−3
7440−39−3	Barium	244000	ug/kg		*N	P	146	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1460	ug/kg	U		P	1460	10	OPTIMA4	111116−3
7440−43−9	Cadmium	740	ug/kg			P	146	1	OPTIMA4	111116−3
7440−70−2	Calcium	32900000	ug/kg			P	11600	1	OPTIMA4	111116−3
7440−47−3	Chromium	16100	ug/kg			P	218	1	OPTIMA4	111116−3
7440−48−4	Cobalt	9260	ug/kg			P	218	1	OPTIMA4	111116−3
7440−50−8	Copper	24300	ug/kg		*E	P	437	1	OPTIMA4	111116−3
7439−89−6	Iron	19800000	ug/kg			P	11600	1	OPTIMA4	111116−3
7439−92−1	Lead	14900	ug/kg		*	P	480	1	OPTIMA4	111116−3
7439−95−4	Magnesium	10300000	ug/kg			P	12400	1	OPTIMA4	111116−3
7439−96−5	Manganese	706000	ug/kg		*	P	291	1	OPTIMA4	111116−3
7439−97−6	Mercury	35.5	ug/kg			AV	6.27	1	HG3	111016S1−4
7440−02−0	Nickel	23100	ug/kg			P	218	1	OPTIMA4	111116−3
7440−09−7	Potassium	2060000	ug/kg		N	P	9310	1	OPTIMA4	111116−3
7782−49−2	Selenium	1950	ug/kg	B		P	728	1	OPTIMA4	111116−3
7440−22−4	Silver	217	ug/kg	B		P	146	1	OPTIMA4	111116−3
7440−23−5	Sodium	263000	ug/kg			P	10200	1	OPTIMA4	111116−3
7440−28−0	Thallium	728	ug/kg	U		P	728	1	OPTIMA4	111116−3
7440−62−2	Vanadium	33300	ug/kg			P	146	1	OPTIMA4	111116−3
7440−66−6	Zinc	106000	ug/kg		N	P	582	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254016 **CLIENT ID:** SD140100DUP

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 63

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	10000000	ug/kg		*	P	10400	1	OPTIMA4	111116−3
7440−36−0	Antimony	506	ug/kg	U	*N	P	506	1	OPTIMA4	111116−3
7440−38−2	Arsenic	11400	ug/kg			P	766	1	OPTIMA4	111116−3
7440−39−3	Barium	243000	ug/kg		*N	P	153	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1530	ug/kg	U		P	1530	10	OPTIMA4	111116−3
7440−43−9	Cadmium	708	ug/kg	B		P	153	1	OPTIMA4	111116−3
7440−70−2	Calcium	26700000	ug/kg			P	12300	1	OPTIMA4	111116−3
7440−47−3	Chromium	15600	ug/kg			P	230	1	OPTIMA4	111116−3
7440−48−4	Cobalt	9360	ug/kg			P	230	1	OPTIMA4	111116−3
7440−50−8	Copper	23400	ug/kg		*E	P	460	1	OPTIMA4	111116−3
7439−89−6	Iron	19500000	ug/kg			P	12300	1	OPTIMA4	111116−3
7439−92−1	Lead	15000	ug/kg		*	P	506	1	OPTIMA4	111116−3
7439−95−4	Magnesium	9400000	ug/kg			P	13000	1	OPTIMA4	111116−3
7439−96−5	Manganese	668000	ug/kg		*	P	307	1	OPTIMA4	111116−3
7439−97−6	Mercury	36.5	ug/kg			AV	5.55	1	HG3	111016S1−4
7440−02−0	Nickel	23000	ug/kg			P	230	1	OPTIMA4	111116−3
7440−09−7	Potassium	1960000	ug/kg		N	P	9810	1	OPTIMA4	111116−3
7782−49−2	Selenium	2360	ug/kg	B		P	766	1	OPTIMA4	111116−3
7440−22−4	Silver	328	ug/kg	B		P	153	1	OPTIMA4	111116−3
7440−23−5	Sodium	248000	ug/kg			P	10700	1	OPTIMA4	111116−3
7440−28−0	Thallium	766	ug/kg	U		P	766	1	OPTIMA4	111116−3
7440−62−2	Vanadium	33200	ug/kg			P	153	1	OPTIMA4	111116−3
7440−66−6	Zinc	108000	ug/kg		N	P	613	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254017 **CLIENT ID:** DP100113

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 73

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	6650000	ug/kg		*	P	7990	1	OPTIMA4	111116−3
7440−36−0	Antimony	388	ug/kg	U	*N	P	388	1	OPTIMA4	111116−3
7440−38−2	Arsenic	9860	ug/kg			P	588	1	OPTIMA4	111116−3
7440−39−3	Barium	254000	ug/kg		*N	P	118	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1180	ug/kg	U		P	1180	10	OPTIMA4	111116−3
7440−43−9	Cadmium	328	ug/kg	B		P	118	1	OPTIMA4	111116−3
7440−70−2	Calcium	22400000	ug/kg			P	9400	1	OPTIMA4	111116−3
7440−47−3	Chromium	11800	ug/kg			P	176	1	OPTIMA4	111116−3
7440−48−4	Cobalt	6800	ug/kg			P	176	1	OPTIMA4	111116−3
7440−50−8	Copper	13300	ug/kg		*E	P	353	1	OPTIMA4	111116−3
7439−89−6	Iron	15300000	ug/kg			P	9400	1	OPTIMA4	111116−3
7439−92−1	Lead	9500	ug/kg		*	P	388	1	OPTIMA4	111116−3
7439−95−4	Magnesium	8790000	ug/kg			P	9990	1	OPTIMA4	111116−3
7439−96−5	Manganese	336000	ug/kg		*	P	235	1	OPTIMA4	111116−3
7439−97−6	Mercury	30.2	ug/kg			AV	5.32	1	HG3	111016S1−4
7440−02−0	Nickel	17700	ug/kg			P	176	1	OPTIMA4	111116−3
7440−09−7	Potassium	1470000	ug/kg		N	P	7520	1	OPTIMA4	111116−3
7782−49−2	Selenium	588	ug/kg	U		P	588	1	OPTIMA4	111116−3
7440−22−4	Silver	127	ug/kg	B		P	118	1	OPTIMA4	111116−3
7440−23−5	Sodium	264000	ug/kg			P	8230	1	OPTIMA4	111116−3
7440−28−0	Thallium	5880	ug/kg	U		P	5880	10	OPTIMA4	111116−3
7440−62−2	Vanadium	23000	ug/kg			P	118	1	OPTIMA4	111116−3
7440−66−6	Zinc	49100	ug/kg		N	P	470	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254018 **CLIENT ID:** DP100212

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 75

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	9700000	ug/kg		*	P	8990	1	OPTIMA4	111116−3
7440−36−0	Antimony	436	ug/kg	U	*N	P	436	1	OPTIMA4	111116−3
7440−38−2	Arsenic	5820	ug/kg			P	661	1	OPTIMA4	111116−3
7440−39−3	Barium	239000	ug/kg		*N	P	132	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1320	ug/kg	U		P	1320	10	OPTIMA4	111116−3
7440−43−9	Cadmium	434	ug/kg	B		P	132	1	OPTIMA4	111116−3
7440−70−2	Calcium	19900000	ug/kg			P	10600	1	OPTIMA4	111116−3
7440−47−3	Chromium	15200	ug/kg			P	198	1	OPTIMA4	111116−3
7440−48−4	Cobalt	9870	ug/kg			P	198	1	OPTIMA4	111116−3
7440−50−8	Copper	23900	ug/kg		*E	P	397	1	OPTIMA4	111116−3
7439−89−6	Iron	13700000	ug/kg			P	10600	1	OPTIMA4	111116−3
7439−92−1	Lead	13800	ug/kg		*	P	436	1	OPTIMA4	111116−3
7439−95−4	Magnesium	7840000	ug/kg			P	11200	1	OPTIMA4	111116−3
7439−96−5	Manganese	433000	ug/kg		*	P	265	1	OPTIMA4	111116−3
7439−97−6	Mercury	31.3	ug/kg			AV	5.12	1	HG3	111016S1−4
7440−02−0	Nickel	24700	ug/kg			P	198	1	OPTIMA4	111116−3
7440−09−7	Potassium	1980000	ug/kg		N	P	8460	1	OPTIMA4	111116−3
7782−49−2	Selenium	948	ug/kg	B		P	661	1	OPTIMA4	111116−3
7440−22−4	Silver	250	ug/kg	B		P	132	1	OPTIMA4	111116−3
7440−23−5	Sodium	234000	ug/kg			P	9260	1	OPTIMA4	111116−3
7440−28−0	Thallium	6610	ug/kg	U		P	6610	10	OPTIMA4	111116−3
7440−62−2	Vanadium	30600	ug/kg			P	132	1	OPTIMA4	111116−3
7440−66−6	Zinc	64800	ug/kg		N	P	529	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254019 **CLIENT ID:** DP100310

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 75

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	5650000	ug/kg		*	P	7940	1	OPTIMA4	111116−3
7440−36−0	Antimony	386	ug/kg	U	*N	P	386	1	OPTIMA4	111116−3
7440−38−2	Arsenic	6630	ug/kg			P	584	1	OPTIMA4	111116−3
7440−39−3	Barium	224000	ug/kg		*N	P	117	1	OPTIMA4	111116−3
7440−41−7	Beryllium	1170	ug/kg	U		P	1170	10	OPTIMA4	111116−3
7440−43−9	Cadmium	399	ug/kg	B		P	117	1	OPTIMA4	111116−3
7440−70−2	Calcium	19300000	ug/kg			P	9350	1	OPTIMA4	111116−3
7440−47−3	Chromium	10100	ug/kg			P	175	1	OPTIMA4	111116−3
7440−48−4	Cobalt	5830	ug/kg			P	175	1	OPTIMA4	111116−3
7440−50−8	Copper	14900	ug/kg		*E	P	350	1	OPTIMA4	111116−3
7439−89−6	Iron	12500000	ug/kg			P	9350	1	OPTIMA4	111116−3
7439−92−1	Lead	8860	ug/kg		*	P	386	1	OPTIMA4	111116−3
7439−95−4	Magnesium	7460000	ug/kg			P	9930	1	OPTIMA4	111116−3
7439−96−5	Manganese	255000	ug/kg		*	P	234	1	OPTIMA4	111116−3
7439−97−6	Mercury	21.9	ug/kg			AV	4.52	1	HG3	111016S1−4
7440−02−0	Nickel	14900	ug/kg			P	175	1	OPTIMA4	111116−3
7440−09−7	Potassium	1270000	ug/kg		N	P	7480	1	OPTIMA4	111116−3
7782−49−2	Selenium	2010	ug/kg	B		P	584	1	OPTIMA4	111116−3
7440−22−4	Silver	142	ug/kg	B		P	117	1	OPTIMA4	111116−3
7440−23−5	Sodium	248000	ug/kg			P	8180	1	OPTIMA4	111116−3
7440−28−0	Thallium	5840	ug/kg	U		P	5840	10	OPTIMA4	111116−3
7440−62−2	Vanadium	20200	ug/kg			P	117	1	OPTIMA4	111116−3
7440−66−6	Zinc	43500	ug/kg		N	P	467	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254020 **CLIENT ID:** DP010216

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 66

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	14500000	ug/kg		*	P	9050	1	OPTIMA4	111116−3
7440−36−0	Antimony	4390	ug/kg	U	*N	P	4390	10	OPTIMA4	111116−3
7440−38−2	Arsenic	16500	ug/kg			P	665	1	OPTIMA4	111116−3
7440−39−3	Barium	427000	ug/kg		*N	P	133	1	OPTIMA4	111116−3
7440−41−7	Beryllium	2660	ug/kg	U		P	2660	20	OPTIMA4	111116−3
7440−43−9	Cadmium	859	ug/kg			P	133	1	OPTIMA4	111116−3
7440−70−2	Calcium	15500000	ug/kg			P	10600	1	OPTIMA4	111116−3
7440−47−3	Chromium	19700	ug/kg			P	200	1	OPTIMA4	111116−3
7440−48−4	Cobalt	11400	ug/kg			P	200	1	OPTIMA4	111116−3
7440−50−8	Copper	30600	ug/kg		*E	P	399	1	OPTIMA4	111116−3
7439−89−6	Iron	27100000	ug/kg			P	10600	1	OPTIMA4	111116−3
7439−92−1	Lead	20200	ug/kg		*	P	439	1	OPTIMA4	111116−3
7439−95−4	Magnesium	6730000	ug/kg			P	11300	1	OPTIMA4	111116−3
7439−96−5	Manganese	1050000	ug/kg		*	P	266	1	OPTIMA4	111116−3
7439−97−6	Mercury	51.4	ug/kg			AV	5.56	1	HG3	111016S1−4
7440−02−0	Nickel	30100	ug/kg			P	200	1	OPTIMA4	111116−3
7440−09−7	Potassium	2660000	ug/kg		N	P	8520	1	OPTIMA4	111116−3
7782−49−2	Selenium	2470	ug/kg	B		P	665	1	OPTIMA4	111116−3
7440−22−4	Silver	725	ug/kg			P	133	1	OPTIMA4	111116−3
7440−23−5	Sodium	2080000	ug/kg			P	9310	1	OPTIMA4	111116−3
7440−28−0	Thallium	6650	ug/kg	U		P	6650	10	OPTIMA4	111116−3
7440−62−2	Vanadium	44900	ug/kg			P	133	1	OPTIMA4	111116−3
7440−66−6	Zinc	95100	ug/kg		N	P	532	1	OPTIMA4	111116−3

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254021 **CLIENT ID:** DP010216

CONTRACT: HAAL00201

MATRIX: SPLP **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.00067	mg/L	U	N	AV	0.00067	1	HG4	111016W1−5
7440−38−2	Arsenic	94.1	ug/L	B		P	50	1	OPTIMA5	110216−2
7440−39−3	Barium	61.6	ug/L			P	10	1	OPTIMA5	110216−2
7440−43−9	Cadmium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7440−47−3	Chromium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7439−92−1	Lead	33	ug/L	U		P	33	1	OPTIMA5	110216−2
7782−49−2	Selenium	60	ug/L	U		P	60	1	OPTIMA5	110216−2
7440−22−4	Silver	10	ug/L	U		P	10	1	OPTIMA5	110216−2

***Analytical Methods:**

P **SW846 3010A/6010C**
AV **SW846 7470A**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254022 **CLIENT ID:** DP010109

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 76

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	8980000	ug/kg		*	P	7620	1	OPTIMA3	111616−1
7440−36−0	Antimony	454	ug/kg	B	*N	P	370	1	OPTIMA3	111616−1
7440−38−2	Arsenic	7300	ug/kg			P	560	1	OPTIMA3	111616−1
7440−39−3	Barium	278000	ug/kg		*N	P	112	1	OPTIMA3	111616−1
7440−41−7	Beryllium	685	ug/kg			P	112	1	OPTIMA3	111616−1
7440−43−9	Cadmium	289	ug/kg	B		P	112	1	OPTIMA3	111616−1
7440−70−2	Calcium	14700000	ug/kg			P	8970	1	OPTIMA3	111616−1
7440−47−3	Chromium	12700	ug/kg			P	168	1	OPTIMA3	111616−1
7440−48−4	Cobalt	6800	ug/kg			P	168	1	OPTIMA3	111616−1
7440−50−8	Copper	17400	ug/kg		*E	P	336	1	OPTIMA3	111616−1
7439−89−6	Iron	17600000	ug/kg			P	8970	1	OPTIMA3	111616−1
7439−92−1	Lead	11200	ug/kg		*	P	370	1	OPTIMA3	111616−1
7439−95−4	Magnesium	6440000	ug/kg			P	9530	1	OPTIMA3	111616−1
7439−96−5	Manganese	692000	ug/kg		*	P	224	1	OPTIMA3	111616−1
7439−97−6	Mercury	29.6	ug/kg			AV	4.69	1	HG3	111016S1−4
7440−02−0	Nickel	19800	ug/kg			P	168	1	OPTIMA3	111616−1
7440−09−7	Potassium	1670000	ug/kg		N	P	7170	1	OPTIMA3	111616−1
7782−49−2	Selenium	2300	ug/kg	B		P	560	1	OPTIMA3	111616−1
7440−22−4	Silver	753	ug/kg			P	112	1	OPTIMA3	111616−1
7440−23−5	Sodium	680000	ug/kg			P	7850	1	OPTIMA3	111616−1
7440−28−0	Thallium	560	ug/kg	U		P	560	1	OPTIMA3	111616−1
7440−62−2	Vanadium	29400	ug/kg			P	112	1	OPTIMA3	111616−1
7440−66−6	Zinc	56000	ug/kg		N	P	448	1	OPTIMA3	111616−1

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254023 **CLIENT ID:** DP010109

CONTRACT: HAAL00201

MATRIX: SPLP **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.00067	mg/L	U	N	AV	0.00067	1	HG4	111016W1−5
7440−38−2	Arsenic	50	ug/L	U		P	50	1	OPTIMA5	110216−2
7440−39−3	Barium	83.5	ug/L			P	10	1	OPTIMA5	110216−2
7440−43−9	Cadmium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7440−47−3	Chromium	12	ug/L	B		P	10	1	OPTIMA5	110216−2
7439−92−1	Lead	33	ug/L	U		P	33	1	OPTIMA5	110216−2
7782−49−2	Selenium	60	ug/L	U		P	60	1	OPTIMA5	110216−2
7440−22−4	Silver	10	ug/L	U		P	10	1	OPTIMA5	110216−2

***Analytical Methods:**

P **SW846 3010A/6010C**
AV **SW846 7470A**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254024 **CLIENT ID:** DP010307

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 86

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	4380000	ug/kg		*	P	7490	1	OPTIMA3	111616−1
7440−36−0	Antimony	547	ug/kg	B	*N	P	364	1	OPTIMA3	111616−1
7440−38−2	Arsenic	5830	ug/kg			P	551	1	OPTIMA3	111616−1
7440−39−3	Barium	155000	ug/kg		*N	P	110	1	OPTIMA3	111616−1
7440−41−7	Beryllium	402	ug/kg	B		P	110	1	OPTIMA3	111616−1
7440−43−9	Cadmium	201	ug/kg	B		P	110	1	OPTIMA3	111616−1
7440−70−2	Calcium	30700000	ug/kg			P	8820	1	OPTIMA3	111616−1
7440−47−3	Chromium	15100	ug/kg			P	165	1	OPTIMA3	111616−1
7440−48−4	Cobalt	4280	ug/kg			P	165	1	OPTIMA3	111616−1
7440−50−8	Copper	8870	ug/kg		*E	P	331	1	OPTIMA3	111616−1
7439−89−6	Iron	10500000	ug/kg			P	8820	1	OPTIMA3	111616−1
7439−92−1	Lead	6030	ug/kg		*	P	364	1	OPTIMA3	111616−1
7439−95−4	Magnesium	5840000	ug/kg			P	9370	1	OPTIMA3	111616−1
7439−96−5	Manganese	235000	ug/kg		*	P	220	1	OPTIMA3	111616−1
7439−97−6	Mercury	24	ug/kg			AV	4.29	1	HG3	111016S1−4
7440−02−0	Nickel	15400	ug/kg			P	165	1	OPTIMA3	111616−1
7440−09−7	Potassium	900000	ug/kg		N	P	7050	1	OPTIMA3	111616−1
7782−49−2	Selenium	1640	ug/kg	B		P	551	1	OPTIMA3	111616−1
7440−22−4	Silver	110	ug/kg	U		P	110	1	OPTIMA3	111616−1
7440−23−5	Sodium	213000	ug/kg			P	7710	1	OPTIMA3	111616−1
7440−28−0	Thallium	551	ug/kg	U		P	551	1	OPTIMA3	111616−1
7440−62−2	Vanadium	14900	ug/kg			P	110	1	OPTIMA3	111616−1
7440−66−6	Zinc	32100	ug/kg		N	P	441	1	OPTIMA3	111616−1

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254025 **CLIENT ID:** DP010307

CONTRACT: HAAL00201

MATRIX: SPLP **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.00067	mg/L	U	N	AV	0.00067	1	HG4	111016W1−5
7440−38−2	Arsenic	74.9	ug/L	B		P	50	1	OPTIMA5	110216−2
7440−39−3	Barium	63.1	ug/L			P	10	1	OPTIMA5	110216−2
7440−43−9	Cadmium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7440−47−3	Chromium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7439−92−1	Lead	33	ug/L	U		P	33	1	OPTIMA5	110216−2
7782−49−2	Selenium	60	ug/L	U		P	60	1	OPTIMA5	110216−2
7440−22−4	Silver	16.4	ug/L	B		P	10	1	OPTIMA5	110216−2

***Analytical Methods:**

P **SW846 3010A/6010C**

AV **SW846 7470A**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254029 **CLIENT ID:** DP020312

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 74

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	13800000	ug/kg		*	P	8290	1	OPTIMA3	111616−1
7440−36−0	Antimony	556	ug/kg	B	*N	P	402	1	OPTIMA3	111616−1
7440−38−2	Arsenic	9960	ug/kg			P	610	1	OPTIMA3	111616−1
7440−39−3	Barium	252000	ug/kg		*N	P	122	1	OPTIMA3	111616−1
7440−41−7	Beryllium	1030	ug/kg			P	122	1	OPTIMA3	111616−1
7440−43−9	Cadmium	127	ug/kg	B		P	122	1	OPTIMA3	111616−1
7440−70−2	Calcium	8360000	ug/kg			P	9750	1	OPTIMA3	111616−1
7440−47−3	Chromium	18000	ug/kg			P	183	1	OPTIMA3	111616−1
7440−48−4	Cobalt	8310	ug/kg			P	183	1	OPTIMA3	111616−1
7440−50−8	Copper	25300	ug/kg		*E	P	366	1	OPTIMA3	111616−1
7439−89−6	Iron	23900000	ug/kg			P	9750	1	OPTIMA3	111616−1
7439−92−1	Lead	17800	ug/kg		*	P	402	1	OPTIMA3	111616−1
7439−95−4	Magnesium	6290000	ug/kg			P	10400	1	OPTIMA3	111616−1
7439−96−5	Manganese	461000	ug/kg		*	P	244	1	OPTIMA3	111616−1
7439−97−6	Mercury	43.4	ug/kg			AV	5.42	1	HG3	111016S1−4
7440−02−0	Nickel	26300	ug/kg			P	183	1	OPTIMA3	111616−1
7440−09−7	Potassium	2670000	ug/kg		N	P	7800	1	OPTIMA3	111616−1
7782−49−2	Selenium	2730	ug/kg	B		P	610	1	OPTIMA3	111616−1
7440−22−4	Silver	1020	ug/kg			P	122	1	OPTIMA3	111616−1
7440−23−5	Sodium	251000	ug/kg			P	8530	1	OPTIMA3	111616−1
7440−28−0	Thallium	610	ug/kg	U		P	610	1	OPTIMA3	111616−1
7440−62−2	Vanadium	41700	ug/kg			P	122	1	OPTIMA3	111616−1
7440−66−6	Zinc	80200	ug/kg		N	P	488	1	OPTIMA3	111616−1

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254030 **CLIENT ID:** DP020312

CONTRACT: HAAL00201

MATRIX: SPLP **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.00067	mg/L	U	N	AV	0.00067	1	HG4	111016W1−5
7440−38−2	Arsenic	61	ug/L	B		P	50	1	OPTIMA5	110216−2
7440−39−3	Barium	93.4	ug/L			P	10	1	OPTIMA5	110216−2
7440−43−9	Cadmium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7440−47−3	Chromium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7439−92−1	Lead	33	ug/L	U		P	33	1	OPTIMA5	110216−2
7782−49−2	Selenium	60	ug/L	U		P	60	1	OPTIMA5	110216−2
7440−22−4	Silver	10	ug/L	U		P	10	1	OPTIMA5	110216−2

***Analytical Methods:**

P **SW846 3010A/6010C**
AV **SW846 7470A**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254032 **CLIENT ID:** DP020413

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 82

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	6420000	ug/kg		*	P	7230	1	OPTIMA3	111616−1
7440−36−0	Antimony	500	ug/kg	B	*N	P	351	1	OPTIMA3	111616−1
7440−38−2	Arsenic	9220	ug/kg			P	532	1	OPTIMA3	111616−1
7440−39−3	Barium	205000	ug/kg		*N	P	106	1	OPTIMA3	111616−1
7440−41−7	Beryllium	568	ug/kg			P	106	1	OPTIMA3	111616−1
7440−43−9	Cadmium	208	ug/kg	B		P	106	1	OPTIMA3	111616−1
7440−70−2	Calcium	16700000	ug/kg			P	8510	1	OPTIMA3	111616−1
7440−47−3	Chromium	10000	ug/kg			P	160	1	OPTIMA3	111616−1
7440−48−4	Cobalt	5630	ug/kg			P	160	1	OPTIMA3	111616−1
7440−50−8	Copper	16200	ug/kg		*E	P	319	1	OPTIMA3	111616−1
7439−89−6	Iron	13900000	ug/kg			P	8510	1	OPTIMA3	111616−1
7439−92−1	Lead	8980	ug/kg		*	P	351	1	OPTIMA3	111616−1
7439−95−4	Magnesium	6520000	ug/kg			P	9040	1	OPTIMA3	111616−1
7439−96−5	Manganese	396000	ug/kg		*	P	213	1	OPTIMA3	111616−1
7439−97−6	Mercury	17	ug/kg			AV	4.43	1	HG3	111016S1−4
7440−02−0	Nickel	16300	ug/kg			P	160	1	OPTIMA3	111616−1
7440−09−7	Potassium	1430000	ug/kg		N	P	6810	1	OPTIMA3	111616−1
7782−49−2	Selenium	1910	ug/kg	B		P	532	1	OPTIMA3	111616−1
7440−22−4	Silver	522	ug/kg	B		P	106	1	OPTIMA3	111616−1
7440−23−5	Sodium	179000	ug/kg			P	7440	1	OPTIMA3	111616−1
7440−28−0	Thallium	532	ug/kg	U		P	532	1	OPTIMA3	111616−1
7440−62−2	Vanadium	22600	ug/kg			P	106	1	OPTIMA3	111616−1
7440−66−6	Zinc	44300	ug/kg		N	P	425	1	OPTIMA3	111616−1

***Analytical Methods:**

AV **SW846 7471B**

P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254033 **CLIENT ID:** DP020413

CONTRACT: HAAL00201

MATRIX: SPLP **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.00067	mg/L	U	N	AV	0.00067	1	HG4	111016W1−5
7440−38−2	Arsenic	61.2	ug/L	B		P	50	1	OPTIMA5	110216−2
7440−39−3	Barium	32.2	ug/L	B		P	10	1	OPTIMA5	110216−2
7440−43−9	Cadmium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7440−47−3	Chromium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7439−92−1	Lead	33	ug/L	U		P	33	1	OPTIMA5	110216−2
7782−49−2	Selenium	60	ug/L	U		P	60	1	OPTIMA5	110216−2
7440−22−4	Silver	10	ug/L	U		P	10	1	OPTIMA5	110216−2

***Analytical Methods:**

P **SW846 3010A/6010C**
AV **SW846 7470A**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254034 **CLIENT ID:** DP020207

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 80

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	9270000	ug/kg		*	P	7780	1	OPTIMA3	111616−1
7440−36−0	Antimony	670	ug/kg	B	*N	P	378	1	OPTIMA3	111616−1
7440−38−2	Arsenic	13900	ug/kg			P	572	1	OPTIMA3	111616−1
7440−39−3	Barium	265000	ug/kg		*N	P	114	1	OPTIMA3	111616−1
7440−41−7	Beryllium	784	ug/kg			P	114	1	OPTIMA3	111616−1
7440−43−9	Cadmium	193	ug/kg	B		P	114	1	OPTIMA3	111616−1
7440−70−2	Calcium	19000000	ug/kg			P	9150	1	OPTIMA3	111616−1
7440−47−3	Chromium	14000	ug/kg			P	172	1	OPTIMA3	111616−1
7440−48−4	Cobalt	7210	ug/kg			P	172	1	OPTIMA3	111616−1
7440−50−8	Copper	24900	ug/kg		*E	P	343	1	OPTIMA3	111616−1
7439−89−6	Iron	19500000	ug/kg			P	9150	1	OPTIMA3	111616−1
7439−92−1	Lead	12500	ug/kg		*	P	378	1	OPTIMA3	111616−1
7439−95−4	Magnesium	7430000	ug/kg			P	9730	1	OPTIMA3	111616−1
7439−96−5	Manganese	646000	ug/kg		*	P	229	1	OPTIMA3	111616−1
7439−97−6	Mercury	29.3	ug/kg			AV	4.91	1	HG3	111016S1−4
7440−02−0	Nickel	20300	ug/kg			P	172	1	OPTIMA3	111616−1
7440−09−7	Potassium	1990000	ug/kg		N	P	7320	1	OPTIMA3	111616−1
7782−49−2	Selenium	2230	ug/kg	B		P	572	1	OPTIMA3	111616−1
7440−22−4	Silver	759	ug/kg			P	114	1	OPTIMA3	111616−1
7440−23−5	Sodium	211000	ug/kg			P	8010	1	OPTIMA3	111616−1
7440−28−0	Thallium	572	ug/kg	U		P	572	1	OPTIMA3	111616−1
7440−62−2	Vanadium	31500	ug/kg			P	114	1	OPTIMA3	111616−1
7440−66−6	Zinc	63800	ug/kg		N	P	458	1	OPTIMA3	111616−1

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254035 **CLIENT ID:** DP020207

CONTRACT: HAAL00201

MATRIX: SPLP **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.00067	mg/L	U	N	AV	0.00067	1	HG4	111016W1−5
7440−38−2	Arsenic	55.2	ug/L	B		P	50	1	OPTIMA5	110216−2
7440−39−3	Barium	64.2	ug/L			P	10	1	OPTIMA5	110216−2
7440−43−9	Cadmium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7440−47−3	Chromium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7439−92−1	Lead	33	ug/L	U		P	33	1	OPTIMA5	110216−2
7782−49−2	Selenium	60	ug/L	U		P	60	1	OPTIMA5	110216−2
7440−22−4	Silver	10	ug/L	U		P	10	1	OPTIMA5	110216−2

***Analytical Methods:**

P **SW846 3010A/6010C**

AV **SW846 7470A**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254036 **CLIENT ID:** DP020209

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 89

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	4850000	ug/kg		*	P	6970	1	OPTIMA3	111616−1
7440−36−0	Antimony	416	ug/kg	B	*N	P	338	1	OPTIMA3	111616−1
7440−38−2	Arsenic	8090	ug/kg			P	513	1	OPTIMA3	111616−1
7440−39−3	Barium	217000	ug/kg		*N	P	103	1	OPTIMA3	111616−1
7440−41−7	Beryllium	422	ug/kg	B		P	103	1	OPTIMA3	111616−1
7440−43−9	Cadmium	103	ug/kg	U		P	103	1	OPTIMA3	111616−1
7440−70−2	Calcium	16100000	ug/kg			P	8200	1	OPTIMA3	111616−1
7440−47−3	Chromium	8590	ug/kg			P	154	1	OPTIMA3	111616−1
7440−48−4	Cobalt	4330	ug/kg			P	154	1	OPTIMA3	111616−1
7440−50−8	Copper	7710	ug/kg		*E	P	308	1	OPTIMA3	111616−1
7439−89−6	Iron	12200000	ug/kg			P	8200	1	OPTIMA3	111616−1
7439−92−1	Lead	6750	ug/kg		*	P	338	1	OPTIMA3	111616−1
7439−95−4	Magnesium	6390000	ug/kg			P	8720	1	OPTIMA3	111616−1
7439−96−5	Manganese	348000	ug/kg		*	P	205	1	OPTIMA3	111616−1
7439−97−6	Mercury	13	ug/kg			AV	4.18	1	HG3	111016S1−4
7440−02−0	Nickel	11900	ug/kg			P	154	1	OPTIMA3	111616−1
7440−09−7	Potassium	1030000	ug/kg		N	P	6560	1	OPTIMA3	111616−1
7782−49−2	Selenium	1880	ug/kg	B		P	513	1	OPTIMA3	111616−1
7440−22−4	Silver	433	ug/kg	B		P	103	1	OPTIMA3	111616−1
7440−23−5	Sodium	207000	ug/kg			P	7180	1	OPTIMA3	111616−1
7440−28−0	Thallium	513	ug/kg	U		P	513	1	OPTIMA3	111616−1
7440−62−2	Vanadium	17700	ug/kg			P	103	1	OPTIMA3	111616−1
7440−66−6	Zinc	34000	ug/kg		N	P	410	1	OPTIMA3	111616−1

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254037 **CLIENT ID:** DP020209

CONTRACT: HAAL00201

MATRIX: SPLP **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.00067	mg/L	U	N	AV	0.00067	1	HG4	111016W1−5
7440−38−2	Arsenic	50	ug/L	U		P	50	1	OPTIMA5	110216−2
7440−39−3	Barium	49.8	ug/L	B		P	10	1	OPTIMA5	110216−2
7440−43−9	Cadmium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7440−47−3	Chromium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7439−92−1	Lead	33	ug/L	U		P	33	1	OPTIMA5	110216−2
7782−49−2	Selenium	79.9	ug/L	B		P	60	1	OPTIMA5	110216−2
7440−22−4	Silver	10	ug/L	U		P	10	1	OPTIMA5	110216−2

***Analytical Methods:**

P **SW846 3010A/6010C**

AV **SW846 7470A**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254038 **CLIENT ID:** DP020114

CONTRACT: HAAL00201

MATRIX: Soil **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low **%SOLIDS:** 98

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7429−90−5	Aluminum	1390000	ug/kg		*	P	6830	1	OPTIMA3	111616−1
7440−36−0	Antimony	384	ug/kg	B	*N	P	331	1	OPTIMA3	111616−1
7440−38−2	Arsenic	3820	ug/kg			P	502	1	OPTIMA3	111616−1
7440−39−3	Barium	71600	ug/kg		*N	P	100	1	OPTIMA3	111616−1
7440−41−7	Beryllium	142	ug/kg	B		P	100	1	OPTIMA3	111616−1
7440−43−9	Cadmium	100	ug/kg	U		P	100	1	OPTIMA3	111616−1
7440−70−2	Calcium	5420000	ug/kg			P	8040	1	OPTIMA3	111616−1
7440−47−3	Chromium	3120	ug/kg			P	151	1	OPTIMA3	111616−1
7440−48−4	Cobalt	2230	ug/kg			P	151	1	OPTIMA3	111616−1
7440−50−8	Copper	1310	ug/kg		*E	P	301	1	OPTIMA3	111616−1
7439−89−6	Iron	5510000	ug/kg			P	8040	1	OPTIMA3	111616−1
7439−92−1	Lead	2360	ug/kg		*	P	331	1	OPTIMA3	111616−1
7439−95−4	Magnesium	1690000	ug/kg			P	8540	1	OPTIMA3	111616−1
7439−96−5	Manganese	115000	ug/kg		*	P	201	1	OPTIMA3	111616−1
7439−97−6	Mercury	3.94	ug/kg	U		AV	3.94	1	HG3	111016S1−4
7440−02−0	Nickel	5240	ug/kg			P	151	1	OPTIMA3	111616−1
7440−09−7	Potassium	346000	ug/kg		N	P	6430	1	OPTIMA3	111616−1
7782−49−2	Selenium	611	ug/kg	B		P	502	1	OPTIMA3	111616−1
7440−22−4	Silver	241	ug/kg	B		P	100	1	OPTIMA3	111616−1
7440−23−5	Sodium	133000	ug/kg			P	7030	1	OPTIMA3	111616−1
7440−28−0	Thallium	502	ug/kg	U		P	502	1	OPTIMA3	111616−1
7440−62−2	Vanadium	5900	ug/kg			P	100	1	OPTIMA3	111616−1
7440−66−6	Zinc	11300	ug/kg		N	P	402	1	OPTIMA3	111616−1

***Analytical Methods:**

AV **SW846 7471B**
P **SW846 3050B/6010C**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 409254 **METHOD TYPE:** SW846

SAMPLE ID: 409254039 **CLIENT ID:** DP020114

CONTRACT: HAAL00201

MATRIX: SPLP **DATE RECEIVED** 27−OCT−16 **LEVEL:** Low

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439−97−6	Mercury	0.00067	mg/L	U	N	AV	0.00067	1	HG4	111016W1−5
7440−38−2	Arsenic	50	ug/L	U		P	50	1	OPTIMA5	110216−2
7440−39−3	Barium	50.3	ug/L			P	10	1	OPTIMA5	110216−2
7440−43−9	Cadmium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7440−47−3	Chromium	10	ug/L	U		P	10	1	OPTIMA5	110216−2
7439−92−1	Lead	33	ug/L	U		P	33	1	OPTIMA5	110216−2
7782−49−2	Selenium	60	ug/L	U		P	60	1	OPTIMA5	110216−2
7440−22−4	Silver	10	ug/L	U		P	10	1	OPTIMA5	110216−2

***Analytical Methods:**

P **SW846 3010A/6010C**
AV **SW846 7470A**

Quality Control Summary

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
ICV01										
	Arsenic	479	ug/L	500	ug/L	95.8	90.0 − 110.0	P	02−NOV−16 12:36	110216−2
	Barium	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	02−NOV−16 12:36	110216−2
	Cadmium	495	ug/L	500	ug/L	99	90.0 − 110.0	P	02−NOV−16 12:36	110216−2
	Chromium	490	ug/L	500	ug/L	98	90.0 − 110.0	P	02−NOV−16 12:36	110216−2
	Lead	500	ug/L	500	ug/L	100	90.0 − 110.0	P	02−NOV−16 12:36	110216−2
	Selenium	2440	ug/L	2500	ug/L	97.6	90.0 − 110.0	P	02−NOV−16 12:36	110216−2
	Silver	251	ug/L	250	ug/L	100.5	90.0 − 110.0	P	02−NOV−16 12:36	110216−2
	Mercury	5.04	ug/L	5	ug/L	100.8	90.0 − 110.0	AV	10−NOV−16 10:49	111016S1−4
	Mercury	4.97	ug/L	5	ug/L	99.4	90.0 − 110.0	AV	10−NOV−16 10:50	111016W1−5
	Aluminum	5100	ug/L	5000	ug/L	102.1	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Antimony	500	ug/L	500	ug/L	100	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Arsenic	506	ug/L	500	ug/L	101.3	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Barium	507	ug/L	500	ug/L	101.3	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Beryllium	243	ug/L	250	ug/L	97.1	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Cadmium	511	ug/L	500	ug/L	102.2	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Calcium	5180	ug/L	5000	ug/L	103.5	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Chromium	501	ug/L	500	ug/L	100.2	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Cobalt	507	ug/L	500	ug/L	101.3	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Copper	503	ug/L	500	ug/L	100.6	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Iron	5180	ug/L	5000	ug/L	103.6	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Lead	516	ug/L	500	ug/L	103.3	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Magnesium	5180	ug/L	5000	ug/L	103.7	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Manganese	508	ug/L	500	ug/L	101.7	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Nickel	506	ug/L	500	ug/L	101.1	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Potassium	2610	ug/L	2500	ug/L	104.3	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Selenium	2570	ug/L	2500	ug/L	102.8	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Silver	252	ug/L	250	ug/L	101	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Sodium	2510	ug/L	2500	ug/L	100.5	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Thallium	518	ug/L	500	ug/L	103.7	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Vanadium	500	ug/L	500	ug/L	100	90.0 − 110.0	P	11−NOV−16 09:16	111116−3
	Zinc	509	ug/L	500	ug/L	101.8	90.0 − 110.0	P	11−NOV−16 09:16	111116−3

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Aluminum	5170	ug/L	5000	ug/L	103.3	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Antimony	487	ug/L	500	ug/L	97.4	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Arsenic	491	ug/L	500	ug/L	98.2	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Barium	501	ug/L	500	ug/L	100.2	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Beryllium	250	ug/L	250	ug/L	100.1	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Cadmium	503	ug/L	500	ug/L	100.5	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Calcium	5200	ug/L	5000	ug/L	104	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Chromium	495	ug/L	500	ug/L	99.1	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Cobalt	489	ug/L	500	ug/L	97.8	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Copper	505	ug/L	500	ug/L	101.1	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Iron	5230	ug/L	5000	ug/L	104.7	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Lead	504	ug/L	500	ug/L	100.8	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Magnesium	5280	ug/L	5000	ug/L	105.6	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Manganese	502	ug/L	500	ug/L	100.4	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Nickel	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Potassium	2540	ug/L	2500	ug/L	101.6	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Selenium	2480	ug/L	2500	ug/L	99.1	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Silver	252	ug/L	250	ug/L	100.9	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Sodium	2490	ug/L	2500	ug/L	99.8	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Thallium	503	ug/L	500	ug/L	100.6	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Vanadium	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
	Zinc	501	ug/L	500	ug/L	100.2	90.0 − 110.0	P	16−NOV−16 06:21	111616−1
CCV01										
	Arsenic	490	ug/L	500	ug/L	98	90.0 − 110.0	P	02−NOV−16 12:54	110216−2
	Barium	485	ug/L	500	ug/L	97	90.0 − 110.0	P	02−NOV−16 12:54	110216−2
	Cadmium	482	ug/L	500	ug/L	96.4	90.0 − 110.0	P	02−NOV−16 12:54	110216−2
	Chromium	485	ug/L	500	ug/L	97	90.0 − 110.0	P	02−NOV−16 12:54	110216−2
	Lead	488	ug/L	500	ug/L	97.7	90.0 − 110.0	P	02−NOV−16 12:54	110216−2
	Selenium	491	ug/L	500	ug/L	98.2	90.0 − 110.0	P	02−NOV−16 12:54	110216−2
	Silver	474	ug/L	500	ug/L	94.8	90.0 − 110.0	P	02−NOV−16 12:54	110216−2
	Mercury	4.96	ug/L	5	ug/L	99.2	80.0 − 120.0	AV	10−NOV−16 10:54	111016S1−4

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Mercury	4.9	ug/L	5	ug/L	98	80.0 − 120.0	AV	10−NOV−16 10:55	111016W1−5
	Aluminum	5110	ug/L	5000	ug/L	102.3	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Antimony	500	ug/L	500	ug/L	100.1	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Arsenic	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Barium	505	ug/L	500	ug/L	101.1	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Beryllium	486	ug/L	500	ug/L	97.1	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Cadmium	504	ug/L	500	ug/L	100.7	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Calcium	5130	ug/L	5000	ug/L	102.5	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Chromium	506	ug/L	500	ug/L	101.1	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Cobalt	505	ug/L	500	ug/L	100.9	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Copper	503	ug/L	500	ug/L	100.6	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Iron	5130	ug/L	5000	ug/L	102.5	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Lead	504	ug/L	500	ug/L	100.8	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Magnesium	5060	ug/L	5000	ug/L	101.3	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Manganese	504	ug/L	500	ug/L	100.8	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Nickel	506	ug/L	500	ug/L	101.1	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Potassium	4980	ug/L	5000	ug/L	99.7	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Selenium	514	ug/L	500	ug/L	102.8	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Silver	502	ug/L	500	ug/L	100.3	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Sodium	9700	ug/L	10000	ug/L	97	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Thallium	512	ug/L	500	ug/L	102.4	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Vanadium	504	ug/L	500	ug/L	100.8	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Zinc	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	11−NOV−16 09:31	111116−3
	Aluminum	5080	ug/L	5000	ug/L	101.5	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Antimony	486	ug/L	500	ug/L	97.2	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Arsenic	494	ug/L	500	ug/L	98.9	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Barium	489	ug/L	500	ug/L	97.8	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Beryllium	486	ug/L	500	ug/L	97.3	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Cadmium	490	ug/L	500	ug/L	97.9	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Calcium	5060	ug/L	5000	ug/L	101.1	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Chromium	487	ug/L	500	ug/L	97.4	90.0 − 110.0	P	16−NOV−16 06:41	111616−1

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Cobalt	483	ug/L	500	ug/L	96.6	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Copper	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Iron	5140	ug/L	5000	ug/L	102.8	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Lead	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Magnesium	5130	ug/L	5000	ug/L	102.6	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Manganese	487	ug/L	500	ug/L	97.5	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Nickel	483	ug/L	500	ug/L	96.5	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Potassium	5050	ug/L	5000	ug/L	101	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Selenium	497	ug/L	500	ug/L	99.4	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Silver	489	ug/L	500	ug/L	97.8	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Sodium	9400	ug/L	10000	ug/L	94	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Thallium	491	ug/L	500	ug/L	98.1	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Vanadium	489	ug/L	500	ug/L	97.9	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
	Zinc	486	ug/L	500	ug/L	97.1	90.0 − 110.0	P	16−NOV−16 06:41	111616−1
CCV02										
	Arsenic	464	ug/L	500	ug/L	92.7	90.0 − 110.0	P	02−NOV−16 15:36	110216−2
	Barium	474	ug/L	500	ug/L	94.8	90.0 − 110.0	P	02−NOV−16 15:36	110216−2
	Cadmium	468	ug/L	500	ug/L	93.6	90.0 − 110.0	P	02−NOV−16 15:36	110216−2
	Chromium	472	ug/L	500	ug/L	94.4	90.0 − 110.0	P	02−NOV−16 15:36	110216−2
	Lead	467	ug/L	500	ug/L	93.4	90.0 − 110.0	P	02−NOV−16 15:36	110216−2
	Selenium	472	ug/L	500	ug/L	94.4	90.0 − 110.0	P	02−NOV−16 15:36	110216−2
	Silver	465	ug/L	500	ug/L	93	90.0 − 110.0	P	02−NOV−16 15:36	110216−2
	Mercury	4.97	ug/L	5	ug/L	99.3	80.0 − 120.0	AV	10−NOV−16 11:20	111016S1−4
	Mercury	5	ug/L	5	ug/L	99.9	80.0 − 120.0	AV	10−NOV−16 13:37	111016W1−5
	Aluminum	5050	ug/L	5000	ug/L	101	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Antimony	491	ug/L	500	ug/L	98.2	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Arsenic	503	ug/L	500	ug/L	100.6	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Barium	498	ug/L	500	ug/L	99.7	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Beryllium	484	ug/L	500	ug/L	96.9	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Cadmium	497	ug/L	500	ug/L	99.4	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Calcium	5060	ug/L	5000	ug/L	101.2	90.0 − 110.0	P	11−NOV−16 09:39	111116−3

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Chromium	497	ug/L	500	ug/L	99.4	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Cobalt	499	ug/L	500	ug/L	99.7	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Copper	497	ug/L	500	ug/L	99.3	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Iron	5060	ug/L	5000	ug/L	101.1	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Lead	501	ug/L	500	ug/L	100.3	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Magnesium	5000	ug/L	5000	ug/L	100.1	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Manganese	498	ug/L	500	ug/L	99.7	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Nickel	497	ug/L	500	ug/L	99.5	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Potassium	5010	ug/L	5000	ug/L	100.2	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Selenium	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Silver	498	ug/L	500	ug/L	99.7	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Sodium	9700	ug/L	10000	ug/L	97	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Thallium	505	ug/L	500	ug/L	101	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Vanadium	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Zinc	499	ug/L	500	ug/L	99.8	90.0 − 110.0	P	11−NOV−16 09:39	111116−3
	Aluminum	5140	ug/L	5000	ug/L	102.8	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Antimony	484	ug/L	500	ug/L	96.9	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Arsenic	501	ug/L	500	ug/L	100.3	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Barium	495	ug/L	500	ug/L	99	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Beryllium	493	ug/L	500	ug/L	98.7	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Cadmium	497	ug/L	500	ug/L	99.4	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Calcium	5110	ug/L	5000	ug/L	102.3	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Chromium	492	ug/L	500	ug/L	98.4	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Cobalt	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Copper	493	ug/L	500	ug/L	98.6	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Iron	5190	ug/L	5000	ug/L	103.9	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Lead	498	ug/L	500	ug/L	99.7	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Magnesium	5200	ug/L	5000	ug/L	104.1	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Manganese	494	ug/L	500	ug/L	98.7	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Nickel	488	ug/L	500	ug/L	97.5	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Potassium	5100	ug/L	5000	ug/L	102	90.0 − 110.0	P	16−NOV−16 07:01	111616−1

METALS
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Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Selenium	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Silver	494	ug/L	500	ug/L	98.9	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Sodium	9560	ug/L	10000	ug/L	95.6	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Thallium	495	ug/L	500	ug/L	99	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Vanadium	496	ug/L	500	ug/L	99.1	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
	Zinc	491	ug/L	500	ug/L	98.2	90.0 − 110.0	P	16−NOV−16 07:01	111616−1
CCV03										
	Arsenic	451	ug/L	500	ug/L	90.2	90.0 − 110.0	P	02−NOV−16 16:02	110216−2
	Barium	475	ug/L	500	ug/L	95.1	90.0 − 110.0	P	02−NOV−16 16:02	110216−2
	Cadmium	471	ug/L	500	ug/L	94.3	90.0 − 110.0	P	02−NOV−16 16:02	110216−2
	Chromium	472	ug/L	500	ug/L	94.5	90.0 − 110.0	P	02−NOV−16 16:02	110216−2
	Lead	470	ug/L	500	ug/L	94	90.0 − 110.0	P	02−NOV−16 16:02	110216−2
	Selenium	467	ug/L	500	ug/L	93.4	90.0 − 110.0	P	02−NOV−16 16:02	110216−2
	Silver	467	ug/L	500	ug/L	93.5	90.0 − 110.0	P	02−NOV−16 16:02	110216−2
	Mercury	4.86	ug/L	5	ug/L	97.3	80.0 − 120.0	AV	10−NOV−16 11:40	111016S1−4
	Mercury	5.08	ug/L	5	ug/L	101.5	80.0 − 120.0	AV	10−NOV−16 13:58	111016W1−5
	Aluminum	5170	ug/L	5000	ug/L	103.4	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Antimony	487	ug/L	500	ug/L	97.4	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Arsenic	503	ug/L	500	ug/L	100.7	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Barium	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Beryllium	483	ug/L	500	ug/L	96.6	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Cadmium	493	ug/L	500	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Calcium	5180	ug/L	5000	ug/L	103.6	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Chromium	494	ug/L	500	ug/L	98.9	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Cobalt	496	ug/L	500	ug/L	99.1	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Copper	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Iron	5140	ug/L	5000	ug/L	102.7	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Lead	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Magnesium	5130	ug/L	5000	ug/L	102.6	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Manganese	494	ug/L	500	ug/L	98.9	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Nickel	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 10:52	111116−3

METALS
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Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Potassium	5050	ug/L	5000	ug/L	101	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Selenium	504	ug/L	500	ug/L	100.8	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Silver	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Sodium	9660	ug/L	10000	ug/L	96.6	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Thallium	496	ug/L	500	ug/L	99.3	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Vanadium	494	ug/L	500	ug/L	98.7	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Zinc	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 10:52	111116−3
	Aluminum	5170	ug/L	5000	ug/L	103.5	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Antimony	489	ug/L	500	ug/L	97.9	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Arsenic	509	ug/L	500	ug/L	101.7	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Barium	499	ug/L	500	ug/L	99.9	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Beryllium	499	ug/L	500	ug/L	99.8	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Cadmium	503	ug/L	500	ug/L	100.6	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Calcium	5190	ug/L	5000	ug/L	103.8	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Chromium	498	ug/L	500	ug/L	99.5	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Cobalt	501	ug/L	500	ug/L	100.3	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Copper	497	ug/L	500	ug/L	99.5	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Iron	5370	ug/L	5000	ug/L	107.4	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Lead	503	ug/L	500	ug/L	100.5	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Magnesium	5280	ug/L	5000	ug/L	105.6	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Manganese	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Nickel	493	ug/L	500	ug/L	98.5	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Potassium	5100	ug/L	5000	ug/L	102	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Selenium	509	ug/L	500	ug/L	101.8	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Silver	499	ug/L	500	ug/L	99.9	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Sodium	9850	ug/L	10000	ug/L	98.5	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Thallium	508	ug/L	500	ug/L	101.6	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Vanadium	500	ug/L	500	ug/L	100	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
	Zinc	496	ug/L	500	ug/L	99.3	90.0 − 110.0	P	16−NOV−16 11:17	111616−1
CCV04										
	Arsenic	454	ug/L	500	ug/L	90.8	90.0 − 110.0	P	02−NOV−16 16:28	110216−2

METALS
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Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Barium	475	ug/L	500	ug/L	95	90.0 − 110.0	P	02−NOV−16 16:28	110216−2
	Cadmium	468	ug/L	500	ug/L	93.6	90.0 − 110.0	P	02−NOV−16 16:28	110216−2
	Chromium	471	ug/L	500	ug/L	94.2	90.0 − 110.0	P	02−NOV−16 16:28	110216−2
	Lead	467	ug/L	500	ug/L	93.5	90.0 − 110.0	P	02−NOV−16 16:28	110216−2
	Selenium	465	ug/L	500	ug/L	93	90.0 − 110.0	P	02−NOV−16 16:28	110216−2
	Silver	465	ug/L	500	ug/L	92.9	90.0 − 110.0	P	02−NOV−16 16:28	110216−2
	Mercury	4.86	ug/L	5	ug/L	97.1	80.0 − 120.0	AV	10−NOV−16 12:00	111016S1−4
	Mercury	5.08	ug/L	5	ug/L	101.6	80.0 − 120.0	AV	10−NOV−16 14:19	111016W1−5
	Aluminum	5010	ug/L	5000	ug/L	100.2	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Antimony	480	ug/L	500	ug/L	95.9	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Arsenic	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Barium	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Beryllium	479	ug/L	500	ug/L	95.8	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Cadmium	484	ug/L	500	ug/L	96.8	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Calcium	5070	ug/L	5000	ug/L	101.5	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Chromium	486	ug/L	500	ug/L	97.3	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Cobalt	488	ug/L	500	ug/L	97.7	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Copper	488	ug/L	500	ug/L	97.5	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Iron	5060	ug/L	5000	ug/L	101.3	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Lead	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Magnesium	4970	ug/L	5000	ug/L	99.3	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Manganese	489	ug/L	500	ug/L	97.8	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Nickel	486	ug/L	500	ug/L	97.3	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Potassium	4990	ug/L	5000	ug/L	99.8	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Selenium	491	ug/L	500	ug/L	98.2	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Silver	488	ug/L	500	ug/L	97.5	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Sodium	9610	ug/L	10000	ug/L	96.1	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Thallium	487	ug/L	500	ug/L	97.4	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Vanadium	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Zinc	487	ug/L	500	ug/L	97.3	90.0 − 110.0	P	11−NOV−16 11:59	111116−3
	Aluminum	5140	ug/L	5000	ug/L	102.8	90.0 − 110.0	P	16−NOV−16 11:43	111616−1

METALS
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Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Antimony	482	ug/L	500	ug/L	96.5	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Arsenic	499	ug/L	500	ug/L	99.9	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Barium	496	ug/L	500	ug/L	99.2	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Beryllium	495	ug/L	500	ug/L	99	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Cadmium	496	ug/L	500	ug/L	99.1	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Calcium	5150	ug/L	5000	ug/L	103.1	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Chromium	494	ug/L	500	ug/L	98.9	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Cobalt	489	ug/L	500	ug/L	97.7	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Copper	497	ug/L	500	ug/L	99.4	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Iron	5520	ug/L	5000	ug/L	110.3	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Lead	496	ug/L	500	ug/L	99.1	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Magnesium	5270	ug/L	5000	ug/L	105.4	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Manganese	495	ug/L	500	ug/L	99	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Nickel	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Potassium	4990	ug/L	5000	ug/L	99.9	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Selenium	499	ug/L	500	ug/L	99.8	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Silver	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Sodium	10600	ug/L	10000	ug/L	106.4	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Thallium	500	ug/L	500	ug/L	100	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Vanadium	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
	Zinc	491	ug/L	500	ug/L	98.2	90.0 − 110.0	P	16−NOV−16 11:43	111616−1
CCV05										
	Mercury	4.79	ug/L	5	ug/L	95.8	80.0 − 120.0	AV	10−NOV−16 12:15	111016S1−4
	Mercury	5.11	ug/L	5	ug/L	102.1	80.0 − 120.0	AV	10−NOV−16 14:39	111016W1−5
	Aluminum	5080	ug/L	5000	ug/L	101.5	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Antimony	486	ug/L	500	ug/L	97.2	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Arsenic	496	ug/L	500	ug/L	99.1	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Barium	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Beryllium	476	ug/L	500	ug/L	95.2	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Cadmium	488	ug/L	500	ug/L	97.7	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Calcium	5000	ug/L	5000	ug/L	100.1	90.0 − 110.0	P	11−NOV−16 12:21	111116−3

METALS
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Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Chromium	493	ug/L	500	ug/L	98.6	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Cobalt	494	ug/L	500	ug/L	98.9	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Copper	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Iron	5070	ug/L	5000	ug/L	101.3	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Lead	489	ug/L	500	ug/L	97.8	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Magnesium	4940	ug/L	5000	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Manganese	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Nickel	493	ug/L	500	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Potassium	5090	ug/L	5000	ug/L	101.8	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Selenium	497	ug/L	500	ug/L	99.4	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Silver	493	ug/L	500	ug/L	98.7	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Sodium	9740	ug/L	10000	ug/L	97.4	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Thallium	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Vanadium	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Zinc	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 12:21	111116−3
	Aluminum	5140	ug/L	5000	ug/L	102.7	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Antimony	477	ug/L	500	ug/L	95.3	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Arsenic	490	ug/L	500	ug/L	98.1	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Barium	489	ug/L	500	ug/L	97.7	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Beryllium	487	ug/L	500	ug/L	97.4	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Cadmium	484	ug/L	500	ug/L	96.7	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Calcium	5050	ug/L	5000	ug/L	101	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Chromium	486	ug/L	500	ug/L	97.2	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Cobalt	481	ug/L	500	ug/L	96.3	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Copper	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Iron	5430	ug/L	5000	ug/L	108.7	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Lead	487	ug/L	500	ug/L	97.3	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Magnesium	5100	ug/L	5000	ug/L	102	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Manganese	488	ug/L	500	ug/L	97.6	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Nickel	479	ug/L	500	ug/L	95.7	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Potassium	4980	ug/L	5000	ug/L	99.6	90.0 − 110.0	P	16−NOV−16 12:13	111616−1

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Selenium	490	ug/L	500	ug/L	98	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Silver	493	ug/L	500	ug/L	98.6	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Sodium	10500	ug/L	10000	ug/L	104.8	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Thallium	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Vanadium	492	ug/L	500	ug/L	98.3	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
	Zinc	482	ug/L	500	ug/L	96.4	90.0 − 110.0	P	16−NOV−16 12:13	111616−1
CCV06										
	Mercury	5.11	ug/L	5	ug/L	102.1	80.0 − 120.0	AV	10−NOV−16 14:48	111016W1−5
	Aluminum	5010	ug/L	5000	ug/L	100.3	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Antimony	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Arsenic	509	ug/L	500	ug/L	101.8	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Barium	498	ug/L	500	ug/L	99.7	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Beryllium	481	ug/L	500	ug/L	96.2	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Cadmium	496	ug/L	500	ug/L	99.1	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Calcium	5020	ug/L	5000	ug/L	100.4	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Chromium	497	ug/L	500	ug/L	99.5	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Cobalt	500	ug/L	500	ug/L	99.9	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Copper	497	ug/L	500	ug/L	99.4	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Iron	5070	ug/L	5000	ug/L	101.4	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Lead	499	ug/L	500	ug/L	99.8	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Magnesium	4940	ug/L	5000	ug/L	98.9	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Manganese	499	ug/L	500	ug/L	99.8	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Nickel	497	ug/L	500	ug/L	99.5	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Potassium	5070	ug/L	5000	ug/L	101.4	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Selenium	501	ug/L	500	ug/L	100.2	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Silver	496	ug/L	500	ug/L	99.2	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Sodium	9750	ug/L	10000	ug/L	97.5	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Thallium	496	ug/L	500	ug/L	99.1	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Vanadium	498	ug/L	500	ug/L	99.5	90.0 − 110.0	P	11−NOV−16 13:05	111116−3
	Zinc	498	ug/L	500	ug/L	99.5	90.0 − 110.0	P	11−NOV−16 13:05	111116−3

METALS
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Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
CCV07										
	Aluminum	5010	ug/L	5000	ug/L	100.2	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Antimony	492	ug/L	500	ug/L	98.4	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Arsenic	510	ug/L	500	ug/L	102	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Barium	498	ug/L	500	ug/L	99.5	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Beryllium	476	ug/L	500	ug/L	95.1	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Cadmium	493	ug/L	500	ug/L	98.7	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Calcium	5030	ug/L	5000	ug/L	100.6	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Chromium	496	ug/L	500	ug/L	99.3	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Cobalt	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Copper	498	ug/L	500	ug/L	99.7	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Iron	5030	ug/L	5000	ug/L	100.6	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Lead	496	ug/L	500	ug/L	99.3	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Magnesium	4870	ug/L	5000	ug/L	97.4	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Manganese	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Nickel	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Potassium	5050	ug/L	5000	ug/L	101	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Selenium	500	ug/L	500	ug/L	100	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Silver	495	ug/L	500	ug/L	99.1	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Sodium	9700	ug/L	10000	ug/L	97	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Thallium	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Vanadium	498	ug/L	500	ug/L	99.6	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
	Zinc	496	ug/L	500	ug/L	99.2	90.0 − 110.0	P	11−NOV−16 13:13	111116−3
CCV08										
	Aluminum	5010	ug/L	5000	ug/L	100.3	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Antimony	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Arsenic	513	ug/L	500	ug/L	102.7	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Barium	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Beryllium	476	ug/L	500	ug/L	95.1	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Cadmium	490	ug/L	500	ug/L	98.1	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Calcium	5000	ug/L	5000	ug/L	99.9	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Chromium	493	ug/L	500	ug/L	98.7	90.0 − 110.0	P	11−NOV−16 13:36	111116−3

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Cobalt	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Copper	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Iron	5080	ug/L	5000	ug/L	101.5	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Lead	497	ug/L	500	ug/L	99.4	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Magnesium	4920	ug/L	5000	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Manganese	495	ug/L	500	ug/L	99	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Nickel	492	ug/L	500	ug/L	98.4	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Potassium	5060	ug/L	5000	ug/L	101.2	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Selenium	503	ug/L	500	ug/L	100.6	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Silver	492	ug/L	500	ug/L	98.3	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Sodium	9680	ug/L	10000	ug/L	96.8	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Thallium	496	ug/L	500	ug/L	99.1	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Vanadium	493	ug/L	500	ug/L	98.7	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
	Zinc	494	ug/L	500	ug/L	98.8	90.0 − 110.0	P	11−NOV−16 13:36	111116−3
CCV09										
	Aluminum	5020	ug/L	5000	ug/L	100.4	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Antimony	488	ug/L	500	ug/L	97.7	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Arsenic	506	ug/L	500	ug/L	101.2	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Barium	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Beryllium	478	ug/L	500	ug/L	95.7	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Cadmium	489	ug/L	500	ug/L	97.7	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Calcium	4960	ug/L	5000	ug/L	99.2	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Chromium	492	ug/L	500	ug/L	98.3	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Cobalt	492	ug/L	500	ug/L	98.5	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Copper	493	ug/L	500	ug/L	98.6	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Iron	5040	ug/L	5000	ug/L	100.9	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Lead	492	ug/L	500	ug/L	98.4	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Magnesium	4900	ug/L	5000	ug/L	98.1	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Manganese	493	ug/L	500	ug/L	98.7	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Nickel	491	ug/L	500	ug/L	98.1	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Potassium	5060	ug/L	5000	ug/L	101.2	90.0 − 110.0	P	11−NOV−16 13:43	111116−3

METALS
−2a−
Initial and Continuing Calibration Verification

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	M*	Analysis Date/Time	Run Number
	Selenium	496	ug/L	500	ug/L	99.2	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Silver	489	ug/L	500	ug/L	97.8	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Sodium	9670	ug/L	10000	ug/L	96.7	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Thallium	491	ug/L	500	ug/L	98.2	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Vanadium	492	ug/L	500	ug/L	98.4	90.0 − 110.0	P	11−NOV−16 13:43	111116−3
	Zinc	492	ug/L	500	ug/L	98.4	90.0 − 110.0	P	11−NOV−16 13:43	111116−3

***Analytical Methods:**

AV SW846 7471B
P SW846 3010A/6010C
P SW846 3050B/6010C
AV SW846 7470A

METALS
−2b−
CRDL Standard for ICP & ICPMS

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Advisory Limits (%R)	M*	Analysis Date/Time	Run Number
CRDL01										
	Mercury	.16	ug/L	.2	ug/L	80	70.0 − 130.0	AV	10−NOV−16 10:52	111016S1−4
	Mercury	.182	ug/L	.2	ug/L	91	70.0 − 130.0	AV	10−NOV−16 10:54	111016W1−5
PQL01										
	Arsenic	29.8	ug/L	30	ug/L	99.4	70.0 − 130.0	P	02−NOV−16 12:42	110216−2
	Barium	4.86	ug/L	5	ug/L	97.1	70.0 − 130.0	P	02−NOV−16 12:42	110216−2
	Cadmium	5.03	ug/L	5	ug/L	100.6	70.0 − 130.0	P	02−NOV−16 12:42	110216−2
	Chromium	5.65	ug/L	5	ug/L	113	70.0 − 130.0	P	02−NOV−16 12:42	110216−2
	Lead	9.77	ug/L	10	ug/L	97.7	70.0 − 130.0	P	02−NOV−16 12:42	110216−2
	Selenium	30.8	ug/L	30	ug/L	102.7	70.0 − 130.0	P	02−NOV−16 12:42	110216−2
	Silver	5.55	ug/L	5	ug/L	111	70.0 − 130.0	P	02−NOV−16 12:42	110216−2
	Aluminum	217	ug/L	200	ug/L	108.3	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Antimony	9.16	ug/L	10	ug/L	91.6	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Barium	5.26	ug/L	5	ug/L	105.3	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Beryllium	4.97	ug/L	5	ug/L	99.3	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Calcium	221	ug/L	200	ug/L	110.6	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Cobalt	5.24	ug/L	5	ug/L	104.9	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Iron	109	ug/L	100	ug/L	108.7	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Magnesium	318	ug/L	300	ug/L	105.9	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Zinc	10.4	ug/L	10	ug/L	104.3	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Vanadium	5.26	ug/L	5	ug/L	105.2	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Thallium	21.2	ug/L	20	ug/L	106.1	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Sodium	306	ug/L	300	ug/L	102	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Silver	5.8	ug/L	5	ug/L	115.9	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Selenium	30.5	ug/L	30	ug/L	101.7	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Potassium	119	ug/L	150	ug/L	79.3	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Nickel	5.19	ug/L	5	ug/L	103.9	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Manganese	10.4	ug/L	10	ug/L	103.6	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Lead	10.3	ug/L	10	ug/L	102.6	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Copper	9.54	ug/L	10	ug/L	95.4	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Chromium	5.39	ug/L	5	ug/L	107.9	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Cadmium	5.2	ug/L	5	ug/L	104	70.0 − 130.0	P	11−NOV−16 09:21	111116−3
	Arsenic	30.6	ug/L	30	ug/L	102.1	70.0 − 130.0	P	11−NOV−16 09:21	111116−3

METALS
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CRDL Standard for ICP & ICPMS

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Advisory Limits (%R)	M*	Analysis Date/Time	Run Number
	Antimony	8.33	ug/L	10	ug/L	83.3	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Calcium	200	ug/L	200	ug/L	100	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Cobalt	4.93	ug/L	5	ug/L	98.6	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Silver	5.31	ug/L	5	ug/L	106.1	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Selenium	31.6	ug/L	30	ug/L	105.4	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Potassium	144	ug/L	150	ug/L	95.8	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Nickel	4.89	ug/L	5	ug/L	97.7	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Manganese	10	ug/L	10	ug/L	100	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Magnesium	297	ug/L	300	ug/L	98.9	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Lead	9.75	ug/L	10	ug/L	97.5	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Iron	100	ug/L	100	ug/L	100.2	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Copper	10.2	ug/L	10	ug/L	102.2	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Aluminum	196	ug/L	200	ug/L	98.2	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Zinc	9.06	ug/L	10	ug/L	90.6	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Vanadium	4.98	ug/L	5	ug/L	99.6	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Thallium	20.2	ug/L	20	ug/L	100.8	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Sodium	346	ug/L	300	ug/L	115.4	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Chromium	4.85	ug/L	5	ug/L	97	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Cadmium	5.1	ug/L	5	ug/L	101.9	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Arsenic	29.1	ug/L	30	ug/L	97	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Barium	4.86	ug/L	5	ug/L	97.3	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
	Beryllium	4.86	ug/L	5	ug/L	97.2	70.0 − 130.0	P	16−NOV−16 06:27	111616−1
PQL02										
	Arsenic	33.1	ug/L	30	ug/L	110.2	70.0 − 130.0	P	02−NOV−16 16:31	110216−2
	Barium	5.86	ug/L	5	ug/L	117.3	70.0 − 130.0	P	02−NOV−16 16:31	110216−2
	Cadmium	4.7	ug/L	5	ug/L	94	70.0 − 130.0	P	02−NOV−16 16:31	110216−2
	Chromium	6.05	ug/L	5	ug/L	121	70.0 − 130.0	P	02−NOV−16 16:31	110216−2
	Lead	9.67	ug/L	10	ug/L	96.7	70.0 − 130.0	P	02−NOV−16 16:31	110216−2
	Selenium	34.4	ug/L	30	ug/L	114.7	70.0 − 130.0	P	02−NOV−16 16:31	110216−2
	Silver	5.41	ug/L	5	ug/L	108.2	70.0 − 130.0	P	02−NOV−16 16:31	110216−2
	Aluminum	214	ug/L	200	ug/L	106.8	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Barium	5.26	ug/L	5	ug/L	105.2	70.0 − 130.0	P	11−NOV−16 13:45	111116−3

METALS
−2b−
CRDL Standard for ICP & ICPMS

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Advisory Limits (%R)	M*	Analysis Date/Time	Run Number
	Cadmium	5.4	ug/L	5	ug/L	107.9	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Chromium	5.43	ug/L	5	ug/L	108.6	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Selenium	28.2	ug/L	30	ug/L	94	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Potassium	113	ug/L	150	ug/L	75.3	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Nickel	5.87	ug/L	5	ug/L	117.3	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Manganese	10.5	ug/L	10	ug/L	105.4	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Magnesium	305	ug/L	300	ug/L	101.6	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Lead	12	ug/L	10	ug/L	120.2	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Iron	110	ug/L	100	ug/L	110.3	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Copper	9.15	ug/L	10	ug/L	91.5	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Cobalt	5.19	ug/L	5	ug/L	103.8	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Zinc	10.2	ug/L	10	ug/L	102.4	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Vanadium	5.4	ug/L	5	ug/L	107.9	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Thallium	25.6	ug/L	20	ug/L	128	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Sodium	318	ug/L	300	ug/L	105.9	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Silver	4.91	ug/L	5	ug/L	98.3	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Calcium	212	ug/L	200	ug/L	105.9	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Beryllium	5.14	ug/L	5	ug/L	102.8	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Arsenic	32.5	ug/L	30	ug/L	108.4	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Antimony	14.4	ug/L	10	ug/L	143.9	70.0 − 130.0	P	11−NOV−16 13:45	111116−3
	Thallium	23	ug/L	20	ug/L	114.8	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Barium	5.29	ug/L	5	ug/L	105.8	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Cadmium	5.41	ug/L	5	ug/L	108.3	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Chromium	5.32	ug/L	5	ug/L	106.4	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Selenium	35.7	ug/L	30	ug/L	119	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Potassium	162	ug/L	150	ug/L	108.2	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Nickel	5.17	ug/L	5	ug/L	103.5	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Manganese	10.8	ug/L	10	ug/L	107.6	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Magnesium	322	ug/L	300	ug/L	107.4	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Lead	10.1	ug/L	10	ug/L	101.1	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Iron	125	ug/L	100	ug/L	124.7	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Copper	10.9	ug/L	10	ug/L	109.4	70.0 − 130.0	P	16−NOV−16 12:16	111616−1

METALS
−2b−
CRDL Standard for ICP & ICPMS

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument ID: HG3,HG4,OPTIMA3,OPTIMA4,OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Advisory Limits (%R)	M*	Analysis Date/Time	Run Number
	Cobalt	5.22	ug/L	5	ug/L	104.4	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Sodium	228	ug/L	300	ug/L	75.9	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Silver	5.49	ug/L	5	ug/L	109.8	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Calcium	222	ug/L	200	ug/L	110.9	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Beryllium	5.1	ug/L	5	ug/L	102	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Arsenic	31.3	ug/L	30	ug/L	104.4	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Vanadium	5.06	ug/L	5	ug/L	101.2	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Aluminum	217	ug/L	200	ug/L	108.6	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Antimony	9.83	ug/L	10	ug/L	98.3	70.0 − 130.0	P	16−NOV−16 12:16	111616−1
	Zinc	9.7	ug/L	10	ug/L	97	70.0 − 130.0	P	16−NOV−16 12:16	111616−1

***Analytical Methods:**

AV	**SW846 7471B**
P	**SW846 3010A/6010C**
P	**SW846 3050B/6010C**
AV	**SW846 7470A**

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
ICB01										
	Arsenic	5.0	+/−30	U	5.0	30.0	LIQ	P	02−NOV−16 12:39	110216−2
	Barium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 12:39	110216−2
	Cadmium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 12:39	110216−2
	Chromium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 12:39	110216−2
	Lead	3.3	+/−10	U	3.3	10.0	LIQ	P	02−NOV−16 12:39	110216−2
	Selenium	6.0	+/−30	U	6.0	30.0	LIQ	P	02−NOV−16 12:39	110216−2
	Silver	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 12:39	110216−2
	Mercury	0.067	+/−.2	U	0.067	0.2	LIQ	AV	10−NOV−16 10:52	111016W1−5
	Mercury	0.067	+/−.2	U	0.067	0.2	SOL	AV	10−NOV−16 10:50	111016S1−4
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 09:18	111116−3
	Antimony	5.01	+/−10	B	3.3	10.0	SOL	P	11−NOV−16 09:18	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 09:18	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:18	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:18	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:18	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 09:18	111116−3
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:18	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:18	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 09:18	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 09:18	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 09:18	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 09:18	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 09:18	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:18	111116−3
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	11−NOV−16 09:18	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 09:18	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:18	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 09:18	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 09:18	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:18	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 09:18	111116−3

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	16−NOV−16 06:24	111616−1
	Antimony	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 06:24	111616−1
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 06:24	111616−1
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:24	111616−1
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:24	111616−1
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:24	111616−1
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 06:24	111616−1
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 06:24	111616−1
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 06:24	111616−1
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	16−NOV−16 06:24	111616−1
	Iron	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 06:24	111616−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 06:24	111616−1
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	16−NOV−16 06:24	111616−1
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	16−NOV−16 06:24	111616−1
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 06:24	111616−1
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	16−NOV−16 06:24	111616−1
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 06:24	111616−1
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:24	111616−1
	Sodium	113.66	+/−250	B	70.0	250	SOL	P	16−NOV−16 06:24	111616−1
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	16−NOV−16 06:24	111616−1
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:24	111616−1
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	16−NOV−16 06:24	111616−1
CCB01										
	Arsenic	8.81	+/−30	B	5.0	30.0	LIQ	P	02−NOV−16 12:56	110216−2
	Barium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 12:56	110216−2
	Cadmium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 12:56	110216−2
	Chromium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 12:56	110216−2
	Lead	3.3	+/−10	U	3.3	10.0	LIQ	P	02−NOV−16 12:56	110216−2
	Selenium	6.0	+/−30	U	6.0	30.0	LIQ	P	02−NOV−16 12:56	110216−2
	Silver	1.18	+/−5	B	1.0	5.0	LIQ	P	02−NOV−16 12:56	110216−2
	Mercury	0.067	+/−.2	U	0.067	0.2	LIQ	AV	10−NOV−16 10:57	111016W1−5

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Mercury	0.067	+/−.2	U	0.067	0.2	SOL	AV	10−NOV−16 10:55	111016S1−4
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 09:33	111116−3
	Antimony	6.96	+/−10	B	3.3	10.0	SOL	P	11−NOV−16 09:33	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 09:33	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:33	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:33	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:33	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 09:33	111116−3
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:33	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:33	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 09:33	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 09:33	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 09:33	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 09:33	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 09:33	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:33	111116−3
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	11−NOV−16 09:33	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 09:33	111116−3
	Silver	1.25	+/−5	B	1.0	5.0	SOL	P	11−NOV−16 09:33	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 09:33	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 09:33	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:33	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 09:33	111116−3
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	16−NOV−16 06:45	111616−1
	Antimony	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 06:45	111616−1
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 06:45	111616−1
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:45	111616−1
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:45	111616−1
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:45	111616−1
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 06:45	111616−1
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 06:45	111616−1

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 06:45	111616−1
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	16−NOV−16 06:45	111616−1
	Iron	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 06:45	111616−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 06:45	111616−1
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	16−NOV−16 06:45	111616−1
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	16−NOV−16 06:45	111616−1
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 06:45	111616−1
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	16−NOV−16 06:45	111616−1
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 06:45	111616−1
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:45	111616−1
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	16−NOV−16 06:45	111616−1
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	16−NOV−16 06:45	111616−1
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 06:45	111616−1
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	16−NOV−16 06:45	111616−1
CCB02										
	Arsenic	5.7	+/−30	B	5.0	30.0	LIQ	P	02−NOV−16 15:39	110216−2
	Barium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 15:39	110216−2
	Cadmium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 15:39	110216−2
	Chromium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 15:39	110216−2
	Lead	3.3	+/−10	U	3.3	10.0	LIQ	P	02−NOV−16 15:39	110216−2
	Selenium	6.0	+/−30	U	6.0	30.0	LIQ	P	02−NOV−16 15:39	110216−2
	Silver	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 15:39	110216−2
	Mercury	0.067	+/−.2	U	0.067	0.2	LIQ	AV	10−NOV−16 13:39	111016W1−5
	Mercury	0.067	+/−.2	U	0.067	0.2	SOL	AV	10−NOV−16 11:22	111016S1−4
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 09:41	111116−3
	Antimony	5.83	+/−10	B	3.3	10.0	SOL	P	11−NOV−16 09:41	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 09:41	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:41	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:41	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:41	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 09:41	111116−3

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:41	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:41	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 09:41	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 09:41	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 09:41	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 09:41	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 09:41	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 09:41	111116−3
	Potassium	77.92	+/−250	B	64.0	250	SOL	P	11−NOV−16 09:41	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 09:41	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:41	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 09:41	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 09:41	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 09:41	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 09:41	111116−3
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	16−NOV−16 07:04	111616−1
	Antimony	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 07:04	111616−1
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 07:04	111616−1
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 07:04	111616−1
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 07:04	111616−1
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 07:04	111616−1
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 07:04	111616−1
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 07:04	111616−1
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 07:04	111616−1
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	16−NOV−16 07:04	111616−1
	Iron	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 07:04	111616−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 07:04	111616−1
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	16−NOV−16 07:04	111616−1
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	16−NOV−16 07:04	111616−1
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 07:04	111616−1
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	16−NOV−16 07:04	111616−1

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 07:04	111616−1
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 07:04	111616−1
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	16−NOV−16 07:04	111616−1
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	16−NOV−16 07:04	111616−1
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 07:04	111616−1
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	16−NOV−16 07:04	111616−1
CCB03										
	Arsenic	6.74	+/−30	B	5.0	30.0	LIQ	P	02−NOV−16 16:05	110216−2
	Barium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 16:05	110216−2
	Cadmium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 16:05	110216−2
	Chromium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 16:05	110216−2
	Lead	3.3	+/−10	U	3.3	10.0	LIQ	P	02−NOV−16 16:05	110216−2
	Selenium	6.0	+/−30	U	6.0	30.0	LIQ	P	02−NOV−16 16:05	110216−2
	Silver	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 16:05	110216−2
	Mercury	0.067	+/−.2	U	0.067	0.2	LIQ	AV	10−NOV−16 13:59	111016W1−5
	Mercury	0.067	+/−.2	U	0.067	0.2	SOL	AV	10−NOV−16 11:42	111016S1−4
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 10:53	111116−3
	Antimony	4.37	+/−10	B	3.3	10.0	SOL	P	11−NOV−16 10:53	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 10:53	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 10:53	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 10:53	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 10:53	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 10:53	111116−3
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 10:53	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 10:53	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 10:53	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 10:53	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 10:53	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 10:53	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 10:53	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 10:53	111116−3

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	11−NOV−16 10:53	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 10:53	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 10:53	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 10:53	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 10:53	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 10:53	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 10:53	111116−3
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	16−NOV−16 11:20	111616−1
	Antimony	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 11:20	111616−1
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 11:20	111616−1
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:20	111616−1
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:20	111616−1
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:20	111616−1
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 11:20	111616−1
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 11:20	111616−1
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 11:20	111616−1
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	16−NOV−16 11:20	111616−1
	Iron	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 11:20	111616−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 11:20	111616−1
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	16−NOV−16 11:20	111616−1
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	16−NOV−16 11:20	111616−1
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 11:20	111616−1
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	16−NOV−16 11:20	111616−1
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 11:20	111616−1
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:20	111616−1
	Sodium	166.06	+/−250	B	70.0	250	SOL	P	16−NOV−16 11:20	111616−1
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	16−NOV−16 11:20	111616−1
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:20	111616−1
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	16−NOV−16 11:20	111616−1
CCB04	Arsenic	5.0	+/−30	U	5.0	30.0	LIQ	P	02−NOV−16 16:33	110216−2

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Barium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 16:33	110216−2
	Cadmium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 16:33	110216−2
	Chromium	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 16:33	110216−2
	Lead	3.3	+/−10	U	3.3	10.0	LIQ	P	02−NOV−16 16:33	110216−2
	Selenium	6.0	+/−30	U	6.0	30.0	LIQ	P	02−NOV−16 16:33	110216−2
	Silver	1.0	+/−5	U	1.0	5.0	LIQ	P	02−NOV−16 16:33	110216−2
	Mercury	0.067	+/−.2	U	0.067	0.2	LIQ	AV	10−NOV−16 14:21	111016W1−5
	Mercury	0.067	+/−.2	U	0.067	0.2	SOL	AV	10−NOV−16 12:02	111016S1−4
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 12:01	111116−3
	Antimony	5.41	+/−10	B	3.3	10.0	SOL	P	11−NOV−16 12:01	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 12:01	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:01	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:01	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:01	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 12:01	111116−3
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 12:01	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 12:01	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 12:01	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 12:01	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 12:01	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 12:01	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 12:01	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 12:01	111116−3
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	11−NOV−16 12:01	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 12:01	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:01	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 12:01	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 12:01	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:01	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 12:01	111116−3
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	16−NOV−16 11:46	111616−1

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Antimony	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 11:46	111616−1
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 11:46	111616−1
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:46	111616−1
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:46	111616−1
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:46	111616−1
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 11:46	111616−1
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 11:46	111616−1
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 11:46	111616−1
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	16−NOV−16 11:46	111616−1
	Iron	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 11:46	111616−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 11:46	111616−1
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	16−NOV−16 11:46	111616−1
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	16−NOV−16 11:46	111616−1
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 11:46	111616−1
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	16−NOV−16 11:46	111616−1
	Selenium	5.39	+/−30	B	5.0	30.0	SOL	P	16−NOV−16 11:46	111616−1
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:46	111616−1
	Sodium	148.28	+/−250	B	70.0	250	SOL	P	16−NOV−16 11:46	111616−1
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	16−NOV−16 11:46	111616−1
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 11:46	111616−1
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	16−NOV−16 11:46	111616−1
CCB05										
	Mercury	−0.084	+/−.2	B	0.067	0.2	LIQ	AV	10−NOV−16 14:41	111016W1−5
	Mercury	0.067	+/−.2	U	0.067	0.2	SOL	AV	10−NOV−16 12:17	111016S1−4
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 12:23	111116−3
	Antimony	3.77	+/−10	B	3.3	10.0	SOL	P	11−NOV−16 12:23	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 12:23	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:23	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:23	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:23	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 12:23	111116−3

Metals
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Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 12:23	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 12:23	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 12:23	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 12:23	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 12:23	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 12:23	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 12:23	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 12:23	111116−3
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	11−NOV−16 12:23	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 12:23	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:23	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 12:23	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 12:23	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 12:23	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 12:23	111116−3
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	16−NOV−16 12:19	111616−1
	Antimony	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 12:19	111616−1
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 12:19	111616−1
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 12:19	111616−1
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 12:19	111616−1
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 12:19	111616−1
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 12:19	111616−1
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 12:19	111616−1
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 12:19	111616−1
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	16−NOV−16 12:19	111616−1
	Iron	80.0	+/−250	U	80.0	250	SOL	P	16−NOV−16 12:19	111616−1
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	16−NOV−16 12:19	111616−1
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	16−NOV−16 12:19	111616−1
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	16−NOV−16 12:19	111616−1
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	16−NOV−16 12:19	111616−1
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	16−NOV−16 12:19	111616−1

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	16−NOV−16 12:19	111616−1
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 12:19	111616−1
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	16−NOV−16 12:19	111616−1
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	16−NOV−16 12:19	111616−1
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	16−NOV−16 12:19	111616−1
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	16−NOV−16 12:19	111616−1
CCB06										
	Mercury	−0.084	+/−.2	B	0.067	0.2	LIQ	AV	10−NOV−16 14:49	111016W1−5
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 13:07	111116−3
	Antimony	3.53	+/−10	B	3.3	10.0	SOL	P	11−NOV−16 13:07	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 13:07	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:07	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:07	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:07	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 13:07	111116−3
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:07	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:07	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 13:07	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 13:07	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 13:07	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 13:07	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 13:07	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:07	111116−3
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	11−NOV−16 13:07	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 13:07	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:07	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 13:07	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 13:07	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:07	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 13:07	111116−3

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
CCB07										
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 13:15	111116−3
	Antimony	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 13:15	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 13:15	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:15	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:15	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:15	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 13:15	111116−3
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:15	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:15	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 13:15	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 13:15	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 13:15	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 13:15	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 13:15	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:15	111116−3
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	11−NOV−16 13:15	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 13:15	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:15	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 13:15	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 13:15	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:15	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 13:15	111116−3
CCB08										
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 13:38	111116−3
	Antimony	5.01	+/−10	B	3.3	10.0	SOL	P	11−NOV−16 13:38	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 13:38	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:38	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:38	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:38	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 13:38	111116−3
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:38	111116−3

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:38	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 13:38	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 13:38	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 13:38	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 13:38	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 13:38	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:38	111116−3
	Potassium	−88.19	+/−250	B	64.0	250	SOL	P	11−NOV−16 13:38	111116−3
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 13:38	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:38	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 13:38	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 13:38	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:38	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 13:38	111116−3
CCB09										
	Aluminum	68.0	+/−200	U	68.0	200	SOL	P	11−NOV−16 13:48	111116−3
	Antimony	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 13:48	111116−3
	Arsenic	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 13:48	111116−3
	Barium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:48	111116−3
	Beryllium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:48	111116−3
	Cadmium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:48	111116−3
	Calcium	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 13:48	111116−3
	Chromium	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:48	111116−3
	Cobalt	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:48	111116−3
	Copper	3.0	+/−10	U	3.0	10.0	SOL	P	11−NOV−16 13:48	111116−3
	Iron	80.0	+/−250	U	80.0	250	SOL	P	11−NOV−16 13:48	111116−3
	Lead	3.3	+/−10	U	3.3	10.0	SOL	P	11−NOV−16 13:48	111116−3
	Magnesium	85.0	+/−300	U	85.0	300	SOL	P	11−NOV−16 13:48	111116−3
	Manganese	2.0	+/−10	U	2.0	10.0	SOL	P	11−NOV−16 13:48	111116−3
	Nickel	1.5	+/−5	U	1.5	5.0	SOL	P	11−NOV−16 13:48	111116−3
	Potassium	64.0	+/−250	U	64.0	250	SOL	P	11−NOV−16 13:48	111116−3

Metals
−3a−
Initial and Continuing Calibration Blank Summary

SDG No.: 409254

Contract: HAAL00201

Lab Code: GEL

Sample ID	Analyte	Result ug/L	Acceptance	Conc Qual	MDL	RDL	Matrix	M*	Analysis Date/Time	Run
	Selenium	5.0	+/−30	U	5.0	30.0	SOL	P	11−NOV−16 13:48	111116−3
	Silver	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:48	111116−3
	Sodium	70.0	+/−250	U	70.0	250	SOL	P	11−NOV−16 13:48	111116−3
	Thallium	5.0	+/−20	U	5.0	20.0	SOL	P	11−NOV−16 13:48	111116−3
	Vanadium	1.0	+/−5	U	1.0	5.0	SOL	P	11−NOV−16 13:48	111116−3
	Zinc	4.0	+/−10	U	4.0	10.0	SOL	P	11−NOV−16 13:48	111116−3

***Analytical Methods:**

AV	**SW846 7471B**
P	**SW846 3010A/6010C**
P	**SW846 3050B/6010C**
AV	**SW846 7470A**

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 409254
Contract: HAAL00201
Matrix: Soil

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1203657517								
	Arsenic	50	ug/L	+/−300	U	P	50	300
	Barium	10	ug/L	+/−50	U	P	10	50
	Chromium	10	ug/L	+/−50	U	P	10	50
	Cadmium	10	ug/L	+/−50	U	P	10	50
	Lead	33	ug/L	+/−100	U	P	33	100
	Selenium	60	ug/L	+/−300	U	P	60	300
	Silver	10	ug/L	+/−50	U	P	10	50
	Mercury	0.00067	mg/L	+/−0.002	U	AV	0.00067	0.002
1203657595								
	Thallium	460	ug/kg	+/−1840	U	P	460	1840
	Manganese	184	ug/kg	+/−919	U	P	184	919
	Magnesium	7810	ug/kg	+/−27600	U	P	7810	27600
	Lead	303	ug/Kg	+/−919	U	P	303	919
	Iron	7350	ug/kg	+/−23000	U	P	7350	23000
	Copper	276	ug/kg	+/−919	U	P	276	919
	Cobalt	138	ug/kg	+/−460	U	P	138	460
	Chromium	138	ug/kg	+/−460	U	P	138	460
	Calcium	20200	ug/kg	+/−23000	B	P	7350	23000
	Cadmium	91.9	ug/kg	+/−460	U	P	91.9	460
	Sodium	17500	ug/kg	+/−23000	B	P	6430	23000
	Silver	91.9	ug/kg	+/−460	U	P	91.9	460
	Selenium	460	ug/kg	+/−2760	U	P	460	2760
	Potassium	5880	ug/kg	+/−23000	U	P	5880	23000
	Nickel	138	ug/kg	+/−460	U	P	138	460
	Aluminum	6250	ug/kg	+/−18400	U	P	6250	18400
	Antimony	303	ug/kg	+/−919	U	P	303	919
	Arsenic	460	ug/kg	+/−2760	U	P	460	2760
	Beryllium	91.9	ug/kg	+/−460	U	P	91.9	460
	Barium	91.9	ug/kg	+/−460	U	P	91.9	460
	Vanadium	91.9	ug/kg	+/−460	U	P	91.9	460
	Zinc	662	ug/kg	+/−919	B	P	368	919
1203657600								
	Manganese	198	ug/kg	+/−990	U	P	198	990
	Nickel	149	ug/kg	+/−495	U	P	149	495
	Potassium	6340	ug/kg	+/−24800	U	P	6340	24800
	Selenium	495	ug/kg	+/−2970	U	P	495	2970
	Silver	99	ug/kg	+/−495	U	P	99	495

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 409254
Contract: HAAL00201
Matrix: Soil

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
	Sodium	21800	ug/kg	+/−24800	B	P	6930	24800
	Thallium	495	ug/kg	+/−1980	U	P	495	1980
	Vanadium	99	ug/kg	+/−495	U	P	99	495
	Zinc	396	ug/kg	+/−990	U	P	396	990
	Cobalt	149	ug/kg	+/−495	U	P	149	495
	Chromium	149	ug/kg	+/−495	U	P	149	495
	Calcium	7920	ug/kg	+/−24800	U	P	7920	24800
	Cadmium	99	ug/kg	+/−495	U	P	99	495
	Beryllium	99	ug/kg	+/−495	U	P	99	495
	Barium	99	ug/kg	+/−495	U	P	99	495
	Arsenic	495	ug/kg	+/−2970	U	P	495	2970
	Antimony	327	ug/kg	+/−990	U	P	327	990
	Aluminum	6730	ug/kg	+/−19800	U	P	6730	19800
	Magnesium	8420	ug/kg	+/−29700	U	P	8420	29700
	Lead	327	ug/kg	+/−990	U	P	327	990
	Iron	7920	ug/kg	+/−24800	U	P	7920	24800
	Copper	297	ug/kg	+/−990	U	P	297	990
1203658086								
	Arsenic	50	ug/L	+/−300	U	P	50	300
	Barium	10	ug/L	+/−50	U	P	10	50
	Cadmium	10	ug/L	+/−50	U	P	10	50
	Chromium	10	ug/L	+/−50	U	P	10	50
	Lead	33	ug/L	+/−100	U	P	33	100
	Selenium	60	ug/L	+/−300	U	P	60	300
	Silver	10	ug/L	+/−50	U	P	10	50
1203666305								
	Mercury	3.93	ug/kg	+/−11.7	U	AV	3.93	11.7
1203666311								
	Mercury	0.00067	mg/L	+/−0.002	U	AV	0.00067	0.002

***Analytical Methods:**

AV	**SW846 7471B**
P	**SW846 3010A/6010C**
P	**SW846 3050B/6010C**
AV	**SW846 7470A**

METALS
−4−
Interference Check Sample

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument: OPTIMA3

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Aluminum	499000	ug/L	500000	ug/L	99.7	80.0 − 120.0	16−NOV−16 06:30	111616−1
	Antimony	3.75	ug/L					16−NOV−16 06:30	111616−1
	Arsenic	−0.604	ug/L					16−NOV−16 06:30	111616−1
	Barium	0.176	ug/L					16−NOV−16 06:30	111616−1
	Beryllium	1.01	ug/L					16−NOV−16 06:30	111616−1
	Cadmium	0.329	ug/L					16−NOV−16 06:30	111616−1
	Calcium	488000	ug/L	500000	ug/L	97.5	80.0 − 120.0	16−NOV−16 06:30	111616−1
	Chromium	1.11	ug/L					16−NOV−16 06:30	111616−1
	Cobalt	0.396	ug/L					16−NOV−16 06:30	111616−1
	Copper	0.042	ug/L					16−NOV−16 06:30	111616−1
	Iron	194000	ug/L	200000	ug/L	97.2	80.0 − 120.0	16−NOV−16 06:30	111616−1
	Lead	3.84	ug/L					16−NOV−16 06:30	111616−1
	Magnesium	488000	ug/L	500000	ug/L	97.6	80.0 − 120.0	16−NOV−16 06:30	111616−1
	Manganese	0.557	ug/L					16−NOV−16 06:30	111616−1
	Nickel	1.38	ug/L					16−NOV−16 06:30	111616−1
	Potassium	56.8	ug/L					16−NOV−16 06:30	111616−1
	Selenium	13.0	ug/L					16−NOV−16 06:30	111616−1
	Silver	1.16	ug/L					16−NOV−16 06:30	111616−1
	Sodium	33.3	ug/L					16−NOV−16 06:30	111616−1
	Thallium	3.05	ug/L					16−NOV−16 06:30	111616−1
	Vanadium	1.17	ug/L					16−NOV−16 06:30	111616−1
	Zinc	5.11	ug/L					16−NOV−16 06:30	111616−1
ICSAB01									
	Aluminum	499000	ug/L	500000	ug/L	99.8	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Antimony	491	ug/L	500	ug/L	98.3	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Arsenic	495	ug/L	500	ug/L	99.1	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Barium	486	ug/L	500	ug/L	97.1	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Beryllium	237	ug/L	250	ug/L	95	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Cadmium	458	ug/L	500	ug/L	91.7	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Calcium	485000	ug/L	500000	ug/L	97.1	80.0 − 120.0	16−NOV−16 06:33	111616−1

METALS
−4−
Interference Check Sample

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
	Chromium	456	ug/L	500	ug/L	91.1	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Cobalt	435	ug/L	500	ug/L	87	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Copper	520	ug/L	500	ug/L	104	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Iron	189000	ug/L	200000	ug/L	94.4	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Lead	465	ug/L	500	ug/L	92.9	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Magnesium	485000	ug/L	500000	ug/L	97.1	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Manganese	463	ug/L	500	ug/L	92.6	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Nickel	429	ug/L	500	ug/L	85.7	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Potassium	5660	ug/L	5000	ug/L	113	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Selenium	2310	ug/L	2500	ug/L	92.2	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Silver	257	ug/L	250	ug/L	103	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Sodium	4920	ug/L	5000	ug/L	98.5	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Thallium	458	ug/L	500	ug/L	91.6	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Vanadium	495	ug/L	500	ug/L	99	80.0 − 120.0	16−NOV−16 06:33	111616−1
	Zinc	465	ug/L	500	ug/L	93.1	80.0 − 120.0	16−NOV−16 06:33	111616−1

METALS
−4−
Interference Check Sample

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument: OPTIMA5

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Arsenic	10.0	ug/L					02−NOV−16 12:45	110216−2
	Barium	2.17	ug/L					02−NOV−16 12:45	110216−2
	Cadmium	−0.178	ug/L					02−NOV−16 12:45	110216−2
	Chromium	0.731	ug/L					02−NOV−16 12:45	110216−2
	Lead	14.4	ug/L					02−NOV−16 12:45	110216−2
	Selenium	−7.38	ug/L					02−NOV−16 12:45	110216−2
	Silver	4.39	ug/L					02−NOV−16 12:45	110216−2
ICSAB01									
	Arsenic	491	ug/L	500	ug/L	98.2	80.0 − 120.0	02−NOV−16 12:47	110216−2
	Barium	462	ug/L	500	ug/L	92.5	80.0 − 120.0	02−NOV−16 12:47	110216−2
	Cadmium	451	ug/L	500	ug/L	90.1	80.0 − 120.0	02−NOV−16 12:47	110216−2
	Chromium	459	ug/L	500	ug/L	91.7	80.0 − 120.0	02−NOV−16 12:47	110216−2
	Lead	473	ug/L	500	ug/L	94.7	80.0 − 120.0	02−NOV−16 12:47	110216−2
	Selenium	2250	ug/L	2500	ug/L	90	80.0 − 120.0	02−NOV−16 12:47	110216−2
	Silver	256	ug/L	250	ug/L	103	80.0 − 120.0	02−NOV−16 12:47	110216−2
ICSA02									
	Arsenic	9.65	ug/L					02−NOV−16 15:03	110216−2
	Barium	3.28	ug/L					02−NOV−16 15:03	110216−2
	Cadmium	0.105	ug/L					02−NOV−16 15:03	110216−2
	Chromium	1.12	ug/L					02−NOV−16 15:03	110216−2
	Lead	19.3	ug/L					02−NOV−16 15:03	110216−2
	Selenium	−3.59	ug/L					02−NOV−16 15:03	110216−2
	Silver	3.72	ug/L					02−NOV−16 15:03	110216−2
ICSAB02									
	Arsenic	457	ug/L	500	ug/L	91.3	80.0 − 120.0	02−NOV−16 15:05	110216−2
	Barium	457	ug/L	500	ug/L	91.3	80.0 − 120.0	02−NOV−16 15:05	110216−2
	Cadmium	434	ug/L	500	ug/L	86.8	80.0 − 120.0	02−NOV−16 15:05	110216−2
	Chromium	444	ug/L	500	ug/L	88.7	80.0 − 120.0	02−NOV−16 15:05	110216−2
	Lead	459	ug/L	500	ug/L	91.9	80.0 − 120.0	02−NOV−16 15:05	110216−2
	Selenium	2190	ug/L	2500	ug/L	87.6	80.0 − 120.0	02−NOV−16 15:05	110216−2

METALS
−4−
Interference Check Sample

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
	Silver	252	ug/L	250	ug/L	101	80.0 − 120.0	02−NOV−16 15:05	110216−2
ICSA03									
	Arsenic	4.25	ug/L					02−NOV−16 15:33	110216−2
	Barium	3.13	ug/L					02−NOV−16 15:33	110216−2
	Cadmium	0.034	ug/L					02−NOV−16 15:33	110216−2
	Chromium	1.39	ug/L					02−NOV−16 15:33	110216−2
	Lead	16.0	ug/L					02−NOV−16 15:33	110216−2
	Selenium	−7.93	ug/L					02−NOV−16 15:33	110216−2
	Silver	3.42	ug/L					02−NOV−16 15:33	110216−2
ICSAB03									
	Arsenic	464	ug/L	500	ug/L	92.9	80.0 − 120.0	02−NOV−16 15:35	110216−2
	Barium	455	ug/L	500	ug/L	91.1	80.0 − 120.0	02−NOV−16 15:35	110216−2
	Cadmium	435	ug/L	500	ug/L	87	80.0 − 120.0	02−NOV−16 15:35	110216−2
	Chromium	447	ug/L	500	ug/L	89.5	80.0 − 120.0	02−NOV−16 15:35	110216−2
	Lead	456	ug/L	500	ug/L	91.3	80.0 − 120.0	02−NOV−16 15:35	110216−2
	Selenium	2170	ug/L	2500	ug/L	86.8	80.0 − 120.0	02−NOV−16 15:35	110216−2
	Silver	253	ug/L	250	ug/L	101	80.0 − 120.0	02−NOV−16 15:35	110216−2

METALS
−4−
Interference Check Sample

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Instrument: OPTIMA4

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
ICSA01									
	Aluminum	501000	ug/L	500000	ug/L	100	80.0 − 120.0	11−NOV−16 09:23	111116−3
	Antimony	4.01	ug/L					11−NOV−16 09:23	111116−3
	Arsenic	−3.15	ug/L					11−NOV−16 09:23	111116−3
	Barium	2.22	ug/L					11−NOV−16 09:23	111116−3
	Beryllium	0.082	ug/L					11−NOV−16 09:23	111116−3
	Cadmium	2.32	ug/L					11−NOV−16 09:23	111116−3
	Calcium	482000	ug/L	500000	ug/L	96.4	80.0 − 120.0	11−NOV−16 09:23	111116−3
	Chromium	0.138	ug/L					11−NOV−16 09:23	111116−3
	Cobalt	−0.207	ug/L					11−NOV−16 09:23	111116−3
	Copper	−1.45	ug/L					11−NOV−16 09:23	111116−3
	Iron	189000	ug/L	200000	ug/L	94.7	80.0 − 120.0	11−NOV−16 09:23	111116−3
	Lead	2.61	ug/L					11−NOV−16 09:23	111116−3
	Magnesium	497000	ug/L	500000	ug/L	99.4	80.0 − 120.0	11−NOV−16 09:23	111116−3
	Manganese	−1.71	ug/L					11−NOV−16 09:23	111116−3
	Nickel	−1.06	ug/L					11−NOV−16 09:23	111116−3
	Potassium	1.05	ug/L					11−NOV−16 09:23	111116−3
	Selenium	−3.82	ug/L					11−NOV−16 09:23	111116−3
	Silver	−0.854	ug/L					11−NOV−16 09:23	111116−3
	Sodium	−21.8	ug/L					11−NOV−16 09:23	111116−3
	Thallium	−7.24	ug/L					11−NOV−16 09:23	111116−3
	Vanadium	1.6	ug/L					11−NOV−16 09:23	111116−3
	Zinc	4.43	ug/L					11−NOV−16 09:23	111116−3
ICSAB01									
	Aluminum	504000	ug/L	500000	ug/L	101	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Antimony	508	ug/L	500	ug/L	102	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Arsenic	509	ug/L	500	ug/L	102	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Barium	501	ug/L	500	ug/L	100	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Beryllium	228	ug/L	250	ug/L	91	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Cadmium	474	ug/L	500	ug/L	94.8	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Calcium	485000	ug/L	500000	ug/L	96.9	80.0 − 120.0	11−NOV−16 09:25	111116−3

METALS
−4−
Interference Check Sample

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
	Chromium	484	ug/L	500	ug/L	96.9	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Cobalt	474	ug/L	500	ug/L	94.8	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Copper	579	ug/L	500	ug/L	116	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Iron	191000	ug/L	200000	ug/L	95.3	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Lead	498	ug/L	500	ug/L	99.6	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Magnesium	496000	ug/L	500000	ug/L	99.2	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Manganese	485	ug/L	500	ug/L	96.9	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Nickel	464	ug/L	500	ug/L	92.7	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Potassium	5650	ug/L	5000	ug/L	113	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Selenium	2360	ug/L	2500	ug/L	94.4	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Silver	268	ug/L	250	ug/L	107	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Sodium	5250	ug/L	5000	ug/L	105	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Thallium	487	ug/L	500	ug/L	97.3	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Vanadium	499	ug/L	500	ug/L	99.8	80.0 − 120.0	11−NOV−16 09:25	111116−3
	Zinc	505	ug/L	500	ug/L	101	80.0 − 120.0	11−NOV−16 09:25	111116−3
ICSA02									
	Aluminum	502000	ug/L	500000	ug/L	100	80.0 − 120.0	11−NOV−16 10:48	111116−3
	Antimony	2.15	ug/L					11−NOV−16 10:48	111116−3
	Arsenic	−3.23	ug/L					11−NOV−16 10:48	111116−3
	Barium	2.17	ug/L					11−NOV−16 10:48	111116−3
	Beryllium	0.171	ug/L					11−NOV−16 10:48	111116−3
	Cadmium	2.35	ug/L					11−NOV−16 10:48	111116−3
	Calcium	478000	ug/L	500000	ug/L	95.6	80.0 − 120.0	11−NOV−16 10:48	111116−3
	Chromium	0.421	ug/L					11−NOV−16 10:48	111116−3
	Cobalt	−0.311	ug/L					11−NOV−16 10:48	111116−3
	Copper	−1.99	ug/L					11−NOV−16 10:48	111116−3
	Iron	189000	ug/L	200000	ug/L	94.4	80.0 − 120.0	11−NOV−16 10:48	111116−3
	Lead	0.891	ug/L					11−NOV−16 10:48	111116−3
	Magnesium	492000	ug/L	500000	ug/L	98.4	80.0 − 120.0	11−NOV−16 10:48	111116−3
	Manganese	−1.69	ug/L					11−NOV−16 10:48	111116−3

METALS
−4−
Interference Check Sample

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
	Nickel	−0.608	ug/L					11−NOV−16 10:48	111116−3
	Potassium	−31.7	ug/L					11−NOV−16 10:48	111116−3
	Selenium	−6.47	ug/L					11−NOV−16 10:48	111116−3
	Silver	−0.869	ug/L					11−NOV−16 10:48	111116−3
	Sodium	−16.4	ug/L					11−NOV−16 10:48	111116−3
	Thallium	−3.95	ug/L					11−NOV−16 10:48	111116−3
	Vanadium	2.45	ug/L					11−NOV−16 10:48	111116−3
	Zinc	4.58	ug/L					11−NOV−16 10:48	111116−3
ICSAB02									
	Aluminum	503000	ug/L	500000	ug/L	101	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Antimony	517	ug/L	500	ug/L	103	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Arsenic	514	ug/L	500	ug/L	103	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Barium	499	ug/L	500	ug/L	99.9	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Beryllium	227	ug/L	250	ug/L	90.6	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Cadmium	471	ug/L	500	ug/L	94.2	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Calcium	481000	ug/L	500000	ug/L	96.2	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Chromium	484	ug/L	500	ug/L	96.7	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Cobalt	482	ug/L	500	ug/L	96.4	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Copper	579	ug/L	500	ug/L	116	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Iron	190000	ug/L	200000	ug/L	94.9	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Lead	505	ug/L	500	ug/L	101	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Magnesium	491000	ug/L	500000	ug/L	98.3	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Manganese	484	ug/L	500	ug/L	96.8	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Nickel	471	ug/L	500	ug/L	94.1	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Potassium	5680	ug/L	5000	ug/L	114	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Selenium	2400	ug/L	2500	ug/L	96	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Silver	267	ug/L	250	ug/L	107	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Sodium	5260	ug/L	5000	ug/L	105	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Thallium	485	ug/L	500	ug/L	97	80.0 − 120.0	11−NOV−16 10:50	111116−3
	Vanadium	500	ug/L	500	ug/L	100	80.0 − 120.0	11−NOV−16 10:50	111116−3

METALS
−4−
Interference Check Sample

SDG No: 409254

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Analyte	Result	Units	True Value	Units	% Recovery	Acceptance Window (%R)	Analysis Date/Time	Run Number
	Zinc	503	ug/L	500	ug/L	101	80.0 − 120.0	11−NOV−16 10:50	111116−3

METALS
−5a−

Matrix Spike Summary

SDG NO. 409254 **Client ID** DP010216S

Contract: HAAL00201 **Level:** Low

Matrix: SPLP **% Solids:**

Sample ID: 409254021 **Spike ID:** 1203657516

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	ug/L	75−125	4750		94.1	B	5000	93.2		P
Barium	ug/L	75−125	8780		61.6		10000	87.2		P
Cadmium	ug/L	75−125	916		10	U	1000	91.4		P
Chromium	ug/L	75−125	4790		10	U	5000	95.6		P
Lead	ug/L	75−125	4860		33	U	5000	97.1		P
Mercury	mg/L	75−125	.00961		0.00067	U	.02	48.1	N	AV
Selenium	ug/L	75−125	848		60	U	1000	80.4		P
Silver	ug/L	75−125	486		10	U	503	96.3		P

***Analytical Methods:**

P	**SW846 3010A/6010C**
AV	**SW846 7470A**

METALS
−5a−

Matrix Spike Summary

SDG NO. 409254 **Client ID** DP110100S

Contract: HAAL00201 **Level:** Low

Matrix: SOIL **% Solids:** 87

Sample ID: 409254001 **Spike ID:** 1203657598

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Manganese	ug/kg		591000		614000		51100	−45.3	N/A	P
Nickel	ug/kg	75−125	64200		19000		51100	88.6		P
Potassium	ug/kg	75−125	2260000		1300000		511000	189	N	P
Selenium	ug/kg	75−125	48800		694	B	51100	94.2		P
Silver	ug/kg	75−125	51100		111	U	51100	100		P
Sodium	ug/kg	75−125	717000		154000		511000	110		P
Thallium	ug/kg	75−125	44000		553	U	51100	86.2		P
Vanadium	ug/kg	75−125	78200		22300		51100	109		P
Zinc	ug/kg	75−125	115000		81600		51100	65.7	N	P
Aluminum	ug/kg		10100000		6350000		511000	732	N/A	P
Antimony	ug/kg	75−125	48900		2730		51100	90.4		P
Arsenic	ug/kg	75−125	63700		10200		51100	105		P
Barium	ug/kg	75−125	275000		199000		51100	149	N	P
Beryllium	ug/kg	75−125	42600		111	U	51100	83.4		P
Cadmium	ug/kg	75−125	46400		575		51100	89.7		P
Calcium	ug/kg		77400000		79300000		511000	−371	N/A	P
Chromium	ug/kg	75−125	61700		11200		51100	98.7		P
Cobalt	ug/kg	75−125	54700		7750		51100	91.9		P
Copper	ug/kg	75−125	77500		21900		51100	109		P
Iron	ug/kg		15700000		14200000		511000	299	N/A	P
Lead	ug/Kg		378000		2230000		51100	−3630	N/A	P
Magnesium	ug/kg		8790000		8310000		511000	93.4	N/A	P

METALS
−5a−

Matrix Spike Summary

SDG NO.	409254	**Client ID**	DP110100S
Contract:	HAAL00201	**Level:**	Low
Matrix:	SOIL	**% Solids:**	87
Sample ID:	409254001	**Spike ID:**	1203657598

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−5a−

Matrix Spike Summary

SDG NO. 409254 **Client ID** DP010109S

Contract: HAAL00201 **Level:** Low

Matrix: SOIL **% Solids:** 76

Sample ID: 409254022 **Spike ID:** 1203657603

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/kg		13100000		8980000		640000	642	N/A	P
Antimony	ug/kg	75−125	47300		454	B	64000	73.2	N	P
Arsenic	ug/kg	75−125	66700		7300		64000	92.9		P
Barium	ug/kg		338000		278000		64000	93.2	N/A	P
Beryllium	ug/kg	75−125	61100		685		64000	94.5		P
Cadmium	ug/kg	75−125	57400		289	B	64000	89.3		P
Calcium	ug/kg		14600000		14700000		640000	−16.5	N/A	P
Chromium	ug/kg	75−125	74100		12700		64000	96		P
Cobalt	ug/kg	75−125	63600		6800		64000	88.7		P
Copper	ug/kg	75−125	78100		17400		64000	94.8		P
Iron	ug/kg		18500000		17600000		640000	135	N/A	P
Lead	ug/kg	75−125	67200		11200		64000	87.5		P
Magnesium	ug/kg		7340000		6440000		640000	140	N/A	P
Manganese	ug/kg		949000		692000		64000	402	N/A	P
Nickel	ug/kg	75−125	76300		19800		64000	88.2		P
Potassium	ug/kg	75−125	2520000		1670000		640000	133	N	P
Selenium	ug/kg	75−125	60800		2300	B	64000	91.4		P
Silver	ug/kg	75−125	61100		753		64000	94.3		P
Sodium	ug/kg	75−125	1300000		680000		640000	97		P
Thallium	ug/kg	75−125	57500		560	U	64000	89.9		P
Vanadium	ug/kg	75−125	96500		29400		64000	105		P
Zinc	ug/kg	75−125	110000		56000		64000	84.3		P

METALS
−5a−

Matrix Spike Summary

SDG NO. 409254 **Client ID** DP010109S

Contract: HAAL00201 **Level:** Low

Matrix: SOIL **% Solids:** 76

Sample ID: 409254022 **Spike ID:** 1203657603

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−5a−

Matrix Spike Summary

SDG NO. 409254 **Client ID** SS110100S

Contract: HAAL00201 **Level:** Low

Matrix: SOIL **% Solids:** 95.8

Sample ID: 409254011 **Spike ID:** 1203666308

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/kg	80−120	145		11.5	B	125	107		AV

***Analytical Methods:**

AV **SW846 7471B**

METALS
−5a−

Spike Summary

SDG NO. 409254 **Client ID** DP010216PS

Contract: HAAL00201 **Level:** Low

Matrix: SPLP **% Solids:**

Sample ID: 409254021 **Spike ID:** 1203666317

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	80−120	2.2		0.00067	U	2	110		AV

***Analytical Methods:**

AV **SW846 7470A**

METALS
−5a−

Spike Summary

SDG NO. 409254 **Client ID** DP110100PS

Contract: HAAL00201 **Level:** Low

Matrix: SOIL **% Solids:** 87

Sample ID: 409254001 **Spike ID:** 1203668749

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Barium	ug/L	80−120	2250		1800		500	90.1		P
Potassium	ug/L	80−120	16900		11700		5000	104		P
Zinc	ug/L	80−120	1200		738		500	91.7		P

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−5a−

Spike Summary

SDG NO. 409254 **Client ID** DP010109PS

Contract: HAAL00201 **Level:** Low

Matrix: SOIL **% Solids:** 76

Sample ID: 409254022 **Spike ID:** 1203671682

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	80−120	473		4.05	B	500	93.8		P
Potassium	ug/L	80−120	19500		14900		5000	91		P

***Analytical Methods:**

P **SW846 3050B/6010C**

Metals
−6−
Duplicate Sample Summary

SDG No.: 409254 **Lab Code:** GEL

Contract: HAAL00201 **Client ID:** DP110100D

Matrix: SOIL **Level:** Low

Sample ID: 409254001 **Duplicate ID:** 1203657597 **Percent Solids for Dup:** 87

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/kg	+/−20%	6350000		5470000		14.9		P
Antimony	ug/kg	+/−1040	2730		4030		38.5	*	P
Arsenic	ug/kg	+/−3120	10200		9720		5.31		P
Barium	ug/kg	+/−20%	199000		204000		2.48		P
Beryllium	ug/kg		111	U	104	U			P
Cadmium	ug/kg	+/−520	575		491	B	15.7		P
Calcium	ug/kg	+/−20%	79300000		90000000		12.7		P
Chromium	ug/kg	+/−20%	11200		10500		7.07		P
Cobalt	ug/kg	+/−20%	7750		6830		12.7		P
Copper	ug/kg	+/−20%	21900		18900		14.7		P
Iron	ug/kg	+/−20%	14200000		12700000		10.6		P
Lead	ug/Kg	+/−20%	2230000		297000		153	*	P
Magnesium	ug/kg	+/−20%	8310000		7670000		8.04		P
Manganese	ug/kg	+/−20%	614000		500000		20.4	*	P
Nickel	ug/kg	+/−20%	19000		16400		14.8		P
Potassium	ug/kg	+/−20%	1300000		1170000		10.4		P
Selenium	ug/kg	+/−3120	694	B	786	B	12.4		P
Silver	ug/kg		111	U	104	U			P
Sodium	ug/kg	+/−20%	154000		158000		2.45		P
Thallium	ug/kg		553	U	520	U			P
Vanadium	ug/kg	+/−20%	22300		20000		11		P
Zinc	ug/kg	+/−20%	81600		72200		12.3		P

***Analytical Methods:**
P SW846 3050B/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 409254 **Lab Code:** GEL

Contract: HAAL00201 **Client ID:** DP010109D

Matrix: SOIL **Level:** Low

Sample ID: 409254022 **Duplicate ID:** 1203657602 **Percent Solids for Dup:** 76

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/kg	+/−20%	8980000		7210000		21.8	*	P
Antimony	ug/kg	+/−1260	454	B	498	B	9.09		P
Arsenic	ug/kg	+/−3770	7300		5690		24.9		P
Barium	ug/kg	+/−20%	278000		220000		23.4	*	P
Beryllium	ug/kg	+/−628	685		579	B	16.7		P
Cadmium	ug/kg	+/−628	289	B	208	B	32.5		P
Calcium	ug/kg	+/−20%	14700000		16500000		11.5		P
Chromium	ug/kg	+/−20%	12700		10900		15.1		P
Cobalt	ug/kg	+/−20%	6800		6060		11.5		P
Copper	ug/kg	+/−20%	17400		13600		24.1	*	P
Iron	ug/kg	+/−20%	17600000		14700000		18.2		P
Lead	ug/kg	+/−20%	11200		9060		20.8	*	P
Magnesium	ug/kg	+/−20%	6440000		6690000		3.7		P
Manganese	ug/kg	+/−20%	692000		640000		7.75		P
Nickel	ug/kg	+/−20%	19800		16400		19		P
Potassium	ug/kg	+/−20%	1670000		1440000		15.1		P
Selenium	ug/kg	+/−3770	2300	B	2460	B	6.88		P
Silver	ug/kg	+/−628	753		537	B	33.4		P
Sodium	ug/kg	+/−20%	680000		605000		11.5		P
Thallium	ug/kg		560	U	628	U			P
Vanadium	ug/kg	+/−20%	29400		24500		18.1		P
Zinc	ug/kg	+/−20%	56000		46500		18.6		P

***Analytical Methods:**
P SW846 3050B/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 409254 **Lab Code:** GEL

Contract: HAAL00201 **Client ID:** DP010216D

Matrix: SPLP **Level:** Low

Sample ID: 409254021 **Duplicate ID:** 1203658088 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Arsenic	ug/L	+/−300	94.1	B	67.9	B	32.3		P
Barium	ug/L	+/−50	61.6		58.5		5.09		P
Cadmium	ug/L		10	U	10	U			P
Chromium	ug/L		10	U	10	U			P
Lead	ug/L		33	U	33	U			P
Selenium	ug/L		60	U	60	U			P
Silver	ug/L		10	U	10	U			P

***Analytical Methods:**
P SW846 3010A/6010C

Metals
−6−
Duplicate Sample Summary

SDG No.: 409254 **Lab Code:** GEL

Contract: HAAL00201 **Client ID:** SS110100D

Matrix: SOIL **Level:** Low

Sample ID: 409254011 **Duplicate ID:** 1203666307 **Percent Solids for Dup:** 95.8

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/kg	+/−12.5	11.5	B	9.52	B	19		AV

***Analytical Methods:**
AV SW846 7471B

Metals
−6−
Duplicate Sample Summary

SDG No.: 409254 **Lab Code:** GEL

Contract: HAAL00201 **Client ID:** DP010216D

Matrix: SPLP **Level:** Low

Sample ID: 409254021 **Duplicate ID:** 1203666313 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	mg/L		0.00067	U	0.00067	U			AV

***Analytical Methods:**
AV SW846 7470A

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 409254

Contract: HAAL00201

Aqueous LCS Source: **Solid LCS Source:** OS2I

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203657596								
	Aluminum	ug/kg	443000	436000		98.3	80−120	P
	Antimony	ug/kg	44300	42900		96.9	80−120	P
	Arsenic	ug/kg	44300	43400		97.9	80−120	P
	Barium	ug/kg	44300	43100		97.3	80−120	P
	Beryllium	ug/kg	44300	42800		96.5	80−120	P
	Cadmium	ug/kg	44300	42500		95.9	80−120	P
	Calcium	ug/kg	443000	434000		98	80−120	P
	Chromium	ug/kg	44300	42400		95.7	80−120	P
	Cobalt	ug/kg	44300	42600		96.1	80−120	P
	Copper	ug/kg	44300	43500		98	80−120	P
	Iron	ug/kg	443000	440000		99.2	80−120	P
	Lead	ug/Kg	44300	42900		96.9	80−120	P
	Magnesium	ug/kg	443000	433000		97.6	80−120	P
	Manganese	ug/kg	44300	42600		96.2	80−120	P
	Nickel	ug/kg	44300	42400		95.8	80−120	P
	Potassium	ug/kg	443000	443000		100	80−120	P
	Selenium	ug/kg	44300	42600		96	80−120	P
	Silver	ug/kg	44300	42500		96	80−120	P
	Sodium	ug/kg	443000	442000		99.6	80−120	P
	Thallium	ug/kg	44300	42300		95.5	80−120	P
	Vanadium	ug/kg	44300	42400		95.7	80−120	P
	Zinc	ug/kg	44300	42700		96.3	80−120	P

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 409254

Contract: HAAL00201

Aqueous LCS Source: **Solid LCS Source:** OS2I

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203657601								
	Aluminum	ug/kg	476000	467000		98.1	80−120	P
	Antimony	ug/kg	47600	44700		94	80−120	P
	Arsenic	ug/kg	47600	45200		94.9	80−120	P
	Barium	ug/kg	47600	45500		95.6	80−120	P
	Beryllium	ug/kg	47600	46300		97.1	80−120	P
	Cadmium	ug/kg	47600	45300		95.1	80−120	P
	Calcium	ug/kg	476000	463000		97.2	80−120	P
	Chromium	ug/kg	47600	44800		94.1	80−120	P
	Cobalt	ug/kg	47600	44100		92.6	80−120	P
	Copper	ug/kg	47600	45700		96	80−120	P
	Iron	ug/kg	476000	492000		103	80−120	P
	Lead	ug/kg	47600	45000		94.5	80−120	P
	Magnesium	ug/kg	476000	484000		102	80−120	P
	Manganese	ug/kg	47600	44900		94.2	80−120	P
	Nickel	ug/kg	47600	44000		92.5	80−120	P
	Potassium	ug/kg	476000	464000		97.4	80−120	P
	Selenium	ug/kg	47600	45000		94.5	80−120	P
	Silver	ug/kg	47600	45300		95.2	80−120	P
	Sodium	ug/kg	476000	474000		99.5	80−120	P
	Thallium	ug/kg	47600	45700		96	80−120	P
	Zinc	ug/kg	47600	44300		92.9	80−120	P
	Vanadium	ug/kg	47600	45100		94.7	80−120	P

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 409254

Contract: HAAL00201

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203658087								
	Arsenic	ug/L	5000	4580		91.6	80−120	P
	Barium	ug/L	5000	4720		94.4	80−120	P
	Cadmium	ug/L	5000	4640		92.7	80−120	P
	Chromium	ug/L	5000	4680		93.6	80−120	P
	Lead	ug/L	5000	4680		93.6	80−120	P
	Selenium	ug/L	5000	4570		91.4	80−120	P
	Silver	ug/L	5000	4710		94.2	80−120	P

***Analytical Methods:**

P **SW846 3010A/6010C**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 409254

Contract: HAAL00201

Aqueous LCS Source: **Solid LCS Source:** GEL

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203666306								
	Mercury	ug/kg	112	117		104	80−120	AV

***Analytical Methods:**

AV **SW846 7471B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 409254

Contract: HAAL00201

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1203666312								
	Mercury	mg/L	.02	.0201		101	80−120	AV

***Analytical Methods:**

AV **SW846 7470A**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 409254 **Client ID** DP110100L

Contract: HAAL00201

Matrix: SOLID **Level:** Low

Sample ID: 409254001 **Serial Dilution ID:** 1203657599

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	57500		55700		3.118		10	P
Antimony	24.7		29.7	B	20.593			P
Arsenic	92.7		90.6	B	2.27			P
Barium	1800		1780		1.01		10	P
Beryllium	1	U	5	U				P
Cadmium	5.2		5	U	7.517			P
Calcium	717000		710000		.803		10	P
Chromium	102		102		.403		10	P
Cobalt	70.1		71.2		1.533			P
Copper	198		164		17.364	E	10	P
Iron	128000		129000		.625		10	P
Lead	20200		20200		.131		10	P
Magnesium	75200		74900		.351		10	P
Manganese	5550		5620		1.194		10	P
Nickel	172		174		1.192		10	P
Potassium	11700		10700		8.686		10	P
Selenium	6.28	B	25	U	11.465			P
Silver	1	U	5	U				P
Sodium	1390		1220	B	12.623			P
Thallium	5	U	25	U				P
Vanadium	202		199		1.623		10	P
Zinc	738		741		.395		10	P

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 409254 **Client ID** DP010109L

Contract: HAAL00201

Matrix: SOLID **Level:** Low

Sample ID: 409254022 **Serial Dilution ID:** 1203657604

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	80100		85600		6.846		10	P
Antimony	4.05	B	16.5	U	243.292			P
Arsenic	65.1		58.5	B	10.141			P
Barium	2480		2630		6.127		10	P
Beryllium	6.11		6.6	B	7.986			P
Cadmium	2.58	B	5	U	57.534			P
Calcium	131000		135000		3.367		10	P
Chromium	113		123		8.691		10	P
Cobalt	60.6		64.6		6.547			P
Copper	155		155		.029		10	P
Iron	157000		164000		4.27		10	P
Lead	99.5		99.8		.23			P
Magnesium	57500		60400		5.094		10	P
Manganese	6170		6730		8.995		10	P
Nickel	177		193		9.492		10	P
Potassium	14900		15100		1.047		10	P
Selenium	20.5	B	47.5	B	131.698			P
Silver	6.71		5.48	B	18.321			P
Sodium	6060		6570		8.299		10	P
Thallium	5	U	25	U				P
Vanadium	262		264		.876		10	P
Zinc	500		518		3.71		10	P

***Analytical Methods:**

P **SW846 3050B/6010C**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 409254 **Client ID** DP010216L

Contract: HAAL00201

Matrix: SPLP **Level:** Low

Sample ID: 409254021 **Serial Dilution ID:** 1203658090

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Arsenic	9.41	B	25	U	79.274			P
Barium	6.16		6.62	B	7.552			P
Cadmium	1	U	5	U				P
Chromium	1	U	5	U				P
Lead	3.3	U	16.5	U				P
Selenium	6	U	30	U				P
Silver	1	U	5	U				P

***Analytical Methods:**

P **SW846 3010A/6010C**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 409254 **Client ID** SS110100L

Contract: HAAL00201

Matrix: SOLID **Level:** Low

Sample ID: 409254011 **Serial Dilution ID:** 1203666309

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.188	B	.335	U	129.255			AV

***Analytical Methods:**

AV **SW846 7471B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 409254 **Client ID** DP010216L

Contract: HAAL00201

Matrix: SPLP **Level:** Low

Sample ID: 409254021 **Serial Dilution ID:** 1203666315

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **SW846 7470A**

METALS
−13−
SAMPLE PREPARATION SUMMARY

SDG No: 409254 **Method Type:** P

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
Batch Number 1611116							
1203657595	MB for batch 1611116	MB	S	27−OCT−16	.544g	50mL	
1203657596	LCS for batch 1611116	LCS	S	27−OCT−16	.564g	50mL	
1203657598	DP110100S	MS	S	27−OCT−16	.565g	50mL	87
1203657597	DP110100D	DUP	S	27−OCT−16	.555g	50mL	87
409254001	DP110100	SAMPLE	S	27−OCT−16	.522g	50mL	87
409254002	DP110102	SAMPLE	S	27−OCT−16	.52g	50mL	82
409254003	DP110104	SAMPLE	S	27−OCT−16	.561g	50mL	82
409254004	DP110106	SAMPLE	S	27−OCT−16	.518g	50mL	94.9
409254005	DP110113	SAMPLE	S	27−OCT−16	.55g	50mL	77
409254006	DP110200	SAMPLE	S	27−OCT−16	.547g	50mL	82
409254007	DP110202	SAMPLE	S	27−OCT−16	.591g	50mL	79
409254008	DP110204	SAMPLE	S	27−OCT−16	.524g	50mL	83
409254009	DP110206	SAMPLE	S	27−OCT−16	.566g	50mL	79
409254010	DP110214	SAMPLE	S	27−OCT−16	.538g	50mL	81
409254011	SS110100	SAMPLE	S	27−OCT−16	.521g	50mL	95.8
409254012	SS110200	SAMPLE	S	27−OCT−16	.513g	50mL	83
409254013	SD140300	SAMPLE	S	27−OCT−16	.546g	50mL	63
409254014	SD140200	SAMPLE	S	27−OCT−16	.538g	50mL	56
409254015	SD140100	SAMPLE	S	27−OCT−16	.551g	50mL	62

METALS
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SAMPLE PREPARATION SUMMARY

SDG No: 409254 **Method Type:** P

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
409254016	SD140100DUP	SAMPLE	S	27−OCT−16	.515g	50mL	63
409254017	DP100113	SAMPLE	S	27−OCT−16	.586g	50mL	73
409254018	DP100212	SAMPLE	S	27−OCT−16	.502g	50mL	75
409254019	DP100310	SAMPLE	S	27−OCT−16	.572g	50mL	75
409254020	DP010216	SAMPLE	S	27−OCT−16	.571g	50mL	66
Batch Number 1611118							
1203657600	MB for batch 1611118	MB	S	27−OCT−16	.505g	50mL	
1203657601	LCS for batch 1611118	LCS	S	27−OCT−16	.525g	50mL	
1203657603	DP010109S	MS	S	27−OCT−16	.514g	50mL	76
1203657602	DP010109D	DUP	S	27−OCT−16	.524g	50mL	76
409254022	DP010109	SAMPLE	S	27−OCT−16	.587g	50mL	76
409254024	DP010307	SAMPLE	S	27−OCT−16	.527g	50mL	86
409254029	DP020312	SAMPLE	S	27−OCT−16	.555g	50mL	74
409254032	DP020413	SAMPLE	S	27−OCT−16	.571g	50mL	82
409254034	DP020207	SAMPLE	S	27−OCT−16	.547g	50mL	80
409254036	DP020209	SAMPLE	S	27−OCT−16	.547g	50mL	89
409254038	DP020114	SAMPLE	S	27−OCT−16	.508g	50mL	98
Batch Number 1611344							
1203658086	MB for batch 1611344	MB	SPLP	28−OCT−16	5mL	50mL	

METALS
−13−
SAMPLE PREPARATION SUMMARY

SDG No: 409254 **Method Type:** P

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
1203657517	TB for batch 1611084	TB	SPLP	28−OCT−16	5mL	50mL	
1203658087	LCS for batch 1611344	LCS	SPLP	28−OCT−16	5mL	50mL	
1203657516	DP010216S	MS	SPLP	28−OCT−16	5mL	50mL	
1203658088	DP010216D	DUP	SPLP	28−OCT−16	5mL	50mL	
409254021	DP010216	SAMPLE	SPLP	28−OCT−16	5mL	50mL	
409254023	DP010109	SAMPLE	SPLP	28−OCT−16	5mL	50mL	
409254025	DP010307	SAMPLE	SPLP	28−OCT−16	5mL	50mL	
409254030	DP020312	SAMPLE	SPLP	28−OCT−16	5mL	50mL	
409254033	DP020413	SAMPLE	SPLP	28−OCT−16	5mL	50mL	
409254035	DP020207	SAMPLE	SPLP	28−OCT−16	5mL	50mL	
409254037	DP020209	SAMPLE	SPLP	28−OCT−16	5mL	50mL	
409254039	DP020114	SAMPLE	SPLP	28−OCT−16	5mL	50mL	

METALS
−13−
SAMPLE PREPARATION SUMMARY

SDG No: 409254 **Method Type:** AV

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
Batch Number 1614668							
1203666305	MB for batch 1614668	MB	S	09−NOV−16	.512g	30mL	
1203666306	LCS for batch 1614668	LCS	S	09−NOV−16	.534g	30mL	
1203666308	SS110100S	MS	S	09−NOV−16	.501g	30mL	95.8
1203666307	SS110100D	DUP	S	09−NOV−16	.5g	30mL	95.8
409254011	SS110100	SAMPLE	S	09−NOV−16	.511g	30mL	95.8
409254012	SS110200	SAMPLE	S	09−NOV−16	.516g	30mL	83
409254013	SD140300	SAMPLE	S	09−NOV−16	.509g	30mL	63
409254014	SD140200	SAMPLE	S	09−NOV−16	.576g	30mL	56
409254015	SD140100	SAMPLE	S	09−NOV−16	.514g	30mL	62
409254016	SD140100DUP	SAMPLE	S	09−NOV−16	.572g	30mL	63
409254017	DP100113	SAMPLE	S	09−NOV−16	.52g	30mL	73
409254018	DP100212	SAMPLE	S	09−NOV−16	.521g	30mL	75
409254019	DP100310	SAMPLE	S	09−NOV−16	.594g	30mL	75
409254020	DP010216	SAMPLE	S	09−NOV−16	.549g	30mL	66
409254022	DP010109	SAMPLE	S	09−NOV−16	.564g	30mL	76
409254024	DP010307	SAMPLE	S	09−NOV−16	.544g	30mL	86
409254029	DP020312	SAMPLE	S	09−NOV−16	.502g	30mL	74
409254032	DP020413	SAMPLE	S	09−NOV−16	.551g	30mL	82
409254034	DP020207	SAMPLE	S	09−NOV−16	.512g	30mL	80

METALS
−13−
SAMPLE PREPARATION SUMMARY

SDG No: 409254 **Method Type:** AV

Contract: HAAL00201 **Lab Code:** GEL

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size	Final Sample Volume	Percent Solids
409254036	DP020209	SAMPLE	S	09−NOV−16	.539g	30mL	89
409254038	DP020114	SAMPLE	S	09−NOV−16	.521g	30mL	98
Batch Number 1614670							
1203666311	MB for batch 1614670	MB	TCLP	09−NOV−16	2mL	20mL	
1203657517	TB for batch 1611084	TB	TCLP	09−NOV−16	2mL	20mL	
1203666312	LCS for batch 1614670	LCS	TCLP	09−NOV−16	2mL	20mL	
1203657516	DP010216S	MS	TCLP	09−NOV−16	2mL	20mL	
1203666313	DP010216D	DUP	TCLP	09−NOV−16	2mL	20mL	
409254021	DP010216	SAMPLE	TCLP	09−NOV−16	2mL	20mL	
409254023	DP010109	SAMPLE	TCLP	09−NOV−16	2mL	20mL	
409254025	DP010307	SAMPLE	TCLP	09−NOV−16	2mL	20mL	
409254030	DP020312	SAMPLE	TCLP	09−NOV−16	2mL	20mL	
409254033	DP020413	SAMPLE	TCLP	09−NOV−16	2mL	20mL	
409254035	DP020207	SAMPLE	TCLP	09−NOV−16	2mL	20mL	
409254037	DP020209	SAMPLE	TCLP	09−NOV−16	2mL	20mL	
409254039	DP020114	SAMPLE	TCLP	09−NOV−16	2mL	20mL	

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL

Client Sdg: 409254

Inst Name: OPTIMA3

Instrument Type: P

Start Date: 16−NOV−16

End Date: 16−NOV−16

Data File: 111616−1

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
S0.0	1	06:07:14	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
S0.1	1	06:10:27		X	X	X	X	X		X	X	X		X		X		X	X	X	X		X	X	X
S0.5	1	06:12:35	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X		X	X	X
SCAL	1	06:15:47	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
S10	1	06:19:11	X						X				X		X							X			
ICV01	1	06:21:16	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ICB01	1	06:24:24	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL01	1	06:27:30	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ICSA01	1	06:30:37	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ICSAB01	1	06:33:45	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
LR01	1	06:36:09	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
LR02	1	06:37:48	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV01	1	06:41:55	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB01	1	06:45:09	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
LR03	1	06:54:59	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
LR04	1	06:58:26	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV02	1	07:01:33	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB02	1	07:04:46	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	1	07:07:51																							
ZZZZZZ	1	07:10:58																							
ZZZZZZ	1	07:14:10																							
ZZZZZZ	1	07:17:16																							
ZZZZZZ	1	07:20:22																							
ZZZZZZ	1	07:23:28																							
ZZZZZZ	1	07:26:34																							
ZZZZZZ	5	07:29:46																							
CCV	1	07:32:52	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL	1	07:36:06	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	07:39:14	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	10	07:42:21																							
CCV	1	07:45:50	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	07:49:09	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	1	07:52:15																							
ZZZZZZ	1	07:55:22																							
ZZZZZZ	1	07:58:35																							
ZZZZZZ	1	08:01:42																							
ZZZZZZ	1	08:04:48																							
ZZZZZZ	5	08:08:00																							
CCV	1	08:11:06	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	08:14:20	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	1	08:17:26																							

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: OPTIMA3 **Instrument Type:** P

Start Date: 16−NOV−16 **End Date:** 16−NOV−16 **Data File:** 111616−1

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
ZZZZZZ	1	08:20:34																							
ZZZZZZ	1	08:23:41																							
ZZZZZZ	20	08:26:48																							
ZZZZZZ	20	08:29:55																							
ZZZZZZ	1	08:33:01																							
ZZZZZZ	1	08:36:07																							
CCV	1	08:39:14	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	08:42:27	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	1	08:45:43																							
ZZZZZZ	1	08:48:55																							
ZZZZZZ	1	08:52:08																							
ZZZZZZ	1	08:55:17																							
ZZZZZZ	1	08:58:27																							
ZZZZZZ	1	09:01:37																							
ZZZZZZ	5	09:04:50																							
CCV	1	09:07:57	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL	1	09:11:11	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	09:14:19	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV	1	09:17:26	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	09:20:39	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	1	09:23:45																							
ZZZZZZ	1	09:26:53																							
ZZZZZZ	1	09:29:59																							
ZZZZZZ	1	09:33:11																							
ZZZZZZ	1	09:36:17																							
ZZZZZZ	1	09:39:23																							
ZZZZZZ	1	09:42:29																							
ZZZZZZ	1	09:45:35																							
ZZZZZZ	5	09:48:42																							
CCV	1	09:51:48	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	09:55:02	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	10	10:05:47																							
ZZZZZZ	10	10:09:00																							
ZZZZZZ	10	10:12:07																							
ZZZZZZ	10	10:15:14																							
ZZZZZZ	50	10:18:27																							
CCV	1	10:21:34	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL	1	10:24:48	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	10:27:56	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV	1	10:31:04	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	10:34:19	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: OPTIMA3 **Instrument Type:** P

Start Date: 16−NOV−16 **End Date:** 16−NOV−16 **Data File:** 111616−1

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
ZZZZZZ	10	10:37:42																							
ZZZZZZ	1	10:40:59																							
ZZZZZZ	5	10:44:13																							
ZZZZZZ	1	10:47:20																							
ZZZZZZ	5	10:50:34																							
ZZZZZZ	5	10:53:56																							
ZZZZZZ	5	10:59:04																							
CCV	1	11:02:18	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL	1	11:05:33	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	11:08:42	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	10	11:11:48																							
CCV03	1	11:17:07	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB03	1	11:20:28	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203657600	1	11:23:34	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203657601	1	11:26:43	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254022	1	11:29:55	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203657602	1	11:33:23	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203657603	1	11:36:47	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203657604	5	11:40:18	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV04	1	11:43:29	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB04	1	11:46:43	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203671682	1	11:49:49		X															X						
409254024	1	11:53:18	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254029	1	11:56:30	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254032	1	11:59:57	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254034	1	12:03:23	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254036	1	12:06:49	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254038	1	12:10:01	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV05	1	12:13:08	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL02	1	12:16:22	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB05	1	12:19:30	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: HG3 **Instrument Type:** AV

Start Date: 10−NOV−16 **End Date:** 10−NOV−16 **Data File:** 111016S1−4

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
S0.0	1	10:39:00															X								
S0.2	1	10:40:00															X								
S0.5	1	10:42:00															X								
S2.0	1	10:44:00															X								
S5.0	1	10:45:00															X								
S10.0	1	10:47:00															X								
ICV01	1	10:49:00															X								
ICB01	1	10:50:00															X								
CRDL01	1	10:52:00															X								
CCV01	1	10:54:00															X								
CCB01	1	10:55:00															X								
ZZZZZZ	1	11:03:00																							
ZZZZZZ	1	11:05:00																							
ZZZZZZ	1	11:07:00																							
ZZZZZZ	1	11:08:00																							
ZZZZZZ	1	11:10:00																							
ZZZZZZ	5	11:12:00																							
ZZZZZZ	1	11:13:00																							
ZZZZZZ	1	11:15:00																							
ZZZZZZ	1	11:17:00																							
ZZZZZZ	1	11:18:00																							
CCV02	1	11:20:00															X								
CCB02	1	11:22:00															X								
ZZZZZZ	1	11:23:00																							
ZZZZZZ	1	11:25:00																							
ZZZZZZ	1	11:27:00																							
ZZZZZZ	1	11:28:00																							
1203666305	1	11:30:00															X								
1203666306	1	11:32:00															X								
409254011	1	11:33:00															X								
1203666307	1	11:35:00															X								
1203666308	1	11:37:00															X								
1203666309	5	11:38:00															X								
CCV03	1	11:40:00															X								
CCB03	1	11:42:00															X								
ZZZZZZ	1	11:43:00																							
409254012	1	11:45:00															X								
409254013	1	11:47:00															X								
409254014	1	11:49:00															X								
409254015	1	11:50:00															X								
409254016	1	11:52:00															X								

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: HG3 **Instrument Type:** AV

Start Date: 10−NOV−16 **End Date:** 10−NOV−16 **Data File:** 111016S1−4

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
409254017	1	11:54:00															X								
409254018	1	11:55:00															X								
409254019	1	11:57:00															X								
409254020	1	11:59:00															X								
CCV04	1	12:00:00															X								
CCB04	1	12:02:00															X								
409254022	1	12:04:00															X								
409254024	1	12:05:00															X								
409254029	1	12:07:00															X								
409254032	1	12:09:00															X								
409254034	1	12:10:00															X								
409254036	1	12:12:00															X								
409254038	1	12:14:00															X								
CCV05	1	12:15:00															X								
CCB05	1	12:17:00															X								

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: OPTIMA4 **Instrument Type:** P

Start Date: 11−NOV−16 **End Date:** 11−NOV−16 **Data File:** 111116−3

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
S0.0	1	09:06:49	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
S0.1	1	09:09:46		X	X	X	X	X		X	X	X		X		X		X	X	X	X		X	X	X
S0.5	1	09:11:32	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X		X	X	X
SCAL	1	09:13:29	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
S10	1	09:15:27	X						X				X		X							X			
ICV01	1	09:16:11	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ICB01	1	09:18:10	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL01	1	09:21:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ICSA01	1	09:23:51	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ICSAB01	1	09:25:45	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
LR01	1	09:27:37	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
LR02	1	09:29:29	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV01	1	09:31:44	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB01	1	09:33:43	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
LR03	1	09:36:46	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV02	1	09:39:39	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB02	1	09:41:38	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	1	10:14:49																							
ZZZZZZ	1	10:17:45																							
ZZZZZZ	1	10:19:38																							
ZZZZZZ	1	10:22:28																							
CCV	1	10:25:18	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL	1	10:27:17	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	10:30:09	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV	1	10:33:01	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB	1	10:34:59	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	1	10:37:49																							
ZZZZZZ	1	10:40:41																							
ZZZZZZ	1	10:42:34																							
ZZZZZZ	1	10:45:24																							
ICSA02	1	10:48:14	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ICSAB02	1	10:50:08	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCV03	1	10:52:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB03	1	10:53:59	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203657595	1	11:45:33	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203657596	1	11:48:28	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254001	1	11:50:21												X											
1203657597	1	11:52:15	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203657598	1	11:54:09	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
1203668749	1	11:56:03				X													X						X
1203657599	5	11:57:58	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: OPTIMA4 **Instrument Type:** P

Start Date: 11−NOV−16 **End Date:** 11−NOV−16 **Data File:** 111116−3

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
CCV04	1	11:59:50	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB04	1	12:01:50	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254002	1	12:04:40												X											
409254003	1	12:06:35												X											
409254004	1	12:08:28												X											
409254005	1	12:10:20												X											
409254006	1	12:12:14												X											
409254007	1	12:14:08												X											
409254008	1	12:16:02												X											
409254009	1	12:17:54												X											
409254010	1	12:19:52												X											
CCV05	1	12:21:43	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB05	1	12:23:42	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254011	1	12:26:32		X	X	X		X		X	X	X	X	X	X	X		X		X		X	X	X	X
409254012	1	12:28:34	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	X
409254013	1	12:30:34	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254014	1	12:32:28	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254015	1	12:34:22	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254016	1	12:36:15	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254017	1	12:38:09	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	X
409254018	1	12:40:02	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	X
409254019	1	12:42:00	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	X
409254020	1	12:43:58	X		X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	X
CCV06	1	13:05:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB06	1	13:07:03	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
ZZZZZZ	10	13:09:54																							
CCV07	1	13:13:19	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB07	1	13:15:26	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254011	10	13:18:17	X				X		X										X		X				
409254012	10	13:20:10					X																X		
409254013	10	13:21:56					X																		
409254014	10	13:23:47					X																		
409254015	10	13:25:32					X																		
409254016	10	13:27:24					X																		
409254017	10	13:29:15					X																X		
409254018	10	13:31:00					X																X		
409254019	10	13:32:45					X																X		
409254020	10	13:34:30		X																			X		
CCV08	1	13:36:22	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB08	1	13:38:28	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
409254020	20	13:41:24					X																		

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL

Client Sdg: 409254

Inst Name: OPTIMA4

Instrument Type: P

Start Date: 11−NOV−16

End Date: 11−NOV−16

Data File: 111116−3

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
CCV09	1	13:43:18	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
PQL02	1	13:45:18	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CCB09	1	13:48:10	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL

Client Sdg: 409254

Inst Name: OPTIMA5

Instrument Type: P

Start Date: 02−NOV−16

End Date: 02−NOV−16

Data File: 110216−2

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
S0.0	1	12:25:10			X	X		X		X				X						X	X				
S0.1	1	12:28:01			X	X		X		X				X						X	X				
S0.5	1	12:29:52			X	X		X		X				X						X	X				
SCAL	1	12:32:42			X	X		X		X				X						X	X				
S10	1	12:35:37																							
ICV01	1	12:36:33			X	X		X		X				X						X	X				
ICB01	1	12:39:27			X	X		X		X				X						X	X				
PQL01	1	12:42:18			X	X		X		X				X						X	X				
ICSA01	1	12:45:07			X	X		X		X				X						X	X				
ICSAB01	1	12:47:05			X	X		X		X				X						X	X				
LR01	1	12:49:00			X	X		X		X				X						X	X				
LR02	1	12:50:57			X	X		X		X				X						X	X				
CCV01	1	12:54:04			X	X		X		X				X						X	X				
CCB01	1	12:56:57			X	X		X		X				X						X	X				
ZZZZZZ	1	13:09:07																							
ZZZZZZ	1	13:11:59																							
ZZZZZZ	1	13:14:51																							
ZZZZZZ	1	13:17:41																							
ZZZZZZ	1	13:20:33																							
ZZZZZZ	5	13:23:23																							
CCV	1	13:26:13			X	X		X		X				X						X	X				
PQL	1	13:29:06			X	X		X		X				X						X	X				
CCB	1	13:31:58			X	X		X		X				X						X	X				
CCV	1	13:34:50			X	X		X		X				X						X	X				
CCB	1	13:37:43			X	X		X		X				X						X	X				
ZZZZZZ	1	13:40:33																							
ZZZZZZ	1	13:43:24																							
ZZZZZZ	1	13:46:15																							
ZZZZZZ	1	13:49:06																							
ZZZZZZ	5	13:51:56																							
CCV	1	13:54:47			X	X		X		X				X						X	X				
PQL	1	13:57:41			X	X		X		X				X						X	X				
CCB	1	14:00:31			X	X		X		X				X						X	X				
CCV	1	14:03:22			X	X		X		X				X						X	X				
CCB	1	14:06:15			X	X		X		X				X						X	X				
ZZZZZZ	1	14:09:07																							
ZZZZZZ	1	14:11:59																							
ZZZZZZ	1	14:14:50																							
ZZZZZZ	1	14:17:41																							
ZZZZZZ	1	14:20:32																							
ZZZZZZ	5	14:23:23																							

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: OPTIMA5 **Instrument Type:** P

Start Date: 02−NOV−16 **End Date:** 02−NOV−16 **Data File:** 110216−2

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
CCV	1	14:26:14			X	X		X		X				X						X	X				
PQL	1	14:29:08			X	X		X		X				X						X	X				
CCB	1	14:32:00			X	X		X		X				X						X	X				
CCV	1	14:34:51			X	X		X		X				X						X	X				
CCB	1	14:37:44			X	X		X		X				X						X	X				
ZZZZZZ	1	14:40:36																							
ZZZZZZ	1	14:43:28																							
ZZZZZZ	1	14:46:19																							
ZZZZZZ	1	14:49:10																							
ZZZZZZ	1	14:52:01																							
ZZZZZZ	1	14:54:52																							
ZZZZZZ	5	14:57:43																							
PQL	1	15:00:34			X	X		X		X				X						X	X				
ICSA02	1	15:03:26			X	X		X		X				X						X	X				
ICSAB02	1	15:05:25			X	X		X		X				X						X	X				
CCV	1	15:07:22			X	X		X		X				X						X	X				
CCB	1	15:10:15			X	X		X		X				X						X	X				
ZZZZZZ	1	15:13:06																							
ZZZZZZ	1	15:15:57																							
ZZZZZZ	1	15:18:48																							
ZZZZZZ	1	15:21:39																							
ZZZZZZ	1	15:24:29																							
ZZZZZZ	5	15:27:20																							
PQL	1	15:30:10			X	X		X		X				X						X	X				
ICSA03	1	15:33:01			X	X		X		X				X						X	X				
ICSAB03	1	15:35:00			X	X		X		X				X						X	X				
CCV02	1	15:36:56			X	X		X		X				X						X	X				
CCB02	1	15:39:49			X	X		X		X				X						X	X				
1203658086	1	15:42:41			X	X		X		X				X						X	X				
1203657517	1	15:45:32			X	X		X		X				X						X	X				
1203658087	1	15:48:23			X	X		X		X				X						X	X				
409254021	1	15:51:14			X	X		X		X				X						X	X				
1203658088	1	15:54:04			X	X		X		X				X						X	X				
1203657516	1	15:56:54			X	X		X		X				X						X	X				
1203658090	5	15:59:44			X	X		X		X				X						X	X				
CCV03	1	16:02:35			X	X		X		X				X						X	X				
CCB03	1	16:05:27			X	X		X		X				X						X	X				
409254023	1	16:08:17			X	X		X		X				X						X	X				
409254025	1	16:11:08			X	X		X		X				X						X	X				
409254030	1	16:13:59			X	X		X		X				X						X	X				
409254033	1	16:16:49			X	X		X		X				X						X	X				

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: OPTIMA5 **Instrument Type:** P

Start Date: 02−NOV−16 **End Date:** 02−NOV−16 **Data File:** 110216−2

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
409254035	1	16:19:39			X	X		X		X				X						X	X				
409254037	1	16:22:29			X	X		X		X				X						X	X				
409254039	1	16:25:20			X	X		X		X				X						X	X				
CCV04	1	16:28:10			X	X		X		X				X						X	X				
PQL02	1	16:31:02			X	X		X		X				X						X	X				
CCB04	1	16:33:55			X	X		X		X				X						X	X				

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: HG4 **Instrument Type:** AV

Start Date: 10−NOV−16 **End Date:** 10−NOV−16 **Data File:** 111016W1−5

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
S0.0	1	10:40:00															X								
S0.2	1	10:42:00															X								
S0.5	1	10:43:00															X								
S2.0	1	10:45:00															X								
S5.0	1	10:47:00															X								
S10.0	1	10:49:00															X								
ICV01	1	10:50:00															X								
ICB01	1	10:52:00															X								
CRDL01	1	10:54:00															X								
CCV01	1	10:55:00															X								
CCB01	1	10:57:00															X								
ZZZZZZ	1	10:59:00																							
CCV	1	11:00:00															X								
CCB	1	11:02:00															X								
ZZZZZZ	1	11:14:00																							
ZZZZZZ	1	11:16:00																							
ZZZZZZ	1	11:17:00																							
ZZZZZZ	1	11:19:00																							
ZZZZZZ	1	11:21:00																							
ZZZZZZ	5	11:22:00																							
ZZZZZZ	1	11:24:00																							
ZZZZZZ	1	11:26:00																							
ZZZZZZ	1	11:27:00																							
ZZZZZZ	1	11:29:00																							
CCV	1	11:31:00															X								
CCB	1	11:32:00															X								
ZZZZZZ	1	11:34:00																							
ZZZZZZ	5	11:36:00																							
ZZZZZZ	1	11:38:00																							
ZZZZZZ	1	11:39:00																							
ZZZZZZ	1	11:41:00																							
ZZZZZZ	1	11:43:00																							
ZZZZZZ	1	11:44:00																							
ZZZZZZ	1	11:46:00																							
ZZZZZZ	1	11:48:00																							
ZZZZZZ	1	11:49:00																							
CCV	1	11:51:00															X								
CCB	1	11:53:00															X								
ZZZZZZ	1	11:54:00																							
ZZZZZZ	1	11:56:00																							
ZZZZZZ	1	11:58:00																							

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: HG4 **Instrument Type:** AV

Start Date: 10−NOV−16 **End Date:** 10−NOV−16 **Data File:** 111016W1−5

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
ZZZZZZ	1	11:59:00																							
ZZZZZZ	1	12:01:00																							
ZZZZZZ	1	12:03:00																							
ZZZZZZ	1	12:05:00																							
ZZZZZZ	1	12:06:00																							
ZZZZZZ	1	12:08:00																							
ZZZZZZ	1	12:10:00																							
CCV	1	12:11:00															X								
CCB	1	12:13:00															X								
ZZZZZZ	1	12:15:00																							
ZZZZZZ	1	12:16:00																							
ZZZZZZ	1	12:18:00																							
ZZZZZZ	1	12:20:00																							
ZZZZZZ	1	12:21:00																							
ZZZZZZ	1	12:23:00																							
ZZZZZZ	1	12:25:00																							
ZZZZZZ	1	12:26:00																							
ZZZZZZ	1	12:28:00																							
ZZZZZZ	1	12:30:00																							
CCV	1	12:31:00															X								
CCB	1	12:33:00															X								
ZZZZZZ	1	12:35:00																							
CCV	1	12:36:00															X								
CCB	1	12:38:00															X								
ZZZZZZ	1	12:40:00																							
ZZZZZZ	1	12:42:00																							
ZZZZZZ	1	12:43:00																							
ZZZZZZ	1	12:45:00																							
ZZZZZZ	1	12:47:00																							
ZZZZZZ	1	12:48:00																							
ZZZZZZ	1	12:50:00																							
ZZZZZZ	1	12:52:00																							
ZZZZZZ	1	12:53:00																							
ZZZZZZ	1	12:55:00																							
CCV	1	12:57:00															X								
CCB	1	12:58:00															X								
ZZZZZZ	1	13:00:00																							
ZZZZZZ	1	13:02:00																							
ZZZZZZ	1	13:04:00																							
ZZZZZZ	1	13:05:00																							
ZZZZZZ	1	13:07:00																							

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: HG4 **Instrument Type:** AV

Start Date: 10−NOV−16 **End Date:** 10−NOV−16 **Data File:** 111016W1−5

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
ZZZZZZ	1	13:09:00																							
ZZZZZZ	5	13:10:00																							
ZZZZZZ	1	13:12:00																							
ZZZZZZ	1	13:14:00																							
ZZZZZZ	1	13:15:00																							
CCV	1	13:17:00															X								
CCB	1	13:19:00															X								
ZZZZZZ	1	13:20:00																							
ZZZZZZ	1	13:22:00																							
ZZZZZZ	1	13:24:00																							
ZZZZZZ	1	13:25:00																							
ZZZZZZ	5	13:27:00																							
ZZZZZZ	1	13:29:00																							
ZZZZZZ	1	13:31:00																							
ZZZZZZ	1	13:32:00																							
ZZZZZZ	1	13:34:00																							
ZZZZZZ	1	13:36:00																							
CCV02	1	13:37:00															X								
CCB02	1	13:39:00															X								
ZZZZZZ	1	13:41:00																							
ZZZZZZ	1	13:42:00																							
ZZZZZZ	5	13:44:00																							
ZZZZZZ	1	13:46:00																							
1203666311	1	13:47:00															X								
1203657517	1	13:49:00															X								
1203666312	1	13:51:00															X								
409254021	1	13:53:00															X								
1203657516	1	13:54:00															X								
1203666313	1	13:56:00															X								
CCV03	1	13:58:00															X								
CCB03	1	13:59:00															X								
ZZZZZZ	1	14:02:00																							
ZZZZZZ	1	14:04:00																							
ZZZZZZ	5	14:05:00																							
ZZZZZZ	1	14:07:00																							
ZZZZZZ	1	14:09:00																							
ZZZZZZ	1	14:10:00																							
ZZZZZZ	1	14:12:00																							
ZZZZZZ	1	14:14:00																							
ZZZZZZ	5	14:15:00																							
ZZZZZZ	1	14:17:00																							

Metals
−14−
Analysis Run Log

Contract: HAAL00201

Lab Code : GEL **Client Sdg:** 409254

Inst Name: HG4 **Instrument Type:** AV

Start Date: 10−NOV−16 **End Date:** 10−NOV−16 **Data File:** 111016W1−5

Samp ID	D/F	Run Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
CCV04	1	14:19:00															X								
CCB04	1	14:21:00															X								
ZZZZZZ	1	14:22:00																							
ZZZZZZ	1	14:24:00																							
ZZZZZZ	1	14:26:00																							
ZZZZZZ	1	14:27:00																							
1203666315	5	14:29:00															X								
1203666317	1	14:31:00															X								
409254023	1	14:32:00															X								
409254025	1	14:34:00															X								
409254030	1	14:36:00															X								
409254033	1	14:37:00															X								
CCV05	1	14:39:00															X								
CCB05	1	14:41:00															X								
409254035	1	14:42:00															X								
409254037	1	14:44:00															X								
409254039	1	14:46:00															X								
CCV06	1	14:48:00															X								
CCB06	1	14:49:00															X								

Standards

METALS
−10−
Instrument Detection Limits

SDG NO. 409254

Contract: HAAL00201 **Lab Code: GEL** **MDL Effective Date:** 01−MAY−12

Instrument(s):	**Verified on:**
HG3	26−OCT−16
HG4	24−OCT−16

MERCURY	**Analyte**	**Wavelength (nm)**	**MDL ug/L**	**RDL ug/L**
LIQUID	Mercury		0.067	0.2
SOLID	Mercury		0.067	0.2

METALS
−10−
Instrument Detection Limits

SDG NO. 409254

Contract: HAAL00201 **Lab Code: GEL** **MDL Effective Date:** 23−JAN−11

Instrument(s):	**Verified on:**
OPTIMA3	31−OCT−16
OPTIMA4	02−NOV−16
OPTIMA5	12−AUG−16

ICP	Analyte	Wavelength (nm)	MDL ug/L	RDL ug/L
LIQUID	Aluminum	396.153	68.0	200
	Antimony	206.836	3.5	10.0
	Arsenic	188.979	5.0	30.0
	Barium	233.527	1.0	5.0
	Beryllium	313.107	1.0	5.0
	Cadmium	226.502	1.0	5.0
	Calcium	317.933	50.0	250
	Chromium	267.716	1.0	5.0
	Cobalt	228.616	1.0	5.0
	Copper	324.752	3.0	10.0
	Iron	238.204	30.0	250
	Lead	220.353	3.3	10.0
	Magnesium	279.077	110	300
	Manganese	257.61	2.0	10.0
	Nickel	231.604	1.5	5.0
	Potassium	766.49	50.0	250
	Selenium	196.026	6.0	30.0
	Silver	328.068	1.0	5.0
	Sodium	589.592	100	250
	Thallium	190.801	5.0	20.0
	Vanadium	292.402	1.0	5.0
	Zinc	213.857	3.3	10.0
SOLID	Aluminum	396.153	68.0	200
	Antimony	206.836	3.3	10.0
	Arsenic	188.979	5.0	30.0
	Barium	233.527	1.0	5.0
	Beryllium	313.107	1.0	5.0
	Cadmium	226.502	1.0	5.0
	Calcium	317.933	80.0	250
	Chromium	267.716	1.5	5.0
	Cobalt	228.616	1.5	5.0
	Copper	324.752	3.0	10.0
	Iron	238.204	80.0	250
	Lead	220.353	3.3	10.0

METALS
−10−
Instrument Detection Limits

SDG NO. 409254

Contract: HAAL00201 **Lab Code: GEL** **MDL Effective Date:** 23−JAN−11

ICP	Analyte	Wavelength (nm)	MDL ug/L	RDL ug/L
	Magnesium	279.077	85.0	300
	Manganese	257.61	2.0	10.0
	Nickel	231.604	1.5	5.0
	Potassium	766.49	64.0	250
	Selenium	196.026	5.0	30.0
	Silver	328.068	1.0	5.0
	Sodium	589.592	70.0	250
	Thallium	190.801	5.0	20.0
	Vanadium	292.402	1.0	5.0
	Zinc	213.857	4.0	10.0

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA3
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Aluminum	Antimony	Arsenic	Barium	Beryllium
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.02562	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.01516	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	−0.87639	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.35399	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	−0.12055	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	4.75962	0.00000
Selenium	**196.026**	0.00039	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	−0.16325	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**231.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA3
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Boron	Cadmium	Calcium	Chromium	Cobalt
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	0.00000	0.00000	24.7409	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	−3.41126	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	−0.01216	−0.19721	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	4.60567
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	−0.14252
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	0.33494	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.00000	0.00000	−0.02929	0.00000	−1.93795
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	−0.22903
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.01389	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	−0.21290	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.03376	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.53517	6.24833
Tin	**189.927**	0.00000	0.00000	0.01438	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	−0.05594	0.33181	0.00000
Uranium	**367.007**	0.00000	0.00000	0.29986	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	−1.86449	0.00000
Zinc	**231.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA3
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Copper	Iron	Lead	Magnesium	Manganese
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.06032	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.02681	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	−3.90259	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.11227	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	−0.00797	0.00000	−0.02012	0.34259
Cobalt	**228.616**	0.00000	0.06981	0.00000	0.00000	0.00000
Copper	**324.752**	0.00000	−0.05873	0.00000	−0.00424	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	−0.15530	−0.04221	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	−0.04765	0.00000	0.03774	0.00000
Molybdenum	**202.031**	0.00000	−0.03029	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.05298	0.00000	0.00000	0.00000
Phosphorous	**214.914**	9.13825	1.00849	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	−1.07116	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	−0.47682	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.18532	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	−0.17476	0.00000	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	0.00000	0.60266	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.60462	0.00000	0.00000	−4.26995
Thallium	**190.801**	0.00000	0.00000	0.00000	−0.01480	0.00000
Tin	**189.927**	0.00000	−0.01709	0.00000	0.00761	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	4.12457	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	−0.13469	0.00000	0.00000	0.00000
Zinc	**231.857**	1.07062	0.11943	0.00000	0.05880	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA3
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Molybdenum	Nickel	Phosphorous	Potassium	Selenium
Aluminum	**396.153**	36.2196	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	−13.3485	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	−6.45607	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	−0.35033	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	−1.58377	0.00000	0.00000	0.00000	0.00000
Copper	**324.752**	0.50166	0.00000	0.00000	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	9.80072	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	11.8775	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Sodium	**589.592**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	−4.85097	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	−9.76156	0.00000	0.00000	0.00000	0.00000
Zinc	**231.857**	0.00000	6.69795	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA3
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Silicon	Silver	Sodium	Strontium	Sulfur
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.04035	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Sodium	589.592	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	231.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA3
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Thallium	Tin	Titanium	Uranium	Vanadium
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	−2.81667	−1.26734	0.00000	−1.88188
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	−0.23820	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.21398	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.70193	−0.46390
Cobalt	**228.616**	0.00000	0.00000	2.08007	0.00000	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	−0.53024	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.00000	0.00000	0.00000	0.65553	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	1.96043	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.47792	−1.48099
Sodium	**589.592**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	−9.31052	−0.33161	0.96147
Tin	**189.927**	0.00000	0.00000	−3.52795	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.48348	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.72993	−0.61864	0.00000
Zinc	**231.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA3
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

		Zinc
Parmname	**Wavelength**	
Aluminum	**396.153**	0.00000
Antimony	**206.836**	0.00000
Arsenic	**188.979**	0.00000
Barium	**233.527**	0.00000
Beryllium	**313.107**	0.00000
Boron	**249.677**	0.00000
Cadmium	**226.502**	0.00000
Calcium	**317.933**	0.00000
Chromium	**267.716**	0.00000
Cobalt	**228.616**	0.00000
Copper	**324.752**	0.00000
Iron	**238.204**	0.00000
Lead	**220.353**	0.00000
Magnesium	**279.077**	0.00000
Manganese	**257.61**	0.00000
Molybdenum	**202.031**	0.00000
Nickel	**231.604**	0.00000
Phosphorous	**214.914**	0.00000
Potassium	**766.49**	0.00000
Selenium	**196.026**	0.00000
Silicon	**251.611**	0.00000
Silver	**328.068**	0.00000
Sodium	**589.592**	0.00000
Strontium	**421.552**	0.00000
Sulfur	**181.975**	0.00000
Thallium	**190.801**	0.00000
Tin	**189.927**	0.00000
Titanium	**334.94**	0.00000
Uranium	**367.007**	0.00000
Vanadium	**292.402**	0.00000
Zinc	**231.857**	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA4
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Aluminum	Antimony	Arsenic	Barium	Beryllium
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	**206.836**	−0.05322	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	24.5915	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	−1.17464	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	−0.05094	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	−0.00034	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.04568	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.07795	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00824	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA4
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Boron	Cadmium	Chromium	Cobalt	Copper
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	15.4644	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	−9.05998	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00338	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	−0.00076	0.27984
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00152	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.28288	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	−1.66775	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	1.06133

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA4
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Lead	Magnesium	Manganese	Molybdenum	Nickel
Aluminum	**396.153**	0.00000	0.00000	0.00000	0.04684	0.00000
Antimony	**206.836**	0.00000	0.00000	0.00000	−0.01264	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00199	0.00000
Barium	**233.527**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00560	0.00039	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	**324.752**	0.00000	−0.01322	0.00000	0.00530	0.00000
Lead	**220.353**	0.00000	0.00963	0.00000	−0.00157	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.03616	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	−0.01060	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00848	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000	0.01085	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	−0.00784	0.00000
Thallium	**190.801**	0.00000	0.00000	−0.00152	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	−0.00149	0.00000
Zinc	**213.857**	0.00000	0.04937	0.00000	0.00000	0.00623

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA4
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Phosphorous	Potassium	Selenium	Silicon	Silver
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA4
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Strontium	Sulfur	Thallium	Tin	Titanium
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	−0.00108	−0.00228
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Barium	233.527	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00053
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00202
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	−0.00060
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00054	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silicon	251.611	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	−0.00217
Tin	189.927	0.00000	0.00000	0.00000	0.00000	−0.00263
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00093
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA4
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Uranium	Vanadium	Zinc
Aluminum	**396.153**	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	−0.00079	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000
Barium	**233.527**	0.00000	−0.00130	0.00000
Beryllium	**313.107**	−0.36137	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000
Chromium	**267.716**	0.90386	−0.00039	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000
Copper	**324.752**	−0.79680	0.00000	0.00000
Lead	**220.353**	1.11963	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000
Selenium	**196.026**	−1.08574	0.00000	0.00000
Silicon	**251.611**	0.00000	0.00000	0.00000
Silver	**328.068**	0.57358	−0.00068	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000
Titanium	**334.94**	0.52240	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000
Vanadium	**292.402**	−0.36650	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA5
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Aluminum	Antimony	Arsenic	Beryllium	Boron
Aluminum	**396.153**	0.00000	−0.02532	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	**324.752**	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	−0.05916	0.00000	0.00000	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA5
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Cadmium	Calcium	Chromium	Cobalt	Copper
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	10.4866	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	−5.03740	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	10.0639
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	−0.00518	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00984	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	−0.00886	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	−0.01900	0.36160	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	−1.40560	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.64860

METALS
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Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA5
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Iron	Lead	Magnesium	Manganese	Molybdenum
Aluminum	**396.153**	0.00000	−0.02625	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00593	0.00000	0.00000	0.00000	−7.85170
Arsenic	**188.979**	0.02454	0.00000	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	**249.677**	0.22480	0.00000	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.06277	0.00000	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00909	0.00000	0.00000	0.00000	0.00000
Cobalt	**228.616**	0.09141	0.00000	0.00000	0.00000	0.00000
Copper	**324.752**	−0.05782	0.00000	0.00000	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	**220.353**	0.00000	0.00000	0.00000	0.00000	−1.59380
Magnesium	**279.077**	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	**257.61**	−0.01882	0.00000	0.03333	0.00000	0.00000
Molybdenum	**202.031**	−0.07750	0.00000	0.00000	0.00000	0.00000
Nickel	**231.604**	0.02898	0.00000	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.54770	0.00000	0.00000	0.00000	0.00000
Potassium	**766.49**	0.17724	0.00000	0.00000	0.00000	0.00000
Selenium	**196.026**	0.04803	0.00000	0.00000	0.00000	0.00000
Silver	**328.068**	−0.03120	0.00000	0.00000	0.00000	0.00000
Strontium	**421.552**	0.05682	0.00000	0.00000	0.00000	0.00000
Sulfur	**181.975**	−0.34914	0.00000	0.00000	0.00000	−4.28470
Thallium	**190.801**	0.09856	0.00000	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	**367.007**	5.87069	0.00000	0.00000	0.00000	0.00000
Vanadium	**292.402**	−0.12117	0.00000	0.00000	0.00000	−5.75030
Zinc	**213.857**	0.14316	0.00000	0.06842	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA5
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Nickel	Phosphorous	Potassium	Selenium	Silver
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	0.00000
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	0.00000
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	0.00000
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.72750	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	0.00000
Tin	189.927	0.00000	0.00000	0.00000	0.00000	0.00000
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	6.31820	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA5
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Strontium	Sulfur	Thallium	Tin	Titanium
Aluminum	396.153	0.00000	0.00000	0.00000	0.00000	0.00000
Antimony	206.836	0.00000	0.00000	0.00000	0.00000	−2.28970
Arsenic	188.979	0.00000	0.00000	0.00000	0.00000	−2.98850
Beryllium	313.107	0.00000	0.00000	0.00000	0.00000	−1.73690
Boron	249.677	0.00000	0.00000	0.00000	0.00000	0.00000
Cadmium	226.502	0.00000	0.00000	0.00000	0.00000	0.00000
Calcium	317.933	0.00000	0.00000	0.00000	0.00000	0.00000
Chromium	267.716	0.00000	0.00000	0.00000	0.00000	0.00000
Cobalt	228.616	0.00000	0.00000	0.00000	0.00000	0.00000
Copper	324.752	0.00000	0.00000	0.00000	0.00000	0.00000
Iron	238.204	0.00000	0.00000	0.00000	0.00000	0.00000
Lead	220.353	0.00000	0.00000	0.00000	0.00000	0.00000
Magnesium	279.077	0.00000	0.00000	0.00000	0.00000	0.00000
Manganese	257.61	0.00000	0.00000	0.00000	0.00000	0.00000
Molybdenum	202.031	0.00000	0.00000	0.00000	0.00000	0.00000
Nickel	231.604	0.00000	0.00000	0.00000	0.00000	0.00000
Phosphorous	214.914	0.00000	0.00000	0.00000	0.00000	0.00000
Potassium	766.49	0.00000	0.00000	0.00000	0.00000	0.00000
Selenium	196.026	0.00000	0.00000	0.00000	0.00000	0.00000
Silver	328.068	0.00000	0.00000	0.00000	0.00000	0.00000
Strontium	421.552	0.00000	0.00000	0.00000	0.00000	0.00000
Sulfur	181.975	0.00000	0.00000	0.00000	0.00000	0.00000
Thallium	190.801	0.00000	0.00000	0.00000	0.00000	−7.91580
Tin	189.927	0.00000	0.00000	0.00000	0.00000	−3.11170
Titanium	334.94	0.00000	0.00000	0.00000	0.00000	0.00000
Uranium	367.007	0.00000	0.00000	0.00000	0.00000	0.00000
Vanadium	292.402	0.00000	0.00000	0.00000	0.00000	0.00000
Zinc	213.857	0.00000	0.00000	0.00000	0.00000	0.00000

METALS
−11−
Interelement Correction Factors

Lab Code: GEL
GEL Job No: 409254
Contract: HAAL00201
Instrument: OPTIMA5
Effective Dates: 02−NOV−16
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Parmname	Wavelength	Uranium	Vanadium	Zinc
Aluminum	**396.153**	0.00000	0.00000	0.00000
Antimony	**206.836**	0.00000	0.00000	0.00000
Arsenic	**188.979**	0.00000	0.00000	0.00000
Beryllium	**313.107**	0.00000	0.00000	0.00000
Boron	**249.677**	0.00000	0.00000	0.00000
Cadmium	**226.502**	0.00000	0.00000	0.00000
Calcium	**317.933**	0.00000	0.00000	0.00000
Chromium	**267.716**	0.00000	−0.79750	0.00000
Cobalt	**228.616**	0.00000	0.00000	0.00000
Copper	**324.752**	−0.69646	0.00000	0.00000
Iron	**238.204**	0.00000	0.00000	0.00000
Lead	**220.353**	0.93240	0.00000	0.00000
Magnesium	**279.077**	0.00000	0.00000	0.00000
Manganese	**257.61**	0.00000	0.00000	0.00000
Molybdenum	**202.031**	0.00000	0.00000	0.00000
Nickel	**231.604**	0.00000	0.00000	0.00000
Phosphorous	**214.914**	0.00000	0.00000	0.00000
Potassium	**766.49**	0.00000	0.00000	0.00000
Selenium	**196.026**	0.00000	0.00000	0.00000
Silver	**328.068**	1.05890	−0.70100	0.00000
Strontium	**421.552**	0.00000	0.00000	0.00000
Sulfur	**181.975**	0.00000	0.00000	0.00000
Thallium	**190.801**	0.00000	0.00000	0.00000
Tin	**189.927**	0.00000	0.00000	0.00000
Titanium	**334.94**	0.00000	0.00000	0.00000
Uranium	**367.007**	0.00000	0.00000	0.00000
Vanadium	**292.402**	−0.47343	0.00000	0.00000
Zinc	**213.857**	0.00000	0.00000	0.00000

METALS
−12−
Linear Ranges

SDG NO. 409254

Contract: HAAL00201 **Lab Code: GEL**

Instrument ID OPTIMA3

Analyte	Integration Time (sec)	LDR	Units	Effective Date
Aluminum	20	500000	ug/L	31−OCT−16
Antimony	20	10000	ug/L	31−OCT−16
Arsenic	20	10000	ug/L	31−OCT−16
Barium	20	15000	ug/L	31−OCT−16
Beryllium	20	3000	ug/L	31−OCT−16
Cadmium	20	10000	ug/L	31−OCT−16
Calcium	20	500000	ug/L	31−OCT−16
Chromium	20	25000	ug/L	31−OCT−16
Cobalt	20	10000	ug/L	31−OCT−16
Copper	20	20000	ug/L	31−OCT−16
Iron	20	500000	ug/L	31−OCT−16
Lead	20	25000	ug/L	31−OCT−16
Magnesium	20	500000	ug/L	31−OCT−16
Manganese	20	10000	ug/L	31−OCT−16
Nickel	20	10000	ug/L	31−OCT−16
Potassium	20	300000	ug/L	31−OCT−16
Selenium	20	10000	ug/L	31−OCT−16
Silver	20	1000	ug/L	31−OCT−16
Sodium	20	500000	ug/L	31−OCT−16
Thallium	20	10000	ug/L	31−OCT−16
Vanadium	20	10000	ug/L	31−OCT−16
Zinc	20	15000	ug/L	31−OCT−16

METALS
−12−
Linear Ranges

SDG NO. 409254

Contract: HAAL00201 **Lab Code: GEL**

Instrument ID OPTIMA4

Analyte	Integration Time (sec)	LDR	Units	Effective Date
Aluminum	20	500000	ug/L	31−OCT−16
Antimony	20	10000	ug/L	31−OCT−16
Arsenic	20	10000	ug/L	31−OCT−16
Barium	20	15000	ug/L	31−OCT−16
Beryllium	20	3000	ug/L	31−OCT−16
Cadmium	20	10000	ug/L	31−OCT−16
Calcium	20	500000	ug/L	31−OCT−16
Chromium	20	25000	ug/L	31−OCT−16
Cobalt	20	10000	ug/L	31−OCT−16
Copper	20	20000	ug/L	31−OCT−16
Iron	20	500000	ug/L	31−OCT−16
Lead	20	25000	ug/L	31−OCT−16
Magnesium	20	500000	ug/L	31−OCT−16
Manganese	20	10000	ug/L	31−OCT−16
Nickel	20	10000	ug/L	31−OCT−16
Potassium	20	300000	ug/L	31−OCT−16
Selenium	20	10000	ug/L	31−OCT−16
Silver	20	1000	ug/L	31−OCT−16
Sodium	20	500000	ug/L	31−OCT−16
Thallium	20	10000	ug/L	31−OCT−16
Vanadium	20	10000	ug/L	31−OCT−16
Zinc	20	15000	ug/L	31−OCT−16

METALS
−12−
Linear Ranges

SDG NO. 409254

Contract: HAAL00201 **Lab Code: GEL**

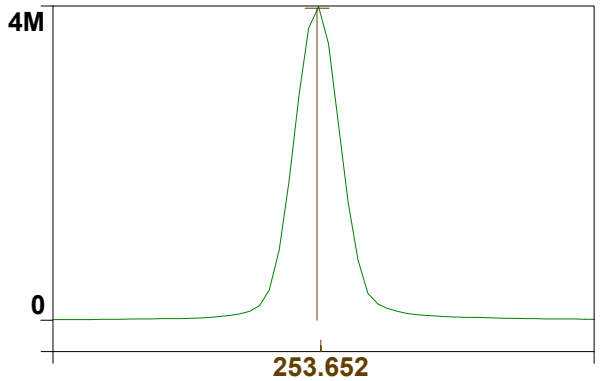
Instrument ID OPTIMA5

Analyte	Integration Time (sec)	LDR	Units	Effective Date
Aluminum	20	500000	ug/L	31−OCT−16
Antimony	20	10000	ug/L	31−OCT−16
Arsenic	20	10000	ug/L	31−OCT−16
Barium	20	15000	ug/L	31−OCT−16
Beryllium	20	3000	ug/L	31−OCT−16
Cadmium	20	10000	ug/L	31−OCT−16
Calcium	20	500000	ug/L	31−OCT−16
Chromium	20	25000	ug/L	31−OCT−16
Cobalt	20	10000	ug/L	31−OCT−16
Copper	20	20000	ug/L	31−OCT−16
Iron	20	500000	ug/L	31−OCT−16
Lead	20	25000	ug/L	31−OCT−16
Magnesium	20	500000	ug/L	31−OCT−16
Manganese	20	10000	ug/L	31−OCT−16
Nickel	20	10000	ug/L	31−OCT−16
Potassium	20	300000	ug/L	31−OCT−16
Selenium	20	10000	ug/L	31−OCT−16
Silver	20	1000	ug/L	31−OCT−16
Sodium	20	500000	ug/L	31−OCT−16
Thallium	20	10000	ug/L	31−OCT−16
Vanadium	20	10000	ug/L	31−OCT−16
Zinc	20	15000	ug/L	31−OCT−16

Raw Data

Method: Hg_ReAlign **Sample ID: Hg_ReAlign**
Result: 111616

Hg 253.652 **Rep: 1**



Intensity: 3572504.8
Conc:

1

```
================================================================================================
11/16/2016 06:06:11 Hg ReAlign...  Actual peak offset (nm): 0.002
                    Drift (nm): -0.000      Slit adjustment:    -2
================================================================================================
```

```
================================================================================================
```

Analysis Begun

Start Time: 11/16/2016 06:07:05 **Plasma On Time: 11/14/2016 06:15:24**
Logged In Analyst: Optima3 **Technique: ICP Continuous**
Spectrometer: Optima 5300 DV, S/N 077C7090601 **Autosampler: ESI**

Sample Information File: C:\Users\Public\PerkinElmer\ICP\Data\Sample Information\111616.sif
Batch ID:
Results Data Set: 111616
Results Library: C:\Users\Public\PerkinElmer\ICP\Data\Results\Results.mdb

```
================================================================================================
```

Sequence No.: 1 **Autosampler Location: 8**
Sample ID: S0 **Date Collected: 11/16/2016 06:07:14**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time:

```
------------------------------------------------------------------------------------------------
```

Replicate Data: S0

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	8403.6	8403.6	99.7	%	06:07:50
1	Al 396.153Radial†	-782.7	-784.9	[0.00]	µg/L	06:07:50
1	Ca 317.933Radial†	102.4	102.7	[0.00]	µg/L	06:08:10
1	Fe 238.204 Radial†	13.8	13.9	[0.00]	µg/L	06:08:10
1	K 766.490 Radial†	375.6	376.6	[0.00]	µg/L	06:07:50
1	Mg 279.077 IEC†	9.1	9.1	[0.00]	µg/L	06:08:10
1	Na 589.592 Radial†	3.7	3.7	[0.00]	µg/L	06:08:10
1	Sr 421.552†	1.1	1.1	[0.00]	µg/L	06:07:50
1	Sc 361.383	624770.4	624770.4	99.838	%	06:09:07
1	Y 371.029	708863.4	708863.4	99.834	%	06:09:07
1	Ag 328.068†	-999.2	-1000.9	[0.00]	µg/L	06:09:07
1	As 188.979†	16.7	16.7	[0.00]	µg/L	06:09:27
1	B 249.677†	190.5	190.8	[0.00]	µg/L	06:09:27
1	Ba 233.527†	137.1	137.3	[0.00]	µg/L	06:09:27
1	Be 313.107†	-5408.0	-5416.8	[0.00]	µg/L	06:09:07
1	Cd 226.502†	-247.5	-247.9	[0.00]	µg/L	06:09:27
1	Co 228.616†	-329.6	-330.1	[0.00]	µg/L	06:09:27
1	Cr 267.716†	126.2	126.4	[0.00]	µg/L	06:09:27
1	Cu 324.752†	2553.2	2557.4	[0.00]	µg/L	06:09:07
1	Mn 257.610†	854.9	856.3	[0.00]	µg/L	06:09:27
1	Mo 202.031†	-13.2	-13.3	[0.00]	µg/L	06:09:27
1	Ni 231.604†	-178.4	-178.7	[0.00]	µg/L	06:09:27
1	P 214.914†	152.8	153.1	[0.00]	µg/L	06:09:27
1	Pb 220.353†	124.6	124.8	[0.00]	µg/L	06:09:27
1	S 181.975 Axial†	153.2	153.4	[0.00]	µg/L	06:09:27
1	Sb 206.836†	110.3	110.5	[0.00]	µg/L	06:09:27
1	Se 196.026†	-22.7	-22.7	[0.00]	µg/L	06:09:27
1	SiO2†	1625.9	1628.6	[0.00]	µg/L	06:09:07
1	Si 251.611†	285.0	285.4	[0.00]	µg/L	06:09:27
1	Sn 189.927†	25.5	25.6	[0.00]	µg/L	06:09:27
1	Ti 334.940†	-757.1	-758.3	[0.00]	µg/L	06:09:07
1	Tl 190.801†	-158.5	-158.8	[0.00]	µg/L	06:09:27
1	U 367.007†	1433.5	1435.9	[0.00]	µg/L	06:09:07
1	V 292.402†	407.9	408.6	[0.00]	µg/L	06:09:07
1	Zn 213.857†	780.3	781.6	[0.00]	µg/L	06:09:27
2	Sc RADIAL	8495.7	8495.7	101	%	06:08:15
2	Al 396.153Radial†	-752.1	-746.0	[0.00]	µg/L	06:08:15
2	Ca 317.933Radial†	116.5	115.6	[0.00]	µg/L	06:08:35
2	Fe 238.204 Radial†	9.7	9.6	[0.00]	µg/L	06:08:35
2	K 766.490 Radial†	371.0	368.0	[0.00]	µg/L	06:08:15
2	Mg 279.077 IEC†	9.4	9.4	[0.00]	µg/L	06:08:35
2	Na 589.592 Radial†	6.9	6.8	[0.00]	µg/L	06:08:35

2	Sr 421.552†	5.0	5.0	[0.00]	µg/L	06:08:15
2	Sc 361.383	628914.0	628914.0	100.50	%	06:09:33
2	Y 371.029	713493.7	713493.7	100.49	%	06:09:33
2	Ag 328.068†	-962.3	-957.5	[0.00]	µg/L	06:09:33
2	As 188.979†	27.5	27.4	[0.00]	µg/L	06:09:53
2	B 249.677†	193.3	192.4	[0.00]	µg/L	06:09:53
2	Ba 233.527†	124.1	123.5	[0.00]	µg/L	06:09:53
2	Be 313.107†	-5545.4	-5517.8	[0.00]	µg/L	06:09:33
2	Cd 226.502†	-274.5	-273.1	[0.00]	µg/L	06:09:53
2	Co 228.616†	-326.7	-325.0	[0.00]	µg/L	06:09:53
2	Cr 267.716†	105.4	104.9	[0.00]	µg/L	06:09:53
2	Cu 324.752†	2462.4	2450.1	[0.00]	µg/L	06:09:33
2	Mn 257.610†	849.5	845.3	[0.00]	µg/L	06:09:53
2	Mo 202.031†	-13.5	-13.4	[0.00]	µg/L	06:09:53
2	Ni 231.604†	-177.6	-176.7	[0.00]	µg/L	06:09:53
2	P 214.914†	141.1	140.4	[0.00]	µg/L	06:09:53
2	Pb 220.353†	91.5	91.1	[0.00]	µg/L	06:09:53
2	S 181.975 Axial†	133.7	133.0	[0.00]	µg/L	06:09:53
2	Sb 206.836†	122.3	121.6	[0.00]	µg/L	06:09:53
2	Se 196.026†	-12.7	-12.6	[0.00]	µg/L	06:09:53
2	SiO2†	1609.8	1601.8	[0.00]	µg/L	06:09:33
2	Si 251.611†	282.1	280.7	[0.00]	µg/L	06:09:53
2	Sn 189.927†	18.4	18.3	[0.00]	µg/L	06:09:53
2	Ti 334.940†	-897.4	-893.0	[0.00]	µg/L	06:09:33
2	Tl 190.801†	-161.4	-160.6	[0.00]	µg/L	06:09:53
2	U 367.007†	1388.7	1381.8	[0.00]	µg/L	06:09:33
2	V 292.402†	406.7	404.7	[0.00]	µg/L	06:09:33
2	Zn 213.857†	788.8	784.9	[0.00]	µg/L	06:09:53
3	Sc RADIAL	8380.4	8380.4	99.5	%	06:08:40
3	Al 396.153Radial†	-674.4	-678.1	[0.00]	µg/L	06:08:40
3	Ca 317.933Radial†	106.9	107.5	[0.00]	µg/L	06:09:00
3	Fe 238.204 Radial†	9.5	9.6	[0.00]	µg/L	06:09:00
3	K 766.490 Radial†	462.9	465.5	[0.00]	µg/L	06:08:40
3	Mg 279.077 IEC†	15.0	15.1	[0.00]	µg/L	06:09:00
3	Na 589.592 Radial†	4.3	4.3	[0.00]	µg/L	06:09:00
3	Sr 421.552†	5.4	5.4	[0.00]	µg/L	06:08:40
3	Sc 361.383	623673.0	623673.0	99.662	%	06:09:58
3	Y 371.029	707774.0	707774.0	99.680	%	06:09:58
3	Ag 328.068†	-857.1	-860.0	[0.00]	µg/L	06:09:58
3	As 188.979†	22.3	22.3	[0.00]	µg/L	06:10:18
3	B 249.677†	192.3	193.0	[0.00]	µg/L	06:10:18
3	Ba 233.527†	126.6	127.1	[0.00]	µg/L	06:10:18
3	Be 313.107†	-5376.4	-5394.6	[0.00]	µg/L	06:09:58
3	Cd 226.502†	-237.4	-238.2	[0.00]	µg/L	06:10:18
3	Co 228.616†	-326.2	-327.4	[0.00]	µg/L	06:10:18
3	Cr 267.716†	118.8	119.2	[0.00]	µg/L	06:10:18
3	Cu 324.752†	2465.3	2473.6	[0.00]	µg/L	06:09:58
3	Mn 257.610†	826.0	828.8	[0.00]	µg/L	06:10:18
3	Mo 202.031†	-23.0	-23.1	[0.00]	µg/L	06:10:18
3	Ni 231.604†	-172.4	-173.0	[0.00]	µg/L	06:10:18
3	P 214.914†	140.7	141.2	[0.00]	µg/L	06:10:18
3	Pb 220.353†	102.9	103.3	[0.00]	µg/L	06:10:18
3	S 181.975 Axial†	154.2	154.7	[0.00]	µg/L	06:10:18
3	Sb 206.836†	113.2	113.6	[0.00]	µg/L	06:10:18
3	Se 196.026†	-18.9	-19.0	[0.00]	µg/L	06:10:18
3	SiO2†	1663.7	1669.4	[0.00]	µg/L	06:09:58
3	Si 251.611†	317.5	318.6	[0.00]	µg/L	06:10:18
3	Sn 189.927†	19.8	19.9	[0.00]	µg/L	06:10:18
3	Ti 334.940†	-739.4	-741.9	[0.00]	µg/L	06:09:58
3	Tl 190.801†	-152.3	-152.8	[0.00]	µg/L	06:10:18
3	U 367.007†	1450.9	1455.8	[0.00]	µg/L	06:09:58
3	V 292.402†	442.9	444.4	[0.00]	µg/L	06:09:58
3	Zn 213.857†	788.1	790.7	[0.00]	µg/L	06:10:18

Mean Data: S0

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	625785.8	2764.12	0.44%	100.00	%
Sc RADIAL	8426.6	60.99	0.72%	100	%
Y 371.029	710043.7	3037.02	0.43%	100.00	%

Ag 328.068†	-939.5	72.14	7.68%	[0.00]	µg/L
Al 396.153Radial†	-736.3	54.04	7.34%	[0.00]	µg/L
As 188.979†	22.1	5.34	24.12%	[0.00]	µg/L
B 249.677†	192.0	1.14	0.59%	[0.00]	µg/L
Ba 233.527†	129.3	7.14	5.52%	[0.00]	µg/L
Be 313.107†	-5443.1	65.67	1.21%	[0.00]	µg/L
Ca 317.933Radial†	108.6	6.54	6.02%	[0.00]	µg/L
Cd 226.502†	-253.1	18.01	7.12%	[0.00]	µg/L
Co 228.616†	-327.5	2.55	0.78%	[0.00]	µg/L
Cr 267.716†	116.8	10.94	9.36%	[0.00]	µg/L
Cu 324.752†	2493.7	56.38	2.26%	[0.00]	µg/L
Fe 238.204 Radial†	11.0	2.47	22.39%	[0.00]	µg/L
K 766.490 Radial†	403.3	53.97	13.38%	[0.00]	µg/L
Mg 279.077 IEC†	11.2	3.39	30.25%	[0.00]	µg/L
Mn 257.610†	843.5	13.87	1.64%	[0.00]	µg/L
Mo 202.031†	-16.6	5.64	33.97%	[0.00]	µg/L
Na 589.592 Radial†	5.0	1.65	33.15%	[0.00]	µg/L
Ni 231.604†	-176.1	2.89	1.64%	[0.00]	µg/L
P 214.914†	144.9	7.09	4.90%	[0.00]	µg/L
Pb 220.353†	106.4	17.05	16.03%	[0.00]	µg/L
S 181.975 Axial†	147.1	12.16	8.27%	[0.00]	µg/L
Sb 206.836†	115.2	5.76	5.00%	[0.00]	µg/L
Se 196.026†	-18.1	5.09	28.11%	[0.00]	µg/L
SiO2†	1633.2	34.02	2.08%	[0.00]	µg/L
Si 251.611†	294.9	20.66	7.00%	[0.00]	µg/L
Sn 189.927†	21.3	3.80	17.89%	[0.00]	µg/L
Sr 421.552†	3.8	2.34	61.04%	[0.00]	µg/L
Ti 334.940†	-797.8	82.86	10.39%	[0.00]	µg/L
Tl 190.801†	-157.4	4.07	2.59%	[0.00]	µg/L
U 367.007†	1424.5	38.29	2.69%	[0.00]	µg/L
V 292.402†	419.2	21.89	5.22%	[0.00]	µg/L
Zn 213.857†	785.7	4.64	0.59%	[0.00]	µg/L

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.1 **Date Collected: 11/16/2016 06:10:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: S0.1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	8458.3	8458.3	100	%	06:10:57
1	K 766.490 Radial†	2112.1	1700.9	[1000]	µg/L	06:10:57
1	Sr 421.552†	3886.7	3868.4	[100]	µg/L	06:10:57
1	Sc 361.383	626494.5	626494.5	100.11	%	06:11:14
1	Y 371.029	708008.4	708008.4	99.713	%	06:11:14
1	Ag 328.068†	18380.4	19299.0	[100]	µg/L	06:11:14
1	As 188.979†	336.1	313.6	[100]	µg/L	06:11:34
1	B 249.677†	5046.0	4848.2	[100]	µg/L	06:11:14
1	Ba 233.527†	17545.5	17396.4	[100]	µg/L	06:11:14
1	Be 313.107†	234197.6	239375.7	[100]	µg/L	06:11:14
1	Cd 226.502†	15887.6	16122.7	[100]	µg/L	06:11:14
1	Co 228.616†	5610.8	5932.0	[100]	µg/L	06:11:34
1	Cr 267.716†	7895.1	7769.4	[100]	µg/L	06:11:14
1	Cu 324.752†	25839.3	23316.3	[100]	µg/L	06:11:14
1	Mn 257.610†	101591.0	100632.7	[100]	µg/L	06:11:14
1	Mo 202.031†	2350.8	2364.7	[100]	µg/L	06:11:34
1	Ni 231.604†	5254.3	5424.5	[100]	µg/L	06:11:34
1	P 214.914†	1237.9	1091.6	[500]	µg/L	06:11:34
1	Pb 220.353†	1281.4	1173.6	[100]	µg/L	06:11:34
1	S 181.975 Axial†	332.6	185.2	[200]	µg/L	06:11:34
1	Sb 206.836†	566.7	450.8	[100]	µg/L	06:11:34
1	Se 196.026†	248.9	266.7	[100]	µg/L	06:11:34
1	SiO2†	12538.7	10891.3	[1069.5]	µg/L	06:11:14
1	Si 251.611†	14093.9	13783.0	[500]	µg/L	06:11:14
1	Sn 189.927†	1022.2	999.8	[100]	µg/L	06:11:34
1	Ti 334.940†	41637.4	42388.0	[100]	µg/L	06:11:14
1	Tl 190.801†	439.0	595.9	[100]	µg/L	06:11:34
1	U 367.007†	1893.7	467.1	[100]	µg/L	06:11:14
1	V 292.402†	15351.7	14915.2	[100]	µg/L	06:11:14
1	Zn 213.857†	18742.7	17935.8	[100]	µg/L	06:11:14
2	Sc RADIAL	8471.6	8471.6	101	%	06:11:02
2	K 766.490 Radial†	2293.0	1877.5	[1000]	µg/L	06:11:02
2	Sr 421.552†	3914.0	3889.4	[100]	µg/L	06:11:02
2	Sc 361.383	625468.4	625468.4	99.949	%	06:11:40
2	Y 371.029	707095.2	707095.2	99.585	%	06:11:40
2	Ag 328.068†	18407.3	19356.1	[100]	µg/L	06:11:40
2	As 188.979†	340.3	318.3	[100]	µg/L	06:12:01
2	B 249.677†	4957.9	4768.4	[100]	µg/L	06:11:40
2	Ba 233.527†	17475.8	17355.3	[100]	µg/L	06:11:40
2	Be 313.107†	233695.1	239256.8	[100]	µg/L	06:11:40
2	Cd 226.502†	15830.9	16092.0	[100]	µg/L	06:11:40
2	Co 228.616†	5599.0	5929.3	[100]	µg/L	06:12:01
2	Cr 267.716†	7883.3	7770.4	[100]	µg/L	06:11:40
2	Cu 324.752†	25724.3	23243.6	[100]	µg/L	06:11:40
2	Mn 257.610†	101275.6	100483.5	[100]	µg/L	06:11:40
2	Mo 202.031†	2363.3	2381.1	[100]	µg/L	06:12:01
2	Ni 231.604†	5273.2	5452.0	[100]	µg/L	06:12:01
2	P 214.914†	1236.0	1091.7	[500]	µg/L	06:12:01
2	Pb 220.353†	1283.6	1177.9	[100]	µg/L	06:12:01
2	S 181.975 Axial†	337.9	191.0	[200]	µg/L	06:12:01
2	Sb 206.836†	561.4	446.5	[100]	µg/L	06:12:01
2	Se 196.026†	250.2	268.5	[100]	µg/L	06:12:01
2	SiO2†	12491.8	10864.8	[1069.5]	µg/L	06:11:40
2	Si 251.611†	14086.1	13798.3	[500]	µg/L	06:11:40
2	Sn 189.927†	1022.3	1001.6	[100]	µg/L	06:12:01
2	Ti 334.940†	41691.3	42510.2	[100]	µg/L	06:11:40
2	Tl 190.801†	440.3	597.9	[100]	µg/L	06:12:01
2	U 367.007†	1913.5	490.0	[100]	µg/L	06:11:40

2	V 292.402†	15250.3	14838.8	[100]	µg/L	06:11:40
2	Zn 213.857†	18716.8	17940.6	[100]	µg/L	06:11:40
3	Sc RADIAL	8440.8	8440.8	100	%	06:11:07
3	K 766.490 Radial†	2151.1	1744.2	[1000]	µg/L	06:11:07
3	Sr 421.552†	3885.9	3875.5	[100]	µg/L	06:11:07
3	Sc 361.383	624903.2	624903.2	99.859	%	06:12:07
3	Y 371.029	706856.0	706856.0	99.551	%	06:12:07
3	Ag 328.068†	18473.2	19438.7	[100]	µg/L	06:12:07
3	As 188.979†	333.0	311.3	[100]	µg/L	06:12:27
3	B 249.677†	5052.0	4867.1	[100]	µg/L	06:12:07
3	Ba 233.527†	17483.7	17379.1	[100]	µg/L	06:12:07
3	Be 313.107†	233353.6	239126.2	[100]	µg/L	06:12:07
3	Cd 226.502†	15790.3	16065.7	[100]	µg/L	06:12:07
3	Co 228.616†	5607.7	5943.1	[100]	µg/L	06:12:27
3	Cr 267.716†	7910.7	7805.0	[100]	µg/L	06:12:07
3	Cu 324.752†	25878.1	23420.9	[100]	µg/L	06:12:07
3	Mn 257.610†	101106.8	100406.1	[100]	µg/L	06:12:07
3	Mo 202.031†	2344.3	2364.2	[100]	µg/L	06:12:27
3	Ni 231.604†	5279.5	5463.1	[100]	µg/L	06:12:27
3	P 214.914†	1204.6	1061.4	[500]	µg/L	06:12:27
3	Pb 220.353†	1258.4	1153.8	[100]	µg/L	06:12:27
3	S 181.975 Axial†	340.6	194.0	[200]	µg/L	06:12:27
3	Sb 206.836†	562.4	448.0	[100]	µg/L	06:12:27
3	Se 196.026†	252.3	270.7	[100]	µg/L	06:12:27
3	SiO2†	12461.3	10845.7	[1069.5]	µg/L	06:12:07
3	Si 251.611†	14032.5	13757.4	[500]	µg/L	06:12:07
3	Sn 189.927†	1025.3	1005.5	[100]	µg/L	06:12:27
3	Ti 334.940†	41595.4	42451.9	[100]	µg/L	06:12:07
3	Tl 190.801†	464.8	622.8	[100]	µg/L	06:12:27
3	U 367.007†	1943.4	521.7	[100]	µg/L	06:12:07
3	V 292.402†	15311.0	14913.4	[100]	µg/L	06:12:07
3	Zn 213.857†	18649.9	17890.5	[100]	µg/L	06:12:07

Mean Data: S0.1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	625622.0	806.72	0.13%	99.974	%
Sc RADIAL	8456.9	15.44	0.18%	100	%
Y 371.029	707319.8	608.16	0.09%	99.616	%
Ag 328.068†	19364.6	70.23	0.36%	[100]	µg/L
As 188.979†	314.4	3.56	1.13%	[100]	µg/L
B 249.677†	4827.9	52.42	1.09%	[100]	µg/L
Ba 233.527†	17376.9	20.59	0.12%	[100]	µg/L
Be 313.107†	239252.9	124.77	0.05%	[100]	µg/L
Cd 226.502†	16093.5	28.56	0.18%	[100]	µg/L
Co 228.616†	5934.8	7.33	0.12%	[100]	µg/L
Cr 267.716†	7781.6	20.28	0.26%	[100]	µg/L
Cu 324.752†	23326.9	89.13	0.38%	[100]	µg/L
K 766.490 Radial†	1774.2	92.07	5.19%	[1000]	µg/L
Mn 257.610†	100507.4	115.14	0.11%	[100]	µg/L
Mo 202.031†	2370.0	9.61	0.41%	[100]	µg/L
Ni 231.604†	5446.5	19.86	0.36%	[100]	µg/L
P 214.914†	1081.6	17.47	1.62%	[500]	µg/L
Pb 220.353†	1168.4	12.86	1.10%	[100]	µg/L
S 181.975 Axial†	190.0	4.50	2.37%	[200]	µg/L
Sb 206.836†	448.4	2.21	0.49%	[100]	µg/L
Se 196.026†	268.6	2.01	0.75%	[100]	µg/L
SiO2†	10867.3	22.91	0.21%	[1069.5]	µg/L
Si 251.611†	13779.6	20.68	0.15%	[500]	µg/L
Sn 189.927†	1002.3	2.90	0.29%	[100]	µg/L
Sr 421.552†	3877.7	10.68	0.28%	[100]	µg/L
Ti 334.940†	42450.0	61.10	0.14%	[100]	µg/L
Tl 190.801†	605.5	15.01	2.48%	[100]	µg/L
U 367.007†	492.9	27.43	5.56%	[100]	µg/L
V 292.402†	14889.1	43.58	0.29%	[100]	µg/L
Zn 213.857†	17922.3	27.62	0.15%	[100]	µg/L

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 11/16/2016 06:12:35**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: S0.5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	8222.5	8222.5	97.6	%	06:13:23
1	Al 396.153Radial†	9305.9	10273.3	[5000]	µg/L	06:13:03
1	Ca 317.933Radial†	10216.4	10361.4	[5000]	µg/L	06:13:23
1	K 766.490 Radial†	9282.4	9109.5	[5000]	µg/L	06:13:03
1	Mg 279.077 IEC†	804.5	813.3	[5000]	µg/L	06:13:23
1	Sr 421.552†	18963.7	19430.7	[500]	µg/L	06:13:03
1	Sc 361.383	624005.6	624005.6	99.716	%	06:14:23
1	Y 371.029	700932.8	700932.8	98.717	%	06:14:23
1	Ag 328.068†	95651.6	96863.9	[500]	µg/L	06:14:23
1	As 188.979†	1617.2	1599.6	[500]	µg/L	06:14:43
1	B 249.677†	24867.7	24746.6	[500]	µg/L	06:14:23
1	Ba 233.527†	85846.0	85961.7	[500]	µg/L	06:14:23
1	Be 313.107†	1195466.8	1204320.5	[500]	µg/L	06:14:23
1	Cd 226.502†	79577.4	80057.5	[500]	µg/L	06:14:23
1	Co 228.616†	28906.6	29316.6	[500]	µg/L	06:14:43
1	Cr 267.716†	38365.1	38357.8	[500]	µg/L	06:14:23
1	Cu 324.752†	118196.1	116039.6	[500]	µg/L	06:14:23
1	Mn 257.610†	489321.1	489873.6	[500]	µg/L	06:14:23
1	Mo 202.031†	11928.6	11979.2	[500]	µg/L	06:14:43
1	Ni 231.604†	26836.3	27089.0	[500]	µg/L	06:14:43
1	P 214.914†	5670.1	5541.4	[2500]	µg/L	06:14:43
1	Pb 220.353†	5928.1	5838.6	[500]	µg/L	06:14:43
1	S 181.975 Axial†	1117.5	973.6	[1000]	µg/L	06:14:43
1	Sb 206.836†	2325.6	2217.0	[500]	µg/L	06:14:43
1	Se 196.026†	1323.4	1345.3	[500]	µg/L	06:14:43
1	SiO2†	56160.7	54687.7	[5347.5]	µg/L	06:14:23
1	Si 251.611†	69085.0	68987.2	[2500]	µg/L	06:14:23
1	Sn 189.927†	5054.5	5047.6	[500]	µg/L	06:14:43
1	Ti 334.940†	213044.4	214450.0	[500]	µg/L	06:14:23
1	Tl 190.801†	2798.4	2963.7	[500]	µg/L	06:14:43
1	U 367.007†	4138.3	2725.6	[500]	µg/L	06:14:23
1	V 292.402†	75120.6	74915.7	[500]	µg/L	06:14:23
1	Zn 213.857†	89447.3	88916.7	[500]	µg/L	06:14:23
2	Sc RADIAL	8243.0	8243.0	97.8	%	06:13:49
2	Al 396.153Radial†	9310.0	10253.7	[5000]	µg/L	06:13:29
2	Ca 317.933Radial†	10215.4	10334.3	[5000]	µg/L	06:13:49
2	K 766.490 Radial†	9078.5	8877.4	[5000]	µg/L	06:13:29
2	Mg 279.077 IEC†	804.9	811.6	[5000]	µg/L	06:13:49
2	Sr 421.552†	19025.7	19445.6	[500]	µg/L	06:13:29
2	Sc 361.383	626125.6	626125.6	100.05	%	06:14:50
2	Y 371.029	702776.4	702776.4	98.976	%	06:14:50
2	Ag 328.068†	95895.4	96782.8	[500]	µg/L	06:14:50
2	As 188.979†	1602.5	1579.5	[500]	µg/L	06:15:10
2	B 249.677†	24915.6	24710.1	[500]	µg/L	06:14:50
2	Ba 233.527†	86215.1	86039.0	[500]	µg/L	06:14:50
2	Be 313.107†	1201135.5	1205926.8	[500]	µg/L	06:14:50
2	Cd 226.502†	80010.6	80220.3	[500]	µg/L	06:14:50
2	Co 228.616†	28917.0	29228.8	[500]	µg/L	06:15:10
2	Cr 267.716†	38553.4	38415.7	[500]	µg/L	06:14:50
2	Cu 324.752†	118590.4	116032.4	[500]	µg/L	06:14:50
2	Mn 257.610†	491699.1	490588.8	[500]	µg/L	06:14:50
2	Mo 202.031†	11928.0	11938.1	[500]	µg/L	06:15:10
2	Ni 231.604†	26933.3	27094.8	[500]	µg/L	06:15:10
2	P 214.914†	5675.4	5527.5	[2500]	µg/L	06:15:10
2	Pb 220.353†	5948.4	5838.8	[500]	µg/L	06:15:10
2	S 181.975 Axial†	1120.4	972.7	[1000]	µg/L	06:15:10
2	Sb 206.836†	2318.9	2202.4	[500]	µg/L	06:15:10
2	Se 196.026†	1316.3	1333.7	[500]	µg/L	06:15:10

2	SiO2†	56396.3	54732.4	[5347.5]	µg/L	06:14:50
2	Si 251.611†	69389.5	69056.9	[2500]	µg/L	06:14:50
2	Sn 189.927†	5069.4	5045.4	[500]	µg/L	06:15:10
2	Ti 334.940†	213955.9	214637.6	[500]	µg/L	06:14:50
2	Tl 190.801†	2797.9	2953.8	[500]	µg/L	06:15:10
2	U 367.007†	4026.6	2600.0	[500]	µg/L	06:14:50
2	V 292.402†	75580.3	75120.1	[500]	µg/L	06:14:50
2	Zn 213.857†	89813.3	88978.8	[500]	µg/L	06:14:50
3	Sc RADIAL	8280.4	8280.4	98.3	%	06:14:14
3	Al 396.153Radial†	9486.6	10390.5	[5000]	µg/L	06:13:54
3	Ca 317.933Radial†	10224.2	10296.2	[5000]	µg/L	06:14:14
3	K 766.490 Radial†	9439.1	9202.5	[5000]	µg/L	06:13:54
3	Mg 279.077 IEC†	808.4	811.5	[5000]	µg/L	06:14:14
3	Sr 421.552†	19200.1	19535.3	[500]	µg/L	06:13:54
3	Sc 361.383	624085.7	624085.7	99.728	%	06:15:18
3	Y 371.029	700929.7	700929.7	98.716	%	06:15:18
3	Ag 328.068†	95642.9	96843.0	[500]	µg/L	06:15:18
3	As 188.979†	1617.5	1599.7	[500]	µg/L	06:15:38
3	B 249.677†	24876.4	24752.2	[500]	µg/L	06:15:18
3	Ba 233.527†	85914.8	86019.6	[500]	µg/L	06:15:18
3	Be 313.107†	1197401.3	1206106.3	[500]	µg/L	06:15:18
3	Cd 226.502†	79771.3	80241.7	[500]	µg/L	06:15:18
3	Co 228.616†	28990.1	29396.6	[500]	µg/L	06:15:38
3	Cr 267.716†	38424.9	38412.7	[500]	µg/L	06:15:18
3	Cu 324.752†	118145.9	115974.0	[500]	µg/L	06:15:18
3	Mn 257.610†	490601.8	491094.8	[500]	µg/L	06:15:18
3	Mo 202.031†	11939.0	11988.1	[500]	µg/L	06:15:38
3	Ni 231.604†	26886.7	27136.1	[500]	µg/L	06:15:38
3	P 214.914†	5699.2	5569.8	[2500]	µg/L	06:15:38
3	Pb 220.353†	5945.2	5855.0	[500]	µg/L	06:15:38
3	S 181.975 Axial†	1128.1	984.1	[1000]	µg/L	06:15:38
3	Sb 206.836†	2315.1	2206.1	[500]	µg/L	06:15:38
3	Se 196.026†	1333.6	1355.3	[500]	µg/L	06:15:38
3	SiO2†	56171.8	54691.6	[5347.5]	µg/L	06:15:18
3	Si 251.611†	69128.0	69021.4	[2500]	µg/L	06:15:18
3	Sn 189.927†	5063.4	5055.9	[500]	µg/L	06:15:38
3	Ti 334.940†	213257.6	214636.4	[500]	µg/L	06:15:18
3	Tl 190.801†	2815.3	2980.4	[500]	µg/L	06:15:38
3	U 367.007†	4085.4	2672.0	[500]	µg/L	06:15:18
3	V 292.402†	75294.1	75080.0	[500]	µg/L	06:15:18
3	Zn 213.857†	89639.3	89097.8	[500]	µg/L	06:15:18

Mean Data: S0.5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	624738.9	1201.53	0.19%	99.833	%
Sc RADIAL	8248.6	29.36	0.36%	97.9	%
Y 371.029	701546.3	1065.27	0.15%	98.803	%
Ag 328.068†	96829.9	42.11	0.04%	[500]	µg/L
Al 396.153Radial†	10305.8	73.98	0.72%	[5000]	µg/L
As 188.979†	1592.9	11.68	0.73%	[500]	µg/L
B 249.677†	24736.3	22.85	0.09%	[500]	µg/L
Ba 233.527†	86006.8	40.23	0.05%	[500]	µg/L
Be 313.107†	1205451.2	983.31	0.08%	[500]	µg/L
Ca 317.933Radial†	10330.6	32.78	0.32%	[5000]	µg/L
Cd 226.502†	80173.1	100.76	0.13%	[500]	µg/L
Co 228.616†	29314.0	83.90	0.29%	[500]	µg/L
Cr 267.716†	38395.4	32.62	0.08%	[500]	µg/L
Cu 324.752†	116015.4	35.96	0.03%	[500]	µg/L
K 766.490 Radial†	9063.1	167.43	1.85%	[5000]	µg/L
Mg 279.077 IEC†	812.1	1.00	0.12%	[5000]	µg/L
Mn 257.610†	490519.1	613.59	0.13%	[500]	µg/L
Mo 202.031†	11968.5	26.65	0.22%	[500]	µg/L
Ni 231.604†	27106.6	25.64	0.09%	[500]	µg/L
P 214.914†	5546.2	21.58	0.39%	[2500]	µg/L
Pb 220.353†	5844.1	9.40	0.16%	[500]	µg/L
S 181.975 Axial†	976.8	6.33	0.65%	[1000]	µg/L
Sb 206.836†	2208.5	7.58	0.34%	[500]	µg/L
Se 196.026†	1344.8	10.83	0.81%	[500]	µg/L
SiO2†	54703.9	24.76	0.05%	[5347.5]	µg/L

Si 251.611†	69021.9	34.85	0.05%	[2500]	µg/L
Sn 189.927†	5049.6	5.55	0.11%	[500]	µg/L
Sr 421.552†	19470.5	56.60	0.29%	[500]	µg/L
Ti 334.940†	214574.6	107.95	0.05%	[500]	µg/L
Tl 190.801†	2966.0	13.43	0.45%	[500]	µg/L
U 367.007†	2665.9	63.07	2.37%	[500]	µg/L
V 292.402†	75038.6	108.32	0.14%	[500]	µg/L
Zn 213.857†	88997.8	92.00	0.10%	[500]	µg/L

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SCAL **Date Collected: 11/16/2016 06:15:47**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: SCAL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	8275.9	8275.9	98.2	%	06:16:36
1	Al 396.153Radial†	19929.8	21029.1	[10000]	µg/L	06:16:16
1	Ca 317.933Radial†	20752.7	21022.1	[10000]	µg/L	06:16:36
1	Fe 238.204 Radial†	6579.7	6688.5	[10000]	µg/L	06:16:36
1	K 766.490 Radial†	18283.3	18212.9	[10000]	µg/L	06:16:16
1	Mg 279.077 IEC†	1620.5	1638.8	[10000]	µg/L	06:16:36
1	Na 589.592 Radial†	238.7	238.1	[10000]	µg/L	06:16:36
1	Sr 421.552†	38223.0	38915.3	[1000]	µg/L	06:16:16
1	Sc 361.383	603078.4	603078.4	96.371	%	06:17:39
1	Y 371.029	673722.9	673722.9	94.885	%	06:17:39
1	Ag 328.068†	193304.1	201521.9	[1000]	µg/L	06:17:39
1	As 188.979†	3275.8	3377.0	[1000]	µg/L	06:17:59
1	B 249.677†	50142.9	51838.9	[1000]	µg/L	06:17:39
1	Ba 233.527†	172596.2	178965.6	[1000]	µg/L	06:17:39
1	Be 313.107†	2418916.9	2515438.1	[1000]	µg/L	06:17:33
1	Cd 226.502†	159839.1	166110.5	[1000]	µg/L	06:17:39
1	Co 228.616†	59561.7	62131.9	[1000]	µg/L	06:17:39
1	Cr 267.716†	77557.1	80360.5	[1000]	µg/L	06:17:39
1	Cu 324.752†	235366.8	241735.3	[1000]	µg/L	06:17:39
1	Mn 257.610†	986124.4	1022410.9	[1000]	µg/L	06:17:33
1	Mo 202.031†	23996.1	24916.2	[1000]	µg/L	06:17:59
1	Ni 231.604†	55228.5	57484.1	[1000]	µg/L	06:17:39
1	P 214.914†	11323.5	11605.0	[5000]	µg/L	06:17:59
1	Pb 220.353†	11724.2	12059.2	[1000]	µg/L	06:17:59
1	S 181.975 Axial†	2138.0	2071.4	[2000]	µg/L	06:17:59
1	Sb 206.836†	4605.9	4664.1	[1000]	µg/L	06:17:59
1	Se 196.026†	2662.4	2780.8	[1000]	µg/L	06:17:59
1	SiO2†	112217.1	114809.1	[10695]	µg/L	06:17:39
1	Si 251.611†	140465.4	145459.4	[5000]	µg/L	06:17:39
1	Sn 189.927†	10154.4	10515.5	[1000]	µg/L	06:17:59
1	Ti 334.940†	428425.9	445354.9	[1000]	µg/L	06:17:39
1	Tl 190.801†	5685.6	6057.1	[1000]	µg/L	06:17:59
1	U 367.007†	6609.1	5433.5	[1000]	µg/L	06:17:39
1	V 292.402†	152340.2	157657.0	[1000]	µg/L	06:17:39
1	Zn 213.857†	178734.0	184678.0	[1000]	µg/L	06:17:39
2	Sc RADIAL	8300.1	8300.1	98.5	%	06:17:01
2	Al 396.153Radial†	19968.1	21008.8	[10000]	µg/L	06:16:41
2	Ca 317.933Radial†	20829.2	21038.1	[10000]	µg/L	06:17:01
2	Fe 238.204 Radial†	6625.7	6715.7	[10000]	µg/L	06:17:01
2	K 766.490 Radial†	18668.7	18549.9	[10000]	µg/L	06:16:41
2	Mg 279.077 IEC†	1630.6	1644.3	[10000]	µg/L	06:17:01
2	Na 589.592 Radial†	233.6	232.2	[10000]	µg/L	06:17:01
2	Sr 421.552†	38815.8	39403.6	[1000]	µg/L	06:16:41
2	Sc 361.383	605643.3	605643.3	96.781	%	06:18:10
2	Y 371.029	676752.7	676752.7	95.311	%	06:18:10
2	Ag 328.068†	194187.0	201584.7	[1000]	µg/L	06:18:10
2	As 188.979†	3274.7	3361.5	[1000]	µg/L	06:18:31
2	B 249.677†	50366.9	51850.0	[1000]	µg/L	06:18:10
2	Ba 233.527†	173341.0	178976.7	[1000]	µg/L	06:18:10
2	Be 313.107†	2421816.7	2507804.8	[1000]	µg/L	06:18:05
2	Cd 226.502†	160734.8	166333.6	[1000]	µg/L	06:18:10
2	Co 228.616†	59721.8	62035.6	[1000]	µg/L	06:18:10
2	Cr 267.716†	77993.7	80470.8	[1000]	µg/L	06:18:10
2	Cu 324.752†	236314.1	241679.7	[1000]	µg/L	06:18:10
2	Mn 257.610†	986435.9	1018399.4	[1000]	µg/L	06:18:05
2	Mo 202.031†	24099.5	24917.5	[1000]	µg/L	06:18:31
2	Ni 231.604†	55493.0	57514.7	[1000]	µg/L	06:18:10
2	P 214.914†	11353.7	11586.4	[5000]	µg/L	06:18:31

2	Pb 220.353†	11786.2	12071.8	[1000] µg/L	06:18:31
2	S 181.975 Axial†	2141.8	2065.9	[2000] µg/L	06:18:31
2	Sb 206.836†	4598.8	4636.5	[1000] µg/L	06:18:31
2	Se 196.026†	2670.4	2777.3	[1000] µg/L	06:18:31
2	SiO2†	112613.8	114725.9	[10695] µg/L	06:18:10
2	Si 251.611†	141023.7	145418.9	[5000] µg/L	06:18:10
2	Sn 189.927†	10247.8	10567.4	[1000] µg/L	06:18:31
2	Ti 334.940†	430092.5	445194.3	[1000] µg/L	06:18:10
2	Tl 190.801†	5797.2	6147.4	[1000] µg/L	06:18:31
2	U 367.007†	6705.2	5503.7	[1000] µg/L	06:18:10
2	V 292.402†	152999.4	157668.6	[1000] µg/L	06:18:10
2	Zn 213.857†	179608.6	184796.3	[1000] µg/L	06:18:10
3	Sc RADIAL	8277.2	8277.2	98.2 %	06:17:26
3	Al 396.153Radial†	20074.8	21173.3	[10000] µg/L	06:17:06
3	Ca 317.933Radial†	20803.7	21070.5	[10000] µg/L	06:17:26
3	Fe 238.204 Radial†	6578.7	6686.4	[10000] µg/L	06:17:26
3	K 766.490 Radial†	18478.6	18408.6	[10000] µg/L	06:17:06
3	Mg 279.077 IEC†	1626.5	1644.6	[10000] µg/L	06:17:26
3	Na 589.592 Radial†	235.8	235.1	[10000] µg/L	06:17:26
3	Sr 421.552†	38805.2	39501.5	[1000] µg/L	06:17:06
3	Sc 361.383	602354.8	602354.8	96.256 %	06:18:42
3	Y 371.029	672565.5	672565.5	94.722 %	06:18:42
3	Ag 328.068†	193053.7	201502.8	[1000] µg/L	06:18:42
3	As 188.979†	3250.7	3355.0	[1000] µg/L	06:19:02
3	B 249.677†	50196.4	51956.9	[1000] µg/L	06:18:42
3	Ba 233.527†	172666.3	179253.5	[1000] µg/L	06:18:42
3	Be 313.107†	2429343.1	2529285.2	[1000] µg/L	06:18:37
3	Cd 226.502†	159959.2	166434.6	[1000] µg/L	06:18:42
3	Co 228.616†	59518.4	62161.1	[1000] µg/L	06:18:42
3	Cr 267.716†	77524.7	80423.6	[1000] µg/L	06:18:42
3	Cu 324.752†	235104.1	241755.7	[1000] µg/L	06:18:42
3	Mn 257.610†	989795.8	1027454.4	[1000] µg/L	06:18:37
3	Mo 202.031†	23946.3	24894.4	[1000] µg/L	06:19:02
3	Ni 231.604†	55317.4	57645.4	[1000] µg/L	06:18:42
3	P 214.914†	11306.8	11601.7	[5000] µg/L	06:19:02
3	Pb 220.353†	11746.1	12096.6	[1000] µg/L	06:19:02
3	S 181.975 Axial†	2129.3	2065.1	[2000] µg/L	06:19:02
3	Sb 206.836†	4570.4	4632.9	[1000] µg/L	06:19:02
3	Se 196.026†	2659.7	2781.2	[1000] µg/L	06:19:02
3	SiO2†	112188.7	114919.5	[10695] µg/L	06:18:42
3	Si 251.611†	140608.1	145782.8	[5000] µg/L	06:18:42
3	Sn 189.927†	10131.6	10504.5	[1000] µg/L	06:19:02
3	Ti 334.940†	428295.0	445753.0	[1000] µg/L	06:18:42
3	Tl 190.801†	5825.1	6209.1	[1000] µg/L	06:19:02
3	U 367.007†	6696.9	5532.9	[1000] µg/L	06:18:42
3	V 292.402†	152321.1	157827.0	[1000] µg/L	06:18:42
3	Zn 213.857†	179155.1	185338.3	[1000] µg/L	06:18:42

Mean Data: SCAL

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	603692.2	1728.00	0.29%	96.469	%
Sc RADIAL	8284.4	13.59	0.16%	98.3	%
Y 371.029	674347.1	2162.24	0.32%	94.973	%
Ag 328.068†	201536.5	42.87	0.02%	[1000]	µg/L
Al 396.153Radial†	21070.4	89.71	0.43%	[10000]	µg/L
As 188.979†	3364.5	11.26	0.33%	[1000]	µg/L
B 249.677†	51881.9	65.18	0.13%	[1000]	µg/L
Ba 233.527†	179065.3	163.13	0.09%	[1000]	µg/L
Be 313.107†	2517509.4	10888.98	0.43%	[1000]	µg/L
Ca 317.933Radial†	21043.5	24.65	0.12%	[10000]	µg/L
Cd 226.502†	166292.9	165.82	0.10%	[1000]	µg/L
Co 228.616†	62109.5	65.69	0.11%	[1000]	µg/L
Cr 267.716†	80418.3	55.32	0.07%	[1000]	µg/L
Cu 324.752†	241723.6	39.34	0.02%	[1000]	µg/L
Fe 238.204 Radial†	6696.9	16.36	0.24%	[10000]	µg/L
K 766.490 Radial†	18390.5	169.23	0.92%	[10000]	µg/L
Mg 279.077 IEC†	1642.5	3.27	0.20%	[10000]	µg/L
Mn 257.610†	1022754.9	4537.30	0.44%	[1000]	µg/L
Mo 202.031†	24909.4	12.99	0.05%	[1000]	µg/L

Na 589.592 Radial†	235.1	2.97	1.26%	[10000]	µg/L
Ni 231.604†	57548.1	85.63	0.15%	[1000]	µg/L
P 214.914†	11597.7	9.92	0.09%	[5000]	µg/L
Pb 220.353†	12075.9	19.02	0.16%	[1000]	µg/L
S 181.975 Axial†	2067.5	3.44	0.17%	[2000]	µg/L
Sb 206.836†	4644.5	17.04	0.37%	[1000]	µg/L
Se 196.026†	2779.8	2.14	0.08%	[1000]	µg/L
SiO2†	114818.2	97.13	0.08%	[10695]	µg/L
Si 251.611†	145553.7	199.41	0.14%	[5000]	µg/L
Sn 189.927†	10529.1	33.62	0.32%	[1000]	µg/L
Sr 421.552†	39273.5	314.03	0.80%	[1000]	µg/L
Ti 334.940†	445434.1	287.65	0.06%	[1000]	µg/L
Tl 190.801†	6137.9	76.47	1.25%	[1000]	µg/L
U 367.007†	5490.0	51.08	0.93%	[1000]	µg/L
V 292.402†	157717.5	95.01	0.06%	[1000]	µg/L
Zn 213.857†	184937.5	352.06	0.19%	[1000]	µg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S10 **Date Collected: 11/16/2016 06:19:11**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: S10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	8290.3	8290.3	98.4	%	06:19:59
1	Al 396.153Radial†	98696.1	101054.4	[50000]	µg/L	06:19:39
1	Ca 317.933Radial†	100513.0	102056.3	[50000]	µg/L	06:19:39
1	Fe 238.204 Radial†	12782.1	12981.2	[20000]	µg/L	06:19:59
1	Mg 279.077 IEC†	7896.1	8014.7	[50000]	µg/L	06:19:59
1	Na 589.592 Radial†	483.3	486.2	[20000]	µg/L	06:19:59
1	Sc 361.383	610447.7	610447.7	97.549	%	06:20:57
1	Y 371.029	681573.4	681573.4	95.990	%	06:20:57
2	Sc RADIAL	8361.7	8361.7	99.2	%	06:20:25
2	Al 396.153Radial†	99278.8	100785.8	[50000]	µg/L	06:20:05
2	Ca 317.933Radial†	101242.3	101919.6	[50000]	µg/L	06:20:05
2	Fe 238.204 Radial†	12827.1	12915.7	[20000]	µg/L	06:20:25
2	Mg 279.077 IEC†	7945.1	7995.5	[50000]	µg/L	06:20:25
2	Na 589.592 Radial†	501.0	499.9	[20000]	µg/L	06:20:25
2	Sc 361.383	610688.7	610688.7	97.587	%	06:21:02
2	Y 371.029	681559.9	681559.9	95.988	%	06:21:02
3	Sc RADIAL	8317.7	8317.7	98.7	%	06:20:50
3	Al 396.153Radial†	99964.5	102009.0	[50000]	µg/L	06:20:30
3	Ca 317.933Radial†	102415.2	103646.8	[50000]	µg/L	06:20:30
3	Fe 238.204 Radial†	12791.4	12947.8	[20000]	µg/L	06:20:50
3	Mg 279.077 IEC†	7923.1	8015.6	[50000]	µg/L	06:20:50
3	Na 589.592 Radial†	491.2	492.7	[20000]	µg/L	06:20:50
3	Sc 361.383	614456.0	614456.0	98.190	%	06:21:08
3	Y 371.029	685994.9	685994.9	96.613	%	06:21:08

Mean Data: S10

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	611864.1	2247.86	0.37%	97.775	%
Sc RADIAL	8323.2	35.99	0.43%	98.8	%
Y 371.029	683042.7	2556.70	0.37%	96.197	%
Al 396.153Radial†	101283.1	642.86	0.63%	[50000]	µg/L
Ca 317.933Radial†	102540.9	960.16	0.94%	[50000]	µg/L
Fe 238.204 Radial†	12948.2	32.76	0.25%	[20000]	µg/L
Mg 279.077 IEC†	8008.6	11.32	0.14%	[50000]	µg/L
Na 589.592 Radial†	492.9	6.83	1.38%	[20000]	µg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	3	Lin Thru 0	0.0	199.9	0.00000	0.999873	
Al 396.153Radial	3	Lin Thru 0	0.0	2.029	0.00000	0.999969	
As 188.979	3	Lin Thru 0	0.0	3.327	0.00000	0.999759	
B 249.677	3	Lin Thru 0	0.0	51.38	0.00000	0.999811	
Ba 233.527	3	Lin Thru 0	0.0	177.6	0.00000	0.999873	
Be 313.107	3	Lin Thru 0	0.0	2495	0.00000	0.999848	
Ca 317.933Radial	3	Lin Thru 0	0.0	2.053	0.00000	0.999987	
Cd 226.502	3	Lin Thru 0	0.0	165.1	0.00000	0.999895	
Co 228.616	3	Lin Thru 0	0.0	61.40	0.00000	0.999740	
Cr 267.716	3	Lin Thru 0	0.0	79.68	0.00000	0.999833	
Cu 324.752	3	Lin Thru 0	0.0	239.7	0.00000	0.999867	
Fe 238.204 Radia	2	Lin Thru 0	0.0	0.6519	0.00000	0.999907	
K 766.490 Radial	3	Lin Thru 0	0.0	1.833	0.00000	0.999979	
Mg 279.077 IEC	3	Lin Thru 0	0.0	0.1603	0.00000	0.999987	
Mn 257.610	3	Lin Thru 0	0.0	1014	0.00000	0.999865	
Mo 202.031	3	Lin Thru 0	0.0	24.71	0.00000	0.999870	

Na 589.592 Radia	2	Lin Thru 0	0.0	0.0244	0.00000	0.999827
Ni 231.604	3	Lin Thru 0	0.0	56.86	0.00000	0.999720
P 214.914	3	Lin Thru 0	0.0	2.298	0.00000	0.999833
Pb 220.353	3	Lin Thru 0	0.0	12.00	0.00000	0.999914
S 181.975 Axial	3	Lin Thru 0	0.0	1.022	0.00000	0.999734
Sb 206.836	3	Lin Thru 0	0.0	4.598	0.00000	0.999803
Se 196.026	3	Lin Thru 0	0.0	2.761	0.00000	0.999912
SiO2	3	Lin Thru 0	0.0	10.63	0.00000	0.999813
Si 251.611	3	Lin Thru 0	0.0	28.80	0.00000	0.999777
Sn 189.927	3	Lin Thru 0	0.0	10.44	0.00000	0.999859
Sr 421.552	3	Lin Thru 0	0.0	39.20	0.00000	0.999994
Ti 334.940	3	Lin Thru 0	0.0	442.0	0.00000	0.999886
Tl 190.801	3	Lin Thru 0	0.0	6.096	0.00000	0.999909
U 367.007	3	Lin Thru 0	0.0	5.454	0.00000	0.999896
V 292.402	3	Lin Thru 0	0.0	156.1	0.00000	0.999801
Zn 213.857	3	Lin Thru 0	0.0	183.5	0.00000	0.999884

Sequence No.: 6 **Autosampler Location: 9**
Sample ID: ICV **Date Collected: 11/16/2016 06:21:16**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: ICV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8281.7	8281.7	98.3	%			06:22:06
1	Al 396.153Radial†	9649.5	10554.7	5184.0	µg/L	5184.0	ppb	06:21:46
1	Ca 317.933Radial†	10581.8	10658.4	5191.5	µg/L	5191.5	ppb	06:22:06
1	Fe 238.204 Radial†	3362.6	3410.5	5231.8	µg/L	5231.8	ppb	06:22:06
1	K 766.490 Radial†	5081.1	4766.7	2601.7	µg/L	2601.7	ppb	06:21:46
1	Mg 279.077 IEC†	836.3	839.7	5236.8	µg/L	5236.8	ppb	06:22:06
1	Na 589.592 Radial†	61.9	58.0	2373.5	µg/L	2373.5	ppb	06:22:06
1	Sr 421.552†	19430.7	19766.9	504.04	µg/L	504.04	ppb	06:21:46
1	Sc 361.383	621641.3	621641.3	99.338	%			06:23:03
1	Y 371.029	698513.8	698513.8	98.376	%			06:23:03
1	Ag 328.068†	48760.3	50024.8	251.60	µg/L	251.60	ppb	06:23:03
1	As 188.979†	1628.8	1617.5	490.70	µg/L	490.70	ppb	06:23:24
1	B 249.677†	25130.2	25105.7	506.92	µg/L	506.92	ppb	06:23:03
1	Ba 233.527†	88393.1	88853.2	500.09	µg/L	500.09	ppb	06:23:03
1	Be 313.107†	612880.5	622409.7	249.71	µg/L	249.71	ppb	06:23:03
1	Cd 226.502†	81993.9	82793.7	501.18	µg/L	501.18	ppb	06:23:03
1	Co 228.616†	29427.9	29951.6	487.50	µg/L	487.50	ppb	06:23:24
1	Cr 267.716†	39151.3	39295.5	493.02	µg/L	493.02	ppb	06:23:03
1	Cu 324.752†	122609.0	120932.7	504.74	µg/L	504.74	ppb	06:23:03
1	Mn 257.610†	506035.2	508565.5	501.47	µg/L	501.47	ppb	06:23:03
1	Mo 202.031†	11972.8	12069.2	488.71	µg/L	488.71	ppb	06:23:24
1	Ni 231.604†	27328.6	27687.0	486.78	µg/L	486.78	ppb	06:23:24
1	P 214.914†	5644.7	5537.4	2395.4	µg/L	2395.4	ppb	06:23:24
1	Pb 220.353†	6102.9	6037.2	502.75	µg/L	502.75	ppb	06:23:24
1	S 181.975 Axial†	2624.4	2494.8	2445.6	µg/L	2445.6	ppb	06:23:24
1	Sb 206.836†	2344.5	2244.9	485.37	µg/L	485.37	ppb	06:23:24
1	Se 196.026†	6741.7	6804.8	2467.0	µg/L	2467.0	ppb	06:23:24
1	SiO2†	111448.3	110558.1	10406	µg/L	10406	ppb	06:23:03
1	Si 251.611†	138866.8	139497.8	4835.9	µg/L	4835.9	ppb	06:23:03
1	Sn 189.927†	5167.4	5180.6	498.07	µg/L	498.07	ppb	06:23:24
1	Ti 334.940†	214950.5	217181.3	491.19	µg/L	491.19	ppb	06:23:03
1	Tl 190.801†	2855.8	3032.2	498.41	µg/L	498.41	ppb	06:23:24
1	U 367.007†	4113.8	2716.7	475.1	µg/L	475.1	ppb	06:23:03
1	V 292.402†	76563.5	76654.8	497.30	µg/L	497.30	ppb	06:23:03
1	Zn 213.857†	92662.2	92494.3	499.25	µg/L	499.25	ppb	06:23:03
2	Sc RADIAL	8275.9	8275.9	98.2	%			06:22:31
2	Al 396.153Radial†	9585.8	10496.6	5155.3	µg/L	5155.3	ppb	06:22:11
2	Ca 317.933Radial†	10623.6	10708.5	5215.9	µg/L	5215.9	ppb	06:22:31
2	Fe 238.204 Radial†	3370.3	3420.6	5247.4	µg/L	5247.4	ppb	06:22:31
2	K 766.490 Radial†	4976.5	4663.7	2545.5	µg/L	2545.5	ppb	06:22:11
2	Mg 279.077 IEC†	844.0	848.2	5289.5	µg/L	5289.5	ppb	06:22:31
2	Na 589.592 Radial†	64.5	60.7	2484.2	µg/L	2484.2	ppb	06:22:31
2	Sr 421.552†	19442.6	19792.8	504.70	µg/L	504.70	ppb	06:22:11
2	Sc 361.383	624447.8	624447.8	99.786	%			06:23:30
2	Y 371.029	701828.1	701828.1	98.843	%			06:23:30
2	Ag 328.068†	49140.5	50185.2	252.41	µg/L	252.41	ppb	06:23:30
2	As 188.979†	1642.4	1623.7	492.59	µg/L	492.59	ppb	06:23:50
2	B 249.677†	25298.8	25161.0	508.05	µg/L	508.05	ppb	06:23:30
2	Ba 233.527†	88708.1	88768.9	499.62	µg/L	499.62	ppb	06:23:30
2	Be 313.107†	616098.5	622861.7	249.89	µg/L	249.89	ppb	06:23:30
2	Cd 226.502†	82459.4	82889.2	501.76	µg/L	501.76	ppb	06:23:30
2	Co 228.616†	29618.7	30009.7	488.44	µg/L	488.44	ppb	06:23:50
2	Cr 267.716†	39464.7	39432.5	494.74	µg/L	494.74	ppb	06:23:30
2	Cu 324.752†	123271.5	121041.9	505.19	µg/L	505.19	ppb	06:23:30
2	Mn 257.610†	508096.7	508341.9	501.25	µg/L	501.25	ppb	06:23:30
2	Mo 202.031†	12060.3	12102.7	490.07	µg/L	490.07	ppb	06:23:50
2	Ni 231.604†	27470.0	27705.0	487.09	µg/L	487.09	ppb	06:23:50
2	P 214.914†	5709.7	5577.0	2412.5	µg/L	2412.5	ppb	06:23:50

2	Pb 220.353†	6143.4	6050.2	503.85 µg/L	503.85 ppb	06:23:50
2	S 181.975 Axial†	2640.8	2499.4	2450.1 µg/L	2450.1 ppb	06:23:50
2	Sb 206.836†	2365.5	2255.3	487.62 µg/L	487.62 ppb	06:23:50
2	Se 196.026†	6799.9	6832.6	2477.0 µg/L	2477.0 ppb	06:23:50
2	SiO2†	111951.0	110557.7	10406 µg/L	10406 ppb	06:23:30
2	Si 251.611†	139600.3	139604.5	4839.5 µg/L	4839.5 ppb	06:23:30
2	Sn 189.927†	5191.4	5181.3	498.14 µg/L	498.14 ppb	06:23:50
2	Ti 334.940†	216226.6	217487.7	491.88 µg/L	491.88 ppb	06:23:30
2	Tl 190.801†	2873.1	3036.6	499.13 µg/L	499.13 ppb	06:23:50
2	U 367.007†	4094.2	2678.5	468.0 µg/L	468.0 ppb	06:23:30
2	V 292.402†	77013.1	76758.9	497.99 µg/L	497.99 ppb	06:23:30
2	Zn 213.857†	93277.1	92691.2	500.32 µg/L	500.32 ppb	06:23:30
3	Sc RADIAL	8286.0	8286.0	98.3 %		06:22:56
3	Al 396.153Radial†	9608.7	10508.1	5160.9 µg/L	5160.9 ppb	06:22:36
3	Ca 317.933Radial†	10599.0	10670.3	5197.3 µg/L	5197.3 ppb	06:22:56
3	Fe 238.204 Radial†	3357.8	3403.7	5221.5 µg/L	5221.5 ppb	06:22:56
3	K 766.490 Radial†	4848.4	4527.4	2471.1 µg/L	2471.1 ppb	06:22:36
3	Mg 279.077 IEC†	848.7	851.9	5312.6 µg/L	5312.6 ppb	06:22:56
3	Na 589.592 Radial†	67.9	64.1	2623.8 µg/L	2623.8 ppb	06:22:56
3	Sr 421.552†	19500.9	19828.0	505.59 µg/L	505.59 ppb	06:22:36
3	Sc 361.383	623640.2	623640.2	99.657 %		06:23:56
3	Y 371.029	700285.6	700285.6	98.626 %		06:23:56
3	Ag 328.068†	49131.9	50240.4	252.69 µg/L	252.69 ppb	06:23:56
3	As 188.979†	1632.4	1615.9	490.26 µg/L	490.26 ppb	06:24:16
3	B 249.677†	25368.3	25263.5	509.93 µg/L	509.93 ppb	06:23:56
3	Ba 233.527†	89158.9	89336.3	502.81 µg/L	502.81 ppb	06:23:56
3	Be 313.107†	618204.6	625774.6	251.05 µg/L	251.05 ppb	06:23:56
3	Cd 226.502†	82817.6	83355.6	504.59 µg/L	504.59 ppb	06:23:56
3	Co 228.616†	29734.4	30164.2	490.96 µg/L	490.96 ppb	06:24:16
3	Cr 267.716†	39668.9	39688.5	497.96 µg/L	497.96 ppb	06:23:56
3	Cu 324.752†	123367.9	121298.6	506.25 µg/L	506.25 ppb	06:23:56
3	Mn 257.610†	509865.9	510776.6	503.65 µg/L	503.65 ppb	06:23:56
3	Mo 202.031†	12107.2	12165.5	492.61 µg/L	492.61 ppb	06:24:16
3	Ni 231.604†	27578.3	27849.3	489.63 µg/L	489.63 ppb	06:24:16
3	P 214.914†	5725.8	5600.6	2422.8 µg/L	2422.8 ppb	06:24:16
3	Pb 220.353†	6161.8	6076.6	506.06 µg/L	506.06 ppb	06:24:16
3	S 181.975 Axial†	2661.3	2523.4	2473.6 µg/L	2473.6 ppb	06:24:16
3	Sb 206.836†	2364.7	2257.6	488.08 µg/L	488.08 ppb	06:24:16
3	Se 196.026†	6831.1	6872.7	2491.6 µg/L	2491.6 ppb	06:24:16
3	SiO2†	112221.4	110974.2	10445 µg/L	10445 ppb	06:23:56
3	Si 251.611†	139983.0	140169.7	4859.1 µg/L	4859.1 ppb	06:23:56
3	Sn 189.927†	5220.8	5217.5	501.61 µg/L	501.61 ppb	06:24:16
3	Ti 334.940†	216767.0	218310.6	493.75 µg/L	493.75 ppb	06:23:56
3	Tl 190.801†	2943.5	3111.0	511.34 µg/L	511.34 ppb	06:24:16
3	U 367.007†	4062.1	2651.5	463.2 µg/L	463.2 ppb	06:23:56
3	V 292.402†	77021.4	76867.2	498.70 µg/L	498.70 ppb	06:23:56
3	Zn 213.857†	93585.4	93121.7	502.65 µg/L	502.65 ppb	06:23:56

Mean Data: ICV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	623243.1	99.594	%	0.2309				0.23%
Sc RADIAL	8281.2	98.3	%	0.06				0.06%
Y 371.029	700209.2	98.615	%	0.2336				0.24%
Ag 328.068†	50150.2	252.23	µg/L	0.564	252.23	ppb	0.564	0.22%
QC value within limits for Ag 328.068 Recovery = 100.89%								
Al 396.153Radial†	10519.8	5166.7	µg/L	15.21	5166.7	ppb	15.21	0.29%
QC value within limits for Al 396.153Radial Recovery = 103.33%								
As 188.979†	1619.1	491.18	µg/L	1.235	491.18	ppb	1.235	0.25%
QC value within limits for As 188.979 Recovery = 98.24%								
B 249.677†	25176.7	508.30	µg/L	1.523	508.30	ppb	1.523	0.30%
QC value within limits for B 249.677 Recovery = 101.66%								
Ba 233.527†	88986.1	500.84	µg/L	1.724	500.84	ppb	1.724	0.34%
QC value within limits for Ba 233.527 Recovery = 100.17%								
Be 313.107†	623682.0	250.21	µg/L	0.731	250.21	ppb	0.731	0.29%
QC value within limits for Be 313.107 Recovery = 100.09%								
Ca 317.933Radial†	10679.1	5201.6	µg/L	12.75	5201.6	ppb	12.75	0.25%
QC value within limits for Ca 317.933Radial Recovery = 104.03%								
Cd 226.502†	83012.8	502.51	µg/L	1.823	502.51	ppb	1.823	0.36%
QC value within limits for Cd 226.502 Recovery = 100.50%								

Co 228.616†	30041.8	488.97 µg/L	1.791	488.97 ppb	1.791	0.37%
QC value within limits for Co 228.616 Recovery = 97.79%						
Cr 267.716†	39472.1	495.24 µg/L	2.509	495.24 ppb	2.509	0.51%
QC value within limits for Cr 267.716 Recovery = 99.05%						
Cu 324.752†	121091.1	505.39 µg/L	0.779	505.39 ppb	0.779	0.15%
QC value within limits for Cu 324.752 Recovery = 101.08%						
Fe 238.204 Radial†	3411.6	5233.6 µg/L	13.04	5233.6 ppb	13.04	0.25%
QC value within limits for Fe 238.204 Radial Recovery = 104.67%						
K 766.490 Radial†	4652.6	2539.4 µg/L	65.49	2539.4 ppb	65.49	2.58%
QC value within limits for K 766.490 Radial Recovery = 101.58%						
Mg 279.077 IEC†	846.6	5279.6 µg/L	38.83	5279.6 ppb	38.83	0.74%
QC value within limits for Mg 279.077 IEC Recovery = 105.59%						
Mn 257.610†	509228.0	502.12 µg/L	1.325	502.12 ppb	1.325	0.26%
QC value within limits for Mn 257.610 Recovery = 100.42%						
Mo 202.031†	12112.4	490.46 µg/L	1.978	490.46 ppb	1.978	0.40%
QC value within limits for Mo 202.031 Recovery = 98.09%						
Na 589.592 Radial†	60.9	2493.8 µg/L	125.41	2493.8 ppb	125.41	5.03%
QC value within limits for Na 589.592 Radial Recovery = 99.75%						
Ni 231.604†	27747.1	487.83 µg/L	1.566	487.83 ppb	1.566	0.32%
QC value within limits for Ni 231.604 Recovery = 97.57%						
P 214.914†	5571.7	2410.2 µg/L	13.87	2410.2 ppb	13.87	0.58%
QC value within limits for P 214.914 Recovery = 96.41%						
Pb 220.353†	6054.6	504.22 µg/L	1.685	504.22 ppb	1.685	0.33%
QC value within limits for Pb 220.353 Recovery = 100.84%						
S 181.975 Axial†	2505.9	2456.4 µg/L	15.04	2456.4 ppb	15.04	0.61%
QC value within limits for S 181.975 Axial Recovery = 98.26%						
Sb 206.836†	2252.6	487.02 µg/L	1.451	487.02 ppb	1.451	0.30%
QC value within limits for Sb 206.836 Recovery = 97.40%						
Se 196.026†	6836.7	2478.5 µg/L	12.36	2478.5 ppb	12.36	0.50%
QC value within limits for Se 196.026 Recovery = 99.14%						
SiO2†	110696.7	10419 µg/L	22.64	10419 ppb	22.64	0.22%
QC value within limits for SiO2 Recovery = 97.42%						
Si 251.611†	139757.3	4844.8 µg/L	12.51	4844.8 ppb	12.51	0.26%
QC value within limits for Si 251.611 Recovery = 96.90%						
Sn 189.927†	5193.1	499.27 µg/L	2.025	499.27 ppb	2.025	0.41%
QC value within limits for Sn 189.927 Recovery = 99.85%						
Sr 421.552†	19795.9	504.78 µg/L	0.782	504.78 ppb	0.782	0.15%
QC value within limits for Sr 421.552 Recovery = 100.96%						
Ti 334.940†	217659.8	492.27 µg/L	1.323	492.27 ppb	1.323	0.27%
QC value within limits for Ti 334.940 Recovery = 98.45%						
Tl 190.801†	3059.9	502.96 µg/L	7.264	502.96 ppb	7.264	1.44%
QC value within limits for Tl 190.801 Recovery = 100.59%						
U 367.007†	2682.3	468.8 µg/L	5.99	468.8 ppb	5.99	1.28%
QC value within limits for U 367.007 Recovery = 93.76%						
V 292.402†	76760.3	498.00 µg/L	0.699	498.00 ppb	0.699	0.14%
QC value within limits for V 292.402 Recovery = 99.60%						
Zn 213.857†	92769.1	500.74 µg/L	1.736	500.74 ppb	1.736	0.35%
QC value within limits for Zn 213.857 Recovery = 100.15%						

All analyte(s) passed QC.

Sequence No.: 7 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 11/16/2016 06:24:24**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: ICB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8317.2	8317.2	98.7	%			06:24:53
1	Al 396.153Radial†	-735.6	-8.9	-4.3819	µg/L	-4.3819	ppb	06:24:53
1	Ca 317.933Radial†	97.5	-9.8	-4.7907	µg/L	-4.7907	ppb	06:25:13
1	Fe 238.204 Radial†	14.5	3.6	5.5800	µg/L	5.5800	ppb	06:25:13
1	K 766.490 Radial†	342.2	-56.7	-30.914	µg/L	-30.914	ppb	06:24:53
1	Mg 279.077 IEC†	9.8	-1.3	-8.1686	µg/L	-8.1686	ppb	06:25:13
1	Na 589.592 Radial†	6.9	2.0	82.261	µg/L	82.261	ppb	06:25:13
1	Sr 421.552†	11.1	7.4	0.1883	µg/L	0.1883	ppb	06:24:53
1	Sc 361.383	616976.2	616976.2	98.592	%			06:26:10
1	Y 371.029	699639.5	699639.5	98.535	%			06:26:10
1	Ag 328.068†	-866.5	60.5	0.2976	µg/L	0.2976	ppb	06:26:10
1	As 188.979†	26.2	4.4	1.3338	µg/L	1.3338	ppb	06:26:30
1	B 249.677†	297.0	109.2	2.1491	µg/L	2.1491	ppb	06:26:30
1	Ba 233.527†	141.5	14.2	0.0798	µg/L	0.0798	ppb	06:26:30
1	Be 313.107†	-5254.7	113.4	0.0487	µg/L	0.0487	ppb	06:26:10
1	Cd 226.502†	-215.7	34.3	0.2071	µg/L	0.2071	ppb	06:26:30
1	Co 228.616†	-342.4	-19.8	-0.3230	µg/L	-0.3230	ppb	06:26:30
1	Cr 267.716†	124.6	9.5	0.1096	µg/L	0.1096	ppb	06:26:30
1	Cu 324.752†	2570.6	113.6	0.4816	µg/L	0.4816	ppb	06:26:10
1	Mn 257.610†	862.1	31.0	0.0311	µg/L	0.0311	ppb	06:26:30
1	Mo 202.031†	-25.2	-8.9	-0.3619	µg/L	-0.3619	ppb	06:26:30
1	Ni 231.604†	-163.6	10.2	0.1796	µg/L	0.1796	ppb	06:26:30
1	P 214.914†	130.9	-12.1	-5.2744	µg/L	-5.2744	ppb	06:26:30
1	Pb 220.353†	98.1	-6.9	-0.5817	µg/L	-0.5817	ppb	06:26:30
1	S 181.975 Axial†	139.6	-5.5	-5.3901	µg/L	-5.3901	ppb	06:26:30
1	Sb 206.836†	119.7	6.2	1.3313	µg/L	1.3313	ppb	06:26:30
1	Se 196.026†	-13.2	4.7	1.7118	µg/L	1.7118	ppb	06:26:30
1	SiO2†	1675.2	65.9	6.2022	µg/L	6.2022	ppb	06:26:10
1	Si 251.611†	325.1	34.9	1.2160	µg/L	1.2160	ppb	06:26:30
1	Sn 189.927†	9.2	-11.9	-1.1422	µg/L	-1.1422	ppb	06:26:30
1	Ti 334.940†	-721.4	66.1	0.1425	µg/L	0.1425	ppb	06:26:10
1	Tl 190.801†	-155.1	0.1	0.0190	µg/L	0.0190	ppb	06:26:30
1	U 367.007†	1479.3	75.9	13.89	µg/L	13.89	ppb	06:26:10
1	V 292.402†	449.5	36.7	0.2411	µg/L	0.2411	ppb	06:26:10
1	Zn 213.857†	698.2	-77.6	-0.4247	µg/L	-0.4247	ppb	06:26:30
2	Sc RADIAL	8368.9	8368.9	99.3	%			06:25:18
2	Al 396.153Radial†	-706.6	24.9	12.243	µg/L	12.243	ppb	06:25:18
2	Ca 317.933Radial†	105.5	-2.3	-1.1288	µg/L	-1.1288	ppb	06:25:38
2	Fe 238.204 Radial†	14.1	3.2	4.8911	µg/L	4.8911	ppb	06:25:38
2	K 766.490 Radial†	224.5	-177.3	-96.699	µg/L	-96.699	ppb	06:25:18
2	Mg 279.077 IEC†	8.1	-3.0	-18.751	µg/L	-18.751	ppb	06:25:38
2	Na 589.592 Radial†	5.6	0.7	27.214	µg/L	27.214	ppb	06:25:38
2	Sr 421.552†	27.7	24.1	0.6144	µg/L	0.6144	ppb	06:25:18
2	Sc 361.383	620672.9	620672.9	99.183	%			06:26:35
2	Y 371.029	704018.2	704018.2	99.151	%			06:26:35
2	Ag 328.068†	-942.5	-10.8	-0.0548	µg/L	-0.0548	ppb	06:26:35
2	As 188.979†	24.9	3.0	0.9093	µg/L	0.9093	ppb	06:26:55
2	B 249.677†	267.2	77.3	1.5243	µg/L	1.5243	ppb	06:26:55
2	Ba 233.527†	138.6	10.5	0.0590	µg/L	0.0590	ppb	06:26:55
2	Be 313.107†	-5282.2	117.3	0.0481	µg/L	0.0481	ppb	06:26:35
2	Cd 226.502†	-184.2	67.4	0.4077	µg/L	0.4077	ppb	06:26:55
2	Co 228.616†	-326.0	-1.2	-0.0190	µg/L	-0.0190	ppb	06:26:55
2	Cr 267.716†	147.3	31.7	0.3945	µg/L	0.3945	ppb	06:26:55
2	Cu 324.752†	2640.6	168.6	0.7055	µg/L	0.7055	ppb	06:26:35
2	Mn 257.610†	869.8	33.5	0.0340	µg/L	0.0340	ppb	06:26:55
2	Mo 202.031†	-0.7	15.9	0.6424	µg/L	0.6424	ppb	06:26:55
2	Ni 231.604†	-157.1	17.7	0.3113	µg/L	0.3113	ppb	06:26:55
2	P 214.914†	121.4	-22.5	-9.7874	µg/L	-9.7874	ppb	06:26:55

2	Pb 220.353†	124.1	18.7	1.5555 µg/L	1.5555 ppb		06:26:55
2	S 181.975 Axial†	153.2	7.4	7.2187 µg/L	7.2187 ppb		06:26:55
2	Sb 206.836†	109.7	-4.6	-1.0065 µg/L	-1.0065 ppb		06:26:55
2	Se 196.026†	-25.3	-7.4	-2.6901 µg/L	-2.6901 ppb		06:26:55
2	SiO2†	1639.0	19.3	1.8153 µg/L	1.8153 ppb		06:26:35
2	Si 251.611†	346.3	54.3	1.8739 µg/L	1.8739 ppb		06:26:55
2	Sn 189.927†	30.0	8.9	0.8585 µg/L	0.8585 ppb		06:26:55
2	Ti 334.940†	-658.2	134.1	0.3011 µg/L	0.3011 ppb		06:26:35
2	Tl 190.801†	-142.4	13.9	2.2765 µg/L	2.2765 ppb		06:26:55
2	U 367.007†	1436.3	23.6	4.312 µg/L	4.312 ppb		06:26:35
2	V 292.402†	459.4	44.0	0.2918 µg/L	0.2918 ppb		06:26:35
2	Zn 213.857†	709.9	-69.9	-0.3835 µg/L	-0.3835 ppb		06:26:55
3	Sc RADIAL	8342.1	8342.1	99.0 %			06:25:43
3	Al 396.153Radial†	-723.1	5.9	2.9012 µg/L	2.9012 ppb		06:25:43
3	Ca 317.933Radial†	109.6	2.1	1.0313 µg/L	1.0313 ppb		06:26:03
3	Fe 238.204 Radial†	8.6	-2.3	-3.5818 µg/L	-3.5818 ppb		06:26:03
3	K 766.490 Radial†	455.1	56.3	30.716 µg/L	30.716 ppb		06:25:43
3	Mg 279.077 IEC†	8.0	-3.2	-19.732 µg/L	-19.732 ppb		06:26:03
3	Na 589.592 Radial†	10.5	5.7	231.51 µg/L	231.51 ppb		06:26:03
3	Sr 421.552†	35.6	32.2	0.8201 µg/L	0.8201 ppb		06:25:43
3	Sc 361.383	618191.7	618191.7	98.786 %			06:27:01
3	Y 371.029	701326.5	701326.5	98.772 %			06:27:01
3	Ag 328.068†	-843.0	86.1	0.4302 µg/L	0.4302 ppb		06:27:01
3	As 188.979†	16.8	-5.1	-1.5429 µg/L	-1.5429 ppb		06:27:21
3	B 249.677†	279.5	90.9	1.7557 µg/L	1.7557 ppb		06:27:21
3	Ba 233.527†	107.7	-20.3	-0.1139 µg/L	-0.1139 ppb		06:27:21
3	Be 313.107†	-5193.6	185.6	0.0743 µg/L	0.0743 ppb		06:27:01
3	Cd 226.502†	-213.9	36.5	0.2216 µg/L	0.2216 ppb		06:27:21
3	Co 228.616†	-336.6	-13.2	-0.2159 µg/L	-0.2159 ppb		06:27:21
3	Cr 267.716†	126.6	11.3	0.1416 µg/L	0.1416 ppb		06:27:21
3	Cu 324.752†	2474.4	11.1	0.0459 µg/L	0.0459 ppb		06:27:01
3	Mn 257.610†	842.7	9.6	0.0100 µg/L	0.0100 ppb		06:27:21
3	Mo 202.031†	-20.4	-4.1	-0.1657 µg/L	-0.1657 ppb		06:27:21
3	Ni 231.604†	-136.8	37.7	0.6625 µg/L	0.6625 ppb		06:27:21
3	P 214.914†	136.0	-7.2	-3.1168 µg/L	-3.1168 ppb		06:27:21
3	Pb 220.353†	96.5	-8.7	-0.7264 µg/L	-0.7264 ppb		06:27:21
3	S 181.975 Axial†	152.5	7.3	7.1215 µg/L	7.1215 ppb		06:27:21
3	Sb 206.836†	108.6	-5.3	-1.1530 µg/L	-1.1530 ppb		06:27:21
3	Se 196.026†	-13.4	4.6	1.6511 µg/L	1.6511 ppb		06:27:21
3	SiO2†	1745.9	134.1	12.613 µg/L	12.613 ppb		06:27:01
3	Si 251.611†	332.1	41.3	1.4349 µg/L	1.4349 ppb		06:27:21
3	Sn 189.927†	25.7	4.7	0.4544 µg/L	0.4544 ppb		06:27:21
3	Ti 334.940†	-733.0	55.7	0.1264 µg/L	0.1264 ppb		06:27:01
3	Tl 190.801†	-151.7	3.8	0.6307 µg/L	0.6307 ppb		06:27:21
3	U 367.007†	1403.8	-3.4	-0.613 µg/L	-0.613 ppb		06:27:01
3	V 292.402†	399.2	-15.1	-0.0990 µg/L	-0.0990 ppb		06:27:01
3	Zn 213.857†	695.7	-81.5	-0.4469 µg/L	-0.4469 ppb		06:27:21

Mean Data: ICB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	618613.6	98.854	%	0.3011				0.30%
Sc RADIAL	8342.7	99.0	%	0.31				0.31%
Y 371.029	701661.4	98.819	%	0.3110				0.31%
Ag 328.068†	45.3	0.2243	µg/L	0.25068	0.2243	ppb	0.25068	111.73%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	7.3	3.5876	µg/L	8.33387	3.5876	ppb	8.33387	232.30%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.8	0.2334	µg/L	1.55289	0.2334	ppb	1.55289	665.35%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	92.5	1.8097	µg/L	0.31586	1.8097	ppb	0.31586	17.45%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	1.5	0.0083	µg/L	0.10636	0.0083	ppb	0.10636	>999.9%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	138.8	0.0570	µg/L	0.01494	0.0570	ppb	0.01494	26.19%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-3.3	-1.6294	µg/L	2.94312	-1.6294	ppb	2.94312	180.63%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	46.0	0.2788	µg/L	0.11185	0.2788	ppb	0.11185	40.12%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	-11.4	-0.1860 µg/L	0.15420	-0.1860 ppb	0.15420	82.92%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	17.5	0.2152 µg/L	0.15608	0.2152 ppb	0.15608	72.51%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	97.8	0.4110 µg/L	0.33540	0.4110 ppb	0.33540	81.61%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	1.5	2.2965 µg/L	5.10234	2.2965 ppb	5.10234	222.18%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	-59.2	-32.299 µg/L	63.7187	-32.299 ppb	63.7187	197.28%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	-2.5	-15.551 µg/L	6.4119	-15.551 ppb	6.4119	41.23%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	24.7	0.0250 µg/L	0.01310	0.0250 ppb	0.01310	52.33%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	0.9	0.0383 µg/L	0.53234	0.0383 ppb	0.53234	>999.9%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	2.8	113.66 µg/L	105.706	113.66 ppb	105.706	93.00%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	21.9	0.3845 µg/L	0.24963	0.3845 ppb	0.24963	64.92%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-13.9	-6.0595 µg/L	3.40393	-6.0595 ppb	3.40393	56.17%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	1.1	0.0825 µg/L	1.27773	0.0825 ppb	1.27773	>999.9%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	3.0	2.9834 µg/L	7.25176	2.9834 ppb	7.25176	243.07%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	-1.2	-0.2761 µg/L	1.39397	-0.2761 ppb	1.39397	504.96%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	0.6	0.2243 µg/L	2.52408	0.2243 ppb	2.52408	>999.9%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	73.1	6.8767 µg/L	5.43022	6.8767 ppb	5.43022	78.97%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	43.5	1.5083 µg/L	0.33507	1.5083 ppb	0.33507	22.22%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	0.6	0.0569 µg/L	1.05792	0.0569 ppb	1.05792	>999.9%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	21.2	0.5409 µg/L	0.32221	0.5409 ppb	0.32221	59.56%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	85.3	0.1900 µg/L	0.09654	0.1900 ppb	0.09654	50.81%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	5.9	0.9754 µg/L	1.16754	0.9754 ppb	1.16754	119.70%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	32.0	5.864 µg/L	7.3770	5.864 ppb	7.3770	125.79%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	21.9	0.1446 µg/L	0.21249	0.1446 ppb	0.21249	146.90%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	-76.3	-0.4183 µg/L	0.03216	-0.4183 ppb	0.03216	7.69%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 8 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 11/16/2016 06:27:30**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8324.7	8324.7	98.8	%			06:27:59
1	Al 396.153Radial†	-361.4	370.5	182.23	µg/L	182.23	ppb	06:27:59
1	Ca 317.933Radial†	515.3	413.0	201.16	µg/L	201.16	ppb	06:28:19
1	Fe 238.204 Radial†	77.6	67.5	103.62	µg/L	103.62	ppb	06:28:19
1	K 766.490 Radial†	706.6	311.9	170.16	µg/L	170.16	ppb	06:27:59
1	Mg 279.077 IEC†	58.0	47.5	296.11	µg/L	296.11	ppb	06:28:19
1	Na 589.592 Radial†	13.9	9.1	373.26	µg/L	373.26	ppb	06:28:19
1	Sr 421.552†	214.3	213.1	5.4285	µg/L	5.4285	ppb	06:27:59
1	Sc 361.383	620227.3	620227.3	99.112	%			06:29:17
1	Y 371.029	703918.6	703918.6	99.137	%			06:29:17
1	Ag 328.068†	117.1	1057.6	5.2929	µg/L	5.2929	ppb	06:29:17
1	As 188.979†	116.1	94.9	28.610	µg/L	28.610	ppb	06:29:37
1	B 249.677†	2738.5	2571.0	50.427	µg/L	50.427	ppb	06:29:17
1	Ba 233.527†	980.8	860.3	4.8407	µg/L	4.8407	ppb	06:29:37
1	Be 313.107†	6570.0	12071.9	4.8513	µg/L	4.8513	ppb	06:29:17
1	Cd 226.502†	571.8	829.9	5.0189	µg/L	5.0189	ppb	06:29:37
1	Co 228.616†	-24.1	303.2	4.9390	µg/L	4.9390	ppb	06:29:37
1	Cr 267.716†	492.1	379.7	4.7408	µg/L	4.7408	ppb	06:29:37
1	Cu 324.752†	4825.6	2375.1	9.9306	µg/L	9.9306	ppb	06:29:17
1	Mn 257.610†	10850.2	10104.0	9.9563	µg/L	9.9563	ppb	06:29:17
1	Mo 202.031†	222.9	241.5	9.7771	µg/L	9.7771	ppb	06:29:37
1	Ni 231.604†	99.0	276.0	4.8497	µg/L	4.8497	ppb	06:29:37
1	P 214.914†	447.5	306.7	133.17	µg/L	133.17	ppb	06:29:37
1	Pb 220.353†	230.3	126.0	10.438	µg/L	10.438	ppb	06:29:37
1	S 181.975 Axial†	241.6	96.7	94.692	µg/L	94.692	ppb	06:29:37
1	Sb 206.836†	140.6	26.7	5.8508	µg/L	5.8508	ppb	06:29:37
1	Se 196.026†	64.1	82.8	30.039	µg/L	30.039	ppb	06:29:37
1	SiO2†	3683.8	2083.6	196.03	µg/L	196.03	ppb	06:29:17
1	Si 251.611†	2888.6	2619.5	90.799	µg/L	90.799	ppb	06:29:37
1	Sn 189.927†	129.8	109.7	10.523	µg/L	10.523	ppb	06:29:37
1	Ti 334.940†	1402.7	2213.0	4.9947	µg/L	4.9947	ppb	06:29:17
1	Tl 190.801†	-28.4	128.8	21.149	µg/L	21.149	ppb	06:29:37
1	U 367.007†	1642.5	232.7	42.18	µg/L	42.18	ppb	06:29:17
1	V 292.402†	1132.4	723.4	4.7742	µg/L	4.7742	ppb	06:29:17
1	Zn 213.857†	2431.4	1667.5	9.0125	µg/L	9.0125	ppb	06:29:37
2	Sc RADIAL	8351.9	8351.9	99.1	%			06:28:24
2	Al 396.153Radial†	-352.2	381.0	187.39	µg/L	187.39	ppb	06:28:24
2	Ca 317.933Radial†	518.7	414.7	202.00	µg/L	202.00	ppb	06:28:44
2	Fe 238.204 Radial†	75.5	65.2	99.970	µg/L	99.970	ppb	06:28:44
2	K 766.490 Radial†	643.2	245.6	134.02	µg/L	134.02	ppb	06:28:24
2	Mg 279.077 IEC†	59.0	48.3	301.26	µg/L	301.26	ppb	06:28:44
2	Na 589.592 Radial†	12.6	7.7	316.52	µg/L	316.52	ppb	06:28:44
2	Sr 421.552†	222.1	220.2	5.6100	µg/L	5.6100	ppb	06:28:24
2	Sc 361.383	623325.6	623325.6	99.607	%			06:29:42
2	Y 371.029	706523.2	706523.2	99.504	%			06:29:42
2	Ag 328.068†	161.7	1101.8	5.5112	µg/L	5.5112	ppb	06:29:42
2	As 188.979†	114.3	92.6	27.901	µg/L	27.901	ppb	06:30:02
2	B 249.677†	2798.3	2617.3	51.315	µg/L	51.315	ppb	06:29:42
2	Ba 233.527†	993.5	868.2	4.8849	µg/L	4.8849	ppb	06:30:02
2	Be 313.107†	6694.8	12164.3	4.8897	µg/L	4.8897	ppb	06:29:42
2	Cd 226.502†	598.6	854.1	5.1653	µg/L	5.1653	ppb	06:30:02
2	Co 228.616†	-35.4	292.0	4.7564	µg/L	4.7564	ppb	06:30:02
2	Cr 267.716†	499.5	384.6	4.7983	µg/L	4.7983	ppb	06:30:02
2	Cu 324.752†	4997.2	2523.2	10.551	µg/L	10.551	ppb	06:29:42
2	Mn 257.610†	11014.2	10214.2	10.065	µg/L	10.065	ppb	06:29:42
2	Mo 202.031†	229.4	246.9	9.9964	µg/L	9.9964	ppb	06:30:02
2	Ni 231.604†	90.2	266.7	4.6869	µg/L	4.6869	ppb	06:30:02
2	P 214.914†	469.0	325.9	141.54	µg/L	141.54	ppb	06:30:02

2	Pb 220.353†	207.6	102.1	8.4374 µg/L	8.4374 ppb	06:30:02
2	S 181.975 Axial†	241.3	95.2	93.201 µg/L	93.201 ppb	06:30:02
2	Sb 206.836†	158.3	43.7	9.5505 µg/L	9.5505 ppb	06:30:02
2	Se 196.026†	63.9	82.3	29.850 µg/L	29.850 ppb	06:30:02
2	SiO2†	3704.1	2085.5	196.21 µg/L	196.21 ppb	06:29:42
2	Si 251.611†	2873.7	2590.2	89.778 µg/L	89.778 ppb	06:30:02
2	Sn 189.927†	130.5	109.8	10.535 µg/L	10.535 ppb	06:30:02
2	Ti 334.940†	1465.3	2268.8	5.1182 µg/L	5.1182 ppb	06:29:42
2	Tl 190.801†	-33.5	123.7	20.325 µg/L	20.325 ppb	06:30:02
2	U 367.007†	1682.7	264.9	48.10 µg/L	48.10 ppb	06:29:42
2	V 292.402†	1188.1	773.6	5.1009 µg/L	5.1009 ppb	06:29:42
2	Zn 213.857†	2440.7	1664.6	8.9973 µg/L	8.9973 ppb	06:30:02
3	Sc RADIAL	8394.9	8394.9	99.6 %		06:28:49
3	Al 396.153Radial†	-288.9	446.4	219.62 µg/L	219.62 ppb	06:28:49
3	Ca 317.933Radial†	510.3	403.7	196.62 µg/L	196.62 ppb	06:29:09
3	Fe 238.204 Radial†	73.9	63.2	96.901 µg/L	96.901 ppb	06:29:09
3	K 766.490 Radial†	633.9	232.9	127.10 µg/L	127.10 ppb	06:28:49
3	Mg 279.077 IEC†	57.9	46.9	292.55 µg/L	292.55 ppb	06:29:09
3	Na 589.592 Radial†	13.4	8.5	348.42 µg/L	348.42 ppb	06:29:09
3	Sr 421.552†	214.2	211.2	5.3800 µg/L	5.3800 ppb	06:28:49
3	Sc 361.383	619280.0	619280.0	98.960 %		06:30:08
3	Y 371.029	701990.1	701990.1	98.866 %		06:30:08
3	Ag 328.068†	83.1	1023.5	5.1129 µg/L	5.1129 ppb	06:30:08
3	As 188.979†	123.0	102.1	30.763 µg/L	30.763 ppb	06:30:28
3	B 249.677†	2697.9	2534.2	49.682 µg/L	49.682 ppb	06:30:08
3	Ba 233.527†	983.5	864.6	4.8648 µg/L	4.8648 ppb	06:30:28
3	Be 313.107†	6508.6	12020.0	4.8348 µg/L	4.8348 ppb	06:30:08
3	Cd 226.502†	585.2	844.4	5.1074 µg/L	5.1074 ppb	06:30:28
3	Co 228.616†	-15.1	312.2	5.0867 µg/L	5.0867 ppb	06:30:28
3	Cr 267.716†	514.2	402.7	5.0170 µg/L	5.0170 ppb	06:30:28
3	Cu 324.752†	4872.7	2430.2	10.169 µg/L	10.169 ppb	06:30:08
3	Mn 257.610†	10844.4	10114.9	9.9667 µg/L	9.9667 ppb	06:30:08
3	Mo 202.031†	229.2	248.2	10.052 µg/L	10.052 ppb	06:30:28
3	Ni 231.604†	114.1	291.5	5.1227 µg/L	5.1227 ppb	06:30:28
3	P 214.914†	459.0	318.9	138.51 µg/L	138.51 ppb	06:30:28
3	Pb 220.353†	229.5	125.5	10.376 µg/L	10.376 ppb	06:30:28
3	S 181.975 Axial†	243.4	98.9	96.837 µg/L	96.837 ppb	06:30:28
3	Sb 206.836†	157.5	43.9	9.5909 µg/L	9.5909 ppb	06:30:28
3	Se 196.026†	77.5	96.4	34.961 µg/L	34.961 ppb	06:30:28
3	SiO2†	3783.9	2190.4	206.09 µg/L	206.09 ppb	06:30:08
3	Si 251.611†	2906.1	2641.8	91.570 µg/L	91.570 ppb	06:30:28
3	Sn 189.927†	121.0	101.1	9.6975 µg/L	9.6975 ppb	06:30:28
3	Ti 334.940†	1392.2	2204.6	4.9665 µg/L	4.9665 ppb	06:30:08
3	Tl 190.801†	-41.5	115.5	18.972 µg/L	18.972 ppb	06:30:28
3	U 367.007†	1737.8	331.6	60.34 µg/L	60.34 ppb	06:30:08
3	V 292.402†	1174.5	767.6	5.0709 µg/L	5.0709 ppb	06:30:08
3	Zn 213.857†	2454.8	1694.8	9.1604 µg/L	9.1604 ppb	06:30:28

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	620944.3	99.226	%	0.3381				0.34%
Sc RADIAL	8357.2	99.2	%	0.42				0.42%
Y 371.029	704144.0	99.169	%	0.3204				0.32%
Ag 328.068†	1061.0	5.3057	µg/L	0.19947	5.3057	ppb	0.19947	3.76%
QC value within limits for Ag 328.068 Recovery = 106.11%								
Al 396.153Radial†	399.3	196.41	µg/L	20.264	196.41	ppb	20.264	10.32%
QC value within limits for Al 396.153Radial Recovery = 98.21%								
As 188.979†	96.5	29.091	µg/L	1.4901	29.091	ppb	1.4901	5.12%
QC value within limits for As 188.979 Recovery = 96.97%								
B 249.677†	2574.2	50.475	µg/L	0.8172	50.475	ppb	0.8172	1.62%
QC value within limits for B 249.677 Recovery = 100.95%								
Ba 233.527†	864.3	4.8635	µg/L	0.02214	4.8635	ppb	0.02214	0.46%
QC value within limits for Ba 233.527 Recovery = 97.27%								
Be 313.107†	12085.4	4.8586	µg/L	0.02817	4.8586	ppb	0.02817	0.58%
QC value within limits for Be 313.107 Recovery = 97.17%								
Ca 317.933Radial†	410.5	199.92	µg/L	2.890	199.92	ppb	2.890	1.45%
QC value within limits for Ca 317.933Radial Recovery = 99.96%								
Cd 226.502†	842.8	5.0972	µg/L	0.07374	5.0972	ppb	0.07374	1.45%
QC value within limits for Cd 226.502 Recovery = 101.94%								

Co 228.616†	302.5	4.9274 µg/L	0.16543	4.9274 ppb	0.16543	3.36%
QC value within limits for Co 228.616 Recovery = 98.55%						
Cr 267.716†	389.0	4.8520 µg/L	0.14572	4.8520 ppb	0.14572	3.00%
QC value within limits for Cr 267.716 Recovery = 97.04%						
Cu 324.752†	2442.8	10.217 µg/L	0.3129	10.217 ppb	0.3129	3.06%
QC value within limits for Cu 324.752 Recovery = 102.17%						
Fe 238.204 Radial†	65.3	100.16 µg/L	3.364	100.16 ppb	3.364	3.36%
QC value within limits for Fe 238.204 Radial Recovery = 100.16%						
K 766.490 Radial†	263.5	143.76 µg/L	23.126	143.76 ppb	23.126	16.09%
QC value within limits for K 766.490 Radial Recovery = 95.84%						
Mg 279.077 IEC†	47.6	296.64 µg/L	4.380	296.64 ppb	4.380	1.48%
QC value within limits for Mg 279.077 IEC Recovery = 98.88%						
Mn 257.610†	10144.4	9.9958 µg/L	0.05971	9.9958 ppb	0.05971	0.60%
QC value within limits for Mn 257.610 Recovery = 99.96%						
Mo 202.031†	245.5	9.9418 µg/L	0.14526	9.9418 ppb	0.14526	1.46%
QC value within limits for Mo 202.031 Recovery = 99.42%						
Na 589.592 Radial†	8.5	346.07 µg/L	28.442	346.07 ppb	28.442	8.22%
QC value within limits for Na 589.592 Radial Recovery = 115.36%						
Ni 231.604†	278.1	4.8864 µg/L	0.22024	4.8864 ppb	0.22024	4.51%
QC value within limits for Ni 231.604 Recovery = 97.73%						
P 214.914†	317.2	137.74 µg/L	4.240	137.74 ppb	4.240	3.08%
QC value within limits for P 214.914 Recovery = 91.83%						
Pb 220.353†	117.9	9.7506 µg/L	1.13773	9.7506 ppb	1.13773	11.67%
QC value within limits for Pb 220.353 Recovery = 97.51%						
S 181.975 Axial†	96.9	94.910 µg/L	1.8275	94.910 ppb	1.8275	1.93%
QC value within limits for S 181.975 Axial Recovery = 94.91%						
Sb 206.836†	38.1	8.3307 µg/L	2.14780	8.3307 ppb	2.14780	25.78%
QC value within limits for Sb 206.836 Recovery = 83.31%						
Se 196.026†	87.2	31.617 µg/L	2.8980	31.617 ppb	2.8980	9.17%
QC value within limits for Se 196.026 Recovery = 105.39%						
SiO2†	2119.8	199.44 µg/L	5.756	199.44 ppb	5.756	2.89%
QC value within limits for SiO2 Recovery = 93.63%						
Si 251.611†	2617.2	90.716 µg/L	0.8992	90.716 ppb	0.8992	0.99%
QC value within limits for Si 251.611 Recovery = 90.72%						
Sn 189.927†	106.8	10.252 µg/L	0.4801	10.252 ppb	0.4801	4.68%
QC value within limits for Sn 189.927 Recovery = 102.52%						
Sr 421.552†	214.8	5.4729 µg/L	0.12123	5.4729 ppb	0.12123	2.22%
QC value within limits for Sr 421.552 Recovery = 109.46%						
Ti 334.940†	2228.8	5.0265 µg/L	0.08067	5.0265 ppb	0.08067	1.60%
QC value within limits for Ti 334.940 Recovery = 100.53%						
Tl 190.801†	122.6	20.149 µg/L	1.0993	20.149 ppb	1.0993	5.46%
QC value within limits for Tl 190.801 Recovery = 100.74%						
U 367.007†	276.4	50.21 µg/L	9.262	50.21 ppb	9.262	18.45%
QC value within limits for U 367.007 Recovery = 100.41%						
V 292.402†	754.9	4.9820 µg/L	0.18063	4.9820 ppb	0.18063	3.63%
QC value within limits for V 292.402 Recovery = 99.64%						
Zn 213.857†	1675.6	9.0568 µg/L	0.09011	9.0568 ppb	0.09011	0.99%
QC value within limits for Zn 213.857 Recovery = 90.57%						

All analyte(s) passed QC.

Sequence No.: 9 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 11/16/2016 06:30:37**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	7719.1	7719.1	91.6	%			06:31:27
1	Al 396.153Radial†	923510.8	1008894.3	497210	µg/L	497210	ppb	06:31:07
1	Ca 317.933Radial†	913442.5	997058.3	485650	µg/L	485650	ppb	06:31:07
1	Fe 238.204 Radial†	115457.4	126029.0	193340	µg/L	193340	ppb	06:31:07
1	K 766.490 Radial†	205.6	-178.9	52.737	µg/L	52.737	ppb	06:31:07
1	Mg 279.077 IEC†	71340.9	77868.6	485620	µg/L	485620	ppb	06:31:07
1	Na 589.592 Radial†	5.0	0.5	-42.447	µg/L	-42.447	ppb	06:31:27
1	Sr 421.552†	615.4	668.0	0.6413	µg/L	0.6413	ppb	06:31:27
1	Sc 361.383	548928.3	548928.3	87.718	%			06:32:25
1	Y 371.029	606694.1	606694.1	85.445	%			06:32:25
1	Ag 328.068†	-5736.4	-5600.1	0.4146	µg/L	0.4146	ppb	06:32:25
1	As 188.979†	39.9	23.4	-2.9715	µg/L	-2.9715	ppb	06:32:45
1	B 249.677†	-33779.9	-38701.6	3.7443	µg/L	3.7443	ppb	06:32:25
1	Ba 233.527†	939.3	941.5	0.1176	µg/L	0.1176	ppb	06:32:45
1	Be 313.107†	-15916.7	-12702.2	1.0371	µg/L	1.0371	ppb	06:32:25
1	Cd 226.502†	2648.8	3272.8	0.6250	µg/L	0.6250	ppb	06:32:45
1	Co 228.616†	456.9	848.4	0.3685	µg/L	0.3685	ppb	06:32:45
1	Cr 267.716†	-541.1	-733.7	0.8236	µg/L	0.8236	ppb	06:32:45
1	Cu 324.752†	-78.3	-2583.0	-0.0454	µg/L	-0.0454	ppb	06:32:25
1	Mn 257.610†	7239.1	7409.2	0.4827	µg/L	0.4827	ppb	06:32:25
1	Mo 202.031†	-178.3	-186.6	0.4025	µg/L	0.4025	ppb	06:32:45
1	Ni 231.604†	384.1	614.1	1.5028	µg/L	1.5028	ppb	06:32:45
1	P 214.914†	379.4	287.6	-9.7349	µg/L	-9.7349	ppb	06:32:45
1	Pb 220.353†	1616.4	1736.3	5.9201	µg/L	5.9201	ppb	06:32:45
1	S 181.975 Axial†	181.7	60.1	19.389	µg/L	19.389	ppb	06:32:45
1	Sb 206.836†	165.7	73.7	5.4566	µg/L	5.4566	ppb	06:32:45
1	Se 196.026†	-213.3	-225.1	9.3185	µg/L	9.3185	ppb	06:32:45
1	SiO2†	2008.7	656.7	61.609	µg/L	61.609	ppb	06:32:45
1	Si 251.611†	1127.0	989.9	-1.3764	µg/L	-1.3764	ppb	06:32:45
1	Sn 189.927†	54.8	41.2	3.1299	µg/L	3.1299	ppb	06:32:45
1	Ti 334.940†	-10502.6	-11175.4	-0.3472	µg/L	-0.3472	ppb	06:32:25
1	Tl 190.801†	-167.5	-33.6	1.6983	µg/L	1.6983	ppb	06:32:45
1	U 367.007†	5740.9	5120.2	5.011	µg/L	5.011	ppb	06:32:25
1	V 292.402†	-3142.5	-4001.7	0.9175	µg/L	0.9175	ppb	06:32:45
1	Zn 213.857†	10192.8	10834.1	5.7546	µg/L	5.7546	ppb	06:32:45
2	Sc RADIAL	7701.1	7701.1	91.4	%			06:31:53
2	Al 396.153Radial†	926540.5	1014563.1	500010	µg/L	500010	ppb	06:31:33
2	Ca 317.933Radial†	918646.0	1005079.9	489560	µg/L	489560	ppb	06:31:33
2	Fe 238.204 Radial†	116310.9	127257.2	195220	µg/L	195220	ppb	06:31:33
2	K 766.490 Radial†	213.2	-170.1	59.026	µg/L	59.026	ppb	06:31:33
2	Mg 279.077 IEC†	71835.0	78591.1	490130	µg/L	490130	ppb	06:31:33
2	Na 589.592 Radial†	2.0	-2.8	-177.69	µg/L	-177.69	ppb	06:31:53
2	Sr 421.552†	629.7	685.2	0.9493	µg/L	0.9493	ppb	06:31:53
2	Sc 361.383	551103.5	551103.5	88.066	%			06:32:51
2	Y 371.029	609556.1	609556.1	85.848	%			06:32:51
2	Ag 328.068†	-5500.1	-5306.0	2.1864	µg/L	2.1864	ppb	06:32:51
2	As 188.979†	48.9	33.4	-0.0576	µg/L	-0.0576	ppb	06:33:11
2	B 249.677†	-33774.4	-38543.4	14.199	µg/L	14.199	ppb	06:32:51
2	Ba 233.527†	947.9	947.0	0.0981	µg/L	0.0981	ppb	06:33:11
2	Be 313.107†	-16137.0	-12880.7	1.0087	µg/L	1.0087	ppb	06:32:51
2	Cd 226.502†	2612.3	3219.4	0.1142	µg/L	0.1142	ppb	06:33:11
2	Co 228.616†	482.8	875.7	0.6806	µg/L	0.6806	ppb	06:33:11
2	Cr 267.716†	-558.9	-751.4	0.7143	µg/L	0.7143	ppb	06:33:11
2	Cu 324.752†	-49.3	-2549.8	0.1833	µg/L	0.1833	ppb	06:32:51
2	Mn 257.610†	7417.0	7578.6	0.5913	µg/L	0.5913	ppb	06:32:51
2	Mo 202.031†	-198.6	-208.9	-0.4226	µg/L	-0.4226	ppb	06:33:11
2	Ni 231.604†	378.2	605.6	1.2635	µg/L	1.2635	ppb	06:33:11
2	P 214.914†	344.9	246.8	-29.035	µg/L	-29.035	ppb	06:33:11

2	Pb 220.353†	1626.3	1740.3	5.5867 µg/L	5.5867 ppb	06:33:11
2	S 181.975 Axial†	182.9	60.7	19.687 µg/L	19.687 ppb	06:33:11
2	Sb 206.836†	148.6	53.4	0.9771 µg/L	0.9771 ppb	06:33:11
2	Se 196.026†	-195.2	-203.5	18.030 µg/L	18.030 ppb	06:33:11
2	SiO2†	2002.3	640.4	60.086 µg/L	60.086 ppb	06:33:11
2	Si 251.611†	1086.7	939.1	-3.4710 µg/L	-3.4710 ppb	06:33:11
2	Sn 189.927†	24.2	6.3	-0.2124 µg/L	-0.2124 ppb	06:33:11
2	Ti 334.940†	-10437.5	-11054.1	0.1402 µg/L	0.1402 ppb	06:32:51
2	Tl 190.801†	-149.7	-12.6	5.2031 µg/L	5.2031 ppb	06:33:11
2	U 367.007†	5676.1	5020.8	-22.09 µg/L	-22.09 ppb	06:32:51
2	V 292.402†	-3110.8	-3951.6	1.4718 µg/L	1.4718 ppb	06:33:11
2	Zn 213.857†	10142.0	10730.6	4.6865 µg/L	4.6865 ppb	06:33:11
3	Sc RADIAL	7713.0	7713.0	91.5 %		06:32:18
3	Al 396.153Radial†	925286.1	1011627.9	498560 µg/L	498560 ppb	06:31:58
3	Ca 317.933Radial†	916455.1	1001134.9	487640 µg/L	487640 ppb	06:31:58
3	Fe 238.204 Radial†	116012.3	126734.5	194420 µg/L	194420 ppb	06:31:58
3	K 766.490 Radial†	213.8	-169.8	58.554 µg/L	58.554 ppb	06:31:58
3	Mg 279.077 IEC†	71626.1	78241.6	487950 µg/L	487950 ppb	06:31:58
3	Na 589.592 Radial†	13.1	9.4	319.91 µg/L	319.91 ppb	06:32:18
3	Sr 421.552†	624.7	678.7	0.8475 µg/L	0.8475 ppb	06:32:18
3	Sc 361.383	551746.2	551746.2	88.169 %		06:33:16
3	Y 371.029	609708.5	609708.5	85.869 %		06:33:16
3	Ag 328.068†	-5712.6	-5539.8	0.8912 µg/L	0.8912 ppb	06:33:16
3	As 188.979†	52.6	37.5	1.2169 µg/L	1.2169 ppb	06:33:36
3	B 249.677†	-33991.1	-38744.4	7.1484 µg/L	7.1484 ppb	06:33:16
3	Ba 233.527†	979.2	981.3	0.3128 µg/L	0.3128 ppb	06:33:36
3	Be 313.107†	-16154.4	-12879.1	0.9884 µg/L	0.9884 ppb	06:33:16
3	Cd 226.502†	2623.1	3228.1	0.2471 µg/L	0.2471 ppb	06:33:36
3	Co 228.616†	451.0	839.1	0.1400 µg/L	0.1400 ppb	06:33:36
3	Cr 267.716†	-479.1	-660.2	1.8050 µg/L	1.8050 ppb	06:33:36
3	Cu 324.752†	-82.7	-2587.5	-0.0120 µg/L	-0.0120 ppb	06:33:16
3	Mn 257.610†	7400.6	7550.3	0.5974 µg/L	0.5974 ppb	06:33:16
3	Mo 202.031†	-196.7	-206.5	-0.3551 µg/L	-0.3551 ppb	06:33:36
3	Ni 231.604†	382.6	610.0	1.3799 µg/L	1.3799 ppb	06:33:36
3	P 214.914†	350.4	252.5	-25.910 µg/L	-25.910 ppb	06:33:36
3	Pb 220.353†	1565.5	1669.2	0.0203 µg/L	0.0203 ppb	06:33:36
3	S 181.975 Axial†	190.5	69.0	27.912 µg/L	27.912 ppb	06:33:36
3	Sb 206.836†	164.2	71.0	4.8076 µg/L	4.8076 ppb	06:33:36
3	Se 196.026†	-209.8	-219.9	11.721 µg/L	11.721 ppb	06:33:36
3	SiO2†	1974.2	605.8	56.846 µg/L	56.846 ppb	06:33:36
3	Si 251.611†	1107.2	960.9	-2.5687 µg/L	-2.5687 ppb	06:33:36
3	Sn 189.927†	36.2	19.8	1.0902 µg/L	1.0902 ppb	06:33:36
3	Ti 334.940†	-10538.4	-11154.8	-0.1928 µg/L	-0.1928 ppb	06:33:16
3	Tl 190.801†	-165.5	-30.3	2.2606 µg/L	2.2606 ppb	06:33:36
3	U 367.007†	5727.1	5071.1	-9.021 µg/L	-9.021 ppb	06:33:16
3	V 292.402†	-3150.7	-3992.8	1.1091 µg/L	1.1091 ppb	06:33:36
3	Zn 213.857†	10150.6	10727.0	4.8971 µg/L	4.8971 ppb	06:33:36

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	550592.7	87.984	%	0.2360				0.27%
Sc RADIAL	7711.1	91.5	%	0.11				0.12%
Y 371.029	608652.9	85.720	%	0.2392				0.28%
Ag 328.068†	-5482.0	1.1640	µg/L	0.91686	1.1640	ppb	0.91686	78.77%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	1011695.1	498590	µg/L	1397.17	498590	ppb	1397.17	0.28%
QC value within limits for Al 396.153Radial Recovery = 99.72%								
As 188.979†	31.4	-0.6041	µg/L	2.14701	-0.6041	ppb	2.14701	355.43%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-38663.1	8.3641	µg/L	5.33253	8.3641	ppb	5.33253	63.76%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	956.6	0.1762	µg/L	0.11871	0.1762	ppb	0.11871	67.39%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-12820.6	1.0114	µg/L	0.02448	1.0114	ppb	0.02448	2.42%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	1001091.0	487620	µg/L	1953.68	487620	ppb	1953.68	0.40%
QC value within limits for Ca 317.933Radial Recovery = 97.52%								
Cd 226.502†	3240.1	0.3288	µg/L	0.26499	0.3288	ppb	0.26499	80.60%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	854.4	0.3964 µg/L	0.27140	0.3964 ppb	0.27140	68.47%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	-715.1	1.1143 µg/L	0.60064	1.1143 ppb	0.60064	53.90%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	-2573.4	0.0420 µg/L	0.12353	0.0420 ppb	0.12353	294.38%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	126673.5	194320 µg/L	945.49	194320 ppb	945.49	0.49%
QC value within limits for Fe 238.204 Radial Recovery = 97.16%						
K 766.490 Radial†	-172.9	56.772 µg/L	3.5028	56.772 ppb	3.5028	6.17%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	78233.8	487900 µg/L	2253.18	487900 ppb	2253.18	0.46%
QC value within limits for Mg 279.077 IEC Recovery = 97.58%						
Mn 257.610†	7512.7	0.5571 µg/L	0.06452	0.5571 ppb	0.06452	11.58%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	-200.7	-0.1251 µg/L	0.45813	-0.1251 ppb	0.45813	366.28%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	2.4	33.257 µg/L	257.2915	33.257 ppb	257.2915	773.65%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	609.9	1.3821 µg/L	0.11964	1.3821 ppb	0.11964	8.66%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	262.3	-21.560 µg/L	10.3591	-21.560 ppb	10.3591	48.05%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	1715.3	3.8424 µg/L	3.31419	3.8424 ppb	3.31419	86.25%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	63.2	22.329 µg/L	4.8367	22.329 ppb	4.8367	21.66%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	66.1	3.7471 µg/L	2.42078	3.7471 ppb	2.42078	64.60%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	-216.2	13.023 µg/L	4.4991	13.023 ppb	4.4991	34.55%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	634.3	59.514 µg/L	2.4327	59.514 ppb	2.4327	4.09%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	963.3	-2.4720 µg/L	1.05065	-2.4720 ppb	1.05065	42.50%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	22.4	1.3359 µg/L	1.68467	1.3359 ppb	1.68467	126.11%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	677.3	0.8127 µg/L	0.15690	0.8127 ppb	0.15690	19.31%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	-11128.1	-0.1332 µg/L	0.24908	-0.1332 ppb	0.24908	186.93%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	-25.5	3.0540 µg/L	1.88229	3.0540 ppb	1.88229	61.63%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	5070.7	-8.700 µg/L	13.5539	-8.700 ppb	13.5539	155.79%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	-3982.0	1.1661 µg/L	0.28153	1.1661 ppb	0.28153	24.14%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	10763.9	5.1127 µg/L	0.56575	5.1127 ppb	0.56575	11.07%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 10 **Autosampler Location: 104**
Sample ID: ICSAB **Date Collected: 11/16/2016 06:33:45**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	7702.2	7702.2	91.4	%			06:34:35
1	Al 396.153Radial†	920657.0	1007984.3	496750	µg/L	496750	ppb	06:34:15
1	Ca 317.933Radial†	907670.7	992931.7	483640	µg/L	483640	ppb	06:34:15
1	Fe 238.204 Radial†	111859.7	122369.5	187720	µg/L	187720	ppb	06:34:15
1	K 766.490 Radial†	9444.8	9929.8	5559.8	µg/L	5559.8	ppb	06:34:15
1	Mg 279.077 IEC†	70771.4	77416.5	482800	µg/L	482800	ppb	06:34:15
1	Na 589.592 Radial†	115.5	121.4	4909.3	µg/L	4909.3	ppb	06:34:35
1	Sr 421.552†	18086.6	19783.9	488.32	µg/L	488.32	ppb	06:34:15
1	Sc 361.383	557500.9	557500.9	89.088	%			06:35:34
1	Y 371.029	617431.4	617431.4	86.957	%			06:35:34
1	Ag 328.068†	39827.6	45645.4	256.31	µg/L	256.31	ppb	06:35:34
1	As 188.979†	1486.9	1646.9	489.93	µg/L	489.93	ppb	06:35:39
1	B 249.677†	-9551.1	-10913.0	520.66	µg/L	520.66	ppb	06:35:34
1	Ba 233.527†	77704.9	87093.2	485.29	µg/L	485.29	ppb	06:35:34
1	Be 313.107†	508854.4	576624.0	237.36	µg/L	237.36	ppb	06:35:34
1	Cd 226.502†	69968.3	78791.3	458.78	µg/L	458.78	ppb	06:35:34
1	Co 228.616†	24181.7	27471.1	434.39	µg/L	434.39	ppb	06:35:39
1	Cr 267.716†	31727.0	35496.2	455.24	µg/L	455.24	ppb	06:35:39
1	Cu 324.752†	111058.9	122168.1	520.00	µg/L	520.00	ppb	06:35:34
1	Mn 257.610†	425776.9	477084.3	463.32	µg/L	463.32	ppb	06:35:34
1	Mo 202.031†	10480.9	11781.3	484.57	µg/L	484.57	ppb	06:35:39
1	Ni 231.604†	21935.2	24798.1	427.18	µg/L	427.18	ppb	06:35:39
1	P 214.914†	5375.3	5888.8	2423.5	µg/L	2423.5	ppb	06:35:39
1	Pb 220.353†	6501.4	7191.4	461.02	µg/L	461.02	ppb	06:35:39
1	S 181.975 Axial†	2440.2	2592.0	2501.9	µg/L	2501.9	ppb	06:35:39
1	Sb 206.836†	2117.5	2261.6	479.36	µg/L	479.36	ppb	06:35:39
1	Se 196.026†	5419.9	6101.8	2298.1	µg/L	2298.1	ppb	06:35:39
1	SiO2†	98669.5	109121.7	10270	µg/L	10270	ppb	06:35:34
1	Si 251.611†	123735.6	138596.3	4770.9	µg/L	4770.9	ppb	06:35:34
1	Sn 189.927†	4366.7	4880.3	468.24	µg/L	468.24	ppb	06:35:39
1	Ti 334.940†	183211.8	206450.0	491.53	µg/L	491.53	ppb	06:35:34
1	Tl 190.801†	2300.6	2739.8	457.87	µg/L	457.87	ppb	06:35:39
1	U 367.007†	7712.7	7232.9	416.0	µg/L	416.0	ppb	06:35:34
1	V 292.402†	64923.6	72456.5	495.32	µg/L	495.32	ppb	06:35:34
1	Zn 213.857†	86015.3	95765.0	466.01	µg/L	466.01	ppb	06:35:34
2	Sc RADIAL	7692.1	7692.1	91.3	%			06:35:00
2	Al 396.153Radial†	925483.4	1014587.0	500000	µg/L	500000	ppb	06:34:40
2	Ca 317.933Radial†	911248.4	998147.9	486180	µg/L	486180	ppb	06:34:40
2	Fe 238.204 Radial†	112674.0	123421.4	189340	µg/L	189340	ppb	06:34:40
2	K 766.490 Radial†	9619.4	10134.6	5672.8	µg/L	5672.8	ppb	06:34:40
2	Mg 279.077 IEC†	71274.8	78069.1	486870	µg/L	486870	ppb	06:34:40
2	Na 589.592 Radial†	116.5	122.6	4956.4	µg/L	4956.4	ppb	06:35:00
2	Sr 421.552†	18201.4	19935.5	492.10	µg/L	492.10	ppb	06:34:40
2	Sc 361.383	554954.6	554954.6	88.681	%			06:35:45
2	Y 371.029	614536.6	614536.6	86.549	%			06:35:45
2	Ag 328.068†	39633.9	45632.0	256.49	µg/L	256.49	ppb	06:35:45
2	As 188.979†	1498.4	1667.5	496.08	µg/L	496.08	ppb	06:35:50
2	B 249.677†	-9479.3	-10881.2	527.57	µg/L	527.57	ppb	06:35:45
2	Ba 233.527†	77333.5	87074.6	485.14	µg/L	485.14	ppb	06:35:45
2	Be 313.107†	506205.1	576257.3	237.25	µg/L	237.25	ppb	06:35:45
2	Cd 226.502†	69521.7	78648.1	457.76	µg/L	457.76	ppb	06:35:45
2	Co 228.616†	24330.3	27763.2	439.04	µg/L	439.04	ppb	06:35:50
2	Cr 267.716†	31856.5	35805.7	459.19	µg/L	459.19	ppb	06:35:50
2	Cu 324.752†	110603.1	122226.1	520.34	µg/L	520.34	ppb	06:35:45
2	Mn 257.610†	423348.6	476538.9	462.72	µg/L	462.72	ppb	06:35:45
2	Mo 202.031†	10485.1	11840.0	487.01	µg/L	487.01	ppb	06:35:50
2	Ni 231.604†	22135.2	25136.6	433.06	µg/L	433.06	ppb	06:35:50
2	P 214.914†	5444.1	5994.1	2468.1	µg/L	2468.1	ppb	06:35:50

2	Pb 220.353†	6621.1	7359.9	474.15 µg/L	474.15 ppb	06:35:50
2	S 181.975 Axial†	2456.8	2623.3	2532.3 µg/L	2532.3 ppb	06:35:50
2	Sb 206.836†	2190.5	2354.9	499.50 µg/L	499.50 ppb	06:35:50
2	Se 196.026†	5432.7	6144.2	2314.2 µg/L	2314.2 ppb	06:35:50
2	SiO2†	97860.4	108717.5	10232 µg/L	10232 ppb	06:35:45
2	Si 251.611†	122986.9	138389.3	4763.4 µg/L	4763.4 ppb	06:35:45
2	Sn 189.927†	4328.3	4859.4	466.24 µg/L	466.24 ppb	06:35:50
2	Ti 334.940†	182102.7	206142.9	490.96 µg/L	490.96 ppb	06:35:45
2	Tl 190.801†	2280.1	2728.5	456.04 µg/L	456.04 ppb	06:35:50
2	U 367.007†	7788.5	7358.1	431.6 µg/L	431.6 ppb	06:35:45
2	V 292.402†	64459.7	72267.7	494.38 µg/L	494.38 ppb	06:35:45
2	Zn 213.857†	85545.3	95678.1	465.05 µg/L	465.05 ppb	06:35:45
3	Sc RADIAL	7691.9	7691.9	91.3 %		06:35:26
3	Al 396.153Radial†	925147.1	1014246.3	499830 µg/L	499830 ppb	06:35:06
3	Ca 317.933Radial†	910905.6	997799.6	486010 µg/L	486010 ppb	06:35:06
3	Fe 238.204 Radial†	112715.4	123470.1	189410 µg/L	189410 ppb	06:35:06
3	K 766.490 Radial†	9737.8	10264.5	5743.7 µg/L	5743.7 ppb	06:35:06
3	Mg 279.077 IEC†	71256.6	78051.2	486760 µg/L	486760 ppb	06:35:06
3	Na 589.592 Radial†	115.2	121.3	4901.9 µg/L	4901.9 ppb	06:35:26
3	Sr 421.552†	18166.2	19897.5	491.13 µg/L	491.13 ppb	06:35:06
3	Sc 361.383	555057.4	555057.4	88.698 %		06:35:56
3	Y 371.029	614716.8	614716.8	86.575 %		06:35:56
3	Ag 328.068†	39757.8	45763.4	257.16 µg/L	257.16 ppb	06:35:56
3	As 188.979†	1509.8	1680.1	499.78 µg/L	499.78 ppb	06:36:01
3	B 249.677†	-9463.8	-10861.8	528.28 µg/L	528.28 ppb	06:35:56
3	Ba 233.527†	77515.6	87263.8	486.21 µg/L	486.21 ppb	06:35:56
3	Be 313.107†	506813.0	576836.9	237.48 µg/L	237.48 ppb	06:35:56
3	Cd 226.502†	69700.9	78835.6	458.88 µg/L	458.88 ppb	06:35:56
3	Co 228.616†	23922.7	27298.6	431.46 µg/L	431.46 ppb	06:36:01
3	Cr 267.716†	31406.4	35291.5	452.74 µg/L	452.74 ppb	06:36:01
3	Cu 324.752†	110774.1	122395.8	521.06 µg/L	521.06 ppb	06:35:56
3	Mn 257.610†	424092.2	477288.9	463.47 µg/L	463.47 ppb	06:35:56
3	Mo 202.031†	10348.7	11684.0	480.70 µg/L	480.70 ppb	06:36:01
3	Ni 231.604†	21779.2	24730.6	425.92 µg/L	425.92 ppb	06:36:01
3	P 214.914†	5320.0	5853.0	2406.7 µg/L	2406.7 ppb	06:36:01
3	Pb 220.353†	6460.1	7176.9	458.94 µg/L	458.94 ppb	06:36:01
3	S 181.975 Axial†	2400.4	2559.2	2469.5 µg/L	2469.5 ppb	06:36:01
3	Sb 206.836†	2172.8	2334.4	495.12 µg/L	495.12 ppb	06:36:01
3	Se 196.026†	5406.3	6113.4	2303.1 µg/L	2303.1 ppb	06:36:01
3	SiO2†	98087.9	108953.5	10254 µg/L	10254 ppb	06:35:56
3	Si 251.611†	123318.7	138737.7	4775.6 µg/L	4775.6 ppb	06:35:56
3	Sn 189.927†	4289.8	4815.2	462.01 µg/L	462.01 ppb	06:36:01
3	Ti 334.940†	182514.3	206569.0	491.91 µg/L	491.91 ppb	06:35:56
3	Tl 190.801†	2304.7	2755.7	460.58 µg/L	460.58 ppb	06:36:01
3	U 367.007†	7820.3	7392.3	437.6 µg/L	437.6 ppb	06:35:56
3	V 292.402†	64554.1	72360.8	494.91 µg/L	494.91 ppb	06:35:56
3	Zn 213.857†	85522.6	95634.6	464.86 µg/L	464.86 ppb	06:35:56

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	555837.6	88.822	%	0.2303				0.26%
Sc RADIAL	7695.4	91.3	%	0.07				0.08%
Y 371.029	615561.6	86.693	%	0.2284				0.26%
Ag 328.068†	45680.2	256.65	µg/L	0.448	256.65	ppb	0.448	0.17%
QC value within limits for Ag 328.068 Recovery = 102.66%								
Al 396.153Radial†	1012272.5	498860	µg/L	1832.15	498860	ppb	1832.15	0.37%
QC value within limits for Al 396.153Radial Recovery = 99.77%								
As 188.979†	1664.8	495.26	µg/L	4.977	495.26	ppb	4.977	1.00%
QC value within limits for As 188.979 Recovery = 99.05%								
B 249.677†	-10885.4	525.50	µg/L	4.211	525.50	ppb	4.211	0.80%
QC value within limits for B 249.677 Recovery = 105.10%								
Ba 233.527†	87143.8	485.55	µg/L	0.576	485.55	ppb	0.576	0.12%
QC value within limits for Ba 233.527 Recovery = 97.11%								
Be 313.107†	576572.7	237.37	µg/L	0.115	237.37	ppb	0.115	0.05%
QC value within limits for Be 313.107 Recovery = 94.95%								
Ca 317.933Radial†	996293.1	485280	µg/L	1420.44	485280	ppb	1420.44	0.29%
QC value within limits for Ca 317.933Radial Recovery = 97.06%								
Cd 226.502†	78758.4	458.47	µg/L	0.622	458.47	ppb	0.622	0.14%
QC value within limits for Cd 226.502 Recovery = 91.69%								

Co 228.616†	27511.0	434.97 µg/L	3.823	434.97 ppb	3.823	0.88%
QC value within limits for Co 228.616 Recovery = 86.99%						
Cr 267.716†	35531.1	455.72 µg/L	3.257	455.72 ppb	3.257	0.71%
QC value within limits for Cr 267.716 Recovery = 91.14%						
Cu 324.752†	122263.3	520.47 µg/L	0.539	520.47 ppb	0.539	0.10%
QC value within limits for Cu 324.752 Recovery = 104.09%						
Fe 238.204 Radial†	123087.0	188820 µg/L	953.93	188820 ppb	953.93	0.51%
QC value within limits for Fe 238.204 Radial Recovery = 94.41%						
K 766.490 Radial†	10109.6	5658.8 µg/L	92.74	5658.8 ppb	92.74	1.64%
QC value within limits for K 766.490 Radial Recovery = 113.18%						
Mg 279.077 IEC†	77845.6	485480 µg/L	2318.13	485480 ppb	2318.13	0.48%
QC value within limits for Mg 279.077 IEC Recovery = 97.10%						
Mn 257.610†	476970.7	463.17 µg/L	0.395	463.17 ppb	0.395	0.09%
QC value within limits for Mn 257.610 Recovery = 92.63%						
Mo 202.031†	11768.4	484.09 µg/L	3.182	484.09 ppb	3.182	0.66%
QC value within limits for Mo 202.031 Recovery = 96.82%						
Na 589.592 Radial†	121.8	4922.5 µg/L	29.57	4922.5 ppb	29.57	0.60%
QC value within limits for Na 589.592 Radial Recovery = 98.45%						
Ni 231.604†	24888.4	428.72 µg/L	3.812	428.72 ppb	3.812	0.89%
QC value within limits for Ni 231.604 Recovery = 85.74%						
P 214.914†	5912.0	2432.8 µg/L	31.73	2432.8 ppb	31.73	1.30%
QC value within limits for P 214.914 Recovery = 97.31%						
Pb 220.353†	7242.7	464.70 µg/L	8.247	464.70 ppb	8.247	1.77%
QC value within limits for Pb 220.353 Recovery = 92.94%						
S 181.975 Axial†	2591.5	2501.2 µg/L	31.37	2501.2 ppb	31.37	1.25%
QC value within limits for S 181.975 Axial Recovery = 100.05%						
Sb 206.836†	2317.0	491.33 µg/L	10.590	491.33 ppb	10.590	2.16%
QC value within limits for Sb 206.836 Recovery = 98.27%						
Se 196.026†	6119.8	2305.1 µg/L	8.24	2305.1 ppb	8.24	0.36%
QC value within limits for Se 196.026 Recovery = 92.20%						
SiO2†	108930.9	10252 µg/L	19.06	10252 ppb	19.06	0.19%
QC value within limits for SiO2 Recovery = 95.86%						
Si 251.611†	138574.4	4770.0 µg/L	6.14	4770.0 ppb	6.14	0.13%
QC value within limits for Si 251.611 Recovery = 95.40%						
Sn 189.927†	4851.7	465.50 µg/L	3.179	465.50 ppb	3.179	0.68%
QC value within limits for Sn 189.927 Recovery = 93.10%						
Sr 421.552†	19872.3	490.52 µg/L	1.965	490.52 ppb	1.965	0.40%
QC value within limits for Sr 421.552 Recovery = 98.10%						
Ti 334.940†	206387.3	491.47 µg/L	0.480	491.47 ppb	0.480	0.10%
QC value within limits for Ti 334.940 Recovery = 98.29%						
Tl 190.801†	2741.3	458.16 µg/L	2.279	458.16 ppb	2.279	0.50%
QC value within limits for Tl 190.801 Recovery = 91.63%						
U 367.007†	7327.8	428.4 µg/L	11.15	428.4 ppb	11.15	2.60%
QC value within limits for U 367.007 Recovery = 85.68%						
V 292.402†	72361.7	494.87 µg/L	0.475	494.87 ppb	0.475	0.10%
QC value within limits for V 292.402 Recovery = 98.97%						
Zn 213.857†	95692.6	465.31 µg/L	0.617	465.31 ppb	0.617	0.13%
QC value within limits for Zn 213.857 Recovery = 93.06%						

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 105**
Sample ID: LR1 **Date Collected: 11/16/2016 06:36:09**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: LR1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	7580.5	7580.5	90.0	%			06:36:44
1	Al 396.153Radial†	904664.6	1006376.5	495970	µg/L	495970	ppb	06:36:39
1	Ca 317.933Radial†	906183.4	1007219.9	490600	µg/L	490600	ppb	06:36:39
1	Fe 238.204 Radial†	278621.9	309709.7	475110	µg/L	475110	ppb	06:36:39
1	K 766.490 Radial†	548329.9	609129.3	332610	µg/L	332610	ppb	06:36:39
1	Mg 279.077 IEC†	68966.8	76653.4	478040	µg/L	478040	ppb	06:36:44
1	Na 589.592 Radial†	10280.7	11423.2	467710	µg/L	467710	ppb	06:36:44
1	Sr 421.552†	1751.7	1943.4	33.009	µg/L	33.009	ppb	06:36:44
1	Sc 361.383	541293.2	541293.2	86.498	%			06:37:12
1	Y 371.029	595694.6	595694.6	83.895	%			06:37:12
1	Ag 328.068†	-7144.6	-7320.4	35.231	µg/L	35.231	ppb	06:37:12
1	As 188.979†	14.7	-5.2	-26.032	µg/L	-26.032	ppb	06:37:17
1	B 249.677†	-82695.5	-95795.8	-4.2031	µg/L	-4.2031	ppb	06:37:12
1	Ba 233.527†	2123.0	2325.1	0.3530	µg/L	0.3530	ppb	06:37:17
1	Be 313.107†	-22222.2	-20247.8	1.6013	µg/L	1.6013	ppb	06:37:17
1	Cd 226.502†	6872.0	8197.7	2.4642	µg/L	2.4642	ppb	06:37:17
1	Co 228.616†	1493.1	2053.7	0.3093	µg/L	0.3093	ppb	06:37:17
1	Cr 267.716†	-242.5	-397.2	-3.9200	µg/L	-3.9200	ppb	06:37:17
1	Cu 324.752†	-4948.0	-8214.1	-1.4459	µg/L	-1.4459	ppb	06:37:17
1	Mn 257.610†	-2292.8	-3494.2	5.0830	µg/L	5.0830	ppb	06:37:12
1	Mo 202.031†	-324.8	-358.9	5.0272	µg/L	5.0272	ppb	06:37:17
1	Ni 231.604†	903.1	1220.3	-1.3855	µg/L	-1.3855	ppb	06:37:17
1	P 214.914†	939.2	940.9	-9.5033	µg/L	-9.5033	ppb	06:37:17
1	Pb 220.353†	1369.8	1477.3	-5.1076	µg/L	-5.1076	ppb	06:37:17
1	S 181.975 Axial†	46097.1	53145.6	51962	µg/L	51962	ppb	06:37:17
1	Sb 206.836†	151.0	59.3	2.0695	µg/L	2.0695	ppb	06:37:17
1	Se 196.026†	-494.9	-554.1	23.786	µg/L	23.786	ppb	06:37:17
1	SiO2†	2075.2	765.8	71.947	µg/L	71.947	ppb	06:37:17
1	Si 251.611†	638.8	443.7	-72.475	µg/L	-72.475	ppb	06:37:17
1	Sn 189.927†	43.2	28.7	11.592	µg/L	11.592	ppb	06:37:17
1	Ti 334.940†	-7838.7	-8264.5	-0.6637	µg/L	-0.6637	ppb	06:37:17
1	Tl 190.801†	-178.8	-49.3	3.8978	µg/L	3.8978	ppb	06:37:17
1	U 367.007†	75517.0	85880.2	13650	µg/L	13650	ppb	06:37:12
1	V 292.402†	-9256.1	-11120.1	2.3722	µg/L	2.3722	ppb	06:37:17
1	Zn 213.857†	15969.1	17676.0	8.6628	µg/L	8.6628	ppb	06:37:17
2	Sc RADIAL	7563.2	7563.2	89.8	%			06:36:54
2	Al 396.153Radial†	906820.6	1011081.1	498290	µg/L	498290	ppb	06:36:49
2	Ca 317.933Radial†	909329.1	1013031.1	493430	µg/L	493430	ppb	06:36:49
2	Fe 238.204 Radial†	279851.8	311789.2	478300	µg/L	478300	ppb	06:36:49
2	K 766.490 Radial†	550371.7	612799.7	334610	µg/L	334610	ppb	06:36:49
2	Mg 279.077 IEC†	68762.6	76601.5	477720	µg/L	477720	ppb	06:36:54
2	Na 589.592 Radial†	10301.7	11472.8	469740	µg/L	469740	ppb	06:36:54
2	Sr 421.552†	1726.9	1920.2	32.321	µg/L	32.321	ppb	06:36:54
2	Sc 361.383	546512.2	546512.2	87.332	%			06:37:23
2	Y 371.029	601542.8	601542.8	84.719	%			06:37:23
2	Ag 328.068†	-7146.9	-7244.1	36.172	µg/L	36.172	ppb	06:37:23
2	As 188.979†	18.6	-0.8	-24.891	µg/L	-24.891	ppb	06:37:28
2	B 249.677†	-83339.2	-95619.9	11.724	µg/L	11.724	ppb	06:37:23
2	Ba 233.527†	2202.8	2393.1	0.6503	µg/L	0.6503	ppb	06:37:28
2	Be 313.107†	-22331.0	-20127.1	1.6745	µg/L	1.6745	ppb	06:37:28
2	Cd 226.502†	6776.9	8012.9	1.0274	µg/L	1.0274	ppb	06:37:28
2	Co 228.616†	1387.4	1916.2	-2.1535	µg/L	-2.1535	ppb	06:37:28
2	Cr 267.716†	-282.1	-439.9	-4.4157	µg/L	-4.4157	ppb	06:37:28
2	Cu 324.752†	-4997.2	-8215.8	-1.3131	µg/L	-1.3131	ppb	06:37:28
2	Mn 257.610†	-2390.2	-3580.3	5.1802	µg/L	5.1802	ppb	06:37:23
2	Mo 202.031†	-337.4	-369.7	4.7198	µg/L	4.7198	ppb	06:37:28
2	Ni 231.604†	907.3	1215.0	-1.6317	µg/L	-1.6317	ppb	06:37:28
2	P 214.914†	944.7	936.8	-14.211	µg/L	-14.211	ppb	06:37:28

2	Pb 220.353†	1508.4	1620.8	6.4160 µg/L	6.4160 ppb		06:37:28
2	S 181.975 Axial†	46115.6	52657.8	51484 µg/L	51484 ppb		06:37:28
2	Sb 206.836†	101.9	1.5	-10.549 µg/L	-10.549 ppb		06:37:28
2	Se 196.026†	-536.4	-596.1	10.100 µg/L	10.100 ppb		06:37:28
2	SiO2†	1956.7	607.3	57.041 µg/L	57.041 ppb		06:37:28
2	Si 251.611†	686.1	490.8	-71.418 µg/L	-71.418 ppb		06:37:28
2	Sn 189.927†	11.1	-8.5	8.1154 µg/L	8.1154 ppb		06:37:28
2	Ti 334.940†	-7776.4	-8106.7	-0.1392 µg/L	-0.1392 ppb		06:37:28
2	Tl 190.801†	-216.5	-90.5	-2.8686 µg/L	-2.8686 ppb		06:37:28
2	U 367.007†	76055.1	85662.7	13600 µg/L	13600 ppb		06:37:23
2	V 292.402†	-9224.2	-10981.4	3.6599 µg/L	3.6599 ppb		06:37:28
2	Zn 213.857†	15921.0	17444.7	7.0287 µg/L	7.0287 ppb		06:37:28
3	Sc RADIAL	7545.9	7545.9	89.5 %			06:37:05
3	Al 396.153Radial†	914655.0	1022139.3	503740 µg/L	503740 ppb		06:37:00
3	Ca 317.933Radial†	918944.5	1026084.5	499790 µg/L	499790 ppb		06:37:00
3	Fe 238.204 Radial†	283155.2	316190.7	485050 µg/L	485050 ppb		06:37:00
3	K 766.490 Radial†	557781.2	622475.7	339900 µg/L	339900 ppb		06:37:00
3	Mg 279.077 IEC†	68880.1	76907.8	479630 µg/L	479630 ppb		06:37:05
3	Na 589.592 Radial†	10446.9	11661.2	477460 µg/L	477460 ppb		06:37:05
3	Sr 421.552†	1757.6	1958.8	33.092 µg/L	33.092 ppb		06:37:05
3	Sc 361.383	540487.8	540487.8	86.369 %			06:37:34
3	Y 371.029	594335.2	594335.2	83.704 %			06:37:34
3	Ag 328.068†	-7083.1	-7261.5	37.198 µg/L	37.198 ppb		06:37:34
3	As 188.979†	24.7	6.4	-23.062 µg/L	-23.062 ppb		06:37:40
3	B 249.677†	-82440.3	-95642.7	37.722 µg/L	37.722 ppb		06:37:34
3	Ba 233.527†	2192.3	2409.0	0.5590 µg/L	0.5590 ppb		06:37:40
3	Be 313.107†	-22220.0	-20283.6	1.7008 µg/L	1.7008 ppb		06:37:40
3	Cd 226.502†	6669.2	7974.8	0.1255 µg/L	0.1255 ppb		06:37:40
3	Co 228.616†	1377.3	1922.2	-2.5258 µg/L	-2.5258 ppb		06:37:40
3	Cr 267.716†	-226.7	-379.3	-3.6138 µg/L	-3.6138 ppb		06:37:40
3	Cu 324.752†	-4982.5	-8262.5	-1.1398 µg/L	-1.1398 ppb		06:37:40
3	Mn 257.610†	-2462.4	-3694.5	5.3616 µg/L	5.3616 ppb		06:37:34
3	Mo 202.031†	-311.8	-344.5	6.0197 µg/L	6.0197 ppb		06:37:40
3	Ni 231.604†	880.6	1195.8	-2.2951 µg/L	-2.2951 ppb		06:37:40
3	P 214.914†	892.3	888.2	-41.512 µg/L	-41.512 ppb		06:37:40
3	Pb 220.353†	1490.8	1619.7	5.1464 µg/L	5.1464 ppb		06:37:40
3	S 181.975 Axial†	45642.4	52698.4	51523 µg/L	51523 ppb		06:37:40
3	Sb 206.836†	92.5	-8.1	-12.743 µg/L	-12.743 ppb		06:37:40
3	Se 196.026†	-511.1	-573.7	21.396 µg/L	21.396 ppb		06:37:40
3	SiO2†	1998.5	680.7	63.932 µg/L	63.932 ppb		06:37:40
3	Si 251.611†	544.7	335.7	-78.076 µg/L	-78.076 ppb		06:37:40
3	Sn 189.927†	60.7	49.0	13.793 µg/L	13.793 ppb		06:37:40
3	Ti 334.940†	-7807.5	-8241.9	-0.1363 µg/L	-0.1363 ppb		06:37:40
3	Tl 190.801†	-215.5	-92.1	-3.0857 µg/L	-3.0857 ppb		06:37:40
3	U 367.007†	75444.4	85926.2	13620 µg/L	13620 ppb		06:37:34
3	V 292.402†	-9169.5	-11035.8	4.2629 µg/L	4.2629 ppb		06:37:40
3	Zn 213.857†	15801.9	17510.0	6.4378 µg/L	6.4378 ppb		06:37:40

Mean Data: LR1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	542764.4	86.733	%	0.5226				0.60%
Sc RADIAL	7563.2	89.8	%	0.21				0.23%
Y 371.029	597190.9	84.106	%	0.5394				0.64%
Ag 328.068†	-7275.4	36.200	µg/L	0.9841	36.200	ppb	0.9841	2.72%
Al 396.153Radial†	1013199.0	499330	µg/L	3987.98	499330	ppb	3987.98	0.80%
QC value within limits for Al 396.153Radial Recovery = 99.87%								
As 188.979†	0.1	-24.662	µg/L	1.4987	-24.662	ppb	1.4987	6.08%
B 249.677†	-95686.2	15.081	µg/L	21.1630	15.081	ppb	21.1630	140.33%
Ba 233.527†	2375.7	0.5208	µg/L	0.15230	0.5208	ppb	0.15230	29.24%
Be 313.107†	-20219.5	1.6588	µg/L	0.05154	1.6588	ppb	0.05154	3.11%
Ca 317.933Radial†	1015445.2	494610	µg/L	4705.82	494610	ppb	4705.82	0.95%
QC value within limits for Ca 317.933Radial Recovery = 98.92%								
Cd 226.502†	8061.8	1.2057	µg/L	1.17953	1.2057	ppb	1.17953	97.83%
Co 228.616†	1964.0	-1.4567	µg/L	1.54064	-1.4567	ppb	1.54064	105.77%
Cr 267.716†	-405.5	-3.9832	µg/L	0.40465	-3.9832	ppb	0.40465	10.16%
Cu 324.752†	-8230.8	-1.2996	µg/L	0.15353	-1.2996	ppb	0.15353	11.81%
Fe 238.204 Radial†	312563.2	479490	µg/L	5076.40	479490	ppb	5076.40	1.06%
QC value within limits for Fe 238.204 Radial Recovery = 95.90%								
K 766.490 Radial†	614801.5	335710	µg/L	3764.59	335710	ppb	3764.59	1.12%

QC value greater than the upper limit for K 766.490 Radial Recovery = 111.90%

Mg 279.077 IEC†	76720.9	478460 µg/L	1022.34	478460 ppb	1022.34	0.21%	
QC value within limits for Mg 279.077 IEC Recovery = 95.69%							
Mn 257.610†	-3589.7	5.2082 µg/L	0.14139	5.2082 ppb	0.14139	2.71%	
Mo 202.031†	-357.7	5.2556 µg/L	0.67936	5.2556 ppb	0.67936	12.93%	
Na 589.592 Radial†	11519.1	471640 µg/L	5142.49	471640 ppb	5142.49	1.09%	
QC value within limits for Na 589.592 Radial Recovery = 94.33%							
Ni 231.604†	1210.3	-1.7708 µg/L	0.47046	-1.7708 ppb	0.47046	26.57%	
P 214.914†	922.0	-21.742 µg/L	17.2823	-21.742 ppb	17.2823	79.49%	
Pb 220.353†	1572.6	2.1516 µg/L	6.31859	2.1516 ppb	6.31859	293.67%	
S 181.975 Axial†	52833.9	51657 µg/L	265.18	51657 ppb	265.18	0.51%	
QC value within limits for S 181.975 Axial Recovery = 103.31%							
Sb 206.836†	17.6	-7.0739 µg/L	7.99411	-7.0739 ppb	7.99411	113.01%	
Se 196.026†	-574.6	18.427 µg/L	7.3099	18.427 ppb	7.3099	39.67%	
SiO2†	684.6	64.307 µg/L	7.4604	64.307 ppb	7.4604	11.60%	
Si 251.611†	423.4	-73.990 µg/L	3.5779	-73.990 ppb	3.5779	4.84%	
Sn 189.927†	23.1	11.167 µg/L	2.8625	11.167 ppb	2.8625	25.63%	
Sr 421.552†	1940.8	32.807 µg/L	0.4231	32.807 ppb	0.4231	1.29%	
Ti 334.940†	-8204.3	-0.3131 µg/L	0.30367	-0.3131 ppb	0.30367	96.99%	
Tl 190.801†	-77.3	-0.6855 µg/L	3.97072	-0.6855 ppb	3.97072	579.22%	
U 367.007†	85823.0	13620 µg/L	27.31	13620 ppb	27.31	0.20%	
QC value within limits for U 367.007 Recovery = 90.82%							
V 292.402†	-11045.8	3.4317 µg/L	0.96576	3.4317 ppb	0.96576	28.14%	
Zn 213.857†	17543.6	7.3764 µg/L	1.15254	7.3764 ppb	1.15254	15.62%	

QC Failed. Continue with analysis.

Sequence No.: 12 **Autosampler Location: 108**
Sample ID: LR2 **Date Collected: 11/16/2016 06:37:48**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: LR2

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8433.0	8433.0	100	%			06:38:23
1	Al 396.153Radial†	532.7	1268.6	277.79	µg/L	277.79	ppb	06:38:23
1	Ca 317.933Radial†	520.9	411.9	200.62	µg/L	200.62	ppb	06:38:43
1	Fe 238.204 Radial†	46.2	35.2	53.965	µg/L	53.965	ppb	06:38:43
1	K 766.490 Radial†	663.0	259.1	72.414	µg/L	72.414	ppb	06:38:23
1	Mg 279.077 IEC†	8.0	-3.2	-19.913	µg/L	-19.913	ppb	06:38:43
1	Na 589.592 Radial†	9.2	4.3	174.16	µg/L	174.16	ppb	06:38:43
1	Sr 421.552†	383873.4	383579.3	9784.3	µg/L	9784.3	ppb	06:38:18
1	Sc 361.383	626977.5	626977.5	100.19	%			06:40:01
1	Y 371.029	708668.7	708668.7	99.806	%			06:40:01
1	Ag 328.068†	-4190.6	-3243.2	-1.7473	µg/L	-1.7473	ppb	06:40:06
1	As 188.979†	32015.6	31932.6	9742.3	µg/L	9742.3	ppb	06:40:06
1	B 249.677†	259481.7	258796.5	4991.8	µg/L	4991.8	ppb	06:40:01
1	Ba 233.527†	2578988.4	2573957.1	14491	µg/L	14491	ppb	06:40:01
1	Be 313.107†	7253049.7	7244706.8	2908.1	µg/L	2908.1	ppb	06:39:54
1	Cd 226.502†	1610139.6	1607332.2	9740.1	µg/L	9740.1	ppb	06:40:01
1	Co 228.616†	611677.3	610842.2	9948.8	µg/L	9948.8	ppb	06:40:01
1	Cr 267.716†	1948399.3	1944579.1	24407	µg/L	24407	ppb	06:40:01
1	Cu 324.752†	4951988.8	4940082.7	20602	µg/L	20602	ppb	06:39:54
1	Mn 257.610†	9758318.9	9738927.5	9601.3	µg/L	9601.3	ppb	06:39:54
1	Mo 202.031†	237418.5	236983.9	9591.8	µg/L	9591.8	ppb	06:40:06
1	Ni 231.604†	570625.8	569717.3	10022	µg/L	10022	ppb	06:40:01
1	P 214.914†	33572.4	33363.7	14235	µg/L	14235	ppb	06:40:06
1	Pb 220.353†	301707.5	301027.6	25117	µg/L	25117	ppb	06:40:06
1	S 181.975 Axial†	128.8	-18.5	69.377	µg/L	69.377	ppb	06:40:26
1	Sb 206.836†	46317.1	46113.9	9611.1	µg/L	9611.1	ppb	06:40:06
1	Se 196.026†	26642.7	26610.2	9637.5	µg/L	9637.5	ppb	06:40:06
1	SiO2†	1025181.2	1021599.3	96448	µg/L	96448	ppb	06:40:01
1	Si 251.611†	1295911.3	1293153.3	44768	µg/L	44768	ppb	06:40:01
1	Sn 189.927†	101669.0	101454.5	9752.0	µg/L	9752.0	ppb	06:40:06
1	Ti 334.940†	4266028.2	4258717.4	9626.2	µg/L	9626.2	ppb	06:39:54
1	Tl 190.801†	61449.6	61490.2	10091	µg/L	10091	ppb	06:40:06
1	U 367.007†	1253.6	-173.3	-32.05	µg/L	-32.05	ppb	06:40:06
1	V 292.402†	1527046.1	1523724.4	9891.3	µg/L	9891.3	ppb	06:40:01
1	Zn 213.857†	2632012.6	2626224.1	14222	µg/L	14222	ppb	06:40:01
2	Sc RADIAL	8419.0	8419.0	99.9	%			06:38:53
2	Al 396.153Radial†	455.0	1191.8	239.99	µg/L	239.99	ppb	06:38:53
2	Ca 317.933Radial†	481.1	372.9	181.64	µg/L	181.64	ppb	06:39:14
2	Fe 238.204 Radial†	27.7	16.8	25.714	µg/L	25.714	ppb	06:39:14
2	K 766.490 Radial†	622.5	219.7	50.711	µg/L	50.711	ppb	06:38:53
2	Mg 279.077 IEC†	17.3	6.1	38.299	µg/L	38.299	ppb	06:39:14
2	Na 589.592 Radial†	8.0	3.0	124.70	µg/L	124.70	ppb	06:39:14
2	Sr 421.552†	386281.1	386623.3	9861.9	µg/L	9861.9	ppb	06:38:48
2	Sc 361.383	627408.5	627408.5	100.26	%			06:40:41
2	Y 371.029	708885.5	708885.5	99.837	%			06:40:41
2	Ag 328.068†	-4156.2	-3206.0	-1.5461	µg/L	-1.5461	ppb	06:40:46
2	As 188.979†	31970.8	31866.0	9722.5	µg/L	9722.5	ppb	06:40:46
2	B 249.677†	260761.6	259895.1	5012.8	µg/L	5012.8	ppb	06:40:41
2	Ba 233.527†	2587721.7	2580899.5	14530	µg/L	14530	ppb	06:40:41
2	Be 313.107†	7258104.2	7244774.9	2908.1	µg/L	2908.1	ppb	06:40:34
2	Cd 226.502†	1617956.0	1614024.4	9780.7	µg/L	9780.7	ppb	06:40:41
2	Co 228.616†	614877.1	613614.3	9993.9	µg/L	9993.9	ppb	06:40:41
2	Cr 267.716†	1955895.6	1950720.1	24484	µg/L	24484	ppb	06:40:41
2	Cu 324.752†	4955379.0	4940068.7	20602	µg/L	20602	ppb	06:40:34
2	Mn 257.610†	9757588.1	9731507.6	9594.0	µg/L	9594.0	ppb	06:40:34
2	Mo 202.031†	237539.0	236941.2	9590.1	µg/L	9590.1	ppb	06:40:46
2	Ni 231.604†	573450.2	572143.2	10064	µg/L	10064	ppb	06:40:41
2	P 214.914†	33435.4	33204.0	14165	µg/L	14165	ppb	06:40:46

2	Pb 220.353†	301781.0	300894.2	25106 µg/L	25106 ppb	06:40:46
2	S 181.975 Axial†	121.7	-25.7	62.310 µg/L	62.310 ppb	06:41:06
2	Sb 206.836†	46241.9	46007.0	9585.9 µg/L	9585.9 ppb	06:40:46
2	Se 196.026†	26632.4	26581.7	9627.1 µg/L	9627.1 ppb	06:40:46
2	SiO2†	1030828.2	1026528.8	96913 µg/L	96913 ppb	06:40:41
2	Si 251.611†	1302874.0	1299209.3	44978 µg/L	44978 ppb	06:40:41
2	Sn 189.927†	101593.2	101309.2	9738.1 µg/L	9738.1 ppb	06:40:46
2	Ti 334.940†	4267827.6	4257587.0	9623.6 µg/L	9623.6 ppb	06:40:34
2	Tl 190.801†	61499.3	61497.6	10092 µg/L	10092 ppb	06:40:46
2	U 367.007†	1405.8	-22.3	-4.247 µg/L	-4.247 ppb	06:40:46
2	V 292.402†	1531620.9	1527240.4	9914.0 µg/L	9914.0 ppb	06:40:41
2	Zn 213.857†	2644921.8	2637295.2	14282 µg/L	14282 ppb	06:40:41
3	Sc RADIAL	8354.6	8354.6	99.1 %		06:39:24
3	Al 396.153Radial†	319.7	1058.8	205.10 µg/L	205.10 ppb	06:39:24
3	Ca 317.933Radial†	377.4	272.1	132.53 µg/L	132.53 ppb	06:39:44
3	Fe 238.204 Radial†	0.4	-10.6	-16.236 µg/L	-16.236 ppb	06:39:44
3	K 766.490 Radial†	426.0	26.4	-51.664 µg/L	-51.664 ppb	06:39:24
3	Mg 279.077 IEC†	4.2	-7.0	-43.504 µg/L	-43.504 ppb	06:39:44
3	Na 589.592 Radial†	9.3	4.4	179.75 µg/L	179.75 ppb	06:39:44
3	Sr 421.552†	388253.0	391594.3	9988.7 µg/L	9988.7 ppb	06:39:19
3	Sc 361.383	624259.2	624259.2	99.756 %		06:41:21
3	Y 371.029	705351.2	705351.2	99.339 %		06:41:21
3	Ag 328.068†	-3806.0	-2875.8	-0.7999 µg/L	-0.7999 ppb	06:41:27
3	As 188.979†	29513.8	29563.8	9018.4 µg/L	9018.4 ppb	06:41:27
3	B 249.677†	252313.3	252738.3	4876.1 µg/L	4876.1 ppb	06:41:21
3	Ba 233.527†	2457904.3	2463785.8	13871 µg/L	13871 ppb	06:41:21
3	Be 313.107†	7050583.0	7073268.4	2839.0 µg/L	2839.0 ppb	06:41:14
3	Cd 226.502†	1528078.3	1532068.3	9283.9 µg/L	9283.9 ppb	06:41:21
3	Co 228.616†	575319.2	577053.7	9397.7 µg/L	9397.7 ppb	06:41:21
3	Cr 267.716†	1789402.5	1793661.7	22512 µg/L	22512 ppb	06:41:21
3	Cu 324.752†	4808876.7	4818143.2	20094 µg/L	20094 ppb	06:41:14
3	Mn 257.610†	9481228.9	9503571.9	9369.2 µg/L	9369.2 ppb	06:41:14
3	Mo 202.031†	215494.2	216037.8	8744.0 µg/L	8744.0 ppb	06:41:27
3	Ni 231.604†	537229.7	538719.7	9476.3 µg/L	9476.3 ppb	06:41:21
3	P 214.914†	30838.2	30768.7	13119 µg/L	13119 ppb	06:41:27
3	Pb 220.353†	282157.4	282741.0	23591 µg/L	23591 ppb	06:41:27
3	S 181.975 Axial†	136.1	-10.6	72.031 µg/L	72.031 ppb	06:41:47
3	Sb 206.836†	43021.5	43011.5	8967.9 µg/L	8967.9 ppb	06:41:27
3	Se 196.026†	25114.7	25194.2	9124.6 µg/L	9124.6 ppb	06:41:27
3	SiO2†	988109.4	988892.6	93345 µg/L	93345 ppb	06:41:21
3	Si 251.611†	1247845.2	1250601.9	43302 µg/L	43302 ppb	06:41:21
3	Sn 189.927†	91453.6	91656.0	8812.6 µg/L	8812.6 ppb	06:41:27
3	Ti 334.940†	4145296.4	4156231.5	9395.0 µg/L	9395.0 ppb	06:41:14
3	Tl 190.801†	59840.0	60143.7	9873.5 µg/L	9873.5 ppb	06:41:27
3	U 367.007†	1361.8	-59.4	-10.86 µg/L	-10.86 ppb	06:41:27
3	V 292.402†	1429106.1	1432181.7	9293.4 µg/L	9293.4 ppb	06:41:21
3	Zn 213.857†	2486654.2	2491949.6	13494 µg/L	13494 ppb	06:41:21

Mean Data: LR2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	626215.1	100.07	%	0.273				0.27%
Sc RADIAL	8402.2	99.7	%	0.50				0.50%
Y 371.029	707635.2	99.661	%	0.2790				0.28%
Ag 328.068†	-3108.3	-1.3645	µg/L	0.49915	-1.3645	ppb	0.49915	36.58%
Al 396.153Radial†	1173.1	240.96	µg/L	36.353	240.96	ppb	36.353	15.09%
As 188.979†	31120.8	9494.4	µg/L	412.33	9494.4	ppb	412.33	4.34%
QC value within limits for As 188.979 Recovery = 94.94%								
B 249.677†	257143.3	4960.2	µg/L	73.62	4960.2	ppb	73.62	1.48%
QC value within limits for B 249.677 Recovery = 99.20%								
Ba 233.527†	2539547.5	14297	µg/L	369.90	14297	ppb	369.90	2.59%
QC value within limits for Ba 233.527 Recovery = 95.32%								
Be 313.107†	7187583.3	2885.1	µg/L	39.89	2885.1	ppb	39.89	1.38%
QC value within limits for Be 313.107 Recovery = 96.17%								
Ca 317.933Radial†	352.3	171.59	µg/L	35.139	171.59	ppb	35.139	20.48%
Cd 226.502†	1584475.0	9601.6	µg/L	275.82	9601.6	ppb	275.82	2.87%
QC value within limits for Cd 226.502 Recovery = 96.02%								
Co 228.616†	600503.4	9780.1	µg/L	331.98	9780.1	ppb	331.98	3.39%
QC value within limits for Co 228.616 Recovery = 97.80%								
Cr 267.716†	1896320.3	23801	µg/L	1116.59	23801	ppb	1116.59	4.69%

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   QC value within limits for Cr 267.716  Recovery = 95.20%
Cu 324.752†          4899431.5       20432 µg/L        293.40       20432 ppb         293.40   1.44%
   QC value within limits for Cu 324.752  Recovery = 102.16%
Fe 238.204 Radial†        13.8      21.148 µg/L       35.3223      21.148 ppb        35.3223 167.03%
K 766.490 Radial†        168.4      23.820 µg/L       66.2656      23.820 ppb        66.2656 278.19%
Mg 279.077 IEC†           -1.3     -8.3725 µg/L      42.10496     -8.3725 ppb       42.10496 502.90%
Mn 257.610†          9658002.4      9521.5 µg/L        131.90      9521.5 ppb         131.90   1.39%
   QC value within limits for Mn 257.610  Recovery = 95.21%
Mo 202.031†           229987.6      9308.7 µg/L        488.97      9308.7 ppb         488.97   5.25%
   QC value within limits for Mo 202.031  Recovery = 93.09%
Na 589.592 Radial†         3.9      159.54 µg/L        30.297      159.54 ppb         30.297  18.99%
Ni 231.604†           560193.4      9854.1 µg/L        327.82      9854.1 ppb         327.82   3.33%
   QC value within limits for Ni 231.604  Recovery = 98.54%
P 214.914†             32445.5       13840 µg/L        625.30       13840 ppb         625.30   4.52%
   QC value within limits for P 214.914  Recovery = 92.26%
Pb 220.353†           294887.6       24604 µg/L        877.60       24604 ppb         877.60   3.57%
   QC value within limits for Pb 220.353  Recovery = 98.42%
S 181.975 Axial†          -18.3      67.906 µg/L        5.0244      67.906 ppb         5.0244   7.40%
Sb 206.836†            45044.1      9388.3 µg/L        364.31      9388.3 ppb         364.31   3.88%
   QC value within limits for Sb 206.836  Recovery = 93.88%
Se 196.026†            26128.7      9463.1 µg/L        293.17      9463.1 ppb         293.17   3.10%
   QC value within limits for Se 196.026  Recovery = 94.63%
SiO2†                1012340.2       95569 µg/L       1939.69       95569 ppb        1939.69   2.03%
   QC value less than the lower limit for SiO2  Recovery = 89.32%
Si 251.611†          1280988.2       44349 µg/L        912.92       44349 ppb         912.92   2.06%
   QC value less than the lower limit for Si 251.611  Recovery = 88.70%
Sn 189.927†            98139.9      9434.3 µg/L        538.38      9434.3 ppb         538.38   5.71%
   QC value within limits for Sn 189.927  Recovery = 94.34%
Sr 421.552†           387265.7      9878.3 µg/L        103.20      9878.3 ppb         103.20   1.04%
   QC value within limits for Sr 421.552  Recovery = 98.78%
Ti 334.940†          4224178.6      9548.3 µg/L        132.76      9548.3 ppb         132.76   1.39%
   QC value within limits for Ti 334.940  Recovery = 95.48%
Tl 190.801†            61043.8       10019 µg/L        126.11       10019 ppb         126.11   1.26%
   QC value within limits for Tl 190.801  Recovery = 100.19%
U 367.007†               -85.0      -15.72 µg/L        14.525      -15.72 ppb         14.525  92.40%
V 292.402†           1494382.2      9699.6 µg/L        351.95      9699.6 ppb         351.95   3.63%
   QC value within limits for V 292.402  Recovery = 97.00%
Zn 213.857†          2585156.3       13999 µg/L        438.37       13999 ppb         438.37   3.13%
   QC value within limits for Zn 213.857  Recovery = 93.33%
QC Failed.  Continue with analysis.
```

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/16/2016 06:41:55**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8205.0	8205.0	97.4	%			06:42:46
1	Al 396.153Radial†	9334.8	10323.2	5069.8	µg/L	5069.8	ppb	06:42:26
1	Ca 317.933Radial†	10214.2	10381.4	5056.6	µg/L	5056.6	ppb	06:42:46
1	Fe 238.204 Radial†	3262.7	3339.7	5123.4	µg/L	5123.4	ppb	06:42:46
1	K 766.490 Radial†	9324.9	9173.3	5005.0	µg/L	5005.0	ppb	06:42:26
1	Mg 279.077 IEC†	807.4	818.0	5101.6	µg/L	5101.6	ppb	06:42:46
1	Na 589.592 Radial†	225.6	226.7	9282.0	µg/L	9282.0	ppb	06:42:46
1	Sr 421.552†	18977.3	19485.9	496.87	µg/L	496.87	ppb	06:42:26
1	Sc 361.383	620442.5	620442.5	99.146	%			06:43:45
1	Y 371.029	696685.5	696685.5	98.119	%			06:43:45
1	Ag 328.068†	95674.0	97437.4	488.76	µg/L	488.76	ppb	06:43:45
1	As 188.979†	1637.7	1629.7	494.36	µg/L	494.36	ppb	06:44:05
1	B 249.677†	25341.2	25367.4	511.61	µg/L	511.61	ppb	06:43:45
1	Ba 233.527†	86434.4	87049.5	489.94	µg/L	489.94	ppb	06:43:45
1	Be 313.107†	1197150.5	1212903.6	486.33	µg/L	486.33	ppb	06:43:45
1	Cd 226.502†	79923.0	80864.4	489.50	µg/L	489.50	ppb	06:43:45
1	Co 228.616†	29069.9	29647.7	482.55	µg/L	482.55	ppb	06:44:05
1	Cr 267.716†	38594.6	38810.1	486.95	µg/L	486.95	ppb	06:43:45
1	Cu 324.752†	118523.1	117050.1	488.52	µg/L	488.52	ppb	06:43:45
1	Mn 257.610†	491194.0	494580.7	487.68	µg/L	487.68	ppb	06:43:45
1	Mo 202.031†	12015.3	12135.4	491.38	µg/L	491.38	ppb	06:44:05
1	Ni 231.604†	27022.9	27431.8	482.29	µg/L	482.29	ppb	06:44:05
1	P 214.914†	5671.0	5575.0	2411.9	µg/L	2411.9	ppb	06:44:05
1	Pb 220.353†	5991.5	5936.7	494.41	µg/L	494.41	ppb	06:44:05
1	S 181.975 Axial†	1150.2	1013.1	995.40	µg/L	995.40	ppb	06:44:05
1	Sb 206.836†	2336.5	2241.4	484.76	µg/L	484.76	ppb	06:44:05
1	Se 196.026†	1338.7	1368.3	497.99	µg/L	497.99	ppb	06:44:05
1	SiO2†	56748.9	55604.4	5236.2	µg/L	5236.2	ppb	06:43:45
1	Si 251.611†	69949.2	70256.8	2431.7	µg/L	2431.7	ppb	06:43:45
1	Sn 189.927†	5107.7	5130.4	493.26	µg/L	493.26	ppb	06:44:05
1	Ti 334.940†	214451.8	217096.5	491.01	µg/L	491.01	ppb	06:43:45
1	Tl 190.801†	2782.4	2963.7	487.21	µg/L	487.21	ppb	06:44:05
1	U 367.007†	3929.2	2538.5	442.9	µg/L	442.9	ppb	06:43:45
1	V 292.402†	75185.3	75413.6	489.34	µg/L	489.34	ppb	06:43:45
1	Zn 213.857†	90090.3	90080.5	486.17	µg/L	486.17	ppb	06:43:45
2	Sc RADIAL	8184.9	8184.9	97.1	%			06:43:11
2	Al 396.153Radial†	9314.3	10325.7	5070.9	µg/L	5070.9	ppb	06:42:51
2	Ca 317.933Radial†	10187.8	10380.0	5055.9	µg/L	5055.9	ppb	06:43:11
2	Fe 238.204 Radial†	3268.2	3353.7	5144.8	µg/L	5144.8	ppb	06:43:11
2	K 766.490 Radial†	9435.2	9310.5	5079.8	µg/L	5079.8	ppb	06:42:51
2	Mg 279.077 IEC†	810.1	822.8	5131.5	µg/L	5131.5	ppb	06:43:11
2	Na 589.592 Radial†	233.5	235.4	9638.6	µg/L	9638.6	ppb	06:43:11
2	Sr 421.552†	18943.0	19498.5	497.19	µg/L	497.19	ppb	06:42:51
2	Sc 361.383	618787.2	618787.2	98.882	%			06:44:12
2	Y 371.029	695091.7	695091.7	97.894	%			06:44:12
2	Ag 328.068†	95600.5	97621.2	489.68	µg/L	489.68	ppb	06:44:12
2	As 188.979†	1641.5	1638.0	496.85	µg/L	496.85	ppb	06:44:33
2	B 249.677†	25158.9	25251.4	509.42	µg/L	509.42	ppb	06:44:12
2	Ba 233.527†	86001.0	86844.4	488.78	µg/L	488.78	ppb	06:44:12
2	Be 313.107†	1193859.3	1212805.2	486.29	µg/L	486.29	ppb	06:44:12
2	Cd 226.502†	79668.4	80822.6	489.25	µg/L	489.25	ppb	06:44:12
2	Co 228.616†	29146.3	29803.5	485.09	µg/L	485.09	ppb	06:44:33
2	Cr 267.716†	38497.4	38816.0	487.02	µg/L	487.02	ppb	06:44:12
2	Cu 324.752†	118183.9	117026.9	488.42	µg/L	488.42	ppb	06:44:12
2	Mn 257.610†	489576.0	494269.8	487.38	µg/L	487.38	ppb	06:44:12
2	Mo 202.031†	12020.5	12173.1	492.91	µg/L	492.91	ppb	06:44:33
2	Ni 231.604†	27056.6	27538.7	484.17	µg/L	484.17	ppb	06:44:33
2	P 214.914†	5691.4	5610.9	2427.5	µg/L	2427.5	ppb	06:44:33

2	Pb 220.353†	5968.2	5929.3	493.80 µg/L	493.80 ppb	06:44:33
2	S 181.975 Axial†	1143.4	1009.3	991.71 µg/L	991.71 ppb	06:44:33
2	Sb 206.836†	2336.9	2248.1	486.25 µg/L	486.25 ppb	06:44:33
2	Se 196.026†	1331.6	1364.7	496.70 µg/L	496.70 ppb	06:44:33
2	SiO2†	56099.9	55101.2	5188.9 µg/L	5188.9 ppb	06:44:12
2	Si 251.611†	69345.3	69834.8	2417.0 µg/L	2417.0 ppb	06:44:12
2	Sn 189.927†	5086.3	5122.6	492.50 µg/L	492.50 ppb	06:44:33
2	Ti 334.940†	213397.0	216608.4	489.90 µg/L	489.90 ppb	06:44:12
2	Tl 190.801†	2793.1	2982.1	490.20 µg/L	490.20 ppb	06:44:33
2	U 367.007†	3914.1	2533.9	442.0 µg/L	442.0 ppb	06:44:12
2	V 292.402†	74964.1	75392.8	489.22 µg/L	489.22 ppb	06:44:12
2	Zn 213.857†	89694.7	89923.4	485.29 µg/L	485.29 ppb	06:44:12
3	Sc RADIAL	8186.1	8186.1	97.1 %		06:43:36
3	Al 396.153Radial†	9351.8	10362.9	5089.4 µg/L	5089.4 ppb	06:43:16
3	Ca 317.933Radial†	10186.5	10377.2	5054.6 µg/L	5054.6 ppb	06:43:36
3	Fe 238.204 Radial†	3268.4	3353.4	5144.3 µg/L	5144.3 ppb	06:43:36
3	K 766.490 Radial†	9401.4	9274.3	5060.1 µg/L	5060.1 ppb	06:43:16
3	Mg 279.077 IEC†	813.7	826.4	5154.0 µg/L	5154.0 ppb	06:43:36
3	Na 589.592 Radial†	225.2	226.9	9289.6 µg/L	9289.6 ppb	06:43:36
3	Sr 421.552†	18961.5	19514.7	497.61 µg/L	497.61 ppb	06:43:16
3	Sc 361.383	622349.4	622349.4	99.451 %		06:44:40
3	Y 371.029	698823.7	698823.7	98.420 %		06:44:40
3	Ag 328.068†	95848.3	97317.0	488.15 µg/L	488.15 ppb	06:44:40
3	As 188.979†	1633.5	1620.4	491.55 µg/L	491.55 ppb	06:45:00
3	B 249.677†	25224.2	25171.4	507.88 µg/L	507.88 ppb	06:44:40
3	Ba 233.527†	86513.2	86861.7	488.88 µg/L	488.88 ppb	06:44:40
3	Be 313.107†	1201529.7	1213607.3	486.62 µg/L	486.62 ppb	06:44:40
3	Cd 226.502†	80309.1	81005.6	490.35 µg/L	490.35 ppb	06:44:40
3	Co 228.616†	29113.5	29601.8	481.80 µg/L	481.80 ppb	06:45:00
3	Cr 267.716†	38723.0	38820.0	487.06 µg/L	487.06 ppb	06:44:40
3	Cu 324.752†	118411.9	116572.0	486.53 µg/L	486.53 ppb	06:44:40
3	Mn 257.610†	492364.3	494239.6	487.35 µg/L	487.35 ppb	06:44:40
3	Mo 202.031†	12020.9	12103.9	490.11 µg/L	490.11 ppb	06:45:00
3	Ni 231.604†	27044.3	27369.8	481.20 µg/L	481.20 ppb	06:45:00
3	P 214.914†	5709.2	5595.9	2421.0 µg/L	2421.0 ppb	06:45:00
3	Pb 220.353†	5995.2	5921.9	493.16 µg/L	493.16 ppb	06:45:00
3	S 181.975 Axial†	1154.5	1013.9	996.17 µg/L	996.17 ppb	06:45:00
3	Sb 206.836†	2352.6	2250.4	486.71 µg/L	486.71 ppb	06:45:00
3	Se 196.026†	1336.5	1362.0	495.71 µg/L	495.71 ppb	06:45:00
3	SiO2†	56441.4	55119.8	5190.6 µg/L	5190.6 ppb	06:44:40
3	Si 251.611†	69644.3	69733.9	2413.5 µg/L	2413.5 ppb	06:44:40
3	Sn 189.927†	5128.3	5135.4	493.73 µg/L	493.73 ppb	06:45:00
3	Ti 334.940†	214618.9	216601.7	489.88 µg/L	489.88 ppb	06:44:40
3	Tl 190.801†	2834.2	3007.2	494.34 µg/L	494.34 ppb	06:45:00
3	U 367.007†	4048.4	2646.2	462.6 µg/L	462.6 ppb	06:44:40
3	V 292.402†	75400.2	75397.3	489.23 µg/L	489.23 ppb	06:44:40
3	Zn 213.857†	90266.6	89979.3	485.62 µg/L	485.62 ppb	06:44:40

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	620526.3	99.160	%	0.2849				0.29%
Sc RADIAL	8192.0	97.2	%	0.13				0.14%
Y 371.029	696867.0	98.144	%	0.2637				0.27%
Ag 328.068†	97458.5	488.86	µg/L	0.771	488.86	ppb	0.771	0.16%
QC value within limits for Ag 328.068 Recovery = 97.77%								
Al 396.153Radial†	10337.3	5076.7	µg/L	11.00	5076.7	ppb	11.00	0.22%
QC value within limits for Al 396.153Radial Recovery = 101.53%								
As 188.979†	1629.3	494.26	µg/L	2.651	494.26	ppb	2.651	0.54%
QC value within limits for As 188.979 Recovery = 98.85%								
B 249.677†	25263.4	509.63	µg/L	1.874	509.63	ppb	1.874	0.37%
QC value within limits for B 249.677 Recovery = 101.93%								
Ba 233.527†	86918.5	489.20	µg/L	0.641	489.20	ppb	0.641	0.13%
QC value within limits for Ba 233.527 Recovery = 97.84%								
Be 313.107†	1213105.3	486.41	µg/L	0.178	486.41	ppb	0.178	0.04%
QC value within limits for Be 313.107 Recovery = 97.28%								
Ca 317.933Radial†	10379.6	5055.7	µg/L	1.04	5055.7	ppb	1.04	0.02%
QC value within limits for Ca 317.933Radial Recovery = 101.11%								
Cd 226.502†	80897.5	489.70	µg/L	0.580	489.70	ppb	0.580	0.12%
QC value within limits for Cd 226.502 Recovery = 97.94%								

Co 228.616†	29684.3	483.15 µg/L	1.724	483.15 ppb	1.724	0.36%
QC value within limits for Co 228.616 Recovery = 96.63%						
Cr 267.716†	38815.4	487.01 µg/L	0.057	487.01 ppb	0.057	0.01%
QC value within limits for Cr 267.716 Recovery = 97.40%						
Cu 324.752†	116883.0	487.82 µg/L	1.117	487.82 ppb	1.117	0.23%
QC value within limits for Cu 324.752 Recovery = 97.56%						
Fe 238.204 Radial†	3348.9	5137.5 µg/L	12.23	5137.5 ppb	12.23	0.24%
QC value within limits for Fe 238.204 Radial Recovery = 102.75%						
K 766.490 Radial†	9252.7	5048.3 µg/L	38.77	5048.3 ppb	38.77	0.77%
QC value within limits for K 766.490 Radial Recovery = 100.97%						
Mg 279.077 IEC†	822.4	5129.0 µg/L	26.30	5129.0 ppb	26.30	0.51%
QC value within limits for Mg 279.077 IEC Recovery = 102.58%						
Mn 257.610†	494363.4	487.47 µg/L	0.186	487.47 ppb	0.186	0.04%
QC value within limits for Mn 257.610 Recovery = 97.49%						
Mo 202.031†	12137.4	491.47 µg/L	1.403	491.47 ppb	1.403	0.29%
QC value within limits for Mo 202.031 Recovery = 98.29%						
Na 589.592 Radial†	229.7	9403.4 µg/L	203.73	9403.4 ppb	203.73	2.17%
QC value within limits for Na 589.592 Radial Recovery = 94.03%						
Ni 231.604†	27446.8	482.55 µg/L	1.503	482.55 ppb	1.503	0.31%
QC value within limits for Ni 231.604 Recovery = 96.51%						
P 214.914†	5593.9	2420.2 µg/L	7.83	2420.2 ppb	7.83	0.32%
QC value within limits for P 214.914 Recovery = 96.81%						
Pb 220.353†	5929.3	493.79 µg/L	0.627	493.79 ppb	0.627	0.13%
QC value within limits for Pb 220.353 Recovery = 98.76%						
S 181.975 Axial†	1012.1	994.43 µg/L	2.380	994.43 ppb	2.380	0.24%
QC value within limits for S 181.975 Axial Recovery = 99.44%						
Sb 206.836†	2246.6	485.91 µg/L	1.015	485.91 ppb	1.015	0.21%
QC value within limits for Sb 206.836 Recovery = 97.18%						
Se 196.026†	1365.0	496.80 µg/L	1.146	496.80 ppb	1.146	0.23%
QC value within limits for Se 196.026 Recovery = 99.36%						
SiO2†	55275.1	5205.2 µg/L	26.83	5205.2 ppb	26.83	0.52%
QC value within limits for SiO2 Recovery = 97.34%						
Si 251.611†	69941.8	2420.8 µg/L	9.63	2420.8 ppb	9.63	0.40%
QC value within limits for Si 251.611 Recovery = 96.83%						
Sn 189.927†	5129.5	493.17 µg/L	0.619	493.17 ppb	0.619	0.13%
QC value within limits for Sn 189.927 Recovery = 98.63%						
Sr 421.552†	19499.7	497.22 µg/L	0.369	497.22 ppb	0.369	0.07%
QC value within limits for Sr 421.552 Recovery = 99.44%						
Ti 334.940†	216768.8	490.26 µg/L	0.645	490.26 ppb	0.645	0.13%
QC value within limits for Ti 334.940 Recovery = 98.05%						
Tl 190.801†	2984.3	490.58 µg/L	3.582	490.58 ppb	3.582	0.73%
QC value within limits for Tl 190.801 Recovery = 98.12%						
U 367.007†	2572.9	449.2 µg/L	11.63	449.2 ppb	11.63	2.59%
QC value less than the lower limit for U 367.007 Recovery = 89.83%						
V 292.402†	75401.2	489.26 µg/L	0.063	489.26 ppb	0.063	0.01%
QC value within limits for V 292.402 Recovery = 97.85%						
Zn 213.857†	89994.4	485.69 µg/L	0.441	485.69 ppb	0.441	0.09%
QC value within limits for Zn 213.857 Recovery = 97.14%						

QC Failed. Continue with analysis.

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/16/2016 06:45:09**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8319.4	8319.4	98.7	%			06:45:37
1	Al 396.153Radial†	-733.5	-6.6	-3.3198	µg/L	-3.3198	ppb	06:45:37
1	Ca 317.933Radial†	113.8	6.6	3.2282	µg/L	3.2282	ppb	06:45:57
1	Fe 238.204 Radial†	14.4	3.5	5.4382	µg/L	5.4382	ppb	06:45:57
1	K 766.490 Radial†	404.6	6.5	3.5426	µg/L	3.5426	ppb	06:45:37
1	Mg 279.077 IEC†	11.6	0.5	3.3266	µg/L	3.3266	ppb	06:45:57
1	Na 589.592 Radial†	4.4	-0.5	-22.003	µg/L	-22.003	ppb	06:45:57
1	Sr 421.552†	43.3	40.0	1.0201	µg/L	1.0201	ppb	06:45:37
1	Sc 361.383	614230.1	614230.1	98.153	%			06:46:55
1	Y 371.029	696739.8	696739.8	98.126	%			06:46:55
1	Ag 328.068†	-718.6	207.3	1.0354	µg/L	1.0354	ppb	06:46:55
1	As 188.979†	21.8	0.1	0.0283	µg/L	0.0283	ppb	06:47:15
1	B 249.677†	446.9	263.3	5.1468	µg/L	5.1468	ppb	06:47:15
1	Ba 233.527†	160.3	34.0	0.1913	µg/L	0.1913	ppb	06:47:15
1	Be 313.107†	-5152.7	193.4	0.0792	µg/L	0.0792	ppb	06:46:55
1	Cd 226.502†	-127.4	123.3	0.7466	µg/L	0.7466	ppb	06:47:15
1	Co 228.616†	-332.0	-10.7	-0.1742	µg/L	-0.1742	ppb	06:47:15
1	Cr 267.716†	174.9	61.4	0.7665	µg/L	0.7665	ppb	06:47:15
1	Cu 324.752†	2430.9	-17.1	-0.0683	µg/L	-0.0683	ppb	06:46:55
1	Mn 257.610†	976.2	151.1	0.1491	µg/L	0.1491	ppb	06:47:15
1	Mo 202.031†	15.2	32.0	1.2971	µg/L	1.2971	ppb	06:47:15
1	Ni 231.604†	-153.9	19.3	0.3398	µg/L	0.3398	ppb	06:47:15
1	P 214.914†	134.1	-8.3	-3.6309	µg/L	-3.6309	ppb	06:47:15
1	Pb 220.353†	103.0	-1.4	-0.1230	µg/L	-0.1230	ppb	06:47:15
1	S 181.975 Axial†	163.9	19.9	19.521	µg/L	19.521	ppb	06:47:15
1	Sb 206.836†	124.3	11.4	2.4731	µg/L	2.4731	ppb	06:47:15
1	Se 196.026†	-7.7	10.2	3.7063	µg/L	3.7063	ppb	06:47:15
1	SiO2†	1647.2	44.9	4.2396	µg/L	4.2396	ppb	06:46:55
1	Si 251.611†	379.5	91.8	3.1701	µg/L	3.1701	ppb	06:47:15
1	Sn 189.927†	19.1	-1.8	-0.1719	µg/L	-0.1719	ppb	06:47:15
1	Ti 334.940†	-591.5	195.2	0.4383	µg/L	0.4383	ppb	06:46:55
1	Tl 190.801†	-147.0	7.7	1.2620	µg/L	1.2620	ppb	06:47:15
1	U 367.007†	1432.6	35.0	6.401	µg/L	6.401	ppb	06:46:55
1	V 292.402†	469.3	58.9	0.3956	µg/L	0.3956	ppb	06:46:55
1	Zn 213.857†	913.5	144.9	0.7867	µg/L	0.7867	ppb	06:47:15
2	Sc RADIAL	8313.1	8313.1	98.7	%			06:46:03
2	Al 396.153Radial†	-747.7	-21.6	-10.672	µg/L	-10.672	ppb	06:46:03
2	Ca 317.933Radial†	125.5	18.7	9.0920	µg/L	9.0920	ppb	06:46:23
2	Fe 238.204 Radial†	13.7	2.8	4.3561	µg/L	4.3561	ppb	06:46:23
2	K 766.490 Radial†	368.6	-29.8	-16.227	µg/L	-16.227	ppb	06:46:03
2	Mg 279.077 IEC†	5.8	-5.4	-33.450	µg/L	-33.450	ppb	06:46:23
2	Na 589.592 Radial†	0.9	-4.1	-167.18	µg/L	-167.18	ppb	06:46:23
2	Sr 421.552†	48.6	45.4	1.1573	µg/L	1.1573	ppb	06:46:03
2	Sc 361.383	620063.6	620063.6	99.086	%			06:47:20
2	Y 371.029	703438.4	703438.4	99.070	%			06:47:20
2	Ag 328.068†	-881.3	50.0	0.2518	µg/L	0.2518	ppb	06:47:20
2	As 188.979†	13.8	-8.3	-2.4722	µg/L	-2.4722	ppb	06:47:40
2	B 249.677†	432.6	244.6	4.7754	µg/L	4.7754	ppb	06:47:40
2	Ba 233.527†	167.3	39.5	0.2225	µg/L	0.2225	ppb	06:47:40
2	Be 313.107†	-5166.8	228.6	0.0921	µg/L	0.0921	ppb	06:47:20
2	Cd 226.502†	-93.4	158.8	0.9617	µg/L	0.9617	ppb	06:47:40
2	Co 228.616†	-300.7	24.0	0.3912	µg/L	0.3912	ppb	06:47:40
2	Cr 267.716†	185.3	70.2	0.8804	µg/L	0.8804	ppb	06:47:40
2	Cu 324.752†	2526.8	56.4	0.2353	µg/L	0.2353	ppb	06:47:20
2	Mn 257.610†	1036.0	202.1	0.2007	µg/L	0.2007	ppb	06:47:40
2	Mo 202.031†	3.7	20.3	0.8216	µg/L	0.8216	ppb	06:47:40
2	Ni 231.604†	-170.3	4.3	0.0748	µg/L	0.0748	ppb	06:47:40
2	P 214.914†	136.7	-7.0	-3.0448	µg/L	-3.0448	ppb	06:47:40

2	Pb 220.353†	93.5	-12.0	-0.9995 µg/L	-0.9995 ppb		06:47:40
2	S 181.975 Axial†	158.5	12.9	12.602 µg/L	12.602 ppb		06:47:40
2	Sb 206.836†	128.4	14.3	3.1034 µg/L	3.1034 ppb		06:47:40
2	Se 196.026†	0.1	18.2	6.6004 µg/L	6.6004 ppb		06:47:40
2	SiO2†	1662.6	44.7	4.2194 µg/L	4.2194 ppb		06:47:20
2	Si 251.611†	366.7	75.2	2.6015 µg/L	2.6015 ppb		06:47:40
2	Sn 189.927†	18.7	-2.3	-0.2218 µg/L	-0.2218 ppb		06:47:40
2	Ti 334.940†	-526.0	266.9	0.6037 µg/L	0.6037 ppb		06:47:20
2	Tl 190.801†	-133.7	22.4	3.6793 µg/L	3.6793 ppb		06:47:40
2	U 367.007†	1414.9	3.4	0.607 µg/L	0.607 ppb		06:47:20
2	V 292.402†	541.6	127.4	0.8260 µg/L	0.8260 ppb		06:47:20
2	Zn 213.857†	898.4	120.9	0.6597 µg/L	0.6597 ppb		06:47:40
3	Sc RADIAL	8312.4	8312.4	98.6 %			06:46:28
3	Al 396.153Radial†	-729.7	-3.4	-1.7006 µg/L	-1.7006 ppb		06:46:28
3	Ca 317.933Radial†	115.9	8.9	4.3362 µg/L	4.3362 ppb		06:46:48
3	Fe 238.204 Radial†	9.2	-1.7	-2.6595 µg/L	-2.6595 ppb		06:46:48
3	K 766.490 Radial†	455.4	58.3	31.794 µg/L	31.794 ppb		06:46:28
3	Mg 279.077 IEC†	6.4	-4.7	-29.468 µg/L	-29.468 ppb		06:46:48
3	Na 589.592 Radial†	11.7	6.9	281.03 µg/L	281.03 ppb		06:46:48
3	Sr 421.552†	26.2	22.7	0.5786 µg/L	0.5786 ppb		06:46:28
3	Sc 361.383	617219.9	617219.9	98.631 %			06:47:46
3	Y 371.029	700526.5	700526.5	98.660 %			06:47:46
3	Ag 328.068†	-880.2	47.0	0.2389 µg/L	0.2389 ppb		06:47:46
3	As 188.979†	21.2	-0.6	-0.1752 µg/L	-0.1752 ppb		06:48:06
3	B 249.677†	440.4	254.5	4.9422 µg/L	4.9422 ppb		06:48:06
3	Ba 233.527†	177.8	51.0	0.2869 µg/L	0.2869 ppb		06:48:06
3	Be 313.107†	-5069.5	303.2	0.1202 µg/L	0.1202 ppb		06:47:46
3	Cd 226.502†	-92.6	159.2	0.9647 µg/L	0.9647 ppb		06:48:06
3	Co 228.616†	-306.8	16.4	0.2677 µg/L	0.2677 ppb		06:48:06
3	Cr 267.716†	150.3	35.6	0.4509 µg/L	0.4509 ppb		06:48:06
3	Cu 324.752†	2661.9	205.2	0.8521 µg/L	0.8521 ppb		06:47:46
3	Mn 257.610†	1019.4	190.1	0.1883 µg/L	0.1883 ppb		06:48:06
3	Mo 202.031†	-0.7	15.9	0.6436 µg/L	0.6436 ppb		06:48:06
3	Ni 231.604†	-160.6	13.3	0.2347 µg/L	0.2347 ppb		06:48:06
3	P 214.914†	130.8	-12.3	-5.3704 µg/L	-5.3704 ppb		06:48:06
3	Pb 220.353†	126.2	21.6	1.8068 µg/L	1.8068 ppb		06:48:06
3	S 181.975 Axial†	156.7	11.8	11.546 µg/L	11.546 ppb		06:48:06
3	Sb 206.836†	123.4	9.9	2.1534 µg/L	2.1534 ppb		06:48:06
3	Se 196.026†	-8.2	9.8	3.5376 µg/L	3.5376 ppb		06:48:06
3	SiO2†	1675.3	65.3	6.1461 µg/L	6.1461 ppb		06:47:46
3	Si 251.611†	367.5	77.7	2.6895 µg/L	2.6895 ppb		06:48:06
3	Sn 189.927†	29.6	8.7	0.8383 µg/L	0.8383 ppb		06:48:06
3	Ti 334.940†	-487.7	303.2	0.6890 µg/L	0.6890 ppb		06:47:46
3	Tl 190.801†	-134.1	21.4	3.5161 µg/L	3.5161 ppb		06:48:06
3	U 367.007†	1372.3	-33.2	-6.076 µg/L	-6.076 ppb		06:47:46
3	V 292.402†	538.2	126.4	0.8122 µg/L	0.8122 ppb		06:47:46
3	Zn 213.857†	907.8	134.7	0.7335 µg/L	0.7335 ppb		06:48:06

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	617171.2	98.623	%	0.4661				0.47%
Sc RADIAL	8315.0	98.7	%	0.05				0.05%
Y 371.029	700234.9	98.619	%	0.4730				0.48%
Ag 328.068†	101.5	0.5087	µg/L	0.45620	0.5087	ppb	0.45620	89.68%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-10.5	-5.2308	µg/L	4.78134	-5.2308	ppb	4.78134	91.41%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-2.9	-0.8731	µg/L	1.38866	-0.8731	ppb	1.38866	159.06%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	254.1	4.9548	µg/L	0.18597	4.9548	ppb	0.18597	3.75%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	41.5	0.2336	µg/L	0.04879	0.2336	ppb	0.04879	20.89%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	241.8	0.0972	µg/L	0.02096	0.0972	ppb	0.02096	21.57%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	11.4	5.5522	µg/L	3.11525	5.5522	ppb	3.11525	56.11%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	147.1	0.8910	µg/L	0.12509	0.8910	ppb	0.12509	14.04%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	9.9	0.1616 µg/L	0.29726	0.1616 ppb	0.29726	183.99%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	55.7	0.6993 µg/L	0.22251	0.6993 ppb	0.22251	31.82%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	81.5	0.3397 µg/L	0.46903	0.3397 ppb	0.46903	138.08%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	1.6	2.3783 µg/L	4.39628	2.3783 ppb	4.39628	184.85%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	11.7	6.3697 µg/L	24.13484	6.3697 ppb	24.13484	378.90%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	-3.2	-19.864 µg/L	20.1819	-19.864 ppb	20.1819	101.60%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	181.1	0.1794 µg/L	0.02693	0.1794 ppb	0.02693	15.01%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	22.7	0.9208 µg/L	0.33780	0.9208 ppb	0.33780	36.69%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	0.7	30.616 µg/L	228.6887	30.616 ppb	228.6887	746.95%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	12.3	0.2165 µg/L	0.13341	0.2165 ppb	0.13341	61.63%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-9.2	-4.0154 µg/L	1.20958	-4.0154 ppb	1.20958	30.12%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	2.7	0.2281 µg/L	1.43570	0.2281 ppb	1.43570	629.39%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	14.9	14.556 µg/L	4.3318	14.556 ppb	4.3318	29.76%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	11.9	2.5766 µg/L	0.48338	2.5766 ppb	0.48338	18.76%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	12.7	4.6148 µg/L	1.72168	4.6148 ppb	1.72168	37.31%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	51.6	4.8684 µg/L	1.10663	4.8684 ppb	1.10663	22.73%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	81.6	2.8204 µg/L	0.30605	2.8204 ppb	0.30605	10.85%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	1.5	0.1482 µg/L	0.59819	0.1482 ppb	0.59819	403.61%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	36.0	0.9186 µg/L	0.30239	0.9186 ppb	0.30239	32.92%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	255.1	0.5770 µg/L	0.12746	0.5770 ppb	0.12746	22.09%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	17.2	2.8191 µg/L	1.35099	2.8191 ppb	1.35099	47.92%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	1.8	0.311 µg/L	6.2440	0.311 ppb	6.2440	>999.9%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	104.2	0.6779 µg/L	0.24460	0.6779 ppb	0.24460	36.08%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	133.5	0.7266 µg/L	0.06376	0.7266 ppb	0.06376	8.77%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

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Analysis Begun

Start Time: 11/16/2016 06:54:49 **Plasma On Time: 11/14/2016 06:15:24**
Logged In Analyst: Optima3 **Technique: ICP Continuous**
Spectrometer: Optima 5300 DV, S/N 077C7090601 **Autosampler: ESI**

Sample Information File: C:\Users\Public\PerkinElmer\ICP\Data\Sample Information\111616.sif
Batch ID:
Results Data Set: 111616
Results Library: C:\Users\Public\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 113**
Sample ID: LR3 **Date Collected: 11/16/2016 06:54:59**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time:

Replicate Data: LR3

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8180.9	8180.9	97.1	%			06:55:39
1	Al 396.153Radial†	-725.6	-11.0	-5.4508	µg/L	-5.4508	ppb	06:55:39
1	Ca 317.933Radial†	876.2	793.9	386.69	µg/L	386.69	ppb	06:55:59
1	Fe 238.204 Radial†	15.2	4.6	7.1305	µg/L	7.1305	ppb	06:55:59
1	K 766.490 Radial†	450862.0	464001.3	253100	µg/L	253100	ppb	06:55:34
1	Mg 279.077 IEC†	13.3	2.5	15.539	µg/L	15.539	ppb	06:55:59
1	Na 589.592 Radial†	6.1	1.3	53.893	µg/L	53.893	ppb	06:55:59
1	Sr 421.552†	45.2	42.7	1.0773	µg/L	1.0773	ppb	06:55:39
1	Sc 361.383	605914.2	605914.2	96.825	%			06:57:07
1	Y 371.029	670685.7	670685.7	94.457	%			06:57:07
1	Ag 328.068†	-493.8	429.4	0.7086	µg/L	0.7086	ppb	06:57:07
1	As 188.979†	31.8	10.7	3.2200	µg/L	3.2200	ppb	06:57:27
1	B 249.677†	256.4	72.8	1.4425	µg/L	1.4425	ppb	06:57:27
1	Ba 233.527†	98.7	-27.3	-0.1539	µg/L	-0.1539	ppb	06:57:27
1	Be 313.107†	-7444.7	-2245.8	-0.1795	µg/L	-0.1795	ppb	06:57:07
1	Cd 226.502†	-215.5	30.5	0.1845	µg/L	0.1845	ppb	06:57:27
1	Co 228.616†	-292.0	25.9	0.4169	µg/L	0.4169	ppb	06:57:27
1	Cr 267.716†	400.0	296.3	1.6109	µg/L	1.6109	ppb	06:57:27
1	Cu 324.752†	2225.4	-195.3	0.7773	µg/L	0.7773	ppb	06:57:07
1	Mn 257.610†	1607.9	817.2	0.8055	µg/L	0.8055	ppb	06:57:27
1	Mo 202.031†	-9.9	6.3	0.2569	µg/L	0.2569	ppb	06:57:27
1	Ni 231.604†	-79.7	93.8	1.6497	µg/L	1.6497	ppb	06:57:27
1	P 214.914†	153.8	13.9	6.0484	µg/L	6.0484	ppb	06:57:27
1	Pb 220.353†	135.3	33.4	0.8355	µg/L	0.8355	ppb	06:57:27
1	S 181.975 Axial†	154.1	12.0	11.794	µg/L	11.794	ppb	06:57:27
1	Sb 206.836†	118.4	7.0	1.4434	µg/L	1.4434	ppb	06:57:27
1	Se 196.026†	-12.6	5.1	1.8664	µg/L	1.8664	ppb	06:57:27
1	SiO2†	1810.4	236.5	22.311	µg/L	22.311	ppb	06:57:07
1	Si 251.611†	545.4	268.3	9.3138	µg/L	9.3138	ppb	06:57:27
1	Sn 189.927†	17.2	-3.5	-0.3295	µg/L	-0.3295	ppb	06:57:27
1	Ti 334.940†	-32.7	764.0	0.2960	µg/L	0.2960	ppb	06:57:07
1	Tl 190.801†	-153.0	-0.6	0.9097	µg/L	0.9097	ppb	06:57:27
1	U 367.007†	17231.8	16372.5	3002	µg/L	3002	ppb	06:57:07
1	V 292.402†	243.1	-168.1	0.7894	µg/L	0.7894	ppb	06:57:07
1	Zn 213.857†	6325.4	5747.1	31.305	µg/L	31.305	ppb	06:57:27
2	Sc RADIAL	8052.9	8052.9	95.6	%			06:56:09
2	Al 396.153Radial†	-737.6	-35.5	-17.505	µg/L	-17.505	ppb	06:56:09
2	Ca 317.933Radial†	868.5	800.2	389.79	µg/L	389.79	ppb	06:56:29
2	Fe 238.204 Radial†	13.0	2.6	4.0549	µg/L	4.0549	ppb	06:56:29
2	K 766.490 Radial†	449659.3	470123.6	256440	µg/L	256440	ppb	06:56:04
2	Mg 279.077 IEC†	7.9	-2.9	-18.342	µg/L	-18.342	ppb	06:56:29
2	Na 589.592 Radial†	6.6	1.9	77.710	µg/L	77.710	ppb	06:56:29
2	Sr 421.552†	30.7	28.3	0.7094	µg/L	0.7094	ppb	06:56:09
2	Sc 361.383	602843.4	602843.4	96.334	%			06:57:32
2	Y 371.029	667222.0	667222.0	93.969	%			06:57:32
2	Ag 328.068†	-507.4	412.7	0.6150	µg/L	0.6150	ppb	06:57:32

2	As 188.979†	29.3	8.3	2.4988 µg/L	2.4988 ppb		06:57:52
2	B 249.677†	227.1	43.7	0.8675 µg/L	0.8675 ppb		06:57:52
2	Ba 233.527†	107.3	-17.9	-0.1011 µg/L	-0.1011 ppb		06:57:52
2	Be 313.107†	-7435.4	-2275.3	-0.1869 µg/L	-0.1869 ppb		06:57:32
2	Cd 226.502†	-211.2	33.9	0.2045 µg/L	0.2045 ppb		06:57:52
2	Co 228.616†	-323.3	-8.1	-0.1375 µg/L	-0.1375 ppb		06:57:52
2	Cr 267.716†	397.1	295.4	1.5859 µg/L	1.5859 ppb		06:57:52
2	Cu 324.752†	2252.5	-155.5	0.9528 µg/L	0.9528 ppb		06:57:32
2	Mn 257.610†	1669.3	889.3	0.8776 µg/L	0.8776 ppb		06:57:52
2	Mo 202.031†	-15.1	0.9	0.0366 µg/L	0.0366 ppb		06:57:52
2	Ni 231.604†	-130.0	41.2	0.7237 µg/L	0.7237 ppb		06:57:52
2	P 214.914†	155.5	16.6	7.2106 µg/L	7.2106 ppb		06:57:52
2	Pb 220.353†	142.0	41.0	1.4591 µg/L	1.4591 ppb		06:57:52
2	S 181.975 Axial†	162.8	22.0	21.518 µg/L	21.518 ppb		06:57:52
2	Sb 206.836†	119.1	8.4	1.7262 µg/L	1.7262 ppb		06:57:52
2	Se 196.026†	-16.1	1.4	0.5198 µg/L	0.5198 ppb		06:57:52
2	SiO2†	1764.3	198.2	18.700 µg/L	18.700 ppb		06:57:32
2	Si 251.611†	564.2	290.8	10.096 µg/L	10.096 ppb		06:57:52
2	Sn 189.927†	25.1	4.8	0.4667 µg/L	0.4667 ppb		06:57:52
2	Ti 334.940†	-69.9	725.2	0.1995 µg/L	0.1995 ppb		06:57:32
2	Tl 190.801†	-134.8	17.5	3.8839 µg/L	3.8839 ppb		06:57:52
2	U 367.007†	17240.3	16471.9	3020 µg/L	3020 ppb		06:57:32
2	V 292.402†	184.1	-228.1	0.4138 µg/L	0.4138 ppb		06:57:32
2	Zn 213.857†	6355.3	5811.4	31.664 µg/L	31.664 ppb		06:57:52
3	Sc RADIAL	8161.4	8161.4	96.9 %			06:56:40
3	Al 396.153Radial†	-774.0	-62.8	-30.947 µg/L	-30.947 ppb		06:56:40
3	Ca 317.933Radial†	866.6	786.2	382.95 µg/L	382.95 ppb		06:57:00
3	Fe 238.204 Radial†	14.9	4.3	6.6710 µg/L	6.6710 ppb		06:57:00
3	K 766.490 Radial†	452827.2	467135.5	254810 µg/L	254810 ppb		06:56:35
3	Mg 279.077 IEC†	13.0	2.2	13.615 µg/L	13.615 ppb		06:57:00
3	Na 589.592 Radial†	8.7	4.1	166.24 µg/L	166.24 ppb		06:57:00
3	Sr 421.552†	43.7	41.3	1.0401 µg/L	1.0401 ppb		06:56:40
3	Sc 361.383	600917.7	600917.7	96.026 %			06:57:58
3	Y 371.029	665066.8	665066.8	93.666 %			06:57:58
3	Ag 328.068†	-552.8	363.8	0.3673 µg/L	0.3673 ppb		06:57:58
3	As 188.979†	26.5	5.4	1.6453 µg/L	1.6453 ppb		06:58:18
3	B 249.677†	235.7	53.4	1.0634 µg/L	1.0634 ppb		06:58:18
3	Ba 233.527†	117.9	-6.5	-0.0369 µg/L	-0.0369 ppb		06:58:18
3	Be 313.107†	-7301.9	-2161.0	-0.1393 µg/L	-0.1393 ppb		06:57:58
3	Cd 226.502†	-207.8	36.7	0.2217 µg/L	0.2217 ppb		06:58:18
3	Co 228.616†	-292.3	23.1	0.3711 µg/L	0.3711 ppb		06:58:18
3	Cr 267.716†	411.6	311.8	1.7868 µg/L	1.7868 ppb		06:58:18
3	Cu 324.752†	2238.7	-162.3	0.9288 µg/L	0.9288 ppb		06:57:58
3	Mn 257.610†	1613.0	836.3	0.8243 µg/L	0.8243 ppb		06:58:18
3	Mo 202.031†	-18.7	-2.9	-0.1154 µg/L	-0.1154 ppb		06:58:18
3	Ni 231.604†	-98.9	73.2	1.2869 µg/L	1.2869 ppb		06:58:18
3	P 214.914†	137.1	-2.1	-0.9284 µg/L	-0.9284 ppb		06:58:18
3	Pb 220.353†	145.5	45.2	1.8089 µg/L	1.8089 ppb		06:58:18
3	S 181.975 Axial†	157.3	16.8	16.434 µg/L	16.434 ppb		06:58:18
3	Sb 206.836†	119.0	8.7	1.7993 µg/L	1.7993 ppb		06:58:18
3	Se 196.026†	-12.9	4.7	1.6916 µg/L	1.6916 ppb		06:58:18
3	SiO2†	1859.4	303.1	28.571 µg/L	28.571 ppb		06:57:58
3	Si 251.611†	541.8	269.3	9.3502 µg/L	9.3502 ppb		06:58:18
3	Sn 189.927†	27.9	7.8	0.7531 µg/L	0.7531 ppb		06:58:18
3	Ti 334.940†	-38.6	757.6	0.2685 µg/L	0.2685 ppb		06:57:58
3	Tl 190.801†	-134.6	17.2	3.8444 µg/L	3.8444 ppb		06:58:18
3	U 367.007†	17226.6	16515.0	3028 µg/L	3028 ppb		06:57:58
3	V 292.402†	190.5	-220.8	0.4646 µg/L	0.4646 ppb		06:57:58
3	Zn 213.857†	6334.1	5810.5	31.653 µg/L	31.653 ppb		06:58:18

Mean Data: LR3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	603225.1	96.395	%	0.4027				0.42%
Sc RADIAL	8131.7	96.5	%	0.82				0.85%
Y 371.029	667658.2	94.031	%	0.3992				0.42%
Ag 328.068†	402.0	0.5636	µg/L	0.17638	0.5636	ppb	0.17638	31.29%
Al 396.153Radial†	-36.5	-17.968	µg/L	12.7546	-17.968	ppb	12.7546	70.99%
As 188.979†	8.1	2.4547	µg/L	0.78831	2.4547	ppb	0.78831	32.11%
B 249.677†	56.6	1.1245	µg/L	0.29231	1.1245	ppb	0.29231	26.00%

Ba 233.527†	-17.3	-0.0973 µg/L	0.05863	-0.0973 ppb	0.05863	60.26%
Be 313.107†	-2227.4	-0.1686 µg/L	0.02562	-0.1686 ppb	0.02562	15.20%
Ca 317.933Radial†	793.4	386.48 µg/L	3.426	386.48 ppb	3.426	0.89%
Cd 226.502†	33.7	0.2036 µg/L	0.01860	0.2036 ppb	0.01860	9.14%
Co 228.616†	13.6	0.2169 µg/L	0.30769	0.2169 ppb	0.30769	141.89%
Cr 267.716†	301.1	1.6612 µg/L	0.10950	1.6612 ppb	0.10950	6.59%
Cu 324.752†	-171.0	0.8863 µg/L	0.09514	0.8863 ppb	0.09514	10.73%
Fe 238.204 Radial†	3.9	5.9521 µg/L	1.65905	5.9521 ppb	1.65905	27.87%
K 766.490 Radial†	467086.8	254780 µg/L	1669.93	254780 ppb	1669.93	0.66%
QC value within limits for K 766.490 Radial Recovery = 101.91%						
Mg 279.077 IEC†	0.6	3.6040 µg/L	19.02996	3.6040 ppb	19.02996	528.02%
Mn 257.610†	847.6	0.8358 µg/L	0.03742	0.8358 ppb	0.03742	4.48%
Mo 202.031†	1.5	0.0594 µg/L	0.18720	0.0594 ppb	0.18720	315.13%
Na 589.592 Radial†	2.4	99.282 µg/L	59.1997	99.282 ppb	59.1997	59.63%
Ni 231.604†	69.4	1.2201 µg/L	0.46662	1.2201 ppb	0.46662	38.24%
P 214.914†	9.5	4.1102 µg/L	4.40208	4.1102 ppb	4.40208	107.10%
Pb 220.353†	39.9	1.3678 µg/L	0.49307	1.3678 ppb	0.49307	36.05%
S 181.975 Axial†	16.9	16.582 µg/L	4.8637	16.582 ppb	4.8637	29.33%
Sb 206.836†	8.0	1.6563 µg/L	0.18795	1.6563 ppb	0.18795	11.35%
Se 196.026†	3.7	1.3592 µg/L	0.73223	1.3592 ppb	0.73223	53.87%
SiO2†	245.9	23.194 µg/L	4.9940	23.194 ppb	4.9940	21.53%
Si 251.611†	276.2	9.5865 µg/L	0.44124	9.5865 ppb	0.44124	4.60%
Sn 189.927†	3.1	0.2967 µg/L	0.56093	0.2967 ppb	0.56093	189.03%
Sr 421.552†	37.5	0.9422 µg/L	0.20254	0.9422 ppb	0.20254	21.50%
Ti 334.940†	748.9	0.2547 µg/L	0.04973	0.2547 ppb	0.04973	19.52%
Tl 190.801†	11.4	2.8793 µg/L	1.70585	2.8793 ppb	1.70585	59.25%
U 367.007†	16453.1	3016 µg/L	13.40	3016 ppb	13.40	0.44%
V 292.402†	-205.7	0.5559 µg/L	0.20377	0.5559 ppb	0.20377	36.65%
Zn 213.857†	5789.7	31.540 µg/L	0.2043	31.540 ppb	0.2043	0.65%

All analyte(s) passed QC.

Sequence No.: 2 **Autosampler Location: 114**
Sample ID: LR4 **Date Collected: 11/16/2016 06:58:26**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: LR4

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8468.4	8468.4	100	%			06:58:55
1	Al 396.153Radial†	-732.8	7.2	3.5087	µg/L	3.5087	ppb	06:58:55
1	Ca 317.933Radial†	103.6	-5.5	-2.6898	µg/L	-2.6898	ppb	06:59:15
1	Fe 238.204 Radial†	7.0	-4.0	-6.1541	µg/L	-6.1541	ppb	06:59:15
1	K 766.490 Radial†	676.3	269.6	147.05	µg/L	147.05	ppb	06:58:55
1	Mg 279.077 IEC†	12.7	1.4	8.9588	µg/L	8.9588	ppb	06:59:15
1	Na 589.592 Radial†	8.4	3.4	137.40	µg/L	137.40	ppb	06:59:15
1	Sr 421.552†	20.4	16.5	0.4199	µg/L	0.4199	ppb	06:58:55
1	Sc 361.383	633219.3	633219.3	101.19	%			07:00:13
1	Y 371.029	716393.3	716393.3	100.89	%			07:00:13
1	Ag 328.068†	-879.5	70.2	0.3505	µg/L	0.3505	ppb	07:00:13
1	As 188.979†	26.9	4.4	1.3414	µg/L	1.3414	ppb	07:00:33
1	B 249.677†	304.6	108.9	2.0985	µg/L	2.0985	ppb	07:00:33
1	Ba 233.527†	138.3	7.4	0.0418	µg/L	0.0418	ppb	07:00:33
1	Be 313.107†	-5372.0	134.2	0.0541	µg/L	0.0541	ppb	07:00:13
1	Cd 226.502†	-170.9	84.1	0.5103	µg/L	0.5103	ppb	07:00:33
1	Co 228.616†	-357.5	-25.8	-0.4201	µg/L	-0.4201	ppb	07:00:33
1	Cr 267.716†	135.9	17.5	0.2192	µg/L	0.2192	ppb	07:00:33
1	Cu 324.752†	2522.7	-0.6	-0.0024	µg/L	-0.0024	ppb	07:00:13
1	Mn 257.610†	823.5	-29.6	-0.0298	µg/L	-0.0298	ppb	07:00:33
1	Mo 202.031†	-4.1	12.5	0.5068	µg/L	0.5068	ppb	07:00:33
1	Ni 231.604†	-142.9	35.0	0.6151	µg/L	0.6151	ppb	07:00:33
1	P 214.914†	132.5	-13.9	-6.0606	µg/L	-6.0606	ppb	07:00:33
1	Pb 220.353†	46.2	-60.7	-5.0668	µg/L	-5.0668	ppb	07:00:33
1	S 181.975 Axial†	144.2	-4.6	-4.4561	µg/L	-4.4561	ppb	07:00:33
1	Sb 206.836†	119.4	2.8	0.6070	µg/L	0.6070	ppb	07:00:33
1	Se 196.026†	-8.8	9.4	3.3951	µg/L	3.3951	ppb	07:00:33
1	SiO2†	960193.0	947287.9	89108	µg/L	89108	ppb	07:00:13
1	Si 251.611†	1197662.3	1183307.8	41086	µg/L	41086	ppb	07:00:13
1	Sn 189.927†	22.1	0.6	0.0574	µg/L	0.0574	ppb	07:00:33
1	Ti 334.940†	-639.4	165.9	0.3743	µg/L	0.3743	ppb	07:00:13
1	Tl 190.801†	-138.2	20.8	3.4249	µg/L	3.4249	ppb	07:00:33
1	U 367.007†	1449.9	8.4	1.567	µg/L	1.567	ppb	07:00:13
1	V 292.402†	530.0	104.6	0.6749	µg/L	0.6749	ppb	07:00:13
1	Zn 213.857†	950.8	153.9	0.8345	µg/L	0.8345	ppb	07:00:33
2	Sc RADIAL	8448.2	8448.2	100	%			06:59:20
2	Al 396.153Radial†	-757.7	-19.5	-9.6234	µg/L	-9.6234	ppb	06:59:20
2	Ca 317.933Radial†	108.9	0.0	0.0135	µg/L	0.0135	ppb	06:59:40
2	Fe 238.204 Radial†	8.8	-2.2	-3.3589	µg/L	-3.3589	ppb	06:59:40
2	K 766.490 Radial†	708.7	303.5	165.55	µg/L	165.55	ppb	06:59:20
2	Mg 279.077 IEC†	8.2	-3.1	-19.087	µg/L	-19.087	ppb	06:59:40
2	Na 589.592 Radial†	3.0	-1.9	-79.086	µg/L	-79.086	ppb	06:59:40
2	Sr 421.552†	10.3	6.4	0.1638	µg/L	0.1638	ppb	06:59:20
2	Sc 361.383	632630.0	632630.0	101.09	%			07:00:38
2	Y 371.029	716219.1	716219.1	100.87	%			07:00:38
2	Ag 328.068†	-878.1	70.9	0.3540	µg/L	0.3540	ppb	07:00:38
2	As 188.979†	22.6	0.2	0.0628	µg/L	0.0628	ppb	07:00:58
2	B 249.677†	297.0	101.7	1.9685	µg/L	1.9685	ppb	07:00:58
2	Ba 233.527†	161.7	30.7	0.1728	µg/L	0.1728	ppb	07:00:58
2	Be 313.107†	-5324.6	176.1	0.0704	µg/L	0.0704	ppb	07:00:38
2	Cd 226.502†	-168.7	86.2	0.5227	µg/L	0.5227	ppb	07:00:58
2	Co 228.616†	-356.3	-25.0	-0.4065	µg/L	-0.4065	ppb	07:00:58
2	Cr 267.716†	160.2	41.6	0.5227	µg/L	0.5227	ppb	07:00:58
2	Cu 324.752†	2517.4	-3.5	-0.0158	µg/L	-0.0158	ppb	07:00:38
2	Mn 257.610†	791.9	-60.2	-0.0588	µg/L	-0.0588	ppb	07:00:58
2	Mo 202.031†	-0.3	16.3	0.6576	µg/L	0.6576	ppb	07:00:58
2	Ni 231.604†	-147.3	30.5	0.5361	µg/L	0.5361	ppb	07:00:58
2	P 214.914†	110.7	-35.4	-15.389	µg/L	-15.389	ppb	07:00:58

2	Pb 220.353†	85.3	-21.9	-1.8264 µg/L	-1.8264 ppb	07:00:58
2	S 181.975 Axial†	144.2	-4.4	-4.2907 µg/L	-4.2907 ppb	07:00:58
2	Sb 206.836†	124.4	7.8	1.6948 µg/L	1.6948 ppb	07:00:58
2	Se 196.026†	-12.1	6.1	2.2071 µg/L	2.2071 ppb	07:00:58
2	SiO2†	956824.8	944840.0	88878 µg/L	88878 ppb	07:00:38
2	Si 251.611†	1194299.6	1181084.0	41009 µg/L	41009 ppb	07:00:38
2	Sn 189.927†	11.6	-9.8	-0.9392 µg/L	-0.9392 ppb	07:00:58
2	Ti 334.940†	-571.3	232.6	0.5266 µg/L	0.5266 ppb	07:00:38
2	Tl 190.801†	-147.9	11.0	1.8186 µg/L	1.8186 ppb	07:00:58
2	U 367.007†	1433.4	-6.6	-1.202 µg/L	-1.202 ppb	07:00:38
2	V 292.402†	380.7	-42.6	-0.2673 µg/L	-0.2673 ppb	07:00:38
2	Zn 213.857†	929.7	133.9	0.7277 µg/L	0.7277 ppb	07:00:58
3	Sc RADIAL	8519.3	8519.3	101 %		06:59:45
3	Al 396.153Radial†	-766.7	-22.0	-10.882 µg/L	-10.882 ppb	06:59:45
3	Ca 317.933Radial†	123.6	13.7	6.6567 µg/L	6.6567 ppb	07:00:05
3	Fe 238.204 Radial†	8.2	-2.9	-4.4230 µg/L	-4.4230 ppb	07:00:05
3	K 766.490 Radial†	633.8	223.6	121.94 µg/L	121.94 ppb	06:59:45
3	Mg 279.077 IEC†	13.4	2.0	12.535 µg/L	12.535 ppb	07:00:05
3	Na 589.592 Radial†	12.0	7.0	284.65 µg/L	284.65 ppb	07:00:05
3	Sr 421.552†	30.8	26.6	0.6788 µg/L	0.6788 ppb	06:59:45
3	Sc 361.383	636916.3	636916.3	101.78 %		07:01:04
3	Y 371.029	720457.2	720457.2	101.47 %		07:01:04
3	Ag 328.068†	-896.2	58.9	0.2994 µg/L	0.2994 ppb	07:01:04
3	As 188.979†	25.2	2.6	0.7998 µg/L	0.7998 ppb	07:01:24
3	B 249.677†	307.9	110.4	2.1348 µg/L	2.1348 ppb	07:01:24
3	Ba 233.527†	135.6	4.0	0.0225 µg/L	0.0225 ppb	07:01:24
3	Be 313.107†	-5435.7	102.4	0.0383 µg/L	0.0383 ppb	07:01:04
3	Cd 226.502†	-162.7	93.2	0.5653 µg/L	0.5653 ppb	07:01:24
3	Co 228.616†	-365.2	-31.3	-0.5096 µg/L	-0.5096 ppb	07:01:24
3	Cr 267.716†	114.0	-4.8	-0.0514 µg/L	-0.0514 ppb	07:01:24
3	Cu 324.752†	2614.7	75.3	0.3075 µg/L	0.3075 ppb	07:01:04
3	Mn 257.610†	747.4	-109.1	-0.1082 µg/L	-0.1082 ppb	07:01:24
3	Mo 202.031†	-3.4	13.3	0.5368 µg/L	0.5368 ppb	07:01:24
3	Ni 231.604†	-145.5	33.2	0.5838 µg/L	0.5838 ppb	07:01:24
3	P 214.914†	124.0	-23.1	-10.046 µg/L	-10.046 ppb	07:01:24
3	Pb 220.353†	54.4	-52.9	-4.3979 µg/L	-4.3979 ppb	07:01:24
3	S 181.975 Axial†	148.4	-1.3	-1.2294 µg/L	-1.2294 ppb	07:01:24
3	Sb 206.836†	122.7	5.3	1.1647 µg/L	1.1647 ppb	07:01:24
3	Se 196.026†	-6.3	11.9	4.3062 µg/L	4.3062 ppb	07:01:24
3	SiO2†	965669.1	947160.2	89096 µg/L	89096 ppb	07:01:04
3	Si 251.611†	1205665.5	1184300.9	41121 µg/L	41121 ppb	07:01:04
3	Sn 189.927†	10.9	-10.5	-1.0082 µg/L	-1.0082 ppb	07:01:24
3	Ti 334.940†	-576.5	231.3	0.5294 µg/L	0.5294 ppb	07:01:04
3	Tl 190.801†	-160.2	0.0	0.0086 µg/L	0.0086 ppb	07:01:24
3	U 367.007†	1384.9	-63.8	-11.69 µg/L	-11.69 ppb	07:01:04
3	V 292.402†	416.3	-10.1	-0.0681 µg/L	-0.0681 ppb	07:01:04
3	Zn 213.857†	939.6	137.5	0.7447 µg/L	0.7447 ppb	07:01:24

Mean Data: LR4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	634255.2	101.35	%	0.371				0.37%
Sc RADIAL	8478.6	101	%	0.43				0.43%
Y 371.029	717689.9	101.08	%	0.338				0.33%
Ag 328.068†	66.7	0.3346	µg/L	0.03060	0.3346	ppb	0.03060	9.15%
Al 396.153Radial†	-11.5	-5.6655	µg/L	7.97003	-5.6655	ppb	7.97003	140.68%
As 188.979†	2.4	0.7347	µg/L	0.64174	0.7347	ppb	0.64174	87.35%
B 249.677†	107.0	2.0673	µg/L	0.08742	2.0673	ppb	0.08742	4.23%
Ba 233.527†	14.0	0.0791	µg/L	0.08180	0.0791	ppb	0.08180	103.48%
Be 313.107†	137.5	0.0543	µg/L	0.01604	0.0543	ppb	0.01604	29.55%
Ca 317.933Radial†	2.7	1.3268	µg/L	4.80968	1.3268	ppb	4.80968	362.50%
Cd 226.502†	87.9	0.5328	µg/L	0.02886	0.5328	ppb	0.02886	5.42%
Co 228.616†	-27.4	-0.4454	µg/L	0.05602	-0.4454	ppb	0.05602	12.58%
Cr 267.716†	18.1	0.2302	µg/L	0.28721	0.2302	ppb	0.28721	124.79%
Cu 324.752†	23.7	0.0964	µg/L	0.18288	0.0964	ppb	0.18288	189.62%
Fe 238.204 Radial†	-3.0	-4.6454	µg/L	1.41080	-4.6454	ppb	1.41080	30.37%
K 766.490 Radial†	265.6	144.85	µg/L	21.889	144.85	ppb	21.889	15.11%
Mg 279.077 IEC†	0.1	0.8026	µg/L	17.31706	0.8026	ppb	17.31706	>999.9%
Mn 257.610†	-66.3	-0.0656	µg/L	0.03964	-0.0656	ppb	0.03964	60.40%
Mo 202.031†	14.0	0.5671	µg/L	0.07983	0.5671	ppb	0.07983	14.08%

Na 589.592 Radial†	2.8	114.32 µg/L	182.961	114.32 ppb	182.961	160.04%
Ni 231.604†	32.9	0.5783 µg/L	0.03976	0.5783 ppb	0.03976	6.87%
P 214.914†	-24.1	-10.499 µg/L	4.6807	-10.499 ppb	4.6807	44.58%
Pb 220.353†	-45.2	-3.7637 µg/L	1.71075	-3.7637 ppb	1.71075	45.45%
S 181.975 Axial†	-3.4	-3.3254 µg/L	1.81708	-3.3254 ppb	1.81708	54.64%
Sb 206.836†	5.3	1.1555 µg/L	0.54391	1.1555 ppb	0.54391	47.07%
Se 196.026†	9.1	3.3028 µg/L	1.05255	3.3028 ppb	1.05255	31.87%
SiO2†	946429.3	89027 µg/L	129.61	89027 ppb	129.61	0.15%
Si 251.611†	1182897.6	41072 µg/L	57.20	41072 ppb	57.20	0.14%
QC value within limits for Si 251.611 Recovery = 91.27%						
Sn 189.927†	-6.6	-0.6300 µg/L	0.59630	-0.6300 ppb	0.59630	94.65%
Sr 421.552†	16.5	0.4209 µg/L	0.25749	0.4209 ppb	0.25749	61.18%
Ti 334.940†	209.9	0.4767 µg/L	0.08876	0.4767 ppb	0.08876	18.62%
Tl 190.801†	10.6	1.7507 µg/L	1.70918	1.7507 ppb	1.70918	97.63%
U 367.007†	-20.7	-3.774 µg/L	6.9910	-3.774 ppb	6.9910	185.24%
V 292.402†	17.3	0.1132 µg/L	0.49660	0.1132 ppb	0.49660	438.81%
Zn 213.857†	141.8	0.7690 µg/L	0.05741	0.7690 ppb	0.05741	7.47%

All analyte(s) passed QC.

Sequence No.: 3 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/16/2016 07:01:33**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8214.5	8214.5	97.5	%			07:02:23
1	Al 396.153Radial†	9395.6	10374.5	5094.9	µg/L	5094.9	ppb	07:02:03
1	Ca 317.933Radial†	10326.1	10484.1	5106.6	µg/L	5106.6	ppb	07:02:23
1	Fe 238.204 Radial†	3299.2	3373.4	5175.0	µg/L	5175.0	ppb	07:02:23
1	K 766.490 Radial†	9432.4	9272.6	5059.2	µg/L	5059.2	ppb	07:02:03
1	Mg 279.077 IEC†	822.4	832.5	5191.6	µg/L	5191.6	ppb	07:02:23
1	Na 589.592 Radial†	231.5	232.5	9521.1	µg/L	9521.1	ppb	07:02:23
1	Sr 421.552†	19066.6	19554.9	498.63	µg/L	498.63	ppb	07:02:03
1	Sc 361.383	621280.4	621280.4	99.280	%			07:03:22
1	Y 371.029	697097.6	697097.6	98.177	%			07:03:22
1	Ag 328.068†	96855.6	98497.4	494.06	µg/L	494.06	ppb	07:03:22
1	As 188.979†	1668.4	1658.4	503.04	µg/L	503.04	ppb	07:03:42
1	B 249.677†	25339.5	25331.2	511.08	µg/L	511.08	ppb	07:03:22
1	Ba 233.527†	87448.6	87953.5	495.03	µg/L	495.03	ppb	07:03:22
1	Be 313.107†	1216060.8	1230322.4	493.32	µg/L	493.32	ppb	07:03:22
1	Cd 226.502†	81166.1	82007.7	496.43	µg/L	496.43	ppb	07:03:22
1	Co 228.616†	29494.1	30035.5	488.87	µg/L	488.87	ppb	07:03:42
1	Cr 267.716†	39083.3	39249.9	492.45	µg/L	492.45	ppb	07:03:22
1	Cu 324.752†	119760.9	118135.7	493.06	µg/L	493.06	ppb	07:03:22
1	Mn 257.610†	497670.3	500435.8	493.46	µg/L	493.46	ppb	07:03:22
1	Mo 202.031†	12169.9	12274.7	497.03	µg/L	497.03	ppb	07:03:42
1	Ni 231.604†	27408.1	27783.0	488.47	µg/L	488.47	ppb	07:03:42
1	P 214.914†	5784.0	5681.1	2458.0	µg/L	2458.0	ppb	07:03:42
1	Pb 220.353†	6044.5	5982.0	498.17	µg/L	498.17	ppb	07:03:42
1	S 181.975 Axial†	1154.6	1015.9	998.27	µg/L	998.27	ppb	07:03:42
1	Sb 206.836†	2333.7	2235.4	483.45	µg/L	483.45	ppb	07:03:42
1	Se 196.026†	1343.3	1371.1	499.02	µg/L	499.02	ppb	07:03:42
1	SiO2†	57283.2	56065.4	5279.6	µg/L	5279.6	ppb	07:03:22
1	Si 251.611†	70640.7	70858.1	2452.5	µg/L	2452.5	ppb	07:03:22
1	Sn 189.927†	5175.5	5191.7	499.15	µg/L	499.15	ppb	07:03:42
1	Ti 334.940†	216280.1	218646.3	494.50	µg/L	494.50	ppb	07:03:22
1	Tl 190.801†	2849.4	3027.5	497.66	µg/L	497.66	ppb	07:03:42
1	U 367.007†	4107.7	2713.0	474.7	µg/L	474.7	ppb	07:03:22
1	V 292.402†	76144.7	76277.7	494.96	µg/L	494.96	ppb	07:03:22
1	Zn 213.857†	91055.6	90930.2	490.74	µg/L	490.74	ppb	07:03:22
2	Sc RADIAL	8201.2	8201.2	97.3	%			07:02:48
2	Al 396.153Radial†	9468.7	10465.2	5139.7	µg/L	5139.7	ppb	07:02:28
2	Ca 317.933Radial†	10306.9	10481.5	5105.4	µg/L	5105.4	ppb	07:02:48
2	Fe 238.204 Radial†	3304.9	3384.7	5192.3	µg/L	5192.3	ppb	07:02:48
2	K 766.490 Radial†	9563.2	9422.6	5141.0	µg/L	5141.0	ppb	07:02:28
2	Mg 279.077 IEC†	825.3	836.8	5218.8	µg/L	5218.8	ppb	07:02:48
2	Na 589.592 Radial†	234.1	235.6	9647.3	µg/L	9647.3	ppb	07:02:48
2	Sr 421.552†	19135.2	19657.1	501.24	µg/L	501.24	ppb	07:02:28
2	Sc 361.383	623279.5	623279.5	99.599	%			07:03:50
2	Y 371.029	699191.8	699191.8	98.472	%			07:03:50
2	Ag 328.068†	97300.3	98631.0	494.74	µg/L	494.74	ppb	07:03:50
2	As 188.979†	1662.1	1646.6	499.46	µg/L	499.46	ppb	07:04:10
2	B 249.677†	25477.6	25388.0	512.26	µg/L	512.26	ppb	07:03:50
2	Ba 233.527†	87833.3	88057.2	495.61	µg/L	495.61	ppb	07:03:50
2	Be 313.107†	1221819.9	1232176.1	494.06	µg/L	494.06	ppb	07:03:50
2	Cd 226.502†	81819.9	82402.0	498.81	µg/L	498.81	ppb	07:03:50
2	Co 228.616†	29397.5	29843.3	485.73	µg/L	485.73	ppb	07:04:10
2	Cr 267.716†	39173.0	39213.7	492.01	µg/L	492.01	ppb	07:03:50
2	Cu 324.752†	120064.6	118053.7	492.71	µg/L	492.71	ppb	07:03:50
2	Mn 257.610†	500077.8	501245.2	494.25	µg/L	494.25	ppb	07:03:50
2	Mo 202.031†	12091.2	12156.4	492.24	µg/L	492.24	ppb	07:04:10
2	Ni 231.604†	27274.5	27560.3	484.55	µg/L	484.55	ppb	07:04:10
2	P 214.914†	5750.1	5628.4	2435.0	µg/L	2435.0	ppb	07:04:10

2	Pb 220.353†	6034.3	5952.2	495.68 µg/L	495.68 ppb	07:04:10
2	S 181.975 Axial†	1151.2	1008.7	991.20 µg/L	991.20 ppb	07:04:10
2	Sb 206.836†	2320.5	2214.6	478.85 µg/L	478.85 ppb	07:04:10
2	Se 196.026†	1332.1	1355.6	493.40 µg/L	493.40 ppb	07:04:10
2	SiO2†	57411.4	56009.0	5274.3 µg/L	5274.3 ppb	07:03:50
2	Si 251.611†	70842.6	70832.6	2451.7 µg/L	2451.7 ppb	07:03:50
2	Sn 189.927†	5149.3	5148.8	495.03 µg/L	495.03 ppb	07:04:10
2	Ti 334.940†	217014.3	218684.7	494.59 µg/L	494.59 ppb	07:03:50
2	Tl 190.801†	2826.5	2995.2	492.39 µg/L	492.39 ppb	07:04:10
2	U 367.007†	4007.3	2599.0	453.7 µg/L	453.7 ppb	07:03:50
2	V 292.402†	76640.5	76529.4	496.51 µg/L	496.51 ppb	07:03:50
2	Zn 213.857†	91589.9	91172.4	492.08 µg/L	492.08 ppb	07:03:50
3	Sc RADIAL	8141.4	8141.4	96.6 %		07:03:13
3	Al 396.153Radial†	9500.0	10569.0	5190.7 µg/L	5190.7 ppb	07:02:53
3	Ca 317.933Radial†	10281.2	10532.7	5130.3 µg/L	5130.3 ppb	07:03:13
3	Fe 238.204 Radial†	3295.0	3399.4	5214.8 µg/L	5214.8 ppb	07:03:13
3	K 766.490 Radial†	9415.5	9341.9	5097.0 µg/L	5097.0 ppb	07:02:53
3	Mg 279.077 IEC†	817.1	834.5	5204.1 µg/L	5204.1 ppb	07:03:13
3	Na 589.592 Radial†	229.2	232.3	9510.5 µg/L	9510.5 ppb	07:03:13
3	Sr 421.552†	19145.3	19812.1	505.19 µg/L	505.19 ppb	07:02:53
3	Sc 361.383	615765.2	615765.2	98.399 %		07:04:18
3	Y 371.029	691338.7	691338.7	97.366 %		07:04:18
3	Ag 328.068†	96093.3	98596.5	494.56 µg/L	494.56 ppb	07:04:18
3	As 188.979†	1649.5	1654.2	501.77 µg/L	501.77 ppb	07:04:38
3	B 249.677†	24999.4	25214.1	508.95 µg/L	508.95 ppb	07:04:18
3	Ba 233.527†	86422.2	87699.3	493.60 µg/L	493.60 ppb	07:04:18
3	Be 313.107†	1202813.7	1227830.7	492.32 µg/L	492.32 ppb	07:04:18
3	Cd 226.502†	80304.1	81864.0	495.55 µg/L	495.55 ppb	07:04:18
3	Co 228.616†	29304.7	30109.1	490.06 µg/L	490.06 ppb	07:04:38
3	Cr 267.716†	38692.6	39205.5	491.89 µg/L	491.89 ppb	07:04:18
3	Cu 324.752†	118551.6	117987.1	492.44 µg/L	492.44 ppb	07:04:18
3	Mn 257.610†	492857.4	500034.4	493.06 µg/L	493.06 ppb	07:04:18
3	Mo 202.031†	12072.4	12285.4	497.46 µg/L	497.46 ppb	07:04:38
3	Ni 231.604†	27239.2	27858.6	489.80 µg/L	489.80 ppb	07:04:38
3	P 214.914†	5732.6	5681.0	2457.9 µg/L	2457.9 ppb	07:04:38
3	Pb 220.353†	6024.5	6016.2	501.00 µg/L	501.00 ppb	07:04:38
3	S 181.975 Axial†	1148.9	1020.6	1002.8 µg/L	1002.8 ppb	07:04:38
3	Sb 206.836†	2345.2	2268.2	490.59 µg/L	490.59 ppb	07:04:38
3	Se 196.026†	1336.6	1376.5	500.99 µg/L	500.99 ppb	07:04:38
3	SiO2†	56561.3	55848.5	5259.2 µg/L	5259.2 ppb	07:04:18
3	Si 251.611†	69731.8	70571.7	2442.5 µg/L	2442.5 ppb	07:04:18
3	Sn 189.927†	5156.2	5218.9	501.75 µg/L	501.75 ppb	07:04:38
3	Ti 334.940†	214217.8	218501.6	494.17 µg/L	494.17 ppb	07:04:18
3	Tl 190.801†	2810.1	3013.2	495.31 µg/L	495.31 ppb	07:04:38
3	U 367.007†	4065.3	2707.0	473.4 µg/L	473.4 ppb	07:04:18
3	V 292.402†	75511.7	76321.3	495.25 µg/L	495.25 ppb	07:04:18
3	Zn 213.857†	90107.3	90787.9	489.95 µg/L	489.95 ppb	07:04:18

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	620108.4	99.093	%	0.6219				0.63%
Sc RADIAL	8185.7	97.1	%	0.46				0.48%
Y 371.029	695876.0	98.005	%	0.5727				0.58%
Ag 328.068†	98575.0	494.46	µg/L	0.354	494.46	ppb	0.354	0.07%
QC value within limits for Ag 328.068 Recovery = 98.89%								
Al 396.153Radial†	10469.6	5141.8	µg/L	47.96	5141.8	ppb	47.96	0.93%
QC value within limits for Al 396.153Radial Recovery = 102.84%								
As 188.979†	1653.1	501.42	µg/L	1.813	501.42	ppb	1.813	0.36%
QC value within limits for As 188.979 Recovery = 100.28%								
B 249.677†	25311.1	510.76	µg/L	1.680	510.76	ppb	1.680	0.33%
QC value within limits for B 249.677 Recovery = 102.15%								
Ba 233.527†	87903.3	494.74	µg/L	1.037	494.74	ppb	1.037	0.21%
QC value within limits for Ba 233.527 Recovery = 98.95%								
Be 313.107†	1230109.7	493.23	µg/L	0.871	493.23	ppb	0.871	0.18%
QC value within limits for Be 313.107 Recovery = 98.65%								
Ca 317.933Radial†	10499.4	5114.1	µg/L	14.06	5114.1	ppb	14.06	0.28%
QC value within limits for Ca 317.933Radial Recovery = 102.28%								
Cd 226.502†	82091.2	496.93	µg/L	1.687	496.93	ppb	1.687	0.34%
QC value within limits for Cd 226.502 Recovery = 99.39%								

Co 228.616†	29995.9	488.22 µg/L	2.239	488.22 ppb	2.239	0.46%
QC value within limits for Co 228.616 Recovery = 97.64%						
Cr 267.716†	39223.0	492.12 µg/L	0.293	492.12 ppb	0.293	0.06%
QC value within limits for Cr 267.716 Recovery = 98.42%						
Cu 324.752†	118058.8	492.74 µg/L	0.310	492.74 ppb	0.310	0.06%
QC value within limits for Cu 324.752 Recovery = 98.55%						
Fe 238.204 Radial†	3385.8	5194.0 µg/L	19.97	5194.0 ppb	19.97	0.38%
QC value within limits for Fe 238.204 Radial Recovery = 103.88%						
K 766.490 Radial†	9345.7	5099.1 µg/L	40.98	5099.1 ppb	40.98	0.80%
QC value within limits for K 766.490 Radial Recovery = 101.98%						
Mg 279.077 IEC†	834.6	5204.8 µg/L	13.61	5204.8 ppb	13.61	0.26%
QC value within limits for Mg 279.077 IEC Recovery = 104.10%						
Mn 257.610†	500571.8	493.59 µg/L	0.607	493.59 ppb	0.607	0.12%
QC value within limits for Mn 257.610 Recovery = 98.72%						
Mo 202.031†	12238.9	495.58 µg/L	2.898	495.58 ppb	2.898	0.58%
QC value within limits for Mo 202.031 Recovery = 99.12%						
Na 589.592 Radial†	233.5	9559.6 µg/L	76.13	9559.6 ppb	76.13	0.80%
QC value within limits for Na 589.592 Radial Recovery = 95.60%						
Ni 231.604†	27734.0	487.60 µg/L	2.728	487.60 ppb	2.728	0.56%
QC value within limits for Ni 231.604 Recovery = 97.52%						
P 214.914†	5663.5	2450.3 µg/L	13.21	2450.3 ppb	13.21	0.54%
QC value within limits for P 214.914 Recovery = 98.01%						
Pb 220.353†	5983.5	498.29 µg/L	2.658	498.29 ppb	2.658	0.53%
QC value within limits for Pb 220.353 Recovery = 99.66%						
S 181.975 Axial†	1015.1	997.41 µg/L	5.838	997.41 ppb	5.838	0.59%
QC value within limits for S 181.975 Axial Recovery = 99.74%						
Sb 206.836†	2239.4	484.30 µg/L	5.917	484.30 ppb	5.917	1.22%
QC value within limits for Sb 206.836 Recovery = 96.86%						
Se 196.026†	1367.7	497.80 µg/L	3.941	497.80 ppb	3.941	0.79%
QC value within limits for Se 196.026 Recovery = 99.56%						
SiO2†	55974.3	5271.0 µg/L	10.60	5271.0 ppb	10.60	0.20%
QC value within limits for SiO2 Recovery = 98.57%						
Si 251.611†	70754.1	2448.9 µg/L	5.53	2448.9 ppb	5.53	0.23%
QC value within limits for Si 251.611 Recovery = 97.96%						
Sn 189.927†	5186.5	498.64 µg/L	3.386	498.64 ppb	3.386	0.68%
QC value within limits for Sn 189.927 Recovery = 99.73%						
Sr 421.552†	19674.7	501.69 µg/L	3.302	501.69 ppb	3.302	0.66%
QC value within limits for Sr 421.552 Recovery = 100.34%						
Ti 334.940†	218610.9	494.42 µg/L	0.221	494.42 ppb	0.221	0.04%
QC value within limits for Ti 334.940 Recovery = 98.88%						
Tl 190.801†	3012.0	495.12 µg/L	2.642	495.12 ppb	2.642	0.53%
QC value within limits for Tl 190.801 Recovery = 99.02%						
U 367.007†	2673.0	467.3 µg/L	11.76	467.3 ppb	11.76	2.52%
QC value within limits for U 367.007 Recovery = 93.45%						
V 292.402†	76376.1	495.57 µg/L	0.827	495.57 ppb	0.827	0.17%
QC value within limits for V 292.402 Recovery = 99.11%						
Zn 213.857†	90963.5	490.92 µg/L	1.078	490.92 ppb	1.078	0.22%
QC value within limits for Zn 213.857 Recovery = 98.18%						

All analyte(s) passed QC.

Sequence No.: 4 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/16/2016 07:04:46**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8295.3	8295.3	98.4	%			07:05:15
1	Al 396.153Radial†	-677.8	47.8	23.558	µg/L	23.558	ppb	07:05:15
1	Ca 317.933Radial†	117.6	10.9	5.3106	µg/L	5.3106	ppb	07:05:35
1	Fe 238.204 Radial†	12.6	1.8	2.8213	µg/L	2.8213	ppb	07:05:35
1	K 766.490 Radial†	469.0	73.1	39.861	µg/L	39.861	ppb	07:05:15
1	Mg 279.077 IEC†	10.8	-0.2	-1.4481	µg/L	-1.4481	ppb	07:05:35
1	Na 589.592 Radial†	4.8	-0.1	-2.0550	µg/L	-2.0550	ppb	07:05:35
1	Sr 421.552†	36.8	33.5	0.8556	µg/L	0.8556	ppb	07:05:15
1	Sc 361.383	610245.9	610245.9	97.517	%			07:06:31
1	Y 371.029	692000.8	692000.8	97.459	%			07:06:31
1	Ag 328.068†	-865.5	51.9	0.2524	µg/L	0.2524	ppb	07:06:31
1	As 188.979†	12.2	-9.6	-2.8902	µg/L	-2.8902	ppb	07:06:51
1	B 249.677†	288.6	103.9	2.0352	µg/L	2.0352	ppb	07:06:51
1	Ba 233.527†	138.0	12.2	0.0687	µg/L	0.0687	ppb	07:06:51
1	Be 313.107†	-5399.4	-93.8	-0.0333	µg/L	-0.0333	ppb	07:06:31
1	Cd 226.502†	-211.0	36.7	0.2221	µg/L	0.2221	ppb	07:06:51
1	Co 228.616†	-344.6	-25.9	-0.4228	µg/L	-0.4228	ppb	07:06:51
1	Cr 267.716†	111.7	-2.3	-0.0409	µg/L	-0.0409	ppb	07:06:51
1	Cu 324.752†	2571.8	143.6	0.6085	µg/L	0.6085	ppb	07:06:31
1	Mn 257.610†	848.5	26.7	0.0265	µg/L	0.0265	ppb	07:06:51
1	Mo 202.031†	-15.5	0.7	0.0277	µg/L	0.0277	ppb	07:06:51
1	Ni 231.604†	-175.9	-4.2	-0.0748	µg/L	-0.0748	ppb	07:06:51
1	P 214.914†	125.6	-16.0	-6.9878	µg/L	-6.9878	ppb	07:06:51
1	Pb 220.353†	93.9	-10.1	-0.8588	µg/L	-0.8588	ppb	07:06:51
1	S 181.975 Axial†	156.1	13.0	12.759	µg/L	12.759	ppb	07:06:51
1	Sb 206.836†	119.4	7.2	1.5706	µg/L	1.5706	ppb	07:06:51
1	Se 196.026†	-7.2	10.7	3.8814	µg/L	3.8814	ppb	07:06:51
1	SiO2†	1648.8	57.5	5.4104	µg/L	5.4104	ppb	07:06:31
1	Si 251.611†	360.6	74.9	2.5993	µg/L	2.5993	ppb	07:06:51
1	Sn 189.927†	19.8	-0.9	-0.0877	µg/L	-0.0877	ppb	07:06:51
1	Ti 334.940†	-616.1	166.0	0.3672	µg/L	0.3672	ppb	07:06:31
1	Tl 190.801†	-137.7	16.2	2.6692	µg/L	2.6692	ppb	07:06:51
1	U 367.007†	1483.8	97.1	17.79	µg/L	17.79	ppb	07:06:31
1	V 292.402†	507.2	100.9	0.6579	µg/L	0.6579	ppb	07:06:31
1	Zn 213.857†	776.3	10.3	0.0558	µg/L	0.0558	ppb	07:06:51
2	Sc RADIAL	8239.9	8239.9	97.8	%			07:05:40
2	Al 396.153Radial†	-788.3	-69.9	-34.446	µg/L	-34.446	ppb	07:05:40
2	Ca 317.933Radial†	121.1	15.2	7.4083	µg/L	7.4083	ppb	07:06:00
2	Fe 238.204 Radial†	11.0	0.3	0.4324	µg/L	0.4324	ppb	07:06:00
2	K 766.490 Radial†	463.4	70.5	38.465	µg/L	38.465	ppb	07:05:40
2	Mg 279.077 IEC†	12.8	1.9	11.630	µg/L	11.630	ppb	07:06:00
2	Na 589.592 Radial†	4.1	-0.8	-31.199	µg/L	-31.199	ppb	07:06:00
2	Sr 421.552†	14.0	10.5	0.2680	µg/L	0.2680	ppb	07:05:40
2	Sc 361.383	611316.5	611316.5	97.688	%			07:06:57
2	Y 371.029	692559.6	692559.6	97.538	%			07:06:57
2	Ag 328.068†	-840.9	78.6	0.3899	µg/L	0.3899	ppb	07:06:57
2	As 188.979†	24.7	3.1	0.9311	µg/L	0.9311	ppb	07:07:17
2	B 249.677†	271.2	85.6	1.6705	µg/L	1.6705	ppb	07:07:17
2	Ba 233.527†	143.4	17.5	0.0985	µg/L	0.0985	ppb	07:07:17
2	Be 313.107†	-5431.4	-116.9	-0.0450	µg/L	-0.0450	ppb	07:06:57
2	Cd 226.502†	-191.4	57.2	0.3460	µg/L	0.3460	ppb	07:07:17
2	Co 228.616†	-358.3	-39.3	-0.6404	µg/L	-0.6404	ppb	07:07:17
2	Cr 267.716†	109.7	-4.6	-0.0623	µg/L	-0.0623	ppb	07:07:17
2	Cu 324.752†	2557.7	124.5	0.5234	µg/L	0.5234	ppb	07:06:57
2	Mn 257.610†	865.2	42.2	0.0412	µg/L	0.0412	ppb	07:07:17
2	Mo 202.031†	-10.5	5.8	0.2367	µg/L	0.2367	ppb	07:07:17
2	Ni 231.604†	-180.6	-8.7	-0.1540	µg/L	-0.1540	ppb	07:07:17
2	P 214.914†	125.6	-16.3	-7.1067	µg/L	-7.1067	ppb	07:07:17

2	Pb 220.353†	116.1	12.5	1.0488 µg/L	1.0488 ppb		07:07:17
2	S 181.975 Axial†	145.8	2.2	2.1857 µg/L	2.1857 ppb		07:07:17
2	Sb 206.836†	122.6	10.3	2.2424 µg/L	2.2424 ppb		07:07:17
2	Se 196.026†	-21.4	-3.8	-1.3814 µg/L	-1.3814 ppb		07:07:17
2	SiO2†	1658.4	64.4	6.0529 µg/L	6.0529 ppb		07:06:57
2	Si 251.611†	366.0	79.8	2.7644 µg/L	2.7644 ppb		07:07:17
2	Sn 189.927†	34.5	14.0	1.3439 µg/L	1.3439 ppb		07:07:17
2	Ti 334.940†	-605.7	177.7	0.3988 µg/L	0.3988 ppb		07:06:57
2	Tl 190.801†	-157.0	-3.3	-0.5321 µg/L	-0.5321 ppb		07:07:17
2	U 367.007†	1432.2	41.6	7.618 µg/L	7.618 ppb		07:06:57
2	V 292.402†	430.0	20.9	0.1407 µg/L	0.1407 ppb		07:06:57
2	Zn 213.857†	771.7	4.2	0.0225 µg/L	0.0225 ppb		07:07:17
3	Sc RADIAL	8350.5	8350.5	99.1 %			07:06:05
3	Al 396.153Radial†	-766.9	-37.6	-18.549 µg/L	-18.549 ppb		07:06:05
3	Ca 317.933Radial†	110.5	2.9	1.4063 µg/L	1.4063 ppb		07:06:25
3	Fe 238.204 Radial†	8.0	-3.0	-4.5667 µg/L	-4.5667 ppb		07:06:25
3	K 766.490 Radial†	501.7	102.9	56.111 µg/L	56.111 ppb		07:06:05
3	Mg 279.077 IEC†	12.0	1.0	5.9647 µg/L	5.9647 ppb		07:06:25
3	Na 589.592 Radial†	4.6	-0.3	-11.510 µg/L	-11.510 ppb		07:06:25
3	Sr 421.552†	34.9	31.3	0.7991 µg/L	0.7991 ppb		07:06:05
3	Sc 361.383	611831.6	611831.6	97.770 %			07:07:22
3	Y 371.029	693408.3	693408.3	97.657 %			07:07:22
3	Ag 328.068†	-1004.6	-88.0	-0.4445 µg/L	-0.4445 ppb		07:07:22
3	As 188.979†	18.2	-3.5	-1.0491 µg/L	-1.0491 ppb		07:07:42
3	B 249.677†	293.0	107.6	2.0785 µg/L	2.0785 ppb		07:07:42
3	Ba 233.527†	143.1	17.1	0.0965 µg/L	0.0965 ppb		07:07:42
3	Be 313.107†	-5334.4	-13.0	-0.0029 µg/L	-0.0029 ppb		07:07:22
3	Cd 226.502†	-187.4	61.4	0.3722 µg/L	0.3722 ppb		07:07:42
3	Co 228.616†	-348.5	-29.0	-0.4714 µg/L	-0.4714 ppb		07:07:42
3	Cr 267.716†	124.2	10.2	0.1220 µg/L	0.1220 ppb		07:07:42
3	Cu 324.752†	2514.9	78.5	0.3321 µg/L	0.3321 ppb		07:07:22
3	Mn 257.610†	863.1	39.4	0.0383 µg/L	0.0383 ppb		07:07:42
3	Mo 202.031†	-4.1	12.4	0.5010 µg/L	0.5010 ppb		07:07:42
3	Ni 231.604†	-172.6	-0.4	-0.0063 µg/L	-0.0063 ppb		07:07:42
3	P 214.914†	131.1	-10.8	-4.6971 µg/L	-4.6971 ppb		07:07:42
3	Pb 220.353†	104.9	0.9	0.0759 µg/L	0.0759 ppb		07:07:42
3	S 181.975 Axial†	156.0	12.5	12.198 µg/L	12.198 ppb		07:07:42
3	Sb 206.836†	126.6	14.2	3.1016 µg/L	3.1016 ppb		07:07:42
3	Se 196.026†	-18.7	-1.0	-0.3576 µg/L	-0.3576 ppb		07:07:42
3	SiO2†	1720.7	126.7	11.915 µg/L	11.915 ppb		07:07:22
3	Si 251.611†	359.5	72.8	2.5212 µg/L	2.5212 ppb		07:07:42
3	Sn 189.927†	30.7	10.1	0.9697 µg/L	0.9697 ppb		07:07:42
3	Ti 334.940†	-617.1	166.6	0.3724 µg/L	0.3724 ppb		07:07:22
3	Tl 190.801†	-136.8	17.5	2.8754 µg/L	2.8754 ppb		07:07:42
3	U 367.007†	1442.7	51.1	9.381 µg/L	9.381 ppb		07:07:22
3	V 292.402†	529.5	122.4	0.7941 µg/L	0.7941 ppb		07:07:22
3	Zn 213.857†	800.1	32.6	0.1773 µg/L	0.1773 ppb		07:07:42

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	611131.4	97.658	%	0.1293				0.13%
Sc RADIAL	8295.2	98.4	%	0.66				0.67%
Y 371.029	692656.2	97.551	%	0.0998				0.10%
Ag 328.068†	14.2	0.0659	µg/L	0.44739	0.0659	ppb	0.44739	678.57%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-19.9	-9.8125	µg/L	29.97261	-9.8125	ppb	29.97261	305.45%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-3.3	-1.0027	µg/L	1.91104	-1.0027	ppb	1.91104	190.58%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	99.0	1.9281	µg/L	0.22411	1.9281	ppb	0.22411	11.62%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	15.6	0.0879	µg/L	0.01666	0.0879	ppb	0.01666	18.96%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-74.6	-0.0271	µg/L	0.02168	-0.0271	ppb	0.02168	80.12%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	9.7	4.7084	µg/L	3.04593	4.7084	ppb	3.04593	64.69%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	51.8	0.3135	µg/L	0.08018	0.3135	ppb	0.08018	25.58%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	-31.4	-0.5115 µg/L	0.11419	-0.5115 ppb	0.11419	22.32%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	1.1	0.0063 µg/L	0.10077	0.0063 ppb	0.10077	>999.9%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	115.5	0.4880 µg/L	0.14153	0.4880 ppb	0.14153	29.00%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	-0.3	-0.4377 µg/L	3.77008	-0.4377 ppb	3.77008	861.42%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	82.2	44.813 µg/L	9.8100	44.813 ppb	9.8100	21.89%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	0.9	5.3821 µg/L	6.55829	5.3821 ppb	6.55829	121.85%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	36.1	0.0354 µg/L	0.00780	0.0354 ppb	0.00780	22.06%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	6.3	0.2551 µg/L	0.23719	0.2551 ppb	0.23719	92.98%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	-0.4	-14.921 µg/L	14.8686	-14.921 ppb	14.8686	99.65%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	-4.5	-0.0784 µg/L	0.07389	-0.0784 ppb	0.07389	94.27%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-14.4	-6.2639 µg/L	1.35819	-6.2639 ppb	1.35819	21.68%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	1.1	0.0886 µg/L	0.95385	0.0886 ppb	0.95385	>999.9%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	9.2	9.0477 µg/L	5.94926	9.0477 ppb	5.94926	65.75%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	10.6	2.3048 µg/L	0.76742	2.3048 ppb	0.76742	33.30%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	2.0	0.7141 µg/L	2.79029	0.7141 ppb	2.79029	390.74%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	82.9	7.7927 µg/L	3.58427	7.7927 ppb	3.58427	46.00%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	75.8	2.6283 µg/L	0.12418	2.6283 ppb	0.12418	4.72%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	7.7	0.7420 µg/L	0.74247	0.7420 ppb	0.74247	100.06%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	25.1	0.6409 µg/L	0.32419	0.6409 ppb	0.32419	50.58%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	170.1	0.3795 µg/L	0.01693	0.3795 ppb	0.01693	4.46%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	10.1	1.6708 µg/L	1.91056	1.6708 ppb	1.91056	114.35%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	63.3	11.60 µg/L	5.438	11.60 ppb	5.438	46.89%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	81.4	0.5309 µg/L	0.34473	0.5309 ppb	0.34473	64.94%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	15.7	0.0852 µg/L	0.08149	0.0852 ppb	0.08149	95.62%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

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Analysis Begun

Start Time: 11/16/2016 11:17:01 **Plasma On Time: 11/14/2016 06:15:24**
Logged In Analyst: Optima3 **Technique: ICP Continuous**
Spectrometer: Optima 5300 DV, S/N 077C7090601 **Autosampler: ESI**

Sample Information File: C:\Users\Public\PerkinElmer\ICP\Data\Sample Information\111616.sif
Batch ID:
Results Data Set: 111616
Results Library: C:\Users\Public\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/16/2016 11:17:07**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time:

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8449.6	8449.6	100	%			11:18:04
1	Al 396.153Radial†	9824.1	10533.7	5173.2	µg/L	5173.2	ppb	11:17:44
1	Ca 317.933Radial†	10775.8	10637.9	5181.5	µg/L	5181.5	ppb	11:18:04
1	Fe 238.204 Radial†	3508.4	3487.8	5350.5	µg/L	5350.5	ppb	11:18:04
1	K 766.490 Radial†	9842.4	9412.3	5135.5	µg/L	5135.5	ppb	11:17:44
1	Mg 279.077 IEC†	852.5	839.0	5232.4	µg/L	5232.4	ppb	11:18:04
1	Na 589.592 Radial†	240.2	234.6	9605.2	µg/L	9605.2	ppb	11:18:04
1	Sr 421.552†	20154.8	20096.1	512.43	µg/L	512.43	ppb	11:17:44
1	Sc 361.383	638528.7	638528.7	102.04	%			11:19:03
1	Y 371.029	716639.3	716639.3	100.93	%			11:19:03
1	Ag 328.068†	100474.1	99408.4	498.66	µg/L	498.66	ppb	11:19:03
1	As 188.979†	1732.2	1675.5	508.21	µg/L	508.21	ppb	11:19:23
1	B 249.677†	26325.7	25608.3	517.10	µg/L	517.10	ppb	11:19:03
1	Ba 233.527†	90760.6	88820.0	499.90	µg/L	499.90	ppb	11:19:03
1	Be 313.107†	1264112.7	1244328.4	498.93	µg/L	498.93	ppb	11:19:03
1	Cd 226.502†	84637.8	83201.7	503.64	µg/L	503.64	ppb	11:19:03
1	Co 228.616†	31104.6	30811.3	501.49	µg/L	501.49	ppb	11:19:03
1	Cr 267.716†	40578.9	39652.2	497.51	µg/L	497.51	ppb	11:19:03
1	Cu 324.752†	124078.1	119108.2	497.12	µg/L	497.12	ppb	11:19:03
1	Mn 257.610†	516010.4	504869.1	497.83	µg/L	497.83	ppb	11:19:03
1	Mo 202.031†	12598.6	12363.7	500.64	µg/L	500.64	ppb	11:19:23
1	Ni 231.604†	28405.5	28014.8	492.54	µg/L	492.54	ppb	11:19:23
1	P 214.914†	6018.4	5753.4	2489.1	µg/L	2489.1	ppb	11:19:23
1	Pb 220.353†	6277.7	6046.1	503.53	µg/L	503.53	ppb	11:19:23
1	S 181.975 Axial†	1179.8	1009.2	991.67	µg/L	991.67	ppb	11:19:23
1	Sb 206.836†	2439.5	2275.6	492.14	µg/L	492.14	ppb	11:19:23
1	Se 196.026†	1407.1	1397.1	508.53	µg/L	508.53	ppb	11:19:23
1	SiO2†	59081.5	56269.2	5298.8	µg/L	5298.8	ppb	11:19:03
1	Si 251.611†	72826.5	71078.2	2460.0	µg/L	2460.0	ppb	11:19:03
1	Sn 189.927†	5401.6	5272.5	506.91	µg/L	506.91	ppb	11:19:23
1	Ti 334.940†	224232.6	220555.4	498.82	µg/L	498.82	ppb	11:19:03
1	Tl 190.801†	2982.9	3080.7	506.35	µg/L	506.35	ppb	11:19:23
1	U 367.007†	4176.3	2668.4	465.8	µg/L	465.8	ppb	11:19:03
1	V 292.402†	79125.0	77126.7	500.46	µg/L	500.46	ppb	11:19:03
1	Zn 213.857†	94750.1	92073.5	496.91	µg/L	496.91	ppb	11:19:03
2	Sc RADIAL	8468.5	8468.5	100	%			11:18:29
2	Al 396.153Radial†	9811.7	10499.4	5156.3	µg/L	5156.3	ppb	11:18:09
2	Ca 317.933Radial†	10821.8	10659.7	5192.1	µg/L	5192.1	ppb	11:18:29
2	Fe 238.204 Radial†	3526.3	3497.8	5365.8	µg/L	5365.8	ppb	11:18:29
2	K 766.490 Radial†	9769.8	9318.1	5084.1	µg/L	5084.1	ppb	11:18:09
2	Mg 279.077 IEC†	869.6	854.1	5326.3	µg/L	5326.3	ppb	11:18:29
2	Na 589.592 Radial†	249.7	243.5	9970.8	µg/L	9970.8	ppb	11:18:29
2	Sr 421.552†	20224.4	20120.4	513.05	µg/L	513.05	ppb	11:18:09
2	Sc 361.383	638508.1	638508.1	102.03	%			11:19:31
2	Y 371.029	716337.2	716337.2	100.89	%			11:19:31
2	Ag 328.068†	100565.5	99501.1	499.13	µg/L	499.13	ppb	11:19:31

2	As 188.979†	1742.5	1685.7	511.26 µg/L	511.26 ppb	11:19:51
2	B 249.677†	26325.5	25608.9	517.17 µg/L	517.17 ppb	11:19:31
2	Ba 233.527†	90571.5	88637.6	498.87 µg/L	498.87 ppb	11:19:31
2	Be 313.107†	1262810.4	1243091.9	498.44 µg/L	498.44 ppb	11:19:31
2	Cd 226.502†	84351.8	82924.2	501.96 µg/L	501.96 ppb	11:19:31
2	Co 228.616†	31096.2	30804.1	501.37 µg/L	501.37 ppb	11:19:31
2	Cr 267.716†	40576.9	39651.5	497.50 µg/L	497.50 ppb	11:19:31
2	Cu 324.752†	124010.9	119046.2	496.86 µg/L	496.86 ppb	11:19:31
2	Mn 257.610†	515793.4	504672.7	497.64 µg/L	497.64 ppb	11:19:31
2	Mo 202.031†	12589.3	12355.0	500.28 µg/L	500.28 ppb	11:19:51
2	Ni 231.604†	28383.7	27994.3	492.18 µg/L	492.18 ppb	11:19:51
2	P 214.914†	5999.7	5735.3	2481.3 µg/L	2481.3 ppb	11:19:51
2	Pb 220.353†	6266.5	6035.2	502.64 µg/L	502.64 ppb	11:19:51
2	S 181.975 Axial†	1182.1	1011.5	993.94 µg/L	993.94 ppb	11:19:51
2	Sb 206.836†	2415.7	2252.3	487.07 µg/L	487.07 ppb	11:19:51
2	Se 196.026†	1417.1	1407.0	512.10 µg/L	512.10 ppb	11:19:51
2	SiO2†	59048.5	56238.7	5296.0 µg/L	5296.0 ppb	11:19:31
2	Si 251.611†	72760.9	71016.2	2457.9 µg/L	2457.9 ppb	11:19:31
2	Sn 189.927†	5388.5	5259.8	505.69 µg/L	505.69 ppb	11:19:51
2	Ti 334.940†	224125.5	220457.5	498.61 µg/L	498.61 ppb	11:19:31
2	Tl 190.801†	2987.4	3085.3	507.09 µg/L	507.09 ppb	11:19:51
2	U 367.007†	4127.6	2620.9	457.0 µg/L	457.0 ppb	11:19:31
2	V 292.402†	78954.0	76961.6	499.39 µg/L	499.39 ppb	11:19:31
2	Zn 213.857†	94598.4	91927.8	496.12 µg/L	496.12 ppb	11:19:31
3	Sc RADIAL	8458.9	8458.9	100 %		11:18:54
3	Al 396.153Radial†	9877.1	10575.7	5193.9 µg/L	5193.9 ppb	11:18:34
3	Ca 317.933Radial†	10815.3	10665.4	5194.9 µg/L	5194.9 ppb	11:18:54
3	Fe 238.204 Radial†	3539.7	3515.1	5392.4 µg/L	5392.4 ppb	11:18:54
3	K 766.490 Radial†	9742.4	9301.9	5075.3 µg/L	5075.3 ppb	11:18:34
3	Mg 279.077 IEC†	862.2	847.8	5286.9 µg/L	5286.9 ppb	11:18:54
3	Na 589.592 Radial†	249.3	243.4	9965.9 µg/L	9965.9 ppb	11:18:54
3	Sr 421.552†	20422.6	20340.8	518.67 µg/L	518.67 ppb	11:18:34
3	Sc 361.383	635316.6	635316.6	101.52 %		11:19:59
3	Y 371.029	713104.6	713104.6	100.43 %		11:19:59
3	Ag 328.068†	100354.3	99788.2	500.56 µg/L	500.56 ppb	11:19:59
3	As 188.979†	1716.4	1668.5	506.12 µg/L	506.12 ppb	11:20:19
3	B 249.677†	26232.2	25646.7	518.01 µg/L	518.01 ppb	11:19:59
3	Ba 233.527†	90128.4	88647.1	498.93 µg/L	498.93 ppb	11:19:59
3	Be 313.107†	1257843.7	1244417.1	498.97 µg/L	498.97 ppb	11:19:59
3	Cd 226.502†	84109.4	83100.7	503.03 µg/L	503.03 ppb	11:19:59
3	Co 228.616†	30953.4	30816.6	501.57 µg/L	501.57 ppb	11:19:59
3	Cr 267.716†	40377.4	39654.8	497.53 µg/L	497.53 ppb	11:19:59
3	Cu 324.752†	123661.2	119312.4	497.98 µg/L	497.98 ppb	11:19:59
3	Mn 257.610†	513627.9	505079.2	498.04 µg/L	498.04 ppb	11:19:59
3	Mo 202.031†	12533.0	12361.6	500.55 µg/L	500.55 ppb	11:20:19
3	Ni 231.604†	28311.9	28063.3	493.39 µg/L	493.39 ppb	11:20:19
3	P 214.914†	5969.2	5734.7	2481.0 µg/L	2481.0 ppb	11:20:19
3	Pb 220.353†	6223.7	6024.0	501.68 µg/L	501.68 ppb	11:20:19
3	S 181.975 Axial†	1177.6	1012.8	995.26 µg/L	995.26 ppb	11:20:19
3	Sb 206.836†	2411.9	2260.5	488.84 µg/L	488.84 ppb	11:20:19
3	Se 196.026†	1392.1	1389.4	505.74 µg/L	505.74 ppb	11:20:19
3	SiO2†	58784.7	56269.6	5298.9 µg/L	5298.9 ppb	11:19:59
3	Si 251.611†	72550.6	71167.4	2463.1 µg/L	2463.1 ppb	11:19:59
3	Sn 189.927†	5347.5	5246.0	504.37 µg/L	504.37 ppb	11:20:19
3	Ti 334.940†	223146.7	220596.9	498.91 µg/L	498.91 ppb	11:19:59
3	Tl 190.801†	2991.1	3103.6	510.11 µg/L	510.11 ppb	11:20:19
3	U 367.007†	4204.9	2717.3	474.6 µg/L	474.6 ppb	11:19:59
3	V 292.402†	78728.6	77128.3	500.48 µg/L	500.48 ppb	11:19:59
3	Zn 213.857†	94101.1	91903.7	495.97 µg/L	495.97 ppb	11:19:59

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	637451.1	101.86	%	0.295				0.29%
Sc RADIAL	8459.0	100	%	0.11				0.11%
Y 371.029	715360.3	100.75	%	0.276				0.27%
Ag 328.068†	99565.9	499.45	µg/L	0.992	499.45	ppb	0.992	0.20%
QC value within limits for Ag 328.068 Recovery = 99.89%								
Al 396.153Radial†	10536.3	5174.5	µg/L	18.82	5174.5	ppb	18.82	0.36%
QC value within limits for Al 396.153Radial Recovery = 103.49%								

As 188.979†	1676.6	508.53 µg/L	2.588	508.53 ppb	2.588	0.51%
QC value within limits for As 188.979 Recovery = 101.71%						
B 249.677†	25621.3	517.43 µg/L	0.506	517.43 ppb	0.506	0.10%
QC value within limits for B 249.677 Recovery = 103.49%						
Ba 233.527†	88701.6	499.23 µg/L	0.579	499.23 ppb	0.579	0.12%
QC value within limits for Ba 233.527 Recovery = 99.85%						
Be 313.107†	1243945.8	498.78 µg/L	0.299	498.78 ppb	0.299	0.06%
QC value within limits for Be 313.107 Recovery = 99.76%						
Ca 317.933Radial†	10654.3	5189.5 µg/L	7.07	5189.5 ppb	7.07	0.14%
QC value within limits for Ca 317.933Radial Recovery = 103.79%						
Cd 226.502†	83075.5	502.88 µg/L	0.852	502.88 ppb	0.852	0.17%
QC value within limits for Cd 226.502 Recovery = 100.58%						
Co 228.616†	30810.7	501.48 µg/L	0.101	501.48 ppb	0.101	0.02%
QC value within limits for Co 228.616 Recovery = 100.30%						
Cr 267.716†	39652.9	497.51 µg/L	0.016	497.51 ppb	0.016	0.00%
QC value within limits for Cr 267.716 Recovery = 99.50%						
Cu 324.752†	119155.6	497.32 µg/L	0.586	497.32 ppb	0.586	0.12%
QC value within limits for Cu 324.752 Recovery = 99.46%						
Fe 238.204 Radial†	3500.3	5369.6 µg/L	21.21	5369.6 ppb	21.21	0.40%
QC value within limits for Fe 238.204 Radial Recovery = 107.39%						
K 766.490 Radial†	9344.1	5098.3 µg/L	32.51	5098.3 ppb	32.51	0.64%
QC value within limits for K 766.490 Radial Recovery = 101.97%						
Mg 279.077 IEC†	846.9	5281.9 µg/L	47.13	5281.9 ppb	47.13	0.89%
QC value within limits for Mg 279.077 IEC Recovery = 105.64%						
Mn 257.610†	504873.7	497.84 µg/L	0.202	497.84 ppb	0.202	0.04%
QC value within limits for Mn 257.610 Recovery = 99.57%						
Mo 202.031†	12360.1	500.49 µg/L	0.184	500.49 ppb	0.184	0.04%
QC value within limits for Mo 202.031 Recovery = 100.10%						
Na 589.592 Radial†	240.5	9847.3 µg/L	209.68	9847.3 ppb	209.68	2.13%
QC value within limits for Na 589.592 Radial Recovery = 98.47%						
Ni 231.604†	28024.1	492.70 µg/L	0.623	492.70 ppb	0.623	0.13%
QC value within limits for Ni 231.604 Recovery = 98.54%						
P 214.914†	5741.1	2483.8 µg/L	4.63	2483.8 ppb	4.63	0.19%
QC value within limits for P 214.914 Recovery = 99.35%						
Pb 220.353†	6035.1	502.62 µg/L	0.924	502.62 ppb	0.924	0.18%
QC value within limits for Pb 220.353 Recovery = 100.52%						
S 181.975 Axial†	1011.2	993.62 µg/L	1.813	993.62 ppb	1.813	0.18%
QC value within limits for S 181.975 Axial Recovery = 99.36%						
Sb 206.836†	2262.8	489.35 µg/L	2.572	489.35 ppb	2.572	0.53%
QC value within limits for Sb 206.836 Recovery = 97.87%						
Se 196.026†	1397.8	508.79 µg/L	3.191	508.79 ppb	3.191	0.63%
QC value within limits for Se 196.026 Recovery = 101.76%						
SiO2†	56259.1	5297.9 µg/L	1.67	5297.9 ppb	1.67	0.03%
QC value within limits for SiO2 Recovery = 99.07%						
Si 251.611†	71087.3	2460.3 µg/L	2.64	2460.3 ppb	2.64	0.11%
QC value within limits for Si 251.611 Recovery = 98.41%						
Sn 189.927†	5259.5	505.65 µg/L	1.268	505.65 ppb	1.268	0.25%
QC value within limits for Sn 189.927 Recovery = 101.13%						
Sr 421.552†	20185.8	514.72 µg/L	3.438	514.72 ppb	3.438	0.67%
QC value within limits for Sr 421.552 Recovery = 102.94%						
Ti 334.940†	220536.6	498.78 µg/L	0.158	498.78 ppb	0.158	0.03%
QC value within limits for Ti 334.940 Recovery = 99.76%						
Tl 190.801†	3089.9	507.85 µg/L	1.992	507.85 ppb	1.992	0.39%
QC value within limits for Tl 190.801 Recovery = 101.57%						
U 367.007†	2668.9	465.8 µg/L	8.79	465.8 ppb	8.79	1.89%
QC value within limits for U 367.007 Recovery = 93.16%						
V 292.402†	77072.2	500.11 µg/L	0.620	500.11 ppb	0.620	0.12%
QC value within limits for V 292.402 Recovery = 100.02%						
Zn 213.857†	91968.4	496.33 µg/L	0.507	496.33 ppb	0.507	0.10%
QC value within limits for Zn 213.857 Recovery = 99.27%						

All analyte(s) passed QC.

Sequence No.: 2 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/16/2016 11:20:28**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8640.6	8640.6	103	%			11:20:56
1	Al 396.153Radial†	-703.2	50.5	24.873	µg/L	24.873	ppb	11:20:56
1	Ca 317.933Radial†	126.2	14.5	7.0555	µg/L	7.0555	ppb	11:21:16
1	Fe 238.204 Radial†	10.9	-0.3	-0.5248	µg/L	-0.5248	ppb	11:21:16
1	K 766.490 Radial†	338.1	-73.6	-40.156	µg/L	-40.156	ppb	11:20:56
1	Mg 279.077 IEC†	8.3	-3.1	-19.342	µg/L	-19.342	ppb	11:21:16
1	Na 589.592 Radial†	12.9	7.6	311.55	µg/L	311.55	ppb	11:21:16
1	Sr 421.552†	11.5	7.4	0.1875	µg/L	0.1875	ppb	11:20:56
1	Sc 361.383	639858.7	639858.7	102.25	%			11:22:13
1	Y 371.029	725111.3	725111.3	102.12	%			11:22:13
1	Ag 328.068†	-798.2	158.8	0.7914	µg/L	0.7914	ppb	11:22:13
1	As 188.979†	24.9	2.2	0.6562	µg/L	0.6562	ppb	11:22:33
1	B 249.677†	274.9	76.8	1.4936	µg/L	1.4936	ppb	11:22:33
1	Ba 233.527†	134.3	2.1	0.0117	µg/L	0.0117	ppb	11:22:33
1	Be 313.107†	-5530.0	34.7	0.0156	µg/L	0.0156	ppb	11:22:13
1	Cd 226.502†	-212.2	45.6	0.2760	µg/L	0.2760	ppb	11:22:33
1	Co 228.616†	-353.2	-17.9	-0.2909	µg/L	-0.2909	ppb	11:22:33
1	Cr 267.716†	128.9	9.3	0.1117	µg/L	0.1117	ppb	11:22:33
1	Cu 324.752†	2621.6	70.2	0.2960	µg/L	0.2960	ppb	11:22:13
1	Mn 257.610†	839.3	-22.7	-0.0217	µg/L	-0.0217	ppb	11:22:33
1	Mo 202.031†	-5.7	11.0	0.4467	µg/L	0.4467	ppb	11:22:33
1	Ni 231.604†	-179.0	1.1	0.0198	µg/L	0.0198	ppb	11:22:33
1	P 214.914†	137.9	-10.0	-4.3592	µg/L	-4.3592	ppb	11:22:33
1	Pb 220.353†	104.9	-3.8	-0.3288	µg/L	-0.3288	ppb	11:22:33
1	S 181.975 Axial†	167.5	16.8	16.417	µg/L	16.417	ppb	11:22:33
1	Sb 206.836†	110.3	-7.4	-1.6104	µg/L	-1.6104	ppb	11:22:33
1	Se 196.026†	0.4	18.5	6.7048	µg/L	6.7048	ppb	11:22:33
1	SiO2†	1673.6	3.5	0.3342	µg/L	0.3342	ppb	11:22:13
1	Si 251.611†	351.2	48.6	1.6818	µg/L	1.6818	ppb	11:22:33
1	Sn 189.927†	15.8	-5.8	-0.5548	µg/L	-0.5548	ppb	11:22:33
1	Ti 334.940†	-700.5	112.6	0.2520	µg/L	0.2520	ppb	11:22:13
1	Tl 190.801†	-143.2	17.3	2.8422	µg/L	2.8422	ppb	11:22:33
1	U 367.007†	1492.5	35.2	6.453	µg/L	6.453	ppb	11:22:13
1	V 292.402†	476.6	46.9	0.3087	µg/L	0.3087	ppb	11:22:13
1	Zn 213.857†	701.9	-99.3	-0.5403	µg/L	-0.5403	ppb	11:22:33
2	Sc RADIAL	8572.6	8572.6	102	%			11:21:21
2	Al 396.153Radial†	-763.1	-13.8	-6.8114	µg/L	-6.8114	ppb	11:21:21
2	Ca 317.933Radial†	115.3	4.8	2.3253	µg/L	2.3253	ppb	11:21:41
2	Fe 238.204 Radial†	8.9	-2.3	-3.5357	µg/L	-3.5357	ppb	11:21:41
2	K 766.490 Radial†	379.9	-29.9	-16.312	µg/L	-16.312	ppb	11:21:21
2	Mg 279.077 IEC†	12.2	0.8	4.9367	µg/L	4.9367	ppb	11:21:41
2	Na 589.592 Radial†	3.3	-1.7	-70.562	µg/L	-70.562	ppb	11:21:41
2	Sr 421.552†	21.1	16.9	0.4316	µg/L	0.4316	ppb	11:21:21
2	Sc 361.383	642541.0	642541.0	102.68	%			11:22:39
2	Y 371.029	728698.4	728698.4	102.63	%			11:22:39
2	Ag 328.068†	-894.4	68.4	0.3406	µg/L	0.3406	ppb	11:22:39
2	As 188.979†	18.3	-4.3	-1.2923	µg/L	-1.2923	ppb	11:22:59
2	B 249.677†	285.8	86.3	1.6662	µg/L	1.6662	ppb	11:22:59
2	Ba 233.527†	127.9	-4.8	-0.0268	µg/L	-0.0268	ppb	11:22:59
2	Be 313.107†	-5588.5	0.3	0.0006	µg/L	0.0006	ppb	11:22:39
2	Cd 226.502†	-218.4	40.4	0.2449	µg/L	0.2449	ppb	11:22:59
2	Co 228.616†	-333.2	3.0	0.0494	µg/L	0.0494	ppb	11:22:59
2	Cr 267.716†	144.3	23.7	0.2965	µg/L	0.2965	ppb	11:22:59
2	Cu 324.752†	2703.1	138.9	0.5798	µg/L	0.5798	ppb	11:22:39
2	Mn 257.610†	800.2	-64.1	-0.0636	µg/L	-0.0636	ppb	11:22:59
2	Mo 202.031†	-8.4	8.4	0.3415	µg/L	0.3415	ppb	11:22:59
2	Ni 231.604†	-173.7	6.9	0.1221	µg/L	0.1221	ppb	11:22:59
2	P 214.914†	131.8	-16.6	-7.2088	µg/L	-7.2088	ppb	11:22:59

2	Pb 220.353†	127.8	18.1	1.5081 µg/L	1.5081 ppb	11:22:59
2	S 181.975 Axial†	167.8	16.3	15.999 µg/L	15.999 ppb	11:22:59
2	Sb 206.836†	112.3	-5.8	-1.2742 µg/L	-1.2742 ppb	11:22:59
2	Se 196.026†	-12.5	5.9	2.1352 µg/L	2.1352 ppb	11:22:59
2	SiO2†	1700.1	22.5	2.1241 µg/L	2.1241 ppb	11:22:39
2	Si 251.611†	337.6	33.9	1.1739 µg/L	1.1739 ppb	11:22:59
2	Sn 189.927†	21.5	-0.3	-0.0254 µg/L	-0.0254 ppb	11:22:59
2	Ti 334.940†	-681.1	134.4	0.3035 µg/L	0.3035 ppb	11:22:39
2	Tl 190.801†	-141.5	19.5	3.2068 µg/L	3.2068 ppb	11:22:59
2	U 367.007†	1470.8	8.0	1.479 µg/L	1.479 ppb	11:22:39
2	V 292.402†	423.1	-7.1	-0.0414 µg/L	-0.0414 ppb	11:22:39
2	Zn 213.857†	675.9	-127.5	-0.6959 µg/L	-0.6959 ppb	11:22:59
3	Sc RADIAL	8721.6	8721.6	104 %		11:21:46
3	Al 396.153Radial†	-727.0	33.9	16.689 µg/L	16.689 ppb	11:21:46
3	Ca 317.933Radial†	102.9	-9.2	-4.4720 µg/L	-4.4720 ppb	11:22:06
3	Fe 238.204 Radial†	7.6	-3.7	-5.6309 µg/L	-5.6309 ppb	11:22:06
3	K 766.490 Radial†	416.2	-1.2	-0.6890 µg/L	-0.6890 ppb	11:21:46
3	Mg 279.077 IEC†	8.6	-2.9	-18.141 µg/L	-18.141 ppb	11:22:06
3	Na 589.592 Radial†	11.6	6.3	257.20 µg/L	257.20 ppb	11:22:06
3	Sr 421.552†	18.0	13.6	0.3470 µg/L	0.3470 ppb	11:21:46
3	Sc 361.383	643028.2	643028.2	102.76 %		11:23:05
3	Y 371.029	729197.6	729197.6	102.70 %		11:23:05
3	Ag 328.068†	-882.2	80.9	0.4077 µg/L	0.4077 ppb	11:23:05
3	As 188.979†	21.0	-1.7	-0.4967 µg/L	-0.4967 ppb	11:23:25
3	B 249.677†	243.1	44.5	0.8452 µg/L	0.8452 ppb	11:23:25
3	Ba 233.527†	125.1	-7.6	-0.0425 µg/L	-0.0425 ppb	11:23:25
3	Be 313.107†	-5642.0	-47.7	-0.0212 µg/L	-0.0212 ppb	11:23:05
3	Cd 226.502†	-212.9	45.9	0.2789 µg/L	0.2789 ppb	11:23:25
3	Co 228.616†	-341.8	-5.1	-0.0831 µg/L	-0.0831 ppb	11:23:25
3	Cr 267.716†	119.1	-0.9	-0.0054 µg/L	-0.0054 ppb	11:23:25
3	Cu 324.752†	2641.8	77.2	0.3172 µg/L	0.3172 ppb	11:23:05
3	Mn 257.610†	790.7	-74.0	-0.0726 µg/L	-0.0726 ppb	11:23:25
3	Mo 202.031†	-8.8	8.0	0.3234 µg/L	0.3234 ppb	11:23:25
3	Ni 231.604†	-146.3	33.8	0.5940 µg/L	0.5940 ppb	11:23:25
3	P 214.914†	121.8	-26.4	-11.469 µg/L	-11.469 ppb	11:23:25
3	Pb 220.353†	104.8	-4.3	-0.3618 µg/L	-0.3618 ppb	11:23:25
3	S 181.975 Axial†	172.0	20.4	19.926 µg/L	19.926 ppb	11:23:25
3	Sb 206.836†	124.1	5.6	1.2160 µg/L	1.2160 ppb	11:23:25
3	Se 196.026†	-15.3	3.3	1.1757 µg/L	1.1757 ppb	11:23:25
3	SiO2†	1735.5	55.8	5.2460 µg/L	5.2460 ppb	11:23:05
3	Si 251.611†	364.2	59.6	2.0668 µg/L	2.0668 ppb	11:23:25
3	Sn 189.927†	17.7	-4.0	-0.3858 µg/L	-0.3858 ppb	11:23:25
3	Ti 334.940†	-642.0	173.0	0.3953 µg/L	0.3953 ppb	11:23:05
3	Tl 190.801†	-158.0	3.6	0.5944 µg/L	0.5944 ppb	11:23:25
3	U 367.007†	1415.7	-46.8	-8.552 µg/L	-8.552 ppb	11:23:05
3	V 292.402†	426.4	-4.3	-0.0306 µg/L	-0.0306 ppb	11:23:05
3	Zn 213.857†	663.9	-139.6	-0.7635 µg/L	-0.7635 ppb	11:23:25

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	641809.3	102.56	%	0.273				0.27%
Sc RADIAL	8644.9	103	%	0.89				0.86%
Y 371.029	727669.1	102.48	%	0.314				0.31%
Ag 328.068†	102.7	0.5132	µg/L	0.24319	0.5132	ppb	0.24319	47.38%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	23.5	11.584	µg/L	16.4478	11.584	ppb	16.4478	141.99%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.3	-0.3776	µg/L	0.97965	-0.3776	ppb	0.97965	259.45%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	69.2	1.3350	µg/L	0.43287	1.3350	ppb	0.43287	32.43%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-3.4	-0.0192	µg/L	0.02785	-0.0192	ppb	0.02785	145.27%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-4.2	-0.0017	µg/L	0.01848	-0.0017	ppb	0.01848	>999.9%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	3.4	1.6363	µg/L	5.79459	1.6363	ppb	5.79459	354.13%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	44.0	0.2666	µg/L	0.01885	0.2666	ppb	0.01885	7.07%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	-6.6	-0.1082 µg/L	0.17156	-0.1082 ppb	0.17156	158.55%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	10.7	0.1343 µg/L	0.15220	0.1343 ppb	0.15220	113.36%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	95.5	0.3977 µg/L	0.15807	0.3977 ppb	0.15807	39.75%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	-2.1	-3.2305 µg/L	2.56668	-3.2305 ppb	2.56668	79.45%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	-34.9	-19.053 µg/L	19.8759	-19.053 ppb	19.8759	104.32%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	-1.7	-10.849 µg/L	13.6838	-10.849 ppb	13.6838	126.13%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	-53.6	-0.0526 µg/L	0.02718	-0.0526 ppb	0.02718	51.65%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	9.2	0.3705 µg/L	0.06656	0.3705 ppb	0.06656	17.96%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	4.1	166.06 µg/L	206.718	166.06 ppb	206.718	124.48%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	13.9	0.2453 µg/L	0.30629	0.2453 ppb	0.30629	124.86%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-17.6	-7.6790 µg/L	3.57821	-7.6790 ppb	3.57821	46.60%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	3.3	0.2725 µg/L	1.07019	0.2725 ppb	1.07019	392.74%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	17.8	17.447 µg/L	2.1568	17.447 ppb	2.1568	12.36%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	-2.6	-0.5562 µg/L	1.54396	-0.5562 ppb	1.54396	277.60%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	9.2	3.3386 µg/L	2.95449	3.3386 ppb	2.95449	88.50%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	27.3	2.5681 µg/L	2.48585	2.5681 ppb	2.48585	96.80%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	47.3	1.6408 µg/L	0.44783	1.6408 ppb	0.44783	27.29%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	-3.4	-0.3220 µg/L	0.27038	-0.3220 ppb	0.27038	83.96%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	12.6	0.3220 µg/L	0.12392	0.3220 ppb	0.12392	38.48%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	140.0	0.3169 µg/L	0.07258	0.3169 ppb	0.07258	22.90%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	13.5	2.2145 µg/L	1.41480	2.2145 ppb	1.41480	63.89%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	-1.2	-0.207 µg/L	7.6430	-0.207 ppb	7.6430	>999.9%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	11.8	0.0789 µg/L	0.19904	0.0789 ppb	0.19904	252.26%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	-122.1	-0.6666 µg/L	0.11445	-0.6666 ppb	0.11445	17.17%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 3 Autosampler Location: 301
Sample ID: 1203657600|1611119|1| Date Collected: 11/16/2016 11:23:34
Analyst: HSC Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Wash Time: 5 Auto Dilution Factor: 1

Replicate Data: 1203657600|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8375.7	8375.7	99.4	%			11:24:05
1	Al 396.153Radial†	-794.2	-62.7	-30.919	µg/L	-30.919	ppb	11:24:05
1	Ca 317.933Radial†	230.1	123.0	59.892	µg/L	59.892	ppb	11:24:25
1	Fe 238.204 Radial†	16.9	6.0	9.2006	µg/L	9.2006	ppb	11:24:25
1	K 766.490 Radial†	458.1	57.5	31.384	µg/L	31.384	ppb	11:24:05
1	Mg 279.077 IEC†	15.0	3.9	24.145	µg/L	24.145	ppb	11:24:25
1	Na 589.592 Radial†	12.4	7.6	309.29	µg/L	309.29	ppb	11:24:25
1	Sr 421.552†	40.9	37.3	0.9488	µg/L	0.9488	ppb	11:24:05
1	Sc 361.383	638285.6	638285.6	102.00	%			11:25:22
1	Y 371.029	721107.0	721107.0	101.56	%			11:25:22
1	Ag 328.068†	-907.6	49.7	0.2577	µg/L	0.2577	ppb	11:25:22
1	As 188.979†	23.8	1.2	0.3740	µg/L	0.3740	ppb	11:25:42
1	B 249.677†	312.0	113.9	2.2527	µg/L	2.2527	ppb	11:25:42
1	Ba 233.527†	168.9	36.3	0.2041	µg/L	0.2041	ppb	11:25:42
1	Be 313.107†	-5416.5	132.7	0.0497	µg/L	0.0497	ppb	11:25:22
1	Cd 226.502†	-220.8	36.6	0.2207	µg/L	0.2207	ppb	11:25:42
1	Co 228.616†	-338.3	-4.2	-0.0697	µg/L	-0.0697	ppb	11:25:42
1	Cr 267.716†	134.1	14.7	0.1968	µg/L	0.1968	ppb	11:25:42
1	Cu 324.752†	2711.7	164.9	0.6787	µg/L	0.6787	ppb	11:25:22
1	Mn 257.610†	1150.8	284.8	0.2804	µg/L	0.2804	ppb	11:25:42
1	Mo 202.031†	-9.6	7.2	0.2925	µg/L	0.2925	ppb	11:25:42
1	Ni 231.604†	-176.2	3.4	0.0598	µg/L	0.0598	ppb	11:25:42
1	P 214.914†	115.5	-31.6	-13.793	µg/L	-13.793	ppb	11:25:42
1	Pb 220.353†	140.7	31.6	2.6615	µg/L	2.6615	ppb	11:25:42
1	S 181.975 Axial†	360.5	206.4	202.01	µg/L	202.01	ppb	11:25:42
1	Sb 206.836†	123.0	5.3	1.1607	µg/L	1.1607	ppb	11:25:42
1	Se 196.026†	-7.3	11.0	3.9880	µg/L	3.9880	ppb	11:25:42
1	SiO2†	1990.4	318.1	29.920	µg/L	29.920	ppb	11:25:22
1	Si 251.611†	674.3	366.2	12.705	µg/L	12.705	ppb	11:25:42
1	Sn 189.927†	44.3	22.2	2.1280	µg/L	2.1280	ppb	11:25:42
1	Ti 334.940†	-562.3	246.5	0.5693	µg/L	0.5693	ppb	11:25:22
1	Tl 190.801†	-130.2	29.7	4.8779	µg/L	4.8779	ppb	11:25:42
1	U 367.007†	1354.3	-96.8	-17.80	µg/L	-17.80	ppb	11:25:22
1	V 292.402†	410.5	-16.7	-0.1142	µg/L	-0.1142	ppb	11:25:22
1	Zn 213.857†	1339.4	527.4	2.8701	µg/L	2.8701	ppb	11:25:42
2	Sc RADIAL	8620.3	8620.3	102	%			11:24:30
2	Al 396.153Radial†	-722.3	30.3	14.910	µg/L	14.910	ppb	11:24:30
2	Ca 317.933Radial†	230.3	116.5	56.762	µg/L	56.762	ppb	11:24:50
2	Fe 238.204 Radial†	21.0	9.5	14.631	µg/L	14.631	ppb	11:24:50
2	K 766.490 Radial†	507.3	92.5	50.467	µg/L	50.467	ppb	11:24:30
2	Mg 279.077 IEC†	10.0	-1.4	-8.9310	µg/L	-8.9310	ppb	11:24:50
2	Na 589.592 Radial†	12.0	6.8	277.92	µg/L	277.92	ppb	11:24:50
2	Sr 421.552†	34.2	29.6	0.7522	µg/L	0.7522	ppb	11:24:30
2	Sc 361.383	636803.0	636803.0	101.76	%			11:25:47
2	Y 371.029	719436.5	719436.5	101.32	%			11:25:47
2	Ag 328.068†	-875.9	78.7	0.3960	µg/L	0.3960	ppb	11:25:47
2	As 188.979†	26.3	3.7	1.1125	µg/L	1.1125	ppb	11:26:08
2	B 249.677†	310.0	112.6	2.2493	µg/L	2.2493	ppb	11:26:08
2	Ba 233.527†	143.4	11.6	0.0650	µg/L	0.0650	ppb	11:26:08
2	Be 313.107†	-5484.4	53.5	0.0220	µg/L	0.0220	ppb	11:25:47
2	Cd 226.502†	-217.2	39.6	0.2385	µg/L	0.2385	ppb	11:26:08
2	Co 228.616†	-346.3	-12.8	-0.2098	µg/L	-0.2098	ppb	11:26:08
2	Cr 267.716†	119.0	0.1	0.0015	µg/L	0.0015	ppb	11:26:08
2	Cu 324.752†	2577.0	38.7	0.1616	µg/L	0.1616	ppb	11:25:47
2	Mn 257.610†	1194.0	329.8	0.3263	µg/L	0.3263	ppb	11:26:08
2	Mo 202.031†	-6.3	10.4	0.4215	µg/L	0.4215	ppb	11:26:08
2	Ni 231.604†	-145.7	32.9	0.5784	µg/L	0.5784	ppb	11:26:08
2	P 214.914†	128.3	-18.8	-8.2058	µg/L	-8.2058	ppb	11:26:08

2	Pb 220.353†	128.4	19.8	1.6513 µg/L	1.6513 ppb	11:26:08
2	S 181.975 Axial†	363.0	209.7	205.21 µg/L	205.21 ppb	11:26:08
2	Sb 206.836†	133.6	16.1	3.5077 µg/L	3.5077 ppb	11:26:08
2	Se 196.026†	-5.4	12.8	4.6260 µg/L	4.6260 ppb	11:26:08
2	SiO2†	1937.9	271.1	25.490 µg/L	25.490 ppb	11:25:47
2	Si 251.611†	677.3	370.7	12.858 µg/L	12.858 ppb	11:26:08
2	Sn 189.927†	55.7	33.5	3.2058 µg/L	3.2058 ppb	11:26:08
2	Ti 334.940†	-635.0	173.7	0.3962 µg/L	0.3962 ppb	11:25:47
2	Tl 190.801†	-154.8	5.3	0.8694 µg/L	0.8694 ppb	11:26:08
2	U 367.007†	1447.1	-2.4	-0.516 µg/L	-0.516 ppb	11:25:47
2	V 292.402†	452.6	25.5	0.1691 µg/L	0.1691 ppb	11:25:47
2	Zn 213.857†	1326.1	517.4	2.8140 µg/L	2.8140 ppb	11:26:08
3	Sc RADIAL	8632.4	8632.4	102 %		11:24:55
3	Al 396.153Radial†	-745.4	8.7	4.3087 µg/L	4.3087 ppb	11:24:55
3	Ca 317.933Radial†	234.3	120.2	58.525 µg/L	58.525 ppb	11:25:15
3	Fe 238.204 Radial†	19.5	8.0	12.282 µg/L	12.282 ppb	11:25:15
3	K 766.490 Radial†	459.2	44.9	24.489 µg/L	24.489 ppb	11:24:55
3	Mg 279.077 IEC†	8.3	-3.1	-19.056 µg/L	-19.056 ppb	11:25:15
3	Na 589.592 Radial†	6.9	1.8	73.848 µg/L	73.848 ppb	11:25:15
3	Sr 421.552†	52.5	47.4	1.2061 µg/L	1.2061 ppb	11:24:55
3	Sc 361.383	633903.7	633903.7	101.30 %		11:26:13
3	Y 371.029	715920.1	715920.1	100.83 %		11:26:13
3	Ag 328.068†	-991.4	-39.3	-0.1887 µg/L	-0.1887 ppb	11:26:13
3	As 188.979†	31.2	8.6	2.5846 µg/L	2.5846 ppb	11:26:33
3	B 249.677†	316.2	120.1	2.3862 µg/L	2.3862 ppb	11:26:33
3	Ba 233.527†	159.3	27.9	0.1570 µg/L	0.1570 ppb	11:26:33
3	Be 313.107†	-5580.1	-65.5	-0.0285 µg/L	-0.0285 ppb	11:26:13
3	Cd 226.502†	-247.9	8.3	0.0492 µg/L	0.0492 ppb	11:26:33
3	Co 228.616†	-348.9	-16.9	-0.2779 µg/L	-0.2779 ppb	11:26:33
3	Cr 267.716†	128.0	9.5	0.1280 µg/L	0.1280 ppb	11:26:33
3	Cu 324.752†	2608.6	81.5	0.3342 µg/L	0.3342 ppb	11:26:13
3	Mn 257.610†	1142.9	284.8	0.2822 µg/L	0.2822 ppb	11:26:33
3	Mo 202.031†	-23.7	-6.8	-0.2767 µg/L	-0.2767 ppb	11:26:33
3	Ni 231.604†	-168.8	9.5	0.1658 µg/L	0.1658 ppb	11:26:33
3	P 214.914†	109.7	-36.6	-15.937 µg/L	-15.937 ppb	11:26:33
3	Pb 220.353†	97.7	-9.9	-0.8178 µg/L	-0.8178 ppb	11:26:33
3	S 181.975 Axial†	372.0	220.2	215.49 µg/L	215.49 ppb	11:26:33
3	Sb 206.836†	122.3	5.5	1.2035 µg/L	1.2035 ppb	11:26:33
3	Se 196.026†	-3.7	14.4	5.2315 µg/L	5.2315 ppb	11:26:33
3	SiO2†	1948.5	290.3	27.302 µg/L	27.302 ppb	11:26:13
3	Si 251.611†	671.4	368.0	12.773 µg/L	12.773 ppb	11:26:33
3	Sn 189.927†	42.5	20.7	1.9817 µg/L	1.9817 ppb	11:26:33
3	Ti 334.940†	-524.8	279.6	0.6416 µg/L	0.6416 ppb	11:26:13
3	Tl 190.801†	-133.2	25.9	4.2456 µg/L	4.2456 ppb	11:26:33
3	U 367.007†	1374.6	-67.5	-12.45 µg/L	-12.45 ppb	11:26:13
3	V 292.402†	452.3	27.3	0.1658 µg/L	0.1658 ppb	11:26:13
3	Zn 213.857†	1331.6	528.8	2.8796 µg/L	2.8796 ppb	11:26:33

Mean Data: 1203657600|1611119|1|

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	636330.8	101.69	%	0.356				0.35%
Sc RADIAL	8542.8	101	%	1.72				1.70%
Y 371.029	718821.2	101.24	%	0.373				0.37%
Ag 328.068†	29.7	0.1550	µg/L	0.30559	0.1550	ppb	0.30559	197.16%
Al 396.153Radial†	-7.9	-3.9000	µg/L	23.99170	-3.9000	ppb	23.99170	615.17%
As 188.979†	4.5	1.3570	µg/L	1.12541	1.3570	ppb	1.12541	82.93%
B 249.677†	115.5	2.2961	µg/L	0.07810	2.2961	ppb	0.07810	3.40%
Ba 233.527†	25.3	0.1420	µg/L	0.07077	0.1420	ppb	0.07077	49.83%
Be 313.107†	40.2	0.0144	µg/L	0.03964	0.0144	ppb	0.03964	274.84%
Ca 317.933Radial†	119.9	58.393	µg/L	1.5694	58.393	ppb	1.5694	2.69%
Cd 226.502†	28.2	0.1695	µg/L	0.10454	0.1695	ppb	0.10454	61.69%
Co 228.616†	-11.3	-0.1858	µg/L	0.10615	-0.1858	ppb	0.10615	57.12%
Cr 267.716†	8.1	0.1088	µg/L	0.09906	0.1088	ppb	0.09906	91.07%
Cu 324.752†	95.0	0.3915	µg/L	0.26327	0.3915	ppb	0.26327	67.25%
Fe 238.204 Radial†	7.8	12.038	µg/L	2.7232	12.038	ppb	2.7232	22.62%
K 766.490 Radial†	65.0	35.447	µg/L	13.4570	35.447	ppb	13.4570	37.96%
Mg 279.077 IEC†	-0.2	-1.2805	µg/L	22.59372	-1.2805	ppb	22.59372	>999.9%
Mn 257.610†	299.8	0.2963	µg/L	0.02600	0.2963	ppb	0.02600	8.78%
Mo 202.031†	3.6	0.1458	µg/L	0.37150	0.1458	ppb	0.37150	254.85%

Na 589.592 Radial†	5.4	220.35 µg/L	127.841	220.35 ppb	127.841	58.02%
Ni 231.604†	15.3	0.2680 µg/L	0.27399	0.2680 ppb	0.27399	102.23%
P 214.914†	-29.0	-12.645 µg/L	3.9912	-12.645 ppb	3.9912	31.56%
Pb 220.353†	13.8	1.1650 µg/L	1.78989	1.1650 ppb	1.78989	153.64%
S 181.975 Axial†	212.1	207.57 µg/L	7.043	207.57 ppb	7.043	3.39%
Sb 206.836†	9.0	1.9573 µg/L	1.34286	1.9573 ppb	1.34286	68.61%
Se 196.026†	12.7	4.6151 µg/L	0.62183	4.6151 ppb	0.62183	13.47%
SiO2†	293.2	27.571 µg/L	2.2272	27.571 ppb	2.2272	8.08%
Si 251.611†	368.3	12.779 µg/L	0.0766	12.779 ppb	0.0766	0.60%
Sn 189.927†	25.4	2.4385 µg/L	0.66855	2.4385 ppb	0.66855	27.42%
Sr 421.552†	38.1	0.9691 µg/L	0.22761	0.9691 ppb	0.22761	23.49%
Ti 334.940†	233.3	0.5357 µg/L	0.12611	0.5357 ppb	0.12611	23.54%
Tl 190.801†	20.3	3.3310 µg/L	2.15513	3.3310 ppb	2.15513	64.70%
U 367.007†	-55.6	-10.25 µg/L	8.847	-10.25 ppb	8.847	86.28%
V 292.402†	12.0	0.0735 µg/L	0.16263	0.0735 ppb	0.16263	221.12%
Zn 213.857†	524.5	2.8545 µg/L	0.03543	2.8545 ppb	0.03543	1.24%

Sequence No.: 4 **Autosampler Location: 302**
Sample ID: 1203657601|1611119|1| **Date Collected: 11/16/2016 11:26:43**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: 1203657601|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8453.8	8453.8	100	%			11:27:32
1	Al 396.153Radial†	9215.4	9922.0	4873.1	µg/L	4873.1	ppb	11:27:12
1	Ca 317.933Radial†	10111.1	9969.9	4856.2	µg/L	4856.2	ppb	11:27:32
1	Fe 238.204 Radial†	3398.0	3376.1	5179.1	µg/L	5179.1	ppb	11:27:32
1	K 766.490 Radial†	9239.2	8806.0	4805.0	µg/L	4805.0	ppb	11:27:12
1	Mg 279.077 IEC†	831.8	817.9	5100.6	µg/L	5100.6	ppb	11:27:32
1	Na 589.592 Radial†	123.8	118.5	4850.0	µg/L	4850.0	ppb	11:27:32
1	Sr 421.552†	19165.3	19099.7	487.03	µg/L	487.03	ppb	11:27:12
1	Sc 361.383	638774.1	638774.1	102.08	%			11:28:31
1	Y 371.029	717461.6	717461.6	101.04	%			11:28:31
1	Ag 328.068†	95900.9	94890.4	476.01	µg/L	476.01	ppb	11:28:31
1	As 188.979†	1617.3	1562.3	473.86	µg/L	473.86	ppb	11:28:51
1	B 249.677†	25701.6	24987.0	504.52	µg/L	504.52	ppb	11:28:31
1	Ba 233.527†	87094.8	85194.6	479.50	µg/L	479.50	ppb	11:28:31
1	Be 313.107†	1232695.8	1213074.4	486.39	µg/L	486.39	ppb	11:28:31
1	Cd 226.502†	80110.1	78734.3	476.59	µg/L	476.59	ppb	11:28:31
1	Co 228.616†	28626.1	28371.6	461.76	µg/L	461.76	ppb	11:28:51
1	Cr 267.716†	38414.5	37516.6	470.71	µg/L	470.71	ppb	11:28:31
1	Cu 324.752†	120137.0	115200.6	480.82	µg/L	480.82	ppb	11:28:31
1	Mn 257.610†	489570.6	478772.7	472.10	µg/L	472.10	ppb	11:28:31
1	Mo 202.031†	11665.1	11444.5	463.42	µg/L	463.42	ppb	11:28:51
1	Ni 231.604†	26556.8	26193.0	460.50	µg/L	460.50	ppb	11:28:51
1	P 214.914†	1235.6	1065.6	450.09	µg/L	450.09	ppb	11:28:51
1	Pb 220.353†	5891.3	5665.2	471.80	µg/L	471.80	ppb	11:28:51
1	S 181.975 Axial†	5180.6	4928.2	4826.8	µg/L	4826.8	ppb	11:28:51
1	Sb 206.836†	2329.9	2167.3	468.58	µg/L	468.58	ppb	11:28:51
1	Se 196.026†	1295.5	1287.2	468.65	µg/L	468.65	ppb	11:28:51
1	SiO2†	108384.0	104547.0	9839.9	µg/L	9839.9	ppb	11:28:31
1	Si 251.611†	135144.2	132101.4	4579.4	µg/L	4579.4	ppb	11:28:31
1	Sn 189.927†	5027.7	4904.2	471.53	µg/L	471.53	ppb	11:28:51
1	Ti 334.940†	211890.3	208379.7	471.28	µg/L	471.28	ppb	11:28:31
1	Tl 190.801†	2818.9	2919.0	479.83	µg/L	479.83	ppb	11:28:51
1	U 367.007†	4051.4	2544.5	443.9	µg/L	443.9	ppb	11:28:31
1	V 292.402†	75078.6	73132.8	474.45	µg/L	474.45	ppb	11:28:31
1	Zn 213.857†	88792.6	86201.4	465.18	µg/L	465.18	ppb	11:28:31
2	Sc RADIAL	8466.9	8466.9	100	%			11:27:57
2	Al 396.153Radial†	9301.3	9993.3	4908.0	µg/L	4908.0	ppb	11:27:37
2	Ca 317.933Radial†	10135.2	9978.4	4860.3	µg/L	4860.3	ppb	11:27:57
2	Fe 238.204 Radial†	3401.7	3374.5	5176.7	µg/L	5176.7	ppb	11:27:57
2	K 766.490 Radial†	9402.8	8954.7	4886.0	µg/L	4886.0	ppb	11:27:37
2	Mg 279.077 IEC†	833.3	818.2	5102.4	µg/L	5102.4	ppb	11:27:57
2	Na 589.592 Radial†	126.4	120.9	4948.5	µg/L	4948.5	ppb	11:27:57
2	Sr 421.552†	19664.9	19567.4	498.96	µg/L	498.96	ppb	11:27:37
2	Sc 361.383	636004.2	636004.2	101.63	%			11:28:59
2	Y 371.029	715474.7	715474.7	100.76	%			11:28:59
2	Ag 328.068†	95492.3	94897.6	476.04	µg/L	476.04	ppb	11:28:59
2	As 188.979†	1622.7	1574.5	477.57	µg/L	477.57	ppb	11:29:19
2	B 249.677†	25616.4	25012.8	504.99	µg/L	504.99	ppb	11:28:59
2	Ba 233.527†	86313.2	84797.2	477.26	µg/L	477.26	ppb	11:28:59
2	Be 313.107†	1224223.2	1209997.3	485.16	µg/L	485.16	ppb	11:28:59
2	Cd 226.502†	79442.2	78418.9	474.68	µg/L	474.68	ppb	11:28:59
2	Co 228.616†	28726.2	28592.1	465.35	µg/L	465.35	ppb	11:29:19
2	Cr 267.716†	38202.5	37471.9	470.15	µg/L	470.15	ppb	11:28:59
2	Cu 324.752†	119298.6	114888.1	479.51	µg/L	479.51	ppb	11:28:59
2	Mn 257.610†	485790.2	477141.8	470.49	µg/L	470.49	ppb	11:28:59
2	Mo 202.031†	11733.1	11561.2	468.15	µg/L	468.15	ppb	11:29:19
2	Ni 231.604†	26710.1	26457.1	465.14	µg/L	465.14	ppb	11:29:19
2	P 214.914†	1229.2	1064.6	449.63	µg/L	449.63	ppb	11:29:19

2	Pb 220.353†	5890.0	5689.0	473.78 µg/L	473.78 ppb	11:29:19
2	S 181.975 Axial†	5187.7	4957.2	4855.3 µg/L	4855.3 ppb	11:29:19
2	Sb 206.836†	2347.6	2194.7	474.62 µg/L	474.62 ppb	11:29:19
2	Se 196.026†	1315.2	1312.2	477.68 µg/L	477.68 ppb	11:29:19
2	SiO2†	107773.6	104408.8	9826.9 µg/L	9826.9 ppb	11:28:59
2	Si 251.611†	134385.1	131931.2	4573.4 µg/L	4573.4 ppb	11:28:59
2	Sn 189.927†	5059.3	4956.8	476.56 µg/L	476.56 ppb	11:29:19
2	Ti 334.940†	210828.7	208239.2	470.96 µg/L	470.96 ppb	11:28:59
2	Tl 190.801†	2824.1	2936.1	482.62 µg/L	482.62 ppb	11:29:19
2	U 367.007†	4017.8	2528.7	441.0 µg/L	441.0 ppb	11:28:59
2	V 292.402†	74504.9	72888.7	472.93 µg/L	472.93 ppb	11:28:59
2	Zn 213.857†	88290.9	86086.6	464.52 µg/L	464.52 ppb	11:28:59
3	Sc RADIAL	8454.2	8454.2	100 %		11:28:22
3	Al 396.153Radial†	9343.9	10049.7	4936.0 µg/L	4936.0 ppb	11:28:02
3	Ca 317.933Radial†	10119.1	9977.5	4859.9 µg/L	4859.9 ppb	11:28:22
3	Fe 238.204 Radial†	3380.9	3358.8	5152.6 µg/L	5152.6 ppb	11:28:22
3	K 766.490 Radial†	9450.6	9016.4	4919.7 µg/L	4919.7 ppb	11:28:02
3	Mg 279.077 IEC†	822.6	808.7	5043.3 µg/L	5043.3 ppb	11:28:22
3	Na 589.592 Radial†	130.4	125.1	5120.3 µg/L	5120.3 ppb	11:28:22
3	Sr 421.552†	19705.3	19637.0	500.73 µg/L	500.73 ppb	11:28:02
3	Sc 361.383	641716.7	641716.7	102.55 %		11:29:26
3	Y 371.029	720870.9	720870.9	101.52 %		11:29:26
3	Ag 328.068†	96178.7	94730.5	475.21 µg/L	475.21 ppb	11:29:26
3	As 188.979†	1617.4	1555.1	471.71 µg/L	471.71 ppb	11:29:46
3	B 249.677†	25757.5	24926.0	503.23 µg/L	503.23 ppb	11:29:26
3	Ba 233.527†	87150.0	84857.1	477.60 µg/L	477.60 ppb	11:29:26
3	Be 313.107†	1236211.0	1210964.5	485.54 µg/L	485.54 ppb	11:29:26
3	Cd 226.502†	80282.1	78542.2	475.42 µg/L	475.42 ppb	11:29:26
3	Co 228.616†	28746.1	28360.0	461.57 µg/L	461.57 ppb	11:29:46
3	Cr 267.716†	38605.3	37530.1	470.90 µg/L	470.90 ppb	11:29:26
3	Cu 324.752†	120290.1	114810.1	479.17 µg/L	479.17 ppb	11:29:26
3	Mn 257.610†	490626.8	477603.3	470.95 µg/L	470.95 ppb	11:29:26
3	Mo 202.031†	11725.0	11450.5	463.67 µg/L	463.67 ppb	11:29:46
3	Ni 231.604†	26727.0	26239.6	461.32 µg/L	461.32 ppb	11:29:46
3	P 214.914†	1245.2	1069.4	451.80 µg/L	451.80 ppb	11:29:46
3	Pb 220.353†	5922.0	5668.6	472.08 µg/L	472.08 ppb	11:29:46
3	S 181.975 Axial†	5209.5	4933.1	4831.7 µg/L	4831.7 ppb	11:29:46
3	Sb 206.836†	2329.6	2156.5	466.23 µg/L	466.23 ppb	11:29:46
3	Se 196.026†	1307.1	1292.7	470.62 µg/L	470.62 ppb	11:29:46
3	SiO2†	108609.0	104279.4	9814.7 µg/L	9814.7 ppb	11:29:26
3	Si 251.611†	135609.3	131947.9	4574.1 µg/L	4574.1 ppb	11:29:26
3	Sn 189.927†	5056.8	4910.0	472.08 µg/L	472.08 ppb	11:29:46
3	Ti 334.940†	212505.0	208027.2	470.50 µg/L	470.50 ppb	11:29:26
3	Tl 190.801†	2813.7	2901.3	476.91 µg/L	476.91 ppb	11:29:46
3	U 367.007†	3902.4	2381.0	414.0 µg/L	414.0 ppb	11:29:26
3	V 292.402†	75277.6	72989.6	473.51 µg/L	473.51 ppb	11:29:26
3	Zn 213.857†	89058.4	86061.8	464.42 µg/L	464.42 ppb	11:29:26

Mean Data: 1203657601|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	638831.7	102.08	%	0.457				0.45%
Sc RADIAL	8458.3	100	%	0.09				0.09%
Y 371.029	717935.8	101.11	%	0.384				0.38%
Ag 328.068†	94839.5	475.75	µg/L	0.467	475.75	ppb	0.467	0.10%
Al 396.153Radial†	9988.3	4905.7	µg/L	31.53	4905.7	ppb	31.53	0.64%
As 188.979†	1564.0	474.38	µg/L	2.961	474.38	ppb	2.961	0.62%
B 249.677†	24975.3	504.24	µg/L	0.914	504.24	ppb	0.914	0.18%
Ba 233.527†	84949.6	478.12	µg/L	1.206	478.12	ppb	1.206	0.25%
Be 313.107†	1211345.4	485.70	µg/L	0.632	485.70	ppb	0.632	0.13%
Ca 317.933Radial†	9975.3	4858.8	µg/L	2.25	4858.8	ppb	2.25	0.05%
Cd 226.502†	78565.1	475.56	µg/L	0.961	475.56	ppb	0.961	0.20%
Co 228.616†	28441.2	462.89	µg/L	2.134	462.89	ppb	2.134	0.46%
Cr 267.716†	37506.2	470.59	µg/L	0.389	470.59	ppb	0.389	0.08%
Cu 324.752†	114966.3	479.83	µg/L	0.869	479.83	ppb	0.869	0.18%
Fe 238.204 Radial†	3369.8	5169.5	µg/L	14.64	5169.5	ppb	14.64	0.28%
K 766.490 Radial†	8925.7	4870.2	µg/L	58.97	4870.2	ppb	58.97	1.21%
Mg 279.077 IEC†	814.9	5082.1	µg/L	33.60	5082.1	ppb	33.60	0.66%
Mn 257.610†	477839.3	471.18	µg/L	0.829	471.18	ppb	0.829	0.18%
Mo 202.031†	11485.4	465.08	µg/L	2.659	465.08	ppb	2.659	0.57%

Na 589.592 Radial†	121.5	4972.9 µg/L	136.80	4972.9 ppb	136.80	2.75%
Ni 231.604†	26296.6	462.32 µg/L	2.480	462.32 ppb	2.480	0.54%
P 214.914†	1066.5	450.51 µg/L	1.148	450.51 ppb	1.148	0.25%
Pb 220.353†	5674.3	472.55 µg/L	1.072	472.55 ppb	1.072	0.23%
S 181.975 Axial†	4939.5	4837.9 µg/L	15.25	4837.9 ppb	15.25	0.32%
Sb 206.836†	2172.8	469.81 µg/L	4.328	469.81 ppb	4.328	0.92%
Se 196.026†	1297.4	472.31 µg/L	4.749	472.31 ppb	4.749	1.01%
SiO2†	104411.8	9827.2 µg/L	12.59	9827.2 ppb	12.59	0.13%
Si 251.611†	131993.5	4575.6 µg/L	3.28	4575.6 ppb	3.28	0.07%
Sn 189.927†	4923.7	473.39 µg/L	2.760	473.39 ppb	2.760	0.58%
Sr 421.552†	19434.7	495.57 µg/L	7.454	495.57 ppb	7.454	1.50%
Ti 334.940†	208215.3	470.91 µg/L	0.394	470.91 ppb	0.394	0.08%
Tl 190.801†	2918.8	479.79 µg/L	2.852	479.79 ppb	2.852	0.59%
U 367.007†	2484.7	432.9 µg/L	16.48	432.9 ppb	16.48	3.81%
V 292.402†	73003.7	473.63 µg/L	0.767	473.63 ppb	0.767	0.16%
Zn 213.857†	86116.6	464.71 µg/L	0.411	464.71 ppb	0.411	0.09%

Sequence No.: 5
Sample ID: 409254022|1611119|1|
Analyst: HSC
Initial Sample Wt:
Dilution:
Wash Time: 5

Autosampler Location: 303
Date Collected: 11/16/2016 11:29:55
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:
Auto Dilution Factor: 1

Replicate Data: 409254022|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8852.5	8852.5	105	%			11:30:45
1	Al 396.153Radial†	168962.8	161570.2	79626	µg/L	79626	ppb	11:30:25
1	Ca 317.933Radial†	282006.8	268330.6	130700	µg/L	130700	ppb	11:30:25
1	Fe 238.204 Radial†	107289.8	102116.9	156650	µg/L	156650	ppb	11:30:25
1	K 766.490 Radial†	28794.3	27005.6	14841	µg/L	14841	ppb	11:30:25
1	Mg 279.077 IEC†	9702.3	9224.3	57526	µg/L	57526	ppb	11:30:45
1	Na 589.592 Radial†	162.4	149.7	6145.8	µg/L	6145.8	ppb	11:30:45
1	Sr 421.552†	18812.1	17903.2	452.26	µg/L	452.26	ppb	11:30:25
1	Sc 361.383	643460.7	643460.7	102.82	%			11:31:44
1	Y 371.029	814647.7	814647.7	114.73	%			11:31:44
1	Ag 328.068†	-5039.6	-3961.7	6.8021	µg/L	6.8021	ppb	11:31:49
1	As 188.979†	269.6	240.0	64.522	µg/L	64.522	ppb	11:32:09
1	B 249.677†	-25509.5	-25000.8	126.50	µg/L	126.50	ppb	11:31:49
1	Ba 233.527†	451068.8	438549.3	2464.8	µg/L	2464.8	ppb	11:31:49
1	Be 313.107†	5515.5	10807.0	6.0997	µg/L	6.0997	ppb	11:31:49
1	Cd 226.502†	2858.6	3033.2	2.4754	µg/L	2.4754	ppb	11:32:09
1	Co 228.616†	4268.6	4478.9	60.189	µg/L	60.189	ppb	11:32:09
1	Cr 267.716†	9450.5	9074.1	113.45	µg/L	113.45	ppb	11:32:09
1	Cu 324.752†	38440.2	34890.5	153.86	µg/L	153.86	ppb	11:31:49
1	Mn 257.610†	6421264.4	6244038.6	6162.1	µg/L	6162.1	ppb	11:31:44
1	Mo 202.031†	89.1	103.2	10.624	µg/L	10.624	ppb	11:32:09
1	Ni 231.604†	10543.7	10430.2	175.91	µg/L	175.91	ppb	11:32:09
1	P 214.914†	13215.9	12707.9	5379.6	µg/L	5379.6	ppb	11:32:09
1	Pb 220.353†	1489.0	1341.8	100.31	µg/L	100.31	ppb	11:32:09
1	S 181.975 Axial†	6568.9	6241.4	6123.3	µg/L	6123.3	ppb	11:32:09
1	Sb 206.836†	145.3	26.0	4.0559	µg/L	4.0559	ppb	11:32:09
1	Se 196.026†	-162.3	-139.7	23.554	µg/L	23.554	ppb	11:32:09
1	SiO2†	853925.6	828836.3	77968	µg/L	77968	ppb	11:31:44
1	Si 251.611†	1072999.6	1043231.0	36194	µg/L	36194	ppb	11:31:44
1	Sn 189.927†	13.8	-7.8	9.8904	µg/L	9.8904	ppb	11:32:09
1	Ti 334.940†	863586.4	840662.8	1908.3	µg/L	1908.3	ppb	11:31:44
1	Tl 190.801†	-287.9	-122.6	-2.0878	µg/L	-2.0878	ppb	11:32:09
1	U 367.007†	5162.2	3595.9	-21.80	µg/L	-21.80	ppb	11:31:49
1	V 292.402†	39045.7	37553.9	260.90	µg/L	260.90	ppb	11:31:49
1	Zn 213.857†	99204.7	95694.0	497.25	µg/L	497.25	ppb	11:31:49
2	Sc RADIAL	8899.2	8899.2	106	%			11:31:10
2	Al 396.153Radial†	172028.3	163628.4	80641	µg/L	80641	ppb	11:30:50
2	Ca 317.933Radial†	285767.6	270482.1	131750	µg/L	131750	ppb	11:30:50
2	Fe 238.204 Radial†	108922.4	103126.6	158200	µg/L	158200	ppb	11:30:50
2	K 766.490 Radial†	29264.7	27307.1	15006	µg/L	15006	ppb	11:30:50
2	Mg 279.077 IEC†	9726.0	9198.3	57364	µg/L	57364	ppb	11:31:10
2	Na 589.592 Radial†	157.8	144.5	5934.7	µg/L	5934.7	ppb	11:31:10
2	Sr 421.552†	19172.2	18150.1	458.52	µg/L	458.52	ppb	11:30:50
2	Sc 361.383	636380.3	636380.3	101.69	%			11:32:16
2	Y 371.029	806486.0	806486.0	113.58	%			11:32:16
2	Ag 328.068†	-5046.3	-4022.9	6.7728	µg/L	6.7728	ppb	11:32:22
2	As 188.979†	266.6	240.0	64.436	µg/L	64.436	ppb	11:32:42
2	B 249.677†	-25443.8	-25212.3	128.45	µg/L	128.45	ppb	11:32:22
2	Ba 233.527†	451561.6	443914.7	2494.9	µg/L	2494.9	ppb	11:32:22
2	Be 313.107†	5538.3	10889.1	6.1415	µg/L	6.1415	ppb	11:32:22
2	Cd 226.502†	2851.2	3056.8	2.4629	µg/L	2.4629	ppb	11:32:42
2	Co 228.616†	4262.6	4519.1	60.745	µg/L	60.745	ppb	11:32:42
2	Cr 267.716†	9305.9	9034.1	112.96	µg/L	112.96	ppb	11:32:42
2	Cu 324.752†	38566.4	35430.7	156.18	µg/L	156.18	ppb	11:32:22
2	Mn 257.610†	6371659.7	6264740.4	6182.6	µg/L	6182.6	ppb	11:32:16
2	Mo 202.031†	97.1	112.1	11.046	µg/L	11.046	ppb	11:32:42
2	Ni 231.604†	10455.0	10457.1	176.31	µg/L	176.31	ppb	11:32:42
2	P 214.914†	13101.2	12738.2	5391.3	µg/L	5391.3	ppb	11:32:42

2	Pb 220.353†	1459.5	1328.9	99.050 µg/L	99.050 ppb	11:32:42
2	S 181.975 Axial†	6508.6	6253.2	6134.8 µg/L	6134.8 ppb	11:32:42
2	Sb 206.836†	138.4	20.9	2.9493 µg/L	2.9493 ppb	11:32:42
2	Se 196.026†	-168.1	-147.2	21.570 µg/L	21.570 ppb	11:32:42
2	SiO2†	846599.6	830872.1	78159 µg/L	78159 ppb	11:32:16
2	Si 251.611†	1064036.2	1046027.2	36291 µg/L	36291 ppb	11:32:16
2	Sn 189.927†	6.4	-15.0	9.2811 µg/L	9.2811 ppb	11:32:42
2	Ti 334.940†	858095.9	844608.1	1917.3 µg/L	1917.3 ppb	11:32:16
2	Tl 190.801†	-263.3	-101.5	1.4480 µg/L	1.4480 ppb	11:32:42
2	U 367.007†	5018.9	3510.9	-44.06 µg/L	-44.06 ppb	11:32:22
2	V 292.402†	38994.4	37926.0	263.48 µg/L	263.48 ppb	11:32:22
2	Zn 213.857†	99166.4	96729.7	502.71 µg/L	502.71 ppb	11:32:22
3	Sc RADIAL	8904.7	8904.7	106 %		11:31:35
3	Al 396.153Radial†	170687.4	162258.5	79966 µg/L	79966 ppb	11:31:15
3	Ca 317.933Radial†	283069.3	267761.0	130420 µg/L	130420 ppb	11:31:15
3	Fe 238.204 Radial†	107863.1	102060.2	156570 µg/L	156570 ppb	11:31:15
3	K 766.490 Radial†	29011.8	27050.7	14865 µg/L	14865 ppb	11:31:15
3	Mg 279.077 IEC†	9761.9	9226.5	57540 µg/L	57540 ppb	11:31:35
3	Na 589.592 Radial†	162.4	148.7	6106.8 µg/L	6106.8 ppb	11:31:35
3	Sr 421.552†	19120.9	18090.3	457.04 µg/L	457.04 ppb	11:31:15
3	Sc 361.383	633515.8	633515.8	101.24 %		11:32:49
3	Y 371.029	803053.6	803053.6	113.10 %		11:32:49
3	Ag 328.068†	-5007.3	-4006.8	6.5673 µg/L	6.5673 ppb	11:32:54
3	As 188.979†	271.8	246.4	66.432 µg/L	66.432 ppb	11:33:14
3	B 249.677†	-24941.7	-24829.4	129.49 µg/L	129.49 ppb	11:32:54
3	Ba 233.527†	446371.2	440795.4	2477.4 µg/L	2477.4 ppb	11:32:54
3	Be 313.107†	5446.4	10823.0	6.1016 µg/L	6.1016 ppb	11:32:54
3	Cd 226.502†	2866.2	3084.3	2.7923 µg/L	2.7923 ppb	11:33:14
3	Co 228.616†	4251.2	4526.9	60.969 µg/L	60.969 ppb	11:33:14
3	Cr 267.716†	9315.7	9085.2	113.59 µg/L	113.59 ppb	11:33:14
3	Cu 324.752†	38230.2	35270.0	155.43 µg/L	155.43 ppb	11:32:54
3	Mn 257.610†	6336538.7	6258378.3	6176.3 µg/L	6176.3 ppb	11:32:49
3	Mo 202.031†	91.3	106.8	10.765 µg/L	10.765 ppb	11:33:14
3	Ni 231.604†	10488.1	10536.3	177.78 µg/L	177.78 ppb	11:33:14
3	P 214.914†	13053.5	12749.3	5397.8 µg/L	5397.8 ppb	11:33:14
3	Pb 220.353†	1454.2	1330.1	99.214 µg/L	99.214 ppb	11:33:14
3	S 181.975 Axial†	6519.7	6293.1	6174.0 µg/L	6174.0 ppb	11:33:14
3	Sb 206.836†	148.1	31.1	5.1548 µg/L	5.1548 ppb	11:33:14
3	Se 196.026†	-179.5	-159.2	16.437 µg/L	16.437 ppb	11:33:14
3	SiO2†	841313.6	829414.9	78022 µg/L	78022 ppb	11:32:49
3	Si 251.611†	1058032.3	1044827.6	36249 µg/L	36249 ppb	11:32:49
3	Sn 189.927†	8.5	-12.9	9.4412 µg/L	9.4412 ppb	11:33:14
3	Ti 334.940†	854415.9	844788.3	1917.6 µg/L	1917.6 ppb	11:32:49
3	Tl 190.801†	-268.0	-107.3	0.5000 µg/L	0.5000 ppb	11:33:14
3	U 367.007†	5055.0	3568.8	-26.33 µg/L	-26.33 ppb	11:32:54
3	V 292.402†	38505.5	37616.4	261.28 µg/L	261.28 ppb	11:32:54
3	Zn 213.857†	98028.0	96046.1	499.16 µg/L	499.16 ppb	11:32:54

Mean Data: 409254022|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	637785.6	101.92	%	0.818				0.80%
Sc RADIAL	8885.5	105	%	0.34				0.32%
Y 371.029	808062.4	113.80	%	0.839				0.74%
Ag 328.068†	-3997.1	6.7141	µg/L	0.12797	6.7141	ppb	0.12797	1.91%
Al 396.153Radial†	162485.7	80078	µg/L	516.36	80078	ppb	516.36	0.64%
As 188.979†	242.1	65.130	µg/L	1.1286	65.130	ppb	1.1286	1.73%
B 249.677†	-25014.2	128.15	µg/L	1.518	128.15	ppb	1.518	1.18%
Ba 233.527†	441086.5	2479.0	µg/L	15.15	2479.0	ppb	15.15	0.61%
Be 313.107†	10839.7	6.1142	µg/L	0.02363	6.1142	ppb	0.02363	0.39%
Ca 317.933Radial†	268857.9	130960	µg/L	699.04	130960	ppb	699.04	0.53%
Cd 226.502†	3058.1	2.5769	µg/L	0.18667	2.5769	ppb	0.18667	7.24%
Co 228.616†	4508.3	60.635	µg/L	0.4014	60.635	ppb	0.4014	0.66%
Cr 267.716†	9064.5	113.33	µg/L	0.331	113.33	ppb	0.331	0.29%
Cu 324.752†	35197.1	155.16	µg/L	1.186	155.16	ppb	1.186	0.76%
Fe 238.204 Radial†	102434.6	157140	µg/L	920.40	157140	ppb	920.40	0.59%
K 766.490 Radial†	27121.1	14904	µg/L	89.36	14904	ppb	89.36	0.60%
Mg 279.077 IEC†	9216.4	57477	µg/L	98.04	57477	ppb	98.04	0.17%
Mn 257.610†	6255719.1	6173.7	µg/L	10.49	6173.7	ppb	10.49	0.17%
Mo 202.031†	107.3	10.812	µg/L	0.2148	10.812	ppb	0.2148	1.99%

Na 589.592 Radial†	147.6	6062.4	µg/L	112.34	6062.4	ppb	112.34	1.85%
Ni 231.604†	10474.5	176.67	µg/L	0.985	176.67	ppb	0.985	0.56%
P 214.914†	12731.8	5389.6	µg/L	9.18	5389.6	ppb	9.18	0.17%
Pb 220.353†	1333.6	99.526	µg/L	0.6869	99.526	ppb	0.6869	0.69%
S 181.975 Axial†	6262.6	6144.0	µg/L	26.58	6144.0	ppb	26.58	0.43%
Sb 206.836†	26.0	4.0534	µg/L	1.10274	4.0534	ppb	1.10274	27.21%
Se 196.026†	-148.7	20.520	µg/L	3.6725	20.520	ppb	3.6725	17.90%
SiO2†	829707.8	78050	µg/L	98.68	78050	ppb	98.68	0.13%
Si 251.611†	1044695.2	36244	µg/L	48.57	36244	ppb	48.57	0.13%
Sn 189.927†	-11.9	9.5375	µg/L	0.31587	9.5375	ppb	0.31587	3.31%
Sr 421.552†	18047.9	455.94	µg/L	3.273	455.94	ppb	3.273	0.72%
Ti 334.940†	843353.0	1914.4	µg/L	5.29	1914.4	ppb	5.29	0.28%
Tl 190.801†	-110.5	-0.0466	µg/L	1.83020	-0.0466	ppb	1.83020	>999.9%
U 367.007†	3558.5	-30.73	µg/L	11.759	-30.73	ppb	11.759	38.27%
V 292.402†	37698.8	261.89	µg/L	1.392	261.89	ppb	1.392	0.53%
Zn 213.857†	96156.6	499.71	µg/L	2.769	499.71	ppb	2.769	0.55%

Sequence No.: 6
Sample ID: 1203657602|1611119|1|
Analyst: HSC
Initial Sample Wt:
Dilution:
Wash Time: 5

Autosampler Location: 304
Date Collected: 11/16/2016 11:33:23
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:
Auto Dilution Factor: 1

Replicate Data: 1203657602|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8536.3	8536.3	101	%			11:34:12
1	Al 396.153Radial†	116381.2	115621.2	56981	µg/L	56981	ppb	11:33:52
1	Ca 317.933Radial†	272653.3	269039.2	131050	µg/L	131050	ppb	11:33:52
1	Fe 238.204 Radial†	76964.2	75963.7	116530	µg/L	116530	ppb	11:33:52
1	K 766.490 Radial†	21455.3	20776.1	11415	µg/L	11415	ppb	11:33:52
1	Mg 279.077 IEC†	8683.1	8560.2	53385	µg/L	53385	ppb	11:34:12
1	Na 589.592 Radial†	123.3	116.7	4800.3	µg/L	4800.3	ppb	11:34:12
1	Sr 421.552†	15119.3	14921.1	376.18	µg/L	376.18	ppb	11:33:52
1	Sc 361.383	619881.9	619881.9	99.057	%			11:35:16
1	Y 371.029	775377.1	775377.1	109.20	%			11:35:10
1	Ag 328.068†	-3926.0	-3024.0	4.2537	µg/L	4.2537	ppb	11:35:16
1	As 188.979†	187.2	166.8	44.481	µg/L	44.481	ppb	11:35:36
1	B 249.677†	-18912.7	-19284.9	80.709	µg/L	80.709	ppb	11:35:16
1	Ba 233.527†	308898.0	311710.7	1751.8	µg/L	1751.8	ppb	11:35:16
1	Be 313.107†	1731.7	7191.3	4.6184	µg/L	4.6184	ppb	11:35:16
1	Cd 226.502†	1952.5	2224.1	1.5811	µg/L	1.5811	ppb	11:35:36
1	Co 228.616†	3232.2	3590.5	48.277	µg/L	48.277	ppb	11:35:36
1	Cr 267.716†	7009.4	6959.3	87.026	µg/L	87.026	ppb	11:35:36
1	Cu 324.752†	26787.6	24549.1	108.62	µg/L	108.62	ppb	11:35:16
1	Mn 257.610†	5122096.4	5170037.0	5101.3	µg/L	5101.3	ppb	11:35:10
1	Mo 202.031†	50.3	67.4	7.5228	µg/L	7.5228	ppb	11:35:36
1	Ni 231.604†	7493.7	7741.2	130.55	µg/L	130.55	ppb	11:35:36
1	P 214.914†	11032.8	10993.0	4671.6	µg/L	4671.6	ppb	11:35:36
1	Pb 220.353†	1021.3	924.7	70.608	µg/L	70.608	ppb	11:35:36
1	S 181.975 Axial†	3609.0	3496.3	3435.3	µg/L	3435.3	ppb	11:35:36
1	Sb 206.836†	150.6	36.8	7.1724	µg/L	7.1724	ppb	11:35:36
1	Se 196.026†	-113.1	-96.0	20.378	µg/L	20.378	ppb	11:35:36
1	SiO2†	775535.3	781288.4	73495	µg/L	73495	ppb	11:35:16
1	Si 251.611†	1000420.6	1009654.0	35035	µg/L	35035	ppb	11:35:10
1	Sn 189.927†	2.2	-19.1	6.8396	µg/L	6.8396	ppb	11:35:36
1	Ti 334.940†	753027.9	760997.7	1728.1	µg/L	1728.1	ppb	11:35:16
1	Tl 190.801†	-263.2	-108.3	-1.3606	µg/L	-1.3606	ppb	11:35:36
1	U 367.007†	4264.7	2880.8	11.81	µg/L	11.81	ppb	11:35:16
1	V 292.402†	28268.8	28118.8	195.05	µg/L	195.05	ppb	11:35:16
1	Zn 213.857†	71632.0	71528.5	371.14	µg/L	371.14	ppb	11:35:16
2	Sc RADIAL	8556.2	8556.2	102	%			11:34:38
2	Al 396.153Radial†	118925.4	117859.8	58085	µg/L	58085	ppb	11:34:18
2	Ca 317.933Radial†	275894.5	271605.5	132300	µg/L	132300	ppb	11:34:18
2	Fe 238.204 Radial†	78021.1	76827.9	117860	µg/L	117860	ppb	11:34:18
2	K 766.490 Radial†	21744.9	21012.0	11545	µg/L	11545	ppb	11:34:18
2	Mg 279.077 IEC†	8677.7	8535.1	53228	µg/L	53228	ppb	11:34:38
2	Na 589.592 Radial†	121.9	115.1	4734.8	µg/L	4734.8	ppb	11:34:38
2	Sr 421.552†	15509.7	15270.9	385.06	µg/L	385.06	ppb	11:34:18
2	Sc 361.383	618291.9	618291.9	98.802	%			11:35:47
2	Y 371.029	771113.8	771113.8	108.60	%			11:35:42
2	Ag 328.068†	-3928.7	-3036.9	4.4080	µg/L	4.4080	ppb	11:35:47
2	As 188.979†	198.3	178.6	47.939	µg/L	47.939	ppb	11:36:07
2	B 249.677†	-18746.3	-19165.5	88.226	µg/L	88.226	ppb	11:35:47
2	Ba 233.527†	307761.4	311362.3	1749.8	µg/L	1749.8	ppb	11:35:47
2	Be 313.107†	1764.2	7228.7	4.6507	µg/L	4.6507	ppb	11:35:47
2	Cd 226.502†	1989.2	2266.4	1.7050	µg/L	1.7050	ppb	11:36:07
2	Co 228.616†	3211.9	3578.4	47.981	µg/L	47.981	ppb	11:36:07
2	Cr 267.716†	6977.7	6945.4	86.856	µg/L	86.856	ppb	11:36:07
2	Cu 324.752†	26739.0	24569.3	108.78	µg/L	108.78	ppb	11:35:47
2	Mn 257.610†	5090973.8	5151835.0	5083.4	µg/L	5083.4	ppb	11:35:42
2	Mo 202.031†	22.7	39.6	6.4533	µg/L	6.4533	ppb	11:36:07
2	Ni 231.604†	7445.0	7711.4	129.96	µg/L	129.96	ppb	11:36:07
2	P 214.914†	10967.7	10955.8	4654.2	µg/L	4654.2	ppb	11:36:07

2	Pb 220.353†	1026.9	932.9	71.052 µg/L	71.052 ppb	11:36:07
2	S 181.975 Axial†	3600.2	3496.8	3435.6 µg/L	3435.6 ppb	11:36:07
2	Sb 206.836†	121.9	8.1	0.9048 µg/L	0.9048 ppb	11:36:07
2	Se 196.026†	-119.9	-103.2	18.400 µg/L	18.400 ppb	11:36:07
2	SiO2†	772733.8	780466.5	73417 µg/L	73417 ppb	11:35:47
2	Si 251.611†	993319.9	1005064.5	34876 µg/L	34876 ppb	11:35:42
2	Sn 189.927†	15.3	-5.8	8.1498 µg/L	8.1498 ppb	11:36:07
2	Ti 334.940†	751549.6	761456.4	1729.2 µg/L	1729.2 ppb	11:35:47
2	Tl 190.801†	-252.2	-97.9	0.3569 µg/L	0.3569 ppb	11:36:07
2	U 367.007†	4300.6	2928.2	14.69 µg/L	14.69 ppb	11:35:47
2	V 292.402†	28196.8	28119.4	195.23 µg/L	195.23 ppb	11:35:47
2	Zn 213.857†	71206.4	71283.8	369.65 µg/L	369.65 ppb	11:35:47
3	Sc RADIAL	8620.5	8620.5	102 %		11:35:03
3	Al 396.153Radial†	118129.1	116207.6	57270 µg/L	57270 ppb	11:34:43
3	Ca 317.933Radial†	273265.5	267008.6	130060 µg/L	130060 ppb	11:34:43
3	Fe 238.204 Radial†	77431.6	75678.4	116090 µg/L	116090 ppb	11:34:43
3	K 766.490 Radial†	21544.3	20656.2	11349 µg/L	11349 ppb	11:34:43
3	Mg 279.077 IEC†	8725.5	8518.0	53121 µg/L	53121 ppb	11:35:03
3	Na 589.592 Radial†	127.7	119.9	4927.9 µg/L	4927.9 ppb	11:35:03
3	Sr 421.552†	15397.7	15047.4	379.44 µg/L	379.44 ppb	11:34:43
3	Sc 361.383	615343.4	615343.4	98.331 %		11:36:19
3	Y 371.029	774051.4	774051.4	109.01 %		11:36:13
3	Ag 328.068†	-3899.4	-3026.1	4.1745 µg/L	4.1745 ppb	11:36:19
3	As 188.979†	182.3	163.3	43.422 µg/L	43.422 ppb	11:36:39
3	B 249.677†	-18569.9	-19077.1	83.039 µg/L	83.039 ppb	11:36:19
3	Ba 233.527†	306071.0	311135.8	1748.5 µg/L	1748.5 ppb	11:36:19
3	Be 313.107†	1642.2	7113.1	4.5755 µg/L	4.5755 ppb	11:36:19
3	Cd 226.502†	1947.9	2234.0	1.6842 µg/L	1.6842 ppb	11:36:39
3	Co 228.616†	3218.4	3600.5	48.463 µg/L	48.463 ppb	11:36:39
3	Cr 267.716†	6954.3	6955.5	86.964 µg/L	86.964 ppb	11:36:39
3	Cu 324.752†	26623.2	24581.3	108.73 µg/L	108.73 ppb	11:36:19
3	Mn 257.610†	5098207.3	5183881.1	5114.9 µg/L	5114.9 ppb	11:36:13
3	Mo 202.031†	19.3	36.3	6.2450 µg/L	6.2450 ppb	11:36:39
3	Ni 231.604†	7439.2	7741.6	130.58 µg/L	130.58 ppb	11:36:39
3	P 214.914†	10924.8	10965.3	4660.0 µg/L	4660.0 ppb	11:36:39
3	Pb 220.353†	1064.3	976.0	74.716 µg/L	74.716 ppb	11:36:39
3	S 181.975 Axial†	3555.9	3469.2	3408.8 µg/L	3408.8 ppb	11:36:39
3	Sb 206.836†	134.4	21.4	3.8115 µg/L	3.8115 ppb	11:36:39
3	Se 196.026†	-112.5	-96.3	20.092 µg/L	20.092 ppb	11:36:39
3	SiO2†	769259.3	780680.5	73437 µg/L	73437 ppb	11:36:19
3	Si 251.611†	995076.7	1011668.4	35105 µg/L	35105 ppb	11:36:13
3	Sn 189.927†	8.6	-12.5	7.4642 µg/L	7.4642 ppb	11:36:39
3	Ti 334.940†	748087.2	761580.1	1729.4 µg/L	1729.4 ppb	11:36:19
3	Tl 190.801†	-244.9	-91.7	1.3831 µg/L	1.3831 ppb	11:36:39
3	U 367.007†	4243.8	2891.3	15.82 µg/L	15.82 ppb	11:36:19
3	V 292.402†	27996.1	28052.0	194.55 µg/L	194.55 ppb	11:36:19
3	Zn 213.857†	70839.4	71255.9	369.72 µg/L	369.72 ppb	11:36:19

Mean Data: 1203657602|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	617839.0	98.730	%	0.3680				0.37%
Sc RADIAL	8571.0	102	%	0.52				0.51%
Y 371.029	773514.1	108.94	%	0.307				0.28%
Ag 328.068†	-3029.0	4.2787	µg/L	0.11873	4.2787	ppb	0.11873	2.77%
Al 396.153Radial†	116562.8	57446	µg/L	572.10	57446	ppb	572.10	1.00%
As 188.979†	169.6	45.281	µg/L	2.3622	45.281	ppb	2.3622	5.22%
B 249.677†	-19175.8	83.991	µg/L	3.8478	83.991	ppb	3.8478	4.58%
Ba 233.527†	311402.9	1750.0	µg/L	1.63	1750.0	ppb	1.63	0.09%
Be 313.107†	7177.7	4.6149	µg/L	0.03769	4.6149	ppb	0.03769	0.82%
Ca 317.933Radial†	269217.8	131130	µg/L	1122.08	131130	ppb	1122.08	0.86%
Cd 226.502†	2241.5	1.6568	µg/L	0.06632	1.6568	ppb	0.06632	4.00%
Co 228.616†	3589.8	48.240	µg/L	0.2427	48.240	ppb	0.2427	0.50%
Cr 267.716†	6953.4	86.948	µg/L	0.0861	86.948	ppb	0.0861	0.10%
Cu 324.752†	24566.5	108.71	µg/L	0.081	108.71	ppb	0.081	0.07%
Fe 238.204 Radial†	76156.7	116830	µg/L	918.22	116830	ppb	918.22	0.79%
K 766.490 Radial†	20814.8	11436	µg/L	99.46	11436	ppb	99.46	0.87%
Mg 279.077 IEC†	8537.7	53245	µg/L	132.60	53245	ppb	132.60	0.25%
Mn 257.610†	5168584.4	5099.9	µg/L	15.80	5099.9	ppb	15.80	0.31%
Mo 202.031†	47.7	6.7404	µg/L	0.68557	6.7404	ppb	0.68557	10.17%

Na 589.592 Radial†	117.3	4821.0 µg/L	98.24	4821.0 ppb	98.24	2.04%
Ni 231.604†	7731.4	130.36 µg/L	0.347	130.36 ppb	0.347	0.27%
P 214.914†	10971.4	4661.9 µg/L	8.85	4661.9 ppb	8.85	0.19%
Pb 220.353†	944.5	72.125 µg/L	2.2544	72.125 ppb	2.2544	3.13%
S 181.975 Axial†	3487.4	3426.6 µg/L	15.38	3426.6 ppb	15.38	0.45%
Sb 206.836†	22.1	3.9629 µg/L	3.13655	3.9629 ppb	3.13655	79.15%
Se 196.026†	-98.5	19.623 µg/L	1.0690	19.623 ppb	1.0690	5.45%
SiO2†	780811.8	73450 µg/L	40.11	73450 ppb	40.11	0.05%
Si 251.611†	1008795.6	35005 µg/L	117.69	35005 ppb	117.69	0.34%
Sn 189.927†	-12.5	7.4845 µg/L	0.65531	7.4845 ppb	0.65531	8.76%
Sr 421.552†	15079.8	380.23 µg/L	4.493	380.23 ppb	4.493	1.18%
Ti 334.940†	761344.7	1728.9 µg/L	0.69	1728.9 ppb	0.69	0.04%
Tl 190.801†	-99.3	0.1265 µg/L	1.38630	0.1265 ppb	1.38630	>999.9%
U 367.007†	2900.1	14.11 µg/L	2.069	14.11 ppb	2.069	14.67%
V 292.402†	28096.7	194.94 µg/L	0.350	194.94 ppb	0.350	0.18%
Zn 213.857†	71356.0	370.17 µg/L	0.838	370.17 ppb	0.838	0.23%

Sequence No.: 7
Sample ID: 1203657603|1611119|1|
Analyst: HSC
Initial Sample Wt:
Dilution:
Wash Time: 5

Autosampler Location: 305
Date Collected: 11/16/2016 11:36:47
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:
Auto Dilution Factor: 1

Replicate Data: 1203657603|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8559.8	8559.8	102	%			11:37:36
1	Al 396.153Radial†	207562.3	205067.3	101050	µg/L	101050	ppb	11:37:16
1	Ca 317.933Radial†	236132.1	232347.3	113170	µg/L	113170	ppb	11:37:16
1	Fe 238.204 Radial†	94803.9	93317.0	143150	µg/L	143150	ppb	11:37:16
1	K 766.490 Radial†	36689.8	35715.3	19580	µg/L	19580	ppb	11:37:16
1	Mg 279.077 IEC†	9394.1	9236.7	57603	µg/L	57603	ppb	11:37:36
1	Na 589.592 Radial†	260.9	251.9	10325	µg/L	10325	ppb	11:37:36
1	Sr 421.552†	35195.0	34643.3	879.86	µg/L	879.86	ppb	11:37:16
1	Sc 361.383	630174.9	630174.9	100.70	%			11:38:42
1	Y 371.029	776284.7	776284.7	109.33	%			11:38:42
1	Ag 328.068†	90132.2	90443.9	477.37	µg/L	477.37	ppb	11:38:42
1	As 188.979†	1770.7	1736.2	519.36	µg/L	519.36	ppb	11:39:02
1	B 249.677†	2857.7	2645.7	609.75	µg/L	609.75	ppb	11:38:42
1	Ba 233.527†	472954.4	469531.0	2639.6	µg/L	2639.6	ppb	11:38:42
1	Be 313.107†	1192696.9	1189833.0	478.55	µg/L	478.55	ppb	11:38:42
1	Cd 226.502†	76867.5	76585.2	449.42	µg/L	449.42	ppb	11:38:42
1	Co 228.616†	31281.3	31390.9	498.31	µg/L	498.31	ppb	11:38:42
1	Cr 267.716†	46758.2	46315.7	580.32	µg/L	580.32	ppb	11:38:42
1	Cu 324.752†	148049.7	144524.9	610.47	µg/L	610.47	ppb	11:38:42
1	Mn 257.610†	7553601.5	7500147.9	7399.8	µg/L	7399.8	ppb	11:38:34
1	Mo 202.031†	11224.6	11163.0	457.71	µg/L	457.71	ppb	11:39:02
1	Ni 231.604†	34421.1	34357.5	597.46	µg/L	597.46	ppb	11:38:42
1	P 214.914†	11919.6	11691.7	4945.1	µg/L	4945.1	ppb	11:39:02
1	Pb 220.353†	6722.2	6569.1	527.73	µg/L	527.73	ppb	11:39:02
1	S 181.975 Axial†	9682.5	9468.0	9287.7	µg/L	9287.7	ppb	11:39:02
1	Sb 206.836†	1855.7	1727.6	371.37	µg/L	371.37	ppb	11:39:02
1	Se 196.026†	1108.5	1118.9	472.94	µg/L	472.94	ppb	11:39:02
1	SiO2†	883225.8	875441.0	82357	µg/L	82357	ppb	11:38:42
1	Si 251.611†	1111214.8	1103180.4	38272	µg/L	38272	ppb	11:38:42
1	Sn 189.927†	4669.9	4616.2	455.63	µg/L	455.63	ppb	11:39:02
1	Ti 334.940†	1242975.8	1235116.3	2799.4	µg/L	2799.4	ppb	11:38:42
1	Tl 190.801†	2464.2	2604.4	450.22	µg/L	450.22	ppb	11:39:02
1	U 367.007†	7124.6	5650.5	415.4	µg/L	415.4	ppb	11:38:42
1	V 292.402†	115449.1	114225.8	754.98	µg/L	754.98	ppb	11:38:42
1	Zn 213.857†	164775.5	162842.1	861.50	µg/L	861.50	ppb	11:38:42
2	Sc RADIAL	8612.9	8612.9	102	%			11:38:02
2	Al 396.153Radial†	212665.8	208802.0	102890	µg/L	102890	ppb	11:37:42
2	Ca 317.933Radial†	240377.0	235068.9	114500	µg/L	114500	ppb	11:37:42
2	Fe 238.204 Radial†	96798.9	94694.1	145270	µg/L	145270	ppb	11:37:42
2	K 766.490 Radial†	37386.3	36174.2	19832	µg/L	19832	ppb	11:37:42
2	Mg 279.077 IEC†	9389.7	9175.4	57221	µg/L	57221	ppb	11:38:02
2	Na 589.592 Radial†	259.0	248.4	10185	µg/L	10185	ppb	11:38:02
2	Sr 421.552†	36099.1	35314.4	896.93	µg/L	896.93	ppb	11:37:42
2	Sc 361.383	629471.3	629471.3	100.59	%			11:39:16
2	Y 371.029	775471.5	775471.5	109.21	%			11:39:16
2	Ag 328.068†	89848.0	90261.4	476.82	µg/L	476.82	ppb	11:39:16
2	As 188.979†	1771.7	1739.2	520.13	µg/L	520.13	ppb	11:39:36
2	B 249.677†	2661.7	2454.1	614.30	µg/L	614.30	ppb	11:39:16
2	Ba 233.527†	471952.2	469059.7	2636.8	µg/L	2636.8	ppb	11:39:16
2	Be 313.107†	1189174.5	1187655.1	477.70	µg/L	477.70	ppb	11:39:16
2	Cd 226.502†	76765.8	76569.5	449.11	µg/L	449.11	ppb	11:39:16
2	Co 228.616†	31131.4	31276.7	496.31	µg/L	496.31	ppb	11:39:16
2	Cr 267.716†	46632.9	46243.1	579.40	µg/L	579.40	ppb	11:39:16
2	Cu 324.752†	147607.0	144249.1	609.43	µg/L	609.43	ppb	11:39:16
2	Mn 257.610†	7580611.3	7535383.8	7434.6	µg/L	7434.6	ppb	11:39:08
2	Mo 202.031†	11174.0	11125.2	456.27	µg/L	456.27	ppb	11:39:36
2	Ni 231.604†	34354.4	34329.4	596.86	µg/L	596.86	ppb	11:39:16
2	P 214.914†	11864.7	11650.3	4925.2	µg/L	4925.2	ppb	11:39:36

2	Pb 220.353†	6654.9	6509.5	522.33 µg/L	522.33 ppb	11:39:36
2	S 181.975 Axial†	9620.4	9417.0	9237.8 µg/L	9237.8 ppb	11:39:36
2	Sb 206.836†	1837.2	1711.2	367.77 µg/L	367.77 ppb	11:39:36
2	Se 196.026†	1120.8	1132.4	478.82 µg/L	478.82 ppb	11:39:36
2	SiO2†	881898.0	875101.3	82325 µg/L	82325 ppb	11:39:16
2	Si 251.611†	1107863.0	1101081.7	38198 µg/L	38198 ppb	11:39:16
2	Sn 189.927†	4691.3	4642.5	458.20 µg/L	458.20 ppb	11:39:36
2	Ti 334.940†	1239315.9	1232857.6	2794.3 µg/L	2794.3 ppb	11:39:16
2	Tl 190.801†	2463.9	2606.8	450.56 µg/L	450.56 ppb	11:39:36
2	U 367.007†	7118.3	5652.1	406.6 µg/L	406.6 ppb	11:39:16
2	V 292.402†	115188.7	114095.1	754.41 µg/L	754.41 ppb	11:39:16
2	Zn 213.857†	164216.5	162469.3	859.24 µg/L	859.24 ppb	11:39:16
3	Sc RADIAL	8647.7	8647.7	103 %		11:38:27
3	Al 396.153Radial†	213172.7	208458.6	102720 µg/L	102720 ppb	11:38:07
3	Ca 317.933Radial†	240074.2	233827.3	113890 µg/L	113890 ppb	11:38:07
3	Fe 238.204 Radial†	96765.1	94280.0	144630 µg/L	144630 ppb	11:38:07
3	K 766.490 Radial†	37401.9	36042.3	19759 µg/L	19759 ppb	11:38:07
3	Mg 279.077 IEC†	9430.1	9177.8	57236 µg/L	57236 ppb	11:38:27
3	Na 589.592 Radial†	254.3	242.9	9957.1 µg/L	9957.1 ppb	11:38:27
3	Sr 421.552†	36270.3	35339.1	897.58 µg/L	897.58 ppb	11:38:07
3	Sc 361.383	627644.3	627644.3	100.30 %		11:39:50
3	Y 371.029	773132.6	773132.6	108.89 %		11:39:50
3	Ag 328.068†	89710.5	90384.3	477.34 µg/L	477.34 ppb	11:39:50
3	As 188.979†	1781.8	1754.4	524.74 µg/L	524.74 ppb	11:40:10
3	B 249.677†	2790.6	2590.3	614.46 µg/L	614.46 ppb	11:39:50
3	Ba 233.527†	470021.3	468500.2	2633.7 µg/L	2633.7 ppb	11:39:50
3	Be 313.107†	1183458.5	1185397.3	476.78 µg/L	476.78 ppb	11:39:50
3	Cd 226.502†	76182.9	76210.3	447.00 µg/L	447.00 ppb	11:39:50
3	Co 228.616†	31008.6	31244.3	495.82 µg/L	495.82 ppb	11:39:50
3	Cr 267.716†	46365.0	46110.9	577.76 µg/L	577.76 ppb	11:39:50
3	Cu 324.752†	147344.5	144414.5	610.07 µg/L	610.07 ppb	11:39:50
3	Mn 257.610†	7532807.9	7509659.3	7409.2 µg/L	7409.2 ppb	11:39:42
3	Mo 202.031†	11153.5	11137.0	456.72 µg/L	456.72 ppb	11:40:10
3	Ni 231.604†	34043.9	34119.2	593.20 µg/L	593.20 ppb	11:39:50
3	P 214.914†	11796.5	11616.7	4911.2 µg/L	4911.2 ppb	11:40:10
3	Pb 220.353†	6656.2	6530.1	524.05 µg/L	524.05 ppb	11:40:10
3	S 181.975 Axial†	9603.9	9428.4	9248.8 µg/L	9248.8 ppb	11:40:10
3	Sb 206.836†	1842.5	1721.8	370.12 µg/L	370.12 ppb	11:40:10
3	Se 196.026†	1102.4	1117.2	473.03 µg/L	473.03 ppb	11:40:10
3	SiO2†	876261.8	872033.9	82037 µg/L	82037 ppb	11:39:50
3	Si 251.611†	1101452.1	1097895.7	38088 µg/L	38088 ppb	11:39:50
3	Sn 189.927†	4678.0	4642.9	458.21 µg/L	458.21 ppb	11:40:10
3	Ti 334.940†	1235674.9	1232813.8	2794.2 µg/L	2794.2 ppb	11:39:50
3	Tl 190.801†	2438.9	2589.1	447.66 µg/L	447.66 ppb	11:40:10
3	U 367.007†	6983.3	5538.1	388.5 µg/L	388.5 ppb	11:39:50
3	V 292.402†	114647.3	113888.6	752.99 µg/L	752.99 ppb	11:39:50
3	Zn 213.857†	163270.7	162001.5	856.79 µg/L	856.79 ppb	11:39:50

Mean Data: 1203657603|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	629096.9	100.53	%	0.209				0.21%
Sc RADIAL	8606.8	102	%	0.52				0.51%
Y 371.029	774963.0	109.14	%	0.230				0.21%
Ag 328.068†	90363.2	477.18	µg/L	0.308	477.18	ppb	0.308	0.06%
Al 396.153Radial†	207442.6	102220	µg/L	1017.35	102220	ppb	1017.35	1.00%
As 188.979†	1743.3	521.41	µg/L	2.910	521.41	ppb	2.910	0.56%
B 249.677†	2563.4	612.83	µg/L	2.677	612.83	ppb	2.677	0.44%
Ba 233.527†	469030.3	2636.7	µg/L	2.92	2636.7	ppb	2.92	0.11%
Be 313.107†	1187628.4	477.68	µg/L	0.887	477.68	ppb	0.887	0.19%
Ca 317.933Radial†	233747.9	113850	µg/L	663.67	113850	ppb	663.67	0.58%
Cd 226.502†	76455.0	448.51	µg/L	1.317	448.51	ppb	1.317	0.29%
Co 228.616†	31304.0	496.81	µg/L	1.318	496.81	ppb	1.318	0.27%
Cr 267.716†	46223.2	579.16	µg/L	1.297	579.16	ppb	1.297	0.22%
Cu 324.752†	144396.2	609.99	µg/L	0.527	609.99	ppb	0.527	0.09%
Fe 238.204 Radial†	94097.0	144350	µg/L	1083.84	144350	ppb	1083.84	0.75%
K 766.490 Radial†	35977.3	19724	µg/L	129.74	19724	ppb	129.74	0.66%
Mg 279.077 IEC†	9196.6	57354	µg/L	216.34	57354	ppb	216.34	0.38%
Mn 257.610†	7515063.7	7414.5	µg/L	18.03	7414.5	ppb	18.03	0.24%
Mo 202.031†	11141.7	456.90	µg/L	0.739	456.90	ppb	0.739	0.16%

Na 589.592 Radial†	247.7	10156 µg/L	185.51	10156 ppb	185.51	1.83%
Ni 231.604†	34268.7	595.84 µg/L	2.308	595.84 ppb	2.308	0.39%
P 214.914†	11652.9	4927.2 µg/L	17.03	4927.2 ppb	17.03	0.35%
Pb 220.353†	6536.2	524.70 µg/L	2.759	524.70 ppb	2.759	0.53%
S 181.975 Axial†	9437.8	9258.1 µg/L	26.24	9258.1 ppb	26.24	0.28%
Sb 206.836†	1720.2	369.75 µg/L	1.826	369.75 ppb	1.826	0.49%
Se 196.026†	1122.8	474.93 µg/L	3.369	474.93 ppb	3.369	0.71%
SiO2†	874192.0	82240 µg/L	176.56	82240 ppb	176.56	0.21%
Si 251.611†	1100719.3	38186 µg/L	92.51	38186 ppb	92.51	0.24%
Sn 189.927†	4633.9	457.35 µg/L	1.490	457.35 ppb	1.490	0.33%
Sr 421.552†	35098.9	891.46 µg/L	10.051	891.46 ppb	10.051	1.13%
Ti 334.940†	1233595.9	2796.0 µg/L	2.95	2796.0 ppb	2.95	0.11%
Tl 190.801†	2600.1	449.48 µg/L	1.587	449.48 ppb	1.587	0.35%
U 367.007†	5613.6	403.5 µg/L	13.71	403.5 ppb	13.71	3.40%
V 292.402†	114069.8	754.13 µg/L	1.022	754.13 ppb	1.022	0.14%
Zn 213.857†	162437.6	859.18 µg/L	2.357	859.18 ppb	2.357	0.27%

Sequence No.: 8 Autosampler Location: 306
Sample ID: 1203657604|1611119|5| Date Collected: 11/16/2016 11:40:18
Analyst: HSC Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Wash Time: 5 Auto Dilution Factor: 1

Replicate Data: 1203657604|1611119|5|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8724.7	8724.7	104	%			11:41:07
1	Al 396.153Radial†	35062.0	34600.3	17052	µg/L	17052	ppb	11:40:47
1	Ca 317.933Radial†	57426.9	55356.0	26963	µg/L	26963	ppb	11:40:47
1	Fe 238.204 Radial†	22106.8	21340.4	32737	µg/L	32737	ppb	11:41:07
1	K 766.490 Radial†	6069.6	5458.9	3000.5	µg/L	3000.5	ppb	11:40:47
1	Mg 279.077 IEC†	2018.6	1938.4	12089	µg/L	12089	ppb	11:41:07
1	Na 589.592 Radial†	41.7	35.3	1447.5	µg/L	1447.5	ppb	11:41:07
1	Sr 421.552†	4002.4	3861.8	97.597	µg/L	97.597	ppb	11:41:07
1	Sc 361.383	633841.4	633841.4	101.29	%			11:42:06
1	Y 371.029	731543.6	731543.6	103.03	%			11:42:06
1	Ag 328.068†	-1809.4	-847.0	1.3161	µg/L	1.3161	ppb	11:42:06
1	As 188.979†	65.6	42.7	11.236	µg/L	11.236	ppb	11:42:26
1	B 249.677†	-5082.7	-5210.2	26.715	µg/L	26.715	ppb	11:42:06
1	Ba 233.527†	95010.0	93673.2	526.49	µg/L	526.49	ppb	11:42:06
1	Be 313.107†	-3071.2	2410.9	1.3378	µg/L	1.3378	ppb	11:42:06
1	Cd 226.502†	440.8	688.3	0.8483	µg/L	0.8483	ppb	11:42:26
1	Co 228.616†	655.9	975.1	13.230	µg/L	13.230	ppb	11:42:26
1	Cr 267.716†	2148.2	2004.1	25.024	µg/L	25.024	ppb	11:42:26
1	Cu 324.752†	9688.5	7071.7	31.250	µg/L	31.250	ppb	11:42:06
1	Mn 257.610†	1383165.5	1364743.1	1346.8	µg/L	1346.8	ppb	11:42:06
1	Mo 202.031†	22.3	38.6	2.9104	µg/L	2.9104	ppb	11:42:26
1	Ni 231.604†	2166.1	2314.7	39.136	µg/L	39.136	ppb	11:42:26
1	P 214.914†	2806.6	2626.0	1111.4	µg/L	1111.4	ppb	11:42:26
1	Pb 220.353†	403.3	291.8	21.746	µg/L	21.746	ppb	11:42:26
1	S 181.975 Axial†	1458.1	1292.5	1268.3	µg/L	1268.3	ppb	11:42:26
1	Sb 206.836†	131.5	14.5	2.7914	µg/L	2.7914	ppb	11:42:26
1	Se 196.026†	-35.5	-16.9	9.3738	µg/L	9.3738	ppb	11:42:26
1	SiO2†	175283.9	171422.9	16126	µg/L	16126	ppb	11:42:06
1	Si 251.611†	218763.0	215687.8	7483.0	µg/L	7483.0	ppb	11:42:06
1	Sn 189.927†	24.0	2.5	2.4551	µg/L	2.4551	ppb	11:42:26
1	Ti 334.940†	176318.2	174875.1	396.93	µg/L	396.93	ppb	11:42:06
1	Tl 190.801†	-183.0	-23.3	-0.0611	µg/L	-0.0611	ppb	11:42:26
1	U 367.007†	2342.8	888.5	20.68	µg/L	20.68	ppb	11:42:06
1	V 292.402†	8132.8	7610.2	53.026	µg/L	53.026	ppb	11:42:26
1	Zn 213.857†	21093.4	20039.6	104.12	µg/L	104.12	ppb	11:42:26
2	Sc RADIAL	8734.2	8734.2	104	%			11:41:32
2	Al 396.153Radial†	35337.8	34829.7	17165	µg/L	17165	ppb	11:41:12
2	Ca 317.933Radial†	57981.1	55830.7	27194	µg/L	27194	ppb	11:41:12
2	Fe 238.204 Radial†	22191.4	21399.0	32827	µg/L	32827	ppb	11:41:32
2	K 766.490 Radial†	6111.9	5493.3	3019.4	µg/L	3019.4	ppb	11:41:12
2	Mg 279.077 IEC†	2022.3	1939.9	12098	µg/L	12098	ppb	11:41:32
2	Na 589.592 Radial†	39.3	33.0	1353.8	µg/L	1353.8	ppb	11:41:32
2	Sr 421.552†	3997.6	3853.0	97.363	µg/L	97.363	ppb	11:41:32
2	Sc 361.383	639073.2	639073.2	102.12	%			11:42:33
2	Y 371.029	737177.3	737177.3	103.82	%			11:42:33
2	Ag 328.068†	-1828.5	-851.0	1.3136	µg/L	1.3136	ppb	11:42:33
2	As 188.979†	62.7	39.3	10.219	µg/L	10.219	ppb	11:42:53
2	B 249.677†	-5186.9	-5271.1	25.883	µg/L	25.883	ppb	11:42:33
2	Ba 233.527†	95676.4	93557.8	525.84	µg/L	525.84	ppb	11:42:33
2	Be 313.107†	-3105.0	2402.6	1.3348	µg/L	1.3348	ppb	11:42:33
2	Cd 226.502†	451.6	695.3	0.8816	µg/L	0.8816	ppb	11:42:53
2	Co 228.616†	643.5	957.6	12.941	µg/L	12.941	ppb	11:42:53
2	Cr 267.716†	2140.5	1979.2	24.719	µg/L	24.719	ppb	11:42:53
2	Cu 324.752†	9585.2	6892.2	30.500	µg/L	30.500	ppb	11:42:33
2	Mn 257.610†	1392645.6	1362846.7	1344.9	µg/L	1344.9	ppb	11:42:33
2	Mo 202.031†	15.0	31.3	2.6171	µg/L	2.6171	ppb	11:42:53
2	Ni 231.604†	2135.1	2266.8	38.290	µg/L	38.290	ppb	11:42:53
2	P 214.914†	2808.0	2604.7	1102.0	µg/L	1102.0	ppb	11:42:53

2	Pb 220.353†	359.0	245.2	17.839 µg/L	17.839 ppb	11:42:53
2	S 181.975 Axial†	1461.0	1283.6	1259.6 µg/L	1259.6 ppb	11:42:53
2	Sb 206.836†	121.0	3.2	0.3352 µg/L	0.3352 ppb	11:42:53
2	Se 196.026†	-33.5	-14.7	10.226 µg/L	10.226 ppb	11:42:53
2	SiO2†	176300.3	171001.4	16086 µg/L	16086 ppb	11:42:33
2	Si 251.611†	220338.7	215462.6	7475.1 µg/L	7475.1 ppb	11:42:33
2	Sn 189.927†	30.9	9.0	3.0827 µg/L	3.0827 ppb	11:42:53
2	Ti 334.940†	177248.0	174360.4	395.79 µg/L	395.79 ppb	11:42:33
2	Tl 190.801†	-159.5	1.2	3.9453 µg/L	3.9453 ppb	11:42:53
2	U 367.007†	2306.3	833.8	10.20 µg/L	10.20 ppb	11:42:33
2	V 292.402†	8146.5	7557.9	52.694 µg/L	52.694 ppb	11:42:53
2	Zn 213.857†	21136.0	19910.8	103.42 µg/L	103.42 ppb	11:42:53
3	Sc RADIAL	8710.1	8710.1	103 %		11:41:58
3	Al 396.153Radial†	35142.5	34735.0	17118 µg/L	17118 ppb	11:41:37
3	Ca 317.933Radial†	57546.2	55564.6	27065 µg/L	27065 ppb	11:41:37
3	Fe 238.204 Radial†	22076.2	21346.7	32747 µg/L	32747 ppb	11:41:58
3	K 766.490 Radial†	6088.7	5487.2	3016.0 µg/L	3016.0 ppb	11:41:37
3	Mg 279.077 IEC†	2009.9	1933.3	12057 µg/L	12057 ppb	11:41:58
3	Na 589.592 Radial†	33.8	27.7	1138.0 µg/L	1138.0 ppb	11:41:58
3	Sr 421.552†	3964.3	3831.4	96.817 µg/L	96.817 ppb	11:41:58
3	Sc 361.383	635765.0	635765.0	101.59 %		11:43:00
3	Y 371.029	733166.8	733166.8	103.26 %		11:43:00
3	Ag 328.068†	-1948.1	-978.1	0.6607 µg/L	0.6607 ppb	11:43:00
3	As 188.979†	74.0	50.7	13.659 µg/L	13.659 ppb	11:43:20
3	B 249.677†	-5188.2	-5298.8	25.030 µg/L	25.030 ppb	11:43:00
3	Ba 233.527†	95245.9	93621.6	526.20 µg/L	526.20 ppb	11:43:00
3	Be 313.107†	-3206.9	2286.5	1.2888 µg/L	1.2888 ppb	11:43:00
3	Cd 226.502†	418.4	664.9	0.7058 µg/L	0.7058 ppb	11:43:20
3	Co 228.616†	618.0	935.8	12.592 µg/L	12.592 ppb	11:43:20
3	Cr 267.716†	2085.1	1935.5	24.164 µg/L	24.164 ppb	11:43:20
3	Cu 324.752†	9734.8	7088.3	31.319 µg/L	31.319 ppb	11:43:00
3	Mn 257.610†	1386174.1	1363572.9	1345.6 µg/L	1345.6 ppb	11:43:00
3	Mo 202.031†	31.6	47.7	3.2787 µg/L	3.2787 ppb	11:43:20
3	Ni 231.604†	2143.9	2286.4	38.638 µg/L	38.638 ppb	11:43:20
3	P 214.914†	2830.2	2640.9	1117.8 µg/L	1117.8 ppb	11:43:20
3	Pb 220.353†	386.8	274.3	20.268 µg/L	20.268 ppb	11:43:20
3	S 181.975 Axial†	1447.2	1277.4	1253.5 µg/L	1253.5 ppb	11:43:20
3	Sb 206.836†	143.1	25.6	5.2224 µg/L	5.2224 ppb	11:43:20
3	Se 196.026†	-36.8	-18.1	8.9269 µg/L	8.9269 ppb	11:43:20
3	SiO2†	175777.8	171385.5	16122 µg/L	16122 ppb	11:43:00
3	Si 251.611†	219422.1	215683.1	7482.8 µg/L	7482.8 ppb	11:43:00
3	Sn 189.927†	28.6	6.8	2.8696 µg/L	2.8696 ppb	11:43:20
3	Ti 334.940†	176153.9	174186.7	395.38 µg/L	395.38 ppb	11:43:00
3	Tl 190.801†	-176.6	-16.4	1.0497 µg/L	1.0497 ppb	11:43:20
3	U 367.007†	2346.1	884.8	19.92 µg/L	19.92 ppb	11:43:00
3	V 292.402†	8119.9	7573.2	52.793 µg/L	52.793 ppb	11:43:20
3	Zn 213.857†	21026.0	19910.3	103.42 µg/L	103.42 ppb	11:43:20

Mean Data: 1203657604|1611119|5|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	636226.5	101.67	%	0.423				0.42%
Sc RADIAL	8723.0	104	%	0.14				0.14%
Y 371.029	733962.6	103.37	%	0.408				0.40%
Ag 328.068†	-892.0	1.0968	µg/L	0.37768	1.0968	ppb	0.37768	34.43%
Al 396.153Radial†	34721.7	17112	µg/L	56.82	17112	ppb	56.82	0.33%
As 188.979†	44.2	11.705	µg/L	1.7676	11.705	ppb	1.7676	15.10%
B 249.677†	-5260.0	25.876	µg/L	0.8427	25.876	ppb	0.8427	3.26%
Ba 233.527†	93617.5	526.18	µg/L	0.327	526.18	ppb	0.327	0.06%
Be 313.107†	2366.7	1.3205	µg/L	0.02745	1.3205	ppb	0.02745	2.08%
Ca 317.933Radial†	55583.8	27074	µg/L	115.88	27074	ppb	115.88	0.43%
Cd 226.502†	682.8	0.8119	µg/L	0.09335	0.8119	ppb	0.09335	11.50%
Co 228.616†	956.2	12.921	µg/L	0.3192	12.921	ppb	0.3192	2.47%
Cr 267.716†	1972.9	24.636	µg/L	0.4361	24.636	ppb	0.4361	1.77%
Cu 324.752†	7017.4	31.023	µg/L	0.4539	31.023	ppb	0.4539	1.46%
Fe 238.204 Radial†	21362.0	32770	µg/L	49.33	32770	ppb	49.33	0.15%
K 766.490 Radial†	5479.8	3012.0	µg/L	10.06	3012.0	ppb	10.06	0.33%
Mg 279.077 IEC†	1937.2	12081	µg/L	21.68	12081	ppb	21.68	0.18%
Mn 257.610†	1363720.9	1345.8	µg/L	0.94	1345.8	ppb	0.94	0.07%
Mo 202.031†	39.2	2.9354	µg/L	0.33151	2.9354	ppb	0.33151	11.29%

Na 589.592 Radial†	32.0	1313.1 µg/L	158.72	1313.1 ppb	158.72	12.09%
Ni 231.604†	2289.3	38.688 µg/L	0.4252	38.688 ppb	0.4252	1.10%
P 214.914†	2623.9	1110.4 µg/L	7.94	1110.4 ppb	7.94	0.72%
Pb 220.353†	270.5	19.951 µg/L	1.9726	19.951 ppb	1.9726	9.89%
S 181.975 Axial†	1284.5	1260.5 µg/L	7.41	1260.5 ppb	7.41	0.59%
Sb 206.836†	14.5	2.7830 µg/L	2.44361	2.7830 ppb	2.44361	87.80%
Se 196.026†	-16.6	9.5089 µg/L	0.65996	9.5089 ppb	0.65996	6.94%
SiO2†	171270.0	16111 µg/L	21.95	16111 ppb	21.95	0.14%
Si 251.611†	215611.2	7480.3 µg/L	4.47	7480.3 ppb	4.47	0.06%
Sn 189.927†	6.1	2.8025 µg/L	0.31914	2.8025 ppb	0.31914	11.39%
Sr 421.552†	3848.7	97.259 µg/L	0.4003	97.259 ppb	0.4003	0.41%
Ti 334.940†	174474.1	396.03 µg/L	0.805	396.03 ppb	0.805	0.20%
Tl 190.801†	-12.8	1.6446 µg/L	2.06837	1.6446 ppb	2.06837	125.76%
U 367.007†	869.1	16.93 µg/L	5.841	16.93 ppb	5.841	34.49%
V 292.402†	7580.4	52.837 µg/L	0.1703	52.837 ppb	0.1703	0.32%
Zn 213.857†	19953.5	103.65 µg/L	0.406	103.65 ppb	0.406	0.39%

Sequence No.: 9 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/16/2016 11:43:29**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8576.1	8576.1	102	%			11:44:20
1	Al 396.153Radial†	10026.5	10587.9	5200.0	µg/L	5200.0	ppb	11:44:00
1	Ca 317.933Radial†	10851.8	10553.9	5140.7	µg/L	5140.7	ppb	11:44:20
1	Fe 238.204 Radial†	3659.4	3584.6	5498.9	µg/L	5498.9	ppb	11:44:20
1	K 766.490 Radial†	9827.6	9252.9	5048.6	µg/L	5048.6	ppb	11:44:00
1	Mg 279.077 IEC†	872.2	845.8	5274.5	µg/L	5274.5	ppb	11:44:20
1	Na 589.592 Radial†	269.7	260.0	10647	µg/L	10647	ppb	11:44:20
1	Sr 421.552†	21329.0	20953.2	534.30	µg/L	534.30	ppb	11:44:00
1	Sc 361.383	631004.3	631004.3	100.83	%			11:45:19
1	Y 371.029	708313.1	708313.1	99.756	%			11:45:19
1	Ag 328.068†	98981.6	99102.5	497.16	µg/L	497.16	ppb	11:45:19
1	As 188.979†	1683.5	1647.4	499.74	µg/L	499.74	ppb	11:45:39
1	B 249.677†	25693.2	25288.6	511.51	µg/L	511.51	ppb	11:45:19
1	Ba 233.527†	88922.8	88058.1	495.61	µg/L	495.61	ppb	11:45:19
1	Be 313.107†	1238234.7	1233437.4	494.56	µg/L	494.56	ppb	11:45:19
1	Cd 226.502†	82222.9	81796.0	495.11	µg/L	495.11	ppb	11:45:19
1	Co 228.616†	29992.5	30071.9	489.43	µg/L	489.43	ppb	11:45:39
1	Cr 267.716†	39813.7	39367.6	493.94	µg/L	493.94	ppb	11:45:19
1	Cu 324.752†	122478.8	118972.2	496.56	µg/L	496.56	ppb	11:45:19
1	Mn 257.610†	506813.2	501778.4	494.79	µg/L	494.79	ppb	11:45:19
1	Mo 202.031†	12373.9	12288.1	497.58	µg/L	497.58	ppb	11:45:39
1	Ni 231.604†	27822.0	27768.1	488.19	µg/L	488.19	ppb	11:45:39
1	P 214.914†	5848.5	5655.2	2446.3	µg/L	2446.3	ppb	11:45:39
1	Pb 220.353†	6098.8	5942.0	494.85	µg/L	494.85	ppb	11:45:39
1	S 181.975 Axial†	1155.8	999.1	981.82	µg/L	981.82	ppb	11:45:39
1	Sb 206.836†	2376.3	2241.4	484.73	µg/L	484.73	ppb	11:45:39
1	Se 196.026†	1378.2	1384.9	504.16	µg/L	504.16	ppb	11:45:39
1	SiO2†	58061.3	55947.9	5268.6	µg/L	5268.6	ppb	11:45:19
1	Si 251.611†	71672.8	70785.2	2449.9	µg/L	2449.9	ppb	11:45:19
1	Sn 189.927†	5265.3	5200.5	500.00	µg/L	500.00	ppb	11:45:39
1	Ti 334.940†	221067.4	220036.9	497.65	µg/L	497.65	ppb	11:45:19
1	Tl 190.801†	2914.7	3047.9	501.04	µg/L	501.04	ppb	11:45:39
1	U 367.007†	4060.9	2602.9	453.2	µg/L	453.2	ppb	11:45:19
1	V 292.402†	77761.0	76698.7	497.69	µg/L	497.69	ppb	11:45:19
1	Zn 213.857†	92400.4	90850.5	490.26	µg/L	490.26	ppb	11:45:19
2	Sc RADIAL	8564.1	8564.1	102	%			11:44:45
2	Al 396.153Radial†	9825.2	10403.8	5109.3	µg/L	5109.3	ppb	11:44:25
2	Ca 317.933Radial†	10870.6	10587.6	5157.0	µg/L	5157.0	ppb	11:44:45
2	Fe 238.204 Radial†	3671.0	3601.0	5524.2	µg/L	5524.2	ppb	11:44:45
2	K 766.490 Radial†	9591.9	9034.6	4929.6	µg/L	4929.6	ppb	11:44:25
2	Mg 279.077 IEC†	872.9	847.7	5286.8	µg/L	5286.8	ppb	11:44:45
2	Na 589.592 Radial†	265.1	255.9	10477	µg/L	10477	ppb	11:44:45
2	Sr 421.552†	21215.2	20870.8	532.20	µg/L	532.20	ppb	11:44:25
2	Sc 361.383	632637.1	632637.1	101.09	%			11:45:47
2	Y 371.029	710315.2	710315.2	100.04	%			11:45:47
2	Ag 328.068†	99548.7	99410.1	498.71	µg/L	498.71	ppb	11:45:47
2	As 188.979†	1693.3	1652.8	501.36	µg/L	501.36	ppb	11:46:07
2	B 249.677†	25903.6	25431.1	514.39	µg/L	514.39	ppb	11:45:47
2	Ba 233.527†	89229.0	88133.4	496.03	µg/L	496.03	ppb	11:45:47
2	Be 313.107†	1242074.4	1234066.1	494.81	µg/L	494.81	ppb	11:45:47
2	Cd 226.502†	82527.5	81886.8	495.66	µg/L	495.66	ppb	11:45:47
2	Co 228.616†	30035.1	30037.4	488.87	µg/L	488.87	ppb	11:46:07
2	Cr 267.716†	39971.4	39421.7	494.63	µg/L	494.63	ppb	11:45:47
2	Cu 324.752†	122812.9	118989.2	496.62	µg/L	496.62	ppb	11:45:47
2	Mn 257.610†	508385.1	502036.0	495.05	µg/L	495.05	ppb	11:45:47
2	Mo 202.031†	12377.0	12259.6	496.43	µg/L	496.43	ppb	11:46:07
2	Ni 231.604†	27864.8	27739.2	487.68	µg/L	487.68	ppb	11:46:07
2	P 214.914†	5844.8	5636.6	2438.2	µg/L	2438.2	ppb	11:46:07

2	Pb 220.353†	6120.8	5948.1	495.39 µg/L	495.39 ppb	11:46:07
2	S 181.975 Axial†	1167.0	1007.3	989.80 µg/L	989.80 ppb	11:46:07
2	Sb 206.836†	2370.8	2229.9	482.18 µg/L	482.18 ppb	11:46:07
2	Se 196.026†	1366.6	1369.9	498.75 µg/L	498.75 ppb	11:46:07
2	SiO2†	58212.2	55948.6	5268.7 µg/L	5268.7 ppb	11:45:47
2	Si 251.611†	71843.7	70770.7	2449.4 µg/L	2449.4 ppb	11:45:47
2	Sn 189.927†	5256.3	5178.1	497.87 µg/L	497.87 ppb	11:46:07
2	Ti 334.940†	221670.9	220068.0	497.73 µg/L	497.73 ppb	11:45:47
2	Tl 190.801†	2919.5	3045.2	500.59 µg/L	500.59 ppb	11:46:07
2	U 367.007†	4008.3	2540.4	441.6 µg/L	441.6 ppb	11:45:47
2	V 292.402†	77975.2	76711.5	497.76 µg/L	497.76 ppb	11:45:47
2	Zn 213.857†	92887.5	91095.8	491.59 µg/L	491.59 ppb	11:45:47
3	Sc RADIAL	8572.6	8572.6	102 %		11:45:10
3	Al 396.153Radial†	9846.6	10415.2	5115.0 µg/L	5115.0 ppb	11:44:50
3	Ca 317.933Radial†	10887.9	10593.8	5160.1 µg/L	5160.1 ppb	11:45:10
3	Fe 238.204 Radial†	3673.1	3599.5	5521.8 µg/L	5521.8 ppb	11:45:10
3	K 766.490 Radial†	9741.6	9172.3	5004.7 µg/L	5004.7 ppb	11:44:50
3	Mg 279.077 IEC†	868.3	842.3	5252.9 µg/L	5252.9 ppb	11:45:10
3	Na 589.592 Radial†	272.9	263.3	10782 µg/L	10782 ppb	11:45:10
3	Sr 421.552†	21361.2	20993.5	535.33 µg/L	535.33 ppb	11:44:50
3	Sc 361.383	634600.4	634600.4	101.41 %		11:46:14
3	Y 371.029	712177.2	712177.2	100.30 %		11:46:14
3	Ag 328.068†	99722.2	99276.5	498.03 µg/L	498.03 ppb	11:46:14
3	As 188.979†	1684.9	1639.3	497.29 µg/L	497.29 ppb	11:46:34
3	B 249.677†	25983.8	25430.9	514.38 µg/L	514.38 ppb	11:46:14
3	Ba 233.527†	89494.6	88122.2	495.97 µg/L	495.97 ppb	11:46:14
3	Be 313.107†	1247675.0	1235788.0	495.51 µg/L	495.51 ppb	11:46:14
3	Cd 226.502†	82812.2	81915.0	495.83 µg/L	495.83 ppb	11:46:14
3	Co 228.616†	30060.8	29970.8	487.78 µg/L	487.78 ppb	11:46:34
3	Cr 267.716†	40118.6	39444.5	494.91 µg/L	494.91 ppb	11:46:14
3	Cu 324.752†	123359.3	119152.1	497.31 µg/L	497.31 ppb	11:46:14
3	Mn 257.610†	510226.3	502295.9	495.31 µg/L	495.31 ppb	11:46:14
3	Mo 202.031†	12392.9	12237.3	495.53 µg/L	495.53 ppb	11:46:34
3	Ni 231.604†	27973.9	27761.5	488.07 µg/L	488.07 ppb	11:46:34
3	P 214.914†	5852.7	5626.6	2433.8 µg/L	2433.8 ppb	11:46:34
3	Pb 220.353†	6151.7	5959.9	496.36 µg/L	496.36 ppb	11:46:34
3	S 181.975 Axial†	1164.2	1001.0	983.61 µg/L	983.61 ppb	11:46:34
3	Sb 206.836†	2369.2	2221.1	480.25 µg/L	480.25 ppb	11:46:34
3	Se 196.026†	1356.8	1356.1	493.74 µg/L	493.74 ppb	11:46:34
3	SiO2†	58457.8	56012.6	5274.7 µg/L	5274.7 ppb	11:46:14
3	Si 251.611†	72168.1	70870.8	2452.9 µg/L	2452.9 ppb	11:46:14
3	Sn 189.927†	5267.0	5172.6	497.34 µg/L	497.34 ppb	11:46:34
3	Ti 334.940†	222369.8	220078.8	497.75 µg/L	497.75 ppb	11:46:14
3	Tl 190.801†	2914.3	3031.2	498.30 µg/L	498.30 ppb	11:46:34
3	U 367.007†	4111.3	2629.7	458.0 µg/L	458.0 ppb	11:46:14
3	V 292.402†	78367.1	76859.4	498.71 µg/L	498.71 ppb	11:46:14
3	Zn 213.857†	93209.3	91128.9	491.77 µg/L	491.77 ppb	11:46:14

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	632747.3	101.11	%	0.288				0.28%
Sc RADIAL	8570.9	102	%	0.07				0.07%
Y 371.029	710268.5	100.03	%	0.272				0.27%
Ag 328.068†	99263.0	497.97	µg/L	0.777	497.97	ppb	0.777	0.16%
QC value within limits for Ag 328.068 Recovery = 99.59%								
Al 396.153Radial†	10469.0	5141.5	µg/L	50.81	5141.5	ppb	50.81	0.99%
QC value within limits for Al 396.153Radial Recovery = 102.83%								
As 188.979†	1646.5	499.46	µg/L	2.046	499.46	ppb	2.046	0.41%
QC value within limits for As 188.979 Recovery = 99.89%								
B 249.677†	25383.5	513.43	µg/L	1.657	513.43	ppb	1.657	0.32%
QC value within limits for B 249.677 Recovery = 102.69%								
Ba 233.527†	88104.6	495.87	µg/L	0.228	495.87	ppb	0.228	0.05%
QC value within limits for Ba 233.527 Recovery = 99.17%								
Be 313.107†	1234430.5	494.96	µg/L	0.489	494.96	ppb	0.489	0.10%
QC value within limits for Be 313.107 Recovery = 98.99%								
Ca 317.933Radial†	10578.4	5152.6	µg/L	10.45	5152.6	ppb	10.45	0.20%
QC value within limits for Ca 317.933Radial Recovery = 103.05%								
Cd 226.502†	81866.0	495.53	µg/L	0.375	495.53	ppb	0.375	0.08%
QC value within limits for Cd 226.502 Recovery = 99.11%								

Co 228.616†	30026.7	488.69 µg/L	0.840	488.69 ppb	0.840	0.17%
QC value within limits for Co 228.616 Recovery = 97.74%						
Cr 267.716†	39411.3	494.49 µg/L	0.495	494.49 ppb	0.495	0.10%
QC value within limits for Cr 267.716 Recovery = 98.90%						
Cu 324.752†	119037.8	496.83 µg/L	0.418	496.83 ppb	0.418	0.08%
QC value within limits for Cu 324.752 Recovery = 99.37%						
Fe 238.204 Radial†	3595.0	5515.0 µg/L	13.96	5515.0 ppb	13.96	0.25%
QC value greater than the upper limit for Fe 238.204 Radial Recovery = 110.30%						
K 766.490 Radial†	9153.3	4994.3 µg/L	60.20	4994.3 ppb	60.20	1.21%
QC value within limits for K 766.490 Radial Recovery = 99.89%						
Mg 279.077 IEC†	845.3	5271.4 µg/L	17.18	5271.4 ppb	17.18	0.33%
QC value within limits for Mg 279.077 IEC Recovery = 105.43%						
Mn 257.610†	502036.7	495.05 µg/L	0.256	495.05 ppb	0.256	0.05%
QC value within limits for Mn 257.610 Recovery = 99.01%						
Mo 202.031†	12261.7	496.51 µg/L	1.030	496.51 ppb	1.030	0.21%
QC value within limits for Mo 202.031 Recovery = 99.30%						
Na 589.592 Radial†	259.7	10635 µg/L	153.08	10635 ppb	153.08	1.44%
QC value within limits for Na 589.592 Radial Recovery = 106.35%						
Ni 231.604†	27756.3	487.98 µg/L	0.267	487.98 ppb	0.267	0.05%
QC value within limits for Ni 231.604 Recovery = 97.60%						
P 214.914†	5639.5	2439.5 µg/L	6.34	2439.5 ppb	6.34	0.26%
QC value within limits for P 214.914 Recovery = 97.58%						
Pb 220.353†	5950.0	495.53 µg/L	0.767	495.53 ppb	0.767	0.15%
QC value within limits for Pb 220.353 Recovery = 99.11%						
S 181.975 Axial†	1002.5	985.07 µg/L	4.187	985.07 ppb	4.187	0.43%
QC value within limits for S 181.975 Axial Recovery = 98.51%						
Sb 206.836†	2230.8	482.39 µg/L	2.246	482.39 ppb	2.246	0.47%
QC value within limits for Sb 206.836 Recovery = 96.48%						
Se 196.026†	1370.3	498.88 µg/L	5.213	498.88 ppb	5.213	1.04%
QC value within limits for Se 196.026 Recovery = 99.78%						
SiO2†	55969.7	5270.7 µg/L	3.50	5270.7 ppb	3.50	0.07%
QC value within limits for SiO2 Recovery = 98.56%						
Si 251.611†	70808.9	2450.7 µg/L	1.89	2450.7 ppb	1.89	0.08%
QC value within limits for Si 251.611 Recovery = 98.03%						
Sn 189.927†	5183.7	498.40 µg/L	1.411	498.40 ppb	1.411	0.28%
QC value within limits for Sn 189.927 Recovery = 99.68%						
Sr 421.552†	20939.2	533.94 µg/L	1.595	533.94 ppb	1.595	0.30%
QC value within limits for Sr 421.552 Recovery = 106.79%						
Ti 334.940†	220061.2	497.71 µg/L	0.050	497.71 ppb	0.050	0.01%
QC value within limits for Ti 334.940 Recovery = 99.54%						
Tl 190.801†	3041.5	499.98 µg/L	1.467	499.98 ppb	1.467	0.29%
QC value within limits for Tl 190.801 Recovery = 100.00%						
U 367.007†	2591.0	450.9 µg/L	8.41	450.9 ppb	8.41	1.87%
QC value within limits for U 367.007 Recovery = 90.18%						
V 292.402†	76756.5	498.05 µg/L	0.568	498.05 ppb	0.568	0.11%
QC value within limits for V 292.402 Recovery = 99.61%						
Zn 213.857†	91025.0	491.21 µg/L	0.828	491.21 ppb	0.828	0.17%
QC value within limits for Zn 213.857 Recovery = 98.24%						

QC Failed. Continue with analysis.

Sequence No.: 10 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/16/2016 11:46:43**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8662.7	8662.7	103	%			11:47:12
1	Al 396.153Radial†	-698.3	57.1	28.111	µg/L	28.111	ppb	11:47:12
1	Ca 317.933Radial†	114.9	3.2	1.5605	µg/L	1.5605	ppb	11:47:32
1	Fe 238.204 Radial†	10.3	-1.0	-1.4934	µg/L	-1.4934	ppb	11:47:32
1	K 766.490 Radial†	548.7	130.4	71.137	µg/L	71.137	ppb	11:47:12
1	Mg 279.077 IEC†	7.3	-4.1	-25.831	µg/L	-25.831	ppb	11:47:32
1	Na 589.592 Radial†	9.8	4.5	186.18	µg/L	186.18	ppb	11:47:32
1	Sr 421.552†	41.7	36.7	0.9359	µg/L	0.9359	ppb	11:47:12
1	Sc 361.383	633958.7	633958.7	101.31	%			11:48:29
1	Y 371.029	718095.2	718095.2	101.13	%			11:48:29
1	Ag 328.068†	-897.5	53.5	0.2648	µg/L	0.2648	ppb	11:48:29
1	As 188.979†	18.5	-3.9	-1.1758	µg/L	-1.1758	ppb	11:48:49
1	B 249.677†	302.0	106.1	2.0596	µg/L	2.0596	ppb	11:48:49
1	Ba 233.527†	151.4	20.1	0.1134	µg/L	0.1134	ppb	11:48:49
1	Be 313.107†	-5418.5	94.5	0.0391	µg/L	0.0391	ppb	11:48:29
1	Cd 226.502†	-196.9	58.7	0.3556	µg/L	0.3556	ppb	11:48:49
1	Co 228.616†	-341.5	-9.6	-0.1553	µg/L	-0.1553	ppb	11:48:49
1	Cr 267.716†	121.9	3.5	0.0398	µg/L	0.0398	ppb	11:48:49
1	Cu 324.752†	2518.7	-7.5	-0.0292	µg/L	-0.0292	ppb	11:48:29
1	Mn 257.610†	978.1	122.0	0.1211	µg/L	0.1211	ppb	11:48:49
1	Mo 202.031†	4.1	20.7	0.8364	µg/L	0.8364	ppb	11:48:49
1	Ni 231.604†	-177.9	0.6	0.0103	µg/L	0.0103	ppb	11:48:49
1	P 214.914†	139.9	-6.8	-2.9745	µg/L	-2.9745	ppb	11:48:49
1	Pb 220.353†	98.4	-9.3	-0.7875	µg/L	-0.7875	ppb	11:48:49
1	S 181.975 Axial†	161.9	12.8	12.486	µg/L	12.486	ppb	11:48:49
1	Sb 206.836†	96.8	-19.7	-4.2668	µg/L	-4.2668	ppb	11:48:49
1	Se 196.026†	-5.0	13.2	4.7773	µg/L	4.7773	ppb	11:48:49
1	SiO2†	1757.6	101.7	9.5663	µg/L	9.5663	ppb	11:48:29
1	Si 251.611†	404.1	104.0	3.6033	µg/L	3.6033	ppb	11:48:49
1	Sn 189.927†	18.2	-3.3	-0.3168	µg/L	-0.3168	ppb	11:48:49
1	Ti 334.940†	-613.5	192.2	0.4323	µg/L	0.4323	ppb	11:48:29
1	Tl 190.801†	-142.6	16.7	2.7391	µg/L	2.7391	ppb	11:48:49
1	U 367.007†	1471.3	27.8	5.109	µg/L	5.109	ppb	11:48:29
1	V 292.402†	411.8	-12.7	-0.0703	µg/L	-0.0703	ppb	11:48:29
1	Zn 213.857†	680.6	-113.9	-0.6187	µg/L	-0.6187	ppb	11:48:49
2	Sc RADIAL	8618.6	8618.6	102	%			11:47:37
2	Al 396.153Radial†	-738.5	14.3	7.0095	µg/L	7.0095	ppb	11:47:37
2	Ca 317.933Radial†	122.7	11.4	5.5485	µg/L	5.5485	ppb	11:47:57
2	Fe 238.204 Radial†	9.5	-1.8	-2.6913	µg/L	-2.6913	ppb	11:47:57
2	K 766.490 Radial†	438.3	25.2	13.721	µg/L	13.721	ppb	11:47:37
2	Mg 279.077 IEC†	16.7	5.2	32.241	µg/L	32.241	ppb	11:47:57
2	Na 589.592 Radial†	5.2	0.1	2.9738	µg/L	2.9738	ppb	11:47:57
2	Sr 421.552†	19.3	15.0	0.3819	µg/L	0.3819	ppb	11:47:37
2	Sc 361.383	634579.9	634579.9	101.41	%			11:48:54
2	Y 371.029	719587.7	719587.7	101.34	%			11:48:54
2	Ag 328.068†	-906.9	45.2	0.2267	µg/L	0.2267	ppb	11:48:54
2	As 188.979†	20.2	-2.3	-0.6783	µg/L	-0.6783	ppb	11:49:14
2	B 249.677†	271.3	75.5	1.4605	µg/L	1.4605	ppb	11:49:14
2	Ba 233.527†	140.3	9.0	0.0509	µg/L	0.0509	ppb	11:49:14
2	Be 313.107†	-5350.0	167.2	0.0666	µg/L	0.0666	ppb	11:48:54
2	Cd 226.502†	-197.7	58.1	0.3521	µg/L	0.3521	ppb	11:49:14
2	Co 228.616†	-345.3	-13.0	-0.2119	µg/L	-0.2119	ppb	11:49:14
2	Cr 267.716†	110.9	-7.5	-0.0917	µg/L	-0.0917	ppb	11:49:14
2	Cu 324.752†	2526.1	-2.6	-0.0124	µg/L	-0.0124	ppb	11:48:54
2	Mn 257.610†	952.6	95.9	0.0933	µg/L	0.0933	ppb	11:49:14
2	Mo 202.031†	-5.1	11.5	0.4673	µg/L	0.4673	ppb	11:49:14
2	Ni 231.604†	-156.8	21.5	0.3781	µg/L	0.3781	ppb	11:49:14
2	P 214.914†	134.9	-11.8	-5.1491	µg/L	-5.1491	ppb	11:49:14

2	Pb 220.353†	102.7	-5.1	-0.4250 µg/L	-0.4250 ppb	11:49:14
2	S 181.975 Axial†	167.3	17.9	17.506 µg/L	17.506 ppb	11:49:14
2	Sb 206.836†	112.8	-4.0	-0.8530 µg/L	-0.8530 ppb	11:49:14
2	Se 196.026†	-0.8	17.3	6.2742 µg/L	6.2742 ppb	11:49:14
2	SiO2†	1721.8	64.7	6.0828 µg/L	6.0828 ppb	11:48:54
2	Si 251.611†	378.6	78.5	2.7207 µg/L	2.7207 ppb	11:49:14
2	Sn 189.927†	18.2	-3.3	-0.3111 µg/L	-0.3111 ppb	11:49:14
2	Ti 334.940†	-613.6	192.7	0.4372 µg/L	0.4372 ppb	11:48:54
2	Tl 190.801†	-141.7	17.6	2.8998 µg/L	2.8998 ppb	11:49:14
2	U 367.007†	1433.4	-10.9	-1.995 µg/L	-1.995 ppb	11:48:54
2	V 292.402†	460.7	35.1	0.2272 µg/L	0.2272 ppb	11:48:54
2	Zn 213.857†	660.9	-134.0	-0.7343 µg/L	-0.7343 ppb	11:49:14
3	Sc RADIAL	8568.3	8568.3	102 %		11:48:02
3	Al 396.153Radial†	-754.8	-6.0	-2.9523 µg/L	-2.9523 ppb	11:48:02
3	Ca 317.933Radial†	116.3	5.8	2.8165 µg/L	2.8165 ppb	11:48:22
3	Fe 238.204 Radial†	10.3	-0.8	-1.2938 µg/L	-1.2938 ppb	11:48:22
3	K 766.490 Radial†	451.3	40.4	22.049 µg/L	22.049 ppb	11:48:02
3	Mg 279.077 IEC†	5.2	-6.1	-37.867 µg/L	-37.867 ppb	11:48:22
3	Na 589.592 Radial†	11.4	6.2	255.67 µg/L	255.67 ppb	11:48:22
3	Sr 421.552†	32.2	27.8	0.7090 µg/L	0.7090 ppb	11:48:02
3	Sc 361.383	635809.8	635809.8	101.60 %		11:49:20
3	Y 371.029	721473.5	721473.5	101.61 %		11:49:20
3	Ag 328.068†	-883.3	70.1	0.3583 µg/L	0.3583 ppb	11:49:20
3	As 188.979†	25.2	2.6	0.7979 µg/L	0.7979 ppb	11:49:40
3	B 249.677†	271.0	74.7	1.4472 µg/L	1.4472 ppb	11:49:40
3	Ba 233.527†	141.9	10.4	0.0586 µg/L	0.0586 ppb	11:49:40
3	Be 313.107†	-5296.9	229.7	0.0884 µg/L	0.0884 ppb	11:49:20
3	Cd 226.502†	-207.1	49.2	0.2984 µg/L	0.2984 ppb	11:49:40
3	Co 228.616†	-306.7	25.7	0.4179 µg/L	0.4179 ppb	11:49:40
3	Cr 267.716†	130.1	11.3	0.1518 µg/L	0.1518 ppb	11:49:40
3	Cu 324.752†	2509.2	-24.0	-0.1088 µg/L	-0.1088 ppb	11:49:20
3	Mn 257.610†	900.8	43.1	0.0438 µg/L	0.0438 ppb	11:49:40
3	Mo 202.031†	-10.6	6.1	0.2473 µg/L	0.2473 ppb	11:49:40
3	Ni 231.604†	-160.1	18.5	0.3263 µg/L	0.3263 ppb	11:49:40
3	P 214.914†	119.0	-27.8	-12.089 µg/L	-12.089 ppb	11:49:40
3	Pb 220.353†	102.3	-5.6	-0.4580 µg/L	-0.4580 ppb	11:49:40
3	S 181.975 Axial†	170.6	20.8	20.367 µg/L	20.367 ppb	11:49:40
3	Sb 206.836†	121.8	4.6	1.0081 µg/L	1.0081 ppb	11:49:40
3	Se 196.026†	-4.0	14.1	5.1233 µg/L	5.1233 ppb	11:49:40
3	SiO2†	1693.5	33.6	3.1635 µg/L	3.1635 ppb	11:49:20
3	Si 251.611†	377.3	76.4	2.6510 µg/L	2.6510 ppb	11:49:40
3	Sn 189.927†	18.2	-3.4	-0.3189 µg/L	-0.3189 ppb	11:49:40
3	Ti 334.940†	-580.5	226.4	0.5199 µg/L	0.5199 ppb	11:49:20
3	Tl 190.801†	-151.5	8.2	1.3468 µg/L	1.3468 ppb	11:49:40
3	U 367.007†	1360.2	-85.8	-15.73 µg/L	-15.73 ppb	11:49:20
3	V 292.402†	464.3	37.8	0.2345 µg/L	0.2345 ppb	11:49:20
3	Zn 213.857†	662.7	-133.5	-0.7269 µg/L	-0.7269 ppb	11:49:40

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	634782.8	101.44	%	0.151				0.15%
Sc RADIAL	8616.5	102	%	0.56				0.55%
Y 371.029	719718.8	101.36	%	0.238				0.24%
Ag 328.068†	56.3	0.2833	µg/L	0.06774	0.2833	ppb	0.06774	23.91%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	21.8	10.723	µg/L	15.8611	10.723	ppb	15.8611	147.92%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.2	-0.3521	µg/L	1.02649	-0.3521	ppb	1.02649	291.57%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	85.4	1.6558	µg/L	0.34981	1.6558	ppb	0.34981	21.13%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	13.2	0.0743	µg/L	0.03408	0.0743	ppb	0.03408	45.86%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	163.8	0.0647	µg/L	0.02469	0.0647	ppb	0.02469	38.17%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	6.8	3.3085	µg/L	2.03902	3.3085	ppb	2.03902	61.63%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	55.3	0.3354	µg/L	0.03209	0.3354	ppb	0.03209	9.57%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	1.0	0.0169 µg/L	0.34845	0.0169 ppb	0.34845	>999.9%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	2.4	0.0333 µg/L	0.12185	0.0333 ppb	0.12185	366.07%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	-11.4	-0.0501 µg/L	0.05148	-0.0501 ppb	0.05148	102.67%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	-1.2	-1.8262 µg/L	0.75584	-1.8262 ppb	0.75584	41.39%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	65.3	35.635 µg/L	31.0257	35.635 ppb	31.0257	87.06%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	-1.7	-10.485 µg/L	37.4883	-10.485 ppb	37.4883	357.53%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	87.0	0.0861 µg/L	0.03919	0.0861 ppb	0.03919	45.54%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	12.8	0.5170 µg/L	0.29767	0.5170 ppb	0.29767	57.58%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	3.6	148.28 µg/L	130.544	148.28 ppb	130.544	88.04%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	13.5	0.2382 µg/L	0.19909	0.2382 ppb	0.19909	83.57%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-15.5	-6.7376 µg/L	4.76046	-6.7376 ppb	4.76046	70.65%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	-6.7	-0.5568 µg/L	0.20041	-0.5568 ppb	0.20041	35.99%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	17.1	16.786 µg/L	3.9891	16.786 ppb	3.9891	23.76%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	-6.3	-1.3706 µg/L	2.67525	-1.3706 ppb	2.67525	195.19%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	14.9	5.3916 µg/L	0.78370	5.3916 ppb	0.78370	14.54%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	66.6	6.2708 µg/L	3.20553	6.2708 ppb	3.20553	51.12%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	86.3	2.9917 µg/L	0.53080	2.9917 ppb	0.53080	17.74%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	-3.3	-0.3156 µg/L	0.00403	-0.3156 ppb	0.00403	1.28%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	26.5	0.6756 µg/L	0.27850	0.6756 ppb	0.27850	41.22%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	203.8	0.4631 µg/L	0.04923	0.4631 ppb	0.04923	10.63%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	14.2	2.3286 µg/L	0.85402	2.3286 ppb	0.85402	36.68%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	-23.0	-4.204 µg/L	10.5911	-4.204 ppb	10.5911	251.93%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	20.1	0.1304 µg/L	0.17389	0.1304 ppb	0.17389	133.31%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	-127.1	-0.6933 µg/L	0.06469	-0.6933 ppb	0.06469	9.33%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 307**
Sample ID: 1203671682|1611119|1| **Date Collected: 11/16/2016 11:49:49**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: 1203671682|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8628.2	8628.2	102	%			11:50:40
1	Al 396.153Radial†	170874.7	167618.3	82590	µg/L	82590	ppb	11:50:20
1	Ca 317.933Radial†	279465.9	272827.2	132890	µg/L	132890	ppb	11:50:20
1	Fe 238.204 Radial†	107541.3	105017.5	161100	µg/L	161100	ppb	11:50:20
1	K 766.490 Radial†	36360.3	35107.3	19261	µg/L	19261	ppb	11:50:20
1	Mg 279.077 IEC†	10357.1	10103.9	63012	µg/L	63012	ppb	11:50:40
1	Na 589.592 Radial†	291.9	280.1	11487	µg/L	11487	ppb	11:50:40
1	Sr 421.552†	37407.9	36530.0	927.32	µg/L	927.32	ppb	11:50:20
1	Sc 361.383	616960.3	616960.3	98.590	%			11:51:44
1	Y 371.029	792958.3	792958.3	111.68	%			11:51:39
1	Ag 328.068†	88712.9	90921.3	482.69	µg/L	482.69	ppb	11:51:44
1	As 188.979†	1875.5	1880.2	561.91	µg/L	561.91	ppb	11:52:04
1	B 249.677†	590.5	406.9	636.35	µg/L	636.35	ppb	11:51:44
1	Ba 233.527†	499000.0	506008.8	2844.4	µg/L	2844.4	ppb	11:51:44
1	Be 313.107†	1192868.2	1215375.1	489.06	µg/L	489.06	ppb	11:51:39
1	Cd 226.502†	78011.9	79380.9	464.67	µg/L	464.67	ppb	11:51:44
1	Co 228.616†	32070.5	32856.8	521.94	µg/L	521.94	ppb	11:51:44
1	Cr 267.716†	46194.6	46738.6	586.00	µg/L	586.00	ppb	11:51:44
1	Cu 324.752†	156133.8	155873.5	658.76	µg/L	658.76	ppb	11:51:44
1	Mn 257.610†	6689300.5	6784146.3	6694.6	µg/L	6694.6	ppb	11:51:39
1	Mo 202.031†	11627.6	11810.5	484.66	µg/L	484.66	ppb	11:52:04
1	Ni 231.604†	36153.7	36847.0	640.38	µg/L	640.38	ppb	11:51:44
1	P 214.914†	14100.8	14157.6	5997.0	µg/L	5997.0	ppb	11:52:04
1	Pb 220.353†	6455.4	6441.3	525.46	µg/L	525.46	ppb	11:52:04
1	S 181.975 Axial†	11204.2	11217.4	10997	µg/L	10997	ppb	11:52:04
1	Sb 206.836†	2291.6	2209.1	476.27	µg/L	476.27	ppb	11:52:04
1	Se 196.026†	1118.3	1152.4	493.61	µg/L	493.61	ppb	11:52:04
1	SiO2†	938221.7	950009.6	89372	µg/L	89372	ppb	11:51:39
1	Si 251.611†	1180403.1	1196993.7	41525	µg/L	41525	ppb	11:51:39
1	Sn 189.927†	4769.4	4816.4	473.90	µg/L	473.90	ppb	11:52:04
1	Ti 334.940†	1052422.4	1068274.9	2422.9	µg/L	2422.9	ppb	11:51:39
1	Tl 190.801†	2533.8	2727.5	466.85	µg/L	466.85	ppb	11:52:04
1	U 367.007†	7522.9	6206.0	437.8	µg/L	437.8	ppb	11:51:44
1	V 292.402†	111804.7	112984.8	750.05	µg/L	750.05	ppb	11:51:44
1	Zn 213.857†	181001.8	182805.3	967.40	µg/L	967.40	ppb	11:51:44
2	Sc RADIAL	8704.4	8704.4	103	%			11:51:05
2	Al 396.153Radial†	176998.5	172086.4	84792	µg/L	84792	ppb	11:50:45
2	Ca 317.933Radial†	286974.4	277707.7	135270	µg/L	135270	ppb	11:50:45
2	Fe 238.204 Radial†	110341.9	106809.6	163850	µg/L	163850	ppb	11:50:45
2	K 766.490 Radial†	37286.0	35692.8	19583	µg/L	19583	ppb	11:50:45
2	Mg 279.077 IEC†	10354.1	10012.5	62442	µg/L	62442	ppb	11:51:05
2	Na 589.592 Radial†	288.6	274.4	11254	µg/L	11254	ppb	11:51:05
2	Sr 421.552†	38848.9	37605.3	954.66	µg/L	954.66	ppb	11:50:45
2	Sc 361.383	614711.7	614711.7	98.230	%			11:52:17
2	Y 371.029	794301.3	794301.3	111.87	%			11:52:12
2	Ag 328.068†	88351.1	90882.3	482.95	µg/L	482.95	ppb	11:52:17
2	As 188.979†	1850.1	1861.3	556.09	µg/L	556.09	ppb	11:52:37
2	B 249.677†	392.7	207.8	643.24	µg/L	643.24	ppb	11:52:17
2	Ba 233.527†	496973.8	505797.5	2843.2	µg/L	2843.2	ppb	11:52:17
2	Be 313.107†	1194436.6	1221397.5	491.50	µg/L	491.50	ppb	11:52:12
2	Cd 226.502†	77467.1	79115.7	462.78	µg/L	462.78	ppb	11:52:17
2	Co 228.616†	31870.4	32772.1	520.34	µg/L	520.34	ppb	11:52:17
2	Cr 267.716†	45992.6	46704.4	585.55	µg/L	585.55	ppb	11:52:17
2	Cu 324.752†	155593.9	155903.2	659.03	µg/L	659.03	ppb	11:52:17
2	Mn 257.610†	6701042.4	6820918.9	6731.1	µg/L	6731.1	ppb	11:52:12
2	Mo 202.031†	11589.7	11815.1	484.95	µg/L	484.95	ppb	11:52:37
2	Ni 231.604†	35967.4	36791.5	639.27	µg/L	639.27	ppb	11:52:17
2	P 214.914†	14018.9	14126.6	5981.0	µg/L	5981.0	ppb	11:52:37

2	Pb 220.353†	6434.5	6444.0	525.19 µg/L	525.19 ppb	11:52:37
2	S 181.975 Axial†	11166.2	11220.3	11000 µg/L	11000 ppb	11:52:37
2	Sb 206.836†	2262.6	2188.1	471.69 µg/L	471.69 ppb	11:52:37
2	Se 196.026†	1111.1	1149.2	493.77 µg/L	493.77 ppb	11:52:37
2	SiO2†	940741.4	956055.7	89940 µg/L	89940 ppb	11:52:12
2	Si 251.611†	1182621.3	1203631.5	41755 µg/L	41755 ppb	11:52:12
2	Sn 189.927†	4759.8	4824.3	474.78 µg/L	474.78 ppb	11:52:37
2	Ti 334.940†	1054140.1	1073928.3	2435.8 µg/L	2435.8 ppb	11:52:12
2	Tl 190.801†	2503.7	2706.2	463.48 µg/L	463.48 ppb	11:52:37
2	U 367.007†	7573.1	6285.0	440.4 µg/L	440.4 ppb	11:52:17
2	V 292.402†	111452.6	113041.3	750.78 µg/L	750.78 ppb	11:52:17
2	Zn 213.857†	180093.3	182551.9	965.72 µg/L	965.72 ppb	11:52:17
3	Sc RADIAL	8727.8	8727.8	104 %		11:51:30
3	Al 396.153Radial†	177112.1	171736.5	84620 µg/L	84620 ppb	11:51:10
3	Ca 317.933Radial†	286294.0	276305.7	134580 µg/L	134580 ppb	11:51:10
3	Fe 238.204 Radial†	110238.8	106423.6	163260 µg/L	163260 ppb	11:51:10
3	K 766.490 Radial†	37257.7	35568.6	19515 µg/L	19515 ppb	11:51:10
3	Mg 279.077 IEC†	10373.7	10004.5	62392 µg/L	62392 ppb	11:51:30
3	Na 589.592 Radial†	290.5	275.6	11300 µg/L	11300 ppb	11:51:30
3	Sr 421.552†	38841.7	37497.5	951.94 µg/L	951.94 ppb	11:51:10
3	Sc 361.383	613374.1	613374.1	98.017 %		11:52:50
3	Y 371.029	794607.8	794607.8	111.91 %		11:52:44
3	Ag 328.068†	88196.0	90920.1	483.04 µg/L	483.04 ppb	11:52:50
3	As 188.979†	1865.8	1881.4	562.14 µg/L	562.14 ppb	11:53:10
3	B 249.677†	521.6	340.1	643.50 µg/L	643.50 ppb	11:52:50
3	Ba 233.527†	494506.9	504384.0	2835.2 µg/L	2835.2 ppb	11:52:50
3	Be 313.107†	1191696.2	1221253.3	491.43 µg/L	491.43 ppb	11:52:44
3	Cd 226.502†	76900.1	78709.2	460.38 µg/L	460.38 ppb	11:52:50
3	Co 228.616†	31753.4	32723.4	519.57 µg/L	519.57 ppb	11:52:50
3	Cr 267.716†	45776.4	46585.9	584.07 µg/L	584.07 ppb	11:52:50
3	Cu 324.752†	155129.0	155774.4	658.46 µg/L	658.46 ppb	11:52:50
3	Mn 257.610†	6685356.2	6819791.7	6729.9 µg/L	6729.9 ppb	11:52:44
3	Mo 202.031†	11524.4	11774.2	483.28 µg/L	483.28 ppb	11:53:10
3	Ni 231.604†	35685.7	36584.0	635.65 µg/L	635.65 ppb	11:52:50
3	P 214.914†	13907.9	14044.4	5945.9 µg/L	5945.9 ppb	11:53:10
3	Pb 220.353†	6363.6	6386.0	520.35 µg/L	520.35 ppb	11:53:10
3	S 181.975 Axial†	11143.0	11221.4	11001 µg/L	11001 ppb	11:53:10
3	Sb 206.836†	2258.0	2188.4	471.76 µg/L	471.76 ppb	11:53:10
3	Se 196.026†	1107.6	1148.1	493.08 µg/L	493.08 ppb	11:53:10
3	SiO2†	938233.2	955585.2	89896 µg/L	89896 ppb	11:52:44
3	Si 251.611†	1179207.3	1202773.8	41726 µg/L	41726 ppb	11:52:44
3	Sn 189.927†	4687.8	4761.4	468.75 µg/L	468.75 ppb	11:53:10
3	Ti 334.940†	1052708.8	1074808.3	2437.8 µg/L	2437.8 ppb	11:52:44
3	Tl 190.801†	2523.6	2732.1	467.75 µg/L	467.75 ppb	11:53:10
3	U 367.007†	7502.8	6230.1	432.9 µg/L	432.9 ppb	11:52:50
3	V 292.402†	110845.5	112669.3	748.29 µg/L	748.29 ppb	11:52:50
3	Zn 213.857†	179007.9	181844.5	961.97 µg/L	961.97 ppb	11:52:50

Mean Data: 1203671682|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	615015.4	98.279	%	0.2896				0.29%
Sc RADIAL	8686.8	103	%	0.62				0.60%
Y 371.029	793955.8	111.82	%	0.124				0.11%
Ag 328.068†	90907.9	482.89	µg/L	0.185	482.89	ppb	0.185	0.04%
Al 396.153Radial†	170480.4	84000	µg/L	1224.59	84000	ppb	1224.59	1.46%
As 188.979†	1874.3	560.04	µg/L	3.430	560.04	ppb	3.430	0.61%
B 249.677†	318.2	641.03	µg/L	4.060	641.03	ppb	4.060	0.63%
Ba 233.527†	505396.8	2841.0	µg/L	4.99	2841.0	ppb	4.99	0.18%
Be 313.107†	1219342.0	490.66	µg/L	1.393	490.66	ppb	1.393	0.28%
Ca 317.933Radial†	275613.6	134250	µg/L	1223.95	134250	ppb	1223.95	0.91%
Cd 226.502†	79068.6	462.61	µg/L	2.150	462.61	ppb	2.150	0.46%
Co 228.616†	32784.1	520.62	µg/L	1.206	520.62	ppb	1.206	0.23%
Cr 267.716†	46676.3	585.21	µg/L	1.012	585.21	ppb	1.012	0.17%
Cu 324.752†	155850.4	658.75	µg/L	0.286	658.75	ppb	0.286	0.04%
Fe 238.204 Radial†	106083.6	162740	µg/L	1446.96	162740	ppb	1446.96	0.89%
K 766.490 Radial†	35456.3	19453	µg/L	169.40	19453	ppb	169.40	0.87%
Mg 279.077 IEC†	10040.3	62615	µg/L	344.26	62615	ppb	344.26	0.55%
Mn 257.610†	6808285.7	6718.5	µg/L	20.71	6718.5	ppb	20.71	0.31%
Mo 202.031†	11799.9	484.30	µg/L	0.895	484.30	ppb	0.895	0.18%

Na 589.592 Radial†	276.7	11347 µg/L	123.25	11347 ppb	123.25	1.09%
Ni 231.604†	36740.8	638.44 µg/L	2.474	638.44 ppb	2.474	0.39%
P 214.914†	14109.5	5974.6 µg/L	26.17	5974.6 ppb	26.17	0.44%
Pb 220.353†	6423.8	523.67 µg/L	2.875	523.67 ppb	2.875	0.55%
S 181.975 Axial†	11219.7	11000 µg/L	1.95	11000 ppb	1.95	0.02%
Sb 206.836†	2195.2	473.24 µg/L	2.624	473.24 ppb	2.624	0.55%
Se 196.026†	1149.9	493.48 µg/L	0.359	493.48 ppb	0.359	0.07%
SiO2†	953883.5	89736 µg/L	316.36	89736 ppb	316.36	0.35%
Si 251.611†	1201133.0	41669 µg/L	125.09	41669 ppb	125.09	0.30%
Sn 189.927†	4800.7	472.48 µg/L	3.257	472.48 ppb	3.257	0.69%
Sr 421.552†	37210.9	944.64 µg/L	15.064	944.64 ppb	15.064	1.59%
Ti 334.940†	1072337.2	2432.2 µg/L	8.08	2432.2 ppb	8.08	0.33%
Tl 190.801†	2721.9	466.03 µg/L	2.252	466.03 ppb	2.252	0.48%
U 367.007†	6240.4	437.0 µg/L	3.79	437.0 ppb	3.79	0.87%
V 292.402†	112898.5	749.71 µg/L	1.279	749.71 ppb	1.279	0.17%
Zn 213.857†	182400.6	965.03 µg/L	2.782	965.03 ppb	2.782	0.29%

Sequence No.: 12 Autosampler Location: 308
Sample ID: 409254024|1611119|1| Date Collected: 11/16/2016 11:53:18
Analyst: HSC Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Wash Time: 5 Auto Dilution Factor: 1

Replicate Data: 409254024|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8390.0	8390.0	99.6	%			11:54:07
1	Al 396.153Radial†	78624.8	79703.9	39280	µg/L	39280	ppb	11:53:47
1	Ca 317.933Radial†	565320.2	567676.5	276510	µg/L	276510	ppb	11:53:47
1	Fe 238.204 Radial†	61448.1	61705.0	94659	µg/L	94659	ppb	11:53:47
1	K 766.490 Radial†	15058.6	14720.9	8096.6	µg/L	8096.6	ppb	11:53:47
1	Mg 279.077 IEC†	8511.3	8537.2	53242	µg/L	53242	ppb	11:54:07
1	Na 589.592 Radial†	49.6	44.8	1904.2	µg/L	1904.2	ppb	11:54:07
1	Sr 421.552†	28624.4	28745.4	723.90	µg/L	723.90	ppb	11:53:47
1	Sc 361.383	611554.7	611554.7	97.726	%			11:55:06
1	Y 371.029	743853.4	743853.4	104.76	%			11:55:06
1	Ag 328.068†	-3299.4	-2436.7	1.4685	µg/L	1.4685	ppb	11:55:06
1	As 188.979†	207.2	189.9	52.762	µg/L	52.762	ppb	11:55:26
1	B 249.677†	-14537.3	-15067.7	77.189	µg/L	77.189	ppb	11:55:06
1	Ba 233.527†	244507.4	250067.9	1405.3	µg/L	1405.3	ppb	11:55:06
1	Be 313.107†	-5021.2	305.1	3.6196	µg/L	3.6196	ppb	11:55:06
1	Cd 226.502†	1643.9	1935.2	2.0865	µg/L	2.0865	ppb	11:55:26
1	Co 228.616†	2505.6	2891.4	38.898	µg/L	38.898	ppb	11:55:26
1	Cr 267.716†	10736.1	10869.1	137.01	µg/L	137.01	ppb	11:55:26
1	Cu 324.752†	20063.8	18037.0	80.306	µg/L	80.306	ppb	11:55:06
1	Mn 257.610†	2106757.1	2154938.9	2127.7	µg/L	2127.7	ppb	11:55:06
1	Mo 202.031†	285.3	308.5	16.383	µg/L	16.383	ppb	11:55:26
1	Ni 231.604†	7841.4	8200.0	139.67	µg/L	139.67	ppb	11:55:26
1	P 214.914†	9615.9	9694.8	4126.8	µg/L	4126.8	ppb	11:55:26
1	Pb 220.353†	699.4	609.3	54.720	µg/L	54.720	ppb	11:55:26
1	S 181.975 Axial†	3388.1	3319.9	3252.0	µg/L	3252.0	ppb	11:55:26
1	Sb 206.836†	143.5	31.6	4.7719	µg/L	4.7719	ppb	11:55:26
1	Se 196.026†	-112.2	-96.7	9.8120	µg/L	9.8120	ppb	11:55:26
1	SiO2†	734705.0	750168.7	70568	µg/L	70568	ppb	11:55:06
1	Si 251.611†	924032.0	945239.7	32803	µg/L	32803	ppb	11:55:06
1	Sn 189.927†	52.1	32.0	8.5706	µg/L	8.5706	ppb	11:55:26
1	Ti 334.940†	579740.6	594029.1	1358.0	µg/L	1358.0	ppb	11:55:06
1	Tl 190.801†	-252.7	-101.2	-3.6312	µg/L	-3.6312	ppb	11:55:26
1	U 367.007†	3810.9	2475.1	-14.51	µg/L	-14.51	ppb	11:55:06
1	V 292.402†	19169.5	19196.3	135.38	µg/L	135.38	ppb	11:55:26
1	Zn 213.857†	55704.7	56215.2	290.37	µg/L	290.37	ppb	11:55:06
2	Sc RADIAL	8429.0	8429.0	100	%			11:54:33
2	Al 396.153Radial†	80532.7	81246.3	40040	µg/L	40040	ppb	11:54:13
2	Ca 317.933Radial†	576304.0	576032.6	280580	µg/L	280580	ppb	11:54:13
2	Fe 238.204 Radial†	62783.3	62754.6	96269	µg/L	96269	ppb	11:54:13
2	K 766.490 Radial†	15437.4	15029.7	8266.3	µg/L	8266.3	ppb	11:54:13
2	Mg 279.077 IEC†	8498.3	8484.7	52914	µg/L	52914	ppb	11:54:33
2	Na 589.592 Radial†	52.3	47.3	2007.5	µg/L	2007.5	ppb	11:54:33
2	Sr 421.552†	29237.0	29224.9	735.99	µg/L	735.99	ppb	11:54:13
2	Sc 361.383	609340.4	609340.4	97.372	%			11:55:34
2	Y 371.029	740779.4	740779.4	104.33	%			11:55:34
2	Ag 328.068†	-3465.4	-2619.5	0.7885	µg/L	0.7885	ppb	11:55:34
2	As 188.979†	208.2	191.7	53.205	µg/L	53.205	ppb	11:55:54
2	B 249.677†	-14553.8	-15138.6	82.113	µg/L	82.113	ppb	11:55:34
2	Ba 233.527†	244231.0	250693.2	1408.8	µg/L	1408.8	ppb	11:55:34
2	Be 313.107†	-5000.7	307.4	3.6738	µg/L	3.6738	ppb	11:55:34
2	Cd 226.502†	1589.5	1885.5	1.6255	µg/L	1.6255	ppb	11:55:54
2	Co 228.616†	2511.3	2906.6	39.033	µg/L	39.033	ppb	11:55:54
2	Cr 267.716†	10731.8	10904.6	137.45	µg/L	137.45	ppb	11:55:54
2	Cu 324.752†	20037.5	18084.6	80.594	µg/L	80.594	ppb	11:55:34
2	Mn 257.610†	2103775.1	2159710.1	2132.5	µg/L	2132.5	ppb	11:55:34
2	Mo 202.031†	260.9	284.6	15.480	µg/L	15.480	ppb	11:55:54
2	Ni 231.604†	7853.3	8241.4	140.32	µg/L	140.32	ppb	11:55:54
2	P 214.914†	9634.0	9749.2	4148.9	µg/L	4148.9	ppb	11:55:54

2	Pb 220.353†	711.6	624.4	55.985 µg/L	55.985 ppb	11:55:54
2	S 181.975 Axial†	3389.2	3333.6	3265.3 µg/L	3265.3 ppb	11:55:54
2	Sb 206.836†	148.6	37.3	5.9737 µg/L	5.9737 ppb	11:55:54
2	Se 196.026†	-102.9	-87.5	13.885 µg/L	13.885 ppb	11:55:54
2	SiO2†	733015.5	751165.5	70662 µg/L	70662 ppb	11:55:34
2	Si 251.611†	922391.8	946991.2	32863 µg/L	32863 ppb	11:55:34
2	Sn 189.927†	45.4	25.4	7.9663 µg/L	7.9663 ppb	11:55:54
2	Ti 334.940†	577932.8	594328.3	1358.9 µg/L	1358.9 ppb	11:55:34
2	Tl 190.801†	-257.1	-106.6	-4.5236 µg/L	-4.5236 ppb	11:55:54
2	U 367.007†	3879.1	2559.3	-6.850 µg/L	-6.850 ppb	11:55:34
2	V 292.402†	19198.6	19297.5	136.24 µg/L	136.24 ppb	11:55:54
2	Zn 213.857†	55649.7	56365.9	291.01 µg/L	291.01 ppb	11:55:34
3	Sc RADIAL	8457.3	8457.3	100 %		11:54:58
3	Al 396.153Radial†	80385.8	80830.4	39835 µg/L	39835 ppb	11:54:38
3	Ca 317.933Radial†	572640.3	570453.7	277860 µg/L	277860 ppb	11:54:38
3	Fe 238.204 Radial†	62386.7	62149.3	95340 µg/L	95340 ppb	11:54:38
3	K 766.490 Radial†	15251.9	14793.2	8136.6 µg/L	8136.6 ppb	11:54:38
3	Mg 279.077 IEC†	8515.8	8473.7	52846 µg/L	52846 ppb	11:54:58
3	Na 589.592 Radial†	49.2	44.1	1875.3 µg/L	1875.3 ppb	11:54:58
3	Sr 421.552†	29147.9	29038.3	731.32 µg/L	731.32 ppb	11:54:38
3	Sc 361.383	614200.3	614200.3	98.149 %		11:56:01
3	Y 371.029	746729.0	746729.0	105.17 %		11:56:01
3	Ag 328.068†	-3502.7	-2629.4	0.6149 µg/L	0.6149 ppb	11:56:01
3	As 188.979†	207.8	189.6	52.621 µg/L	52.621 ppb	11:56:21
3	B 249.677†	-14614.6	-15082.3	79.575 µg/L	79.575 ppb	11:56:01
3	Ba 233.527†	246336.1	250853.4	1409.7 µg/L	1409.7 ppb	11:56:01
3	Be 313.107†	-4982.6	366.5	3.6581 µg/L	3.6581 ppb	11:56:01
3	Cd 226.502†	1608.5	1891.9	1.7556 µg/L	1.7556 ppb	11:56:21
3	Co 228.616†	2495.1	2869.7	38.496 µg/L	38.496 ppb	11:56:21
3	Cr 267.716†	10668.9	10753.3	135.56 µg/L	135.56 ppb	11:56:21
3	Cu 324.752†	20227.3	18115.1	80.662 µg/L	80.662 ppb	11:56:01
3	Mn 257.610†	2120078.1	2159225.2	2131.9 µg/L	2131.9 ppb	11:56:01
3	Mo 202.031†	260.6	282.1	15.340 µg/L	15.340 ppb	11:56:21
3	Ni 231.604†	7802.0	8125.3	138.32 µg/L	138.32 ppb	11:56:21
3	P 214.914†	9567.0	9602.5	4086.0 µg/L	4086.0 ppb	11:56:21
3	Pb 220.353†	689.1	595.8	53.511 µg/L	53.511 ppb	11:56:21
3	S 181.975 Axial†	3360.2	3276.6	3209.5 µg/L	3209.5 ppb	11:56:21
3	Sb 206.836†	141.2	28.7	4.1403 µg/L	4.1403 ppb	11:56:21
3	Se 196.026†	-83.2	-66.7	21.004 µg/L	21.004 ppb	11:56:21
3	SiO2†	739652.8	751971.5	70738 µg/L	70738 ppb	11:56:01
3	Si 251.611†	930095.7	947345.0	32876 µg/L	32876 ppb	11:56:01
3	Sn 189.927†	52.4	32.2	8.6056 µg/L	8.6056 ppb	11:56:21
3	Ti 334.940†	582831.2	594622.7	1359.5 µg/L	1359.5 ppb	11:56:01
3	Tl 190.801†	-237.4	-84.5	-0.8867 µg/L	-0.8867 ppb	11:56:21
3	U 367.007†	3775.9	2422.6	-27.32 µg/L	-27.32 ppb	11:56:01
3	V 292.402†	19164.3	19106.5	134.87 µg/L	134.87 ppb	11:56:21
3	Zn 213.857†	56094.4	56366.7	291.15 µg/L	291.15 ppb	11:56:01

Mean Data: 409254024|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	611698.5	97.749	%	0.3888				0.40%
Sc RADIAL	8425.4	100.0	%	0.40				0.40%
Y 371.029	743787.3	104.75	%	0.419				0.40%
Ag 328.068†	-2561.9	0.9573	µg/L	0.45113	0.9573	ppb	0.45113	47.13%
Al 396.153Radial†	80593.6	39718	µg/L	393.29	39718	ppb	393.29	0.99%
As 188.979†	190.4	52.862	µg/L	0.3048	52.862	ppb	0.3048	0.58%
B 249.677†	-15096.2	79.626	µg/L	2.4621	79.626	ppb	2.4621	3.09%
Ba 233.527†	250538.2	1407.9	µg/L	2.32	1407.9	ppb	2.32	0.16%
Be 313.107†	326.3	3.6505	µg/L	0.02789	3.6505	ppb	0.02789	0.76%
Ca 317.933Radial†	571387.6	278320	µg/L	2072.88	278320	ppb	2072.88	0.74%
Cd 226.502†	1904.2	1.8226	µg/L	0.23770	1.8226	ppb	0.23770	13.04%
Co 228.616†	2889.2	38.809	µg/L	0.2795	38.809	ppb	0.2795	0.72%
Cr 267.716†	10842.3	136.67	µg/L	0.989	136.67	ppb	0.989	0.72%
Cu 324.752†	18078.9	80.521	µg/L	0.1889	80.521	ppb	0.1889	0.23%
Fe 238.204 Radial†	62203.0	95423	µg/L	808.19	95423	ppb	808.19	0.85%
K 766.490 Radial†	14847.9	8166.5	µg/L	88.71	8166.5	ppb	88.71	1.09%
Mg 279.077 IEC†	8498.6	53000	µg/L	211.60	53000	ppb	211.60	0.40%
Mn 257.610†	2157958.1	2130.7	µg/L	2.63	2130.7	ppb	2.63	0.12%
Mo 202.031†	291.7	15.735	µg/L	0.5662	15.735	ppb	0.5662	3.60%

Na 589.592 Radial†	45.4	1929.0 µg/L	69.54	1929.0 ppb	69.54	3.60%
Ni 231.604†	8188.9	139.44 µg/L	1.019	139.44 ppb	1.019	0.73%
P 214.914†	9682.2	4120.6 µg/L	31.90	4120.6 ppb	31.90	0.77%
Pb 220.353†	609.8	54.739 µg/L	1.2372	54.739 ppb	1.2372	2.26%
S 181.975 Axial†	3310.0	3242.3 µg/L	29.13	3242.3 ppb	29.13	0.90%
Sb 206.836†	32.5	4.9620 µg/L	0.93137	4.9620 ppb	0.93137	18.77%
Se 196.026†	-83.6	14.900 µg/L	5.6646	14.900 ppb	5.6646	38.02%
SiO2†	751101.9	70656 µg/L	84.94	70656 ppb	84.94	0.12%
Si 251.611†	946525.3	32847 µg/L	39.04	32847 ppb	39.04	0.12%
Sn 189.927†	29.9	8.3809 µg/L	0.35943	8.3809 ppb	0.35943	4.29%
Sr 421.552†	29002.9	730.40 µg/L	6.099	730.40 ppb	6.099	0.83%
Ti 334.940†	594326.7	1358.8 µg/L	0.72	1358.8 ppb	0.72	0.05%
Tl 190.801†	-97.4	-3.0138 µg/L	1.89544	-3.0138 ppb	1.89544	62.89%
U 367.007†	2485.7	-16.23 µg/L	10.344	-16.23 ppb	10.344	63.74%
V 292.402†	19200.1	135.50 µg/L	0.692	135.50 ppb	0.692	0.51%
Zn 213.857†	56315.9	290.84 µg/L	0.413	290.84 ppb	0.413	0.14%

Sequence No.: 13 **Autosampler Location: 309**
Sample ID: 409254029|1611119|1| **Date Collected: 11/16/2016 11:56:30**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: 409254029|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8632.9	8632.9	102	%			11:57:19
1	Al 396.153Radial†	233386.6	228544.6	112630	µg/L	112630	ppb	11:56:59
1	Ca 317.933Radial†	143827.8	140281.5	68328	µg/L	68328	ppb	11:56:59
1	Fe 238.204 Radial†	130375.6	127248.4	195210	µg/L	195210	ppb	11:56:59
1	K 766.490 Radial†	40980.6	39597.7	21741	µg/L	21741	ppb	11:56:59
1	Mg 279.077 IEC†	8520.0	8305.1	51794	µg/L	51794	ppb	11:57:19
1	Na 589.592 Radial†	57.7	51.4	2102.4	µg/L	2102.4	ppb	11:57:19
1	Sr 421.552†	22126.1	21593.4	548.50	µg/L	548.50	ppb	11:56:59
1	Sc 361.383	623566.6	623566.6	99.645	%			11:58:23
1	Y 371.029	830107.6	830107.6	116.91	%			11:58:18
1	Ag 328.068†	-5978.7	-5060.5	9.0230	µg/L	9.0230	ppb	11:58:23
1	As 188.979†	318.5	297.5	79.902	µg/L	79.902	ppb	11:58:43
1	B 249.677†	-30833.5	-31135.3	158.02	µg/L	158.02	ppb	11:58:23
1	Ba 233.527†	366914.5	368091.0	2067.1	µg/L	2067.1	ppb	11:58:23
1	Be 313.107†	12960.9	18450.1	8.4439	µg/L	8.4439	ppb	11:58:23
1	Cd 226.502†	3161.1	3425.5	1.0442	µg/L	1.0442	ppb	11:58:43
1	Co 228.616†	4779.5	5124.0	67.714	µg/L	67.714	ppb	11:58:43
1	Cr 267.716†	11779.1	11704.2	147.32	µg/L	147.32	ppb	11:58:43
1	Cu 324.752†	49647.0	47330.0	207.77	µg/L	207.77	ppb	11:58:23
1	Mn 257.610†	3802841.2	3815531.4	3770.2	µg/L	3770.2	ppb	11:58:18
1	Mo 202.031†	-45.3	-28.8	6.8669	µg/L	6.8669	ppb	11:58:43
1	Ni 231.604†	12527.0	12747.8	214.82	µg/L	214.82	ppb	11:58:43
1	P 214.914†	16035.9	15948.0	6754.1	µg/L	6754.1	ppb	11:58:43
1	Pb 220.353†	2110.3	2011.5	144.91	µg/L	144.91	ppb	11:58:43
1	S 181.975 Axial†	2547.2	2409.2	2358.9	µg/L	2358.9	ppb	11:58:43
1	Sb 206.836†	134.5	19.8	1.1885	µg/L	1.1885	ppb	11:58:43
1	Se 196.026†	-202.0	-184.7	25.502	µg/L	25.502	ppb	11:58:43
1	SiO2†	866466.7	867917.1	81644	µg/L	81644	ppb	11:58:18
1	Si 251.611†	1088776.1	1092355.9	37892	µg/L	37892	ppb	11:58:18
1	Sn 189.927†	-4.2	-25.5	9.8942	µg/L	9.8942	ppb	11:58:43
1	Ti 334.940†	821007.6	824727.2	1868.9	µg/L	1868.9	ppb	11:58:18
1	Tl 190.801†	-267.4	-111.0	-0.7006	µg/L	-0.7006	ppb	11:58:43
1	U 367.007†	5762.5	4358.5	-22.45	µg/L	-22.45	ppb	11:58:23
1	V 292.402†	49420.7	49177.4	340.66	µg/L	340.66	ppb	11:58:23
1	Zn 213.857†	126340.8	126004.7	657.68	µg/L	657.68	ppb	11:58:23
2	Sc RADIAL	8655.5	8655.5	103	%			11:57:44
2	Al 396.153Radial†	236605.5	231085.3	113890	µg/L	113890	ppb	11:57:24
2	Ca 317.933Radial†	145016.8	141073.6	68714	µg/L	68714	ppb	11:57:24
2	Fe 238.204 Radial†	131717.0	128223.0	196700	µg/L	196700	ppb	11:57:24
2	K 766.490 Radial†	41378.2	39880.7	21897	µg/L	21897	ppb	11:57:24
2	Mg 279.077 IEC†	8515.7	8279.3	51633	µg/L	51633	ppb	11:57:44
2	Na 589.592 Radial†	55.8	49.4	2020.6	µg/L	2020.6	ppb	11:57:44
2	Sr 421.552†	22678.2	22074.7	560.76	µg/L	560.76	ppb	11:57:24
2	Sc 361.383	622234.5	622234.5	99.433	%			11:58:56
2	Y 371.029	829199.9	829199.9	116.78	%			11:58:50
2	Ag 328.068†	-6204.2	-5300.1	8.0900	µg/L	8.0900	ppb	11:58:56
2	As 188.979†	333.9	313.6	84.666	µg/L	84.666	ppb	11:59:16
2	B 249.677†	-30893.6	-31262.0	161.41	µg/L	161.41	ppb	11:58:56
2	Ba 233.527†	366096.2	368056.4	2066.8	µg/L	2066.8	ppb	11:58:56
2	Be 313.107†	12858.9	18375.4	8.4184	µg/L	8.4184	ppb	11:58:56
2	Cd 226.502†	3179.1	3450.3	1.0456	µg/L	1.0456	ppb	11:59:16
2	Co 228.616†	4818.8	5173.8	68.411	µg/L	68.411	ppb	11:59:16
2	Cr 267.716†	11760.0	11710.3	147.40	µg/L	147.40	ppb	11:59:16
2	Cu 324.752†	49417.9	47206.2	207.32	µg/L	207.32	ppb	11:58:56
2	Mn 257.610†	3806193.0	3827072.9	3781.7	µg/L	3781.7	ppb	11:58:50
2	Mo 202.031†	-46.3	-30.0	6.8819	µg/L	6.8819	ppb	11:59:16
2	Ni 231.604†	12542.5	12790.2	215.49	µg/L	215.49	ppb	11:59:16
2	P 214.914†	16036.5	15983.1	6768.0	µg/L	6768.0	ppb	11:59:16

2	Pb 220.353†	2113.1	2018.8	145.21 µg/L	145.21 ppb	11:59:16
2	S 181.975 Axial†	2537.2	2404.6	2354.4 µg/L	2354.4 ppb	11:59:16
2	Sb 206.836†	155.6	41.2	5.8389 µg/L	5.8389 ppb	11:59:16
2	Se 196.026†	-213.7	-196.8	21.796 µg/L	21.796 ppb	11:59:16
2	SiO2†	866406.1	869717.8	81814 µg/L	81814 ppb	11:58:50
2	Si 251.611†	1089260.8	1095182.7	37990 µg/L	37990 ppb	11:58:50
2	Sn 189.927†	2.1	-19.2	10.564 µg/L	10.564 ppb	11:59:16
2	Ti 334.940†	821187.1	826671.7	1873.3 µg/L	1873.3 ppb	11:58:50
2	Tl 190.801†	-261.0	-105.1	0.2894 µg/L	0.2894 ppb	11:59:16
2	U 367.007†	5744.0	4352.3	-29.83 µg/L	-29.83 ppb	11:58:56
2	V 292.402†	49418.1	49281.0	341.52 µg/L	341.52 ppb	11:58:56
2	Zn 213.857†	126062.4	125996.2	657.45 µg/L	657.45 ppb	11:58:56
3	Sc RADIAL	8701.0	8701.0	103 %		11:58:10
3	Al 396.153Radial†	238001.4	231231.4	113960 µg/L	113960 ppb	11:57:50
3	Ca 317.933Radial†	145766.0	141060.1	68707 µg/L	68707 ppb	11:57:50
3	Fe 238.204 Radial†	132634.0	128439.8	197030 µg/L	197030 ppb	11:57:50
3	K 766.490 Radial†	41910.1	40184.9	22063 µg/L	22063 ppb	11:57:50
3	Mg 279.077 IEC†	8525.1	8245.1	51419 µg/L	51419 ppb	11:58:10
3	Na 589.592 Radial†	57.2	50.5	2065.6 µg/L	2065.6 ppb	11:58:10
3	Sr 421.552†	22789.0	22066.4	560.55 µg/L	560.55 ppb	11:57:50
3	Sc 361.383	620073.8	620073.8	99.087 %		11:59:28
3	Y 371.029	829598.0	829598.0	116.84 %		11:59:23
3	Ag 328.068†	-6237.9	-5355.9	7.8677 µg/L	7.8677 ppb	11:59:28
3	As 188.979†	319.3	300.1	80.588 µg/L	80.588 ppb	11:59:48
3	B 249.677†	-31019.0	-31496.8	158.14 µg/L	158.14 ppb	11:59:28
3	Ba 233.527†	365449.0	368686.2	2070.4 µg/L	2070.4 ppb	11:59:28
3	Be 313.107†	12819.2	18380.4	8.4230 µg/L	8.4230 ppb	11:59:28
3	Cd 226.502†	3170.6	3452.9	1.0269 µg/L	1.0269 ppb	11:59:48
3	Co 228.616†	4805.5	5177.3	68.432 µg/L	68.432 ppb	11:59:48
3	Cr 267.716†	11755.8	11747.3	147.85 µg/L	147.85 ppb	11:59:48
3	Cu 324.752†	49347.2	47308.1	207.77 µg/L	207.77 ppb	11:59:28
3	Mn 257.610†	3811517.7	3845785.4	3800.2 µg/L	3800.2 ppb	11:59:23
3	Mo 202.031†	-42.2	-26.0	7.0574 µg/L	7.0574 ppb	11:59:48
3	Ni 231.604†	12521.7	12813.2	215.88 µg/L	215.88 ppb	11:59:48
3	P 214.914†	16050.7	16053.7	6798.4 µg/L	6798.4 ppb	11:59:48
3	Pb 220.353†	2143.6	2056.9	148.38 µg/L	148.38 ppb	11:59:48
3	S 181.975 Axial†	2554.7	2431.2	2380.4 µg/L	2380.4 ppb	11:59:48
3	Sb 206.836†	158.8	45.0	6.6661 µg/L	6.6661 ppb	11:59:48
3	Se 196.026†	-218.9	-202.8	19.776 µg/L	19.776 ppb	11:59:48
3	SiO2†	868334.6	874700.3	82283 µg/L	82283 ppb	11:59:23
3	Si 251.611†	1091282.0	1101039.9	38194 µg/L	38194 ppb	11:59:23
3	Sn 189.927†	25.7	4.6	12.886 µg/L	12.886 ppb	11:59:48
3	Ti 334.940†	821604.5	829970.7	1880.8 µg/L	1880.8 ppb	11:59:23
3	Tl 190.801†	-275.0	-120.1	-2.1035 µg/L	-2.1035 ppb	11:59:48
3	U 367.007†	5780.4	4409.1	-20.78 µg/L	-20.78 ppb	11:59:28
3	V 292.402†	49452.5	49488.9	342.90 µg/L	342.90 ppb	11:59:28
3	Zn 213.857†	125689.1	126061.2	657.77 µg/L	657.77 ppb	11:59:28

Mean Data: 409254029|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	621958.3	99.388	%	0.2817				0.28%
Sc RADIAL	8663.1	103	%	0.41				0.40%
Y 371.029	829635.2	116.84	%	0.064				0.05%
Ag 328.068†	-5238.9	8.3269	µg/L	0.61301	8.3269	ppb	0.61301	7.36%
Al 396.153Radial†	230287.1	113490	µg/L	744.59	113490	ppb	744.59	0.66%
As 188.979†	303.8	81.719	µg/L	2.5756	81.719	ppb	2.5756	3.15%
B 249.677†	-31298.0	159.19	µg/L	1.922	159.19	ppb	1.922	1.21%
Ba 233.527†	368277.9	2068.1	µg/L	1.98	2068.1	ppb	1.98	0.10%
Be 313.107†	18401.9	8.4284	µg/L	0.01361	8.4284	ppb	0.01361	0.16%
Ca 317.933Radial†	140805.1	68583	µg/L	220.88	68583	ppb	220.88	0.32%
Cd 226.502†	3442.9	1.0389	µg/L	0.01042	1.0389	ppb	0.01042	1.00%
Co 228.616†	5158.4	68.186	µg/L	0.4089	68.186	ppb	0.4089	0.60%
Cr 267.716†	11720.6	147.52	µg/L	0.285	147.52	ppb	0.285	0.19%
Cu 324.752†	47281.4	207.62	µg/L	0.256	207.62	ppb	0.256	0.12%
Fe 238.204 Radial†	127970.4	196310	µg/L	973.55	196310	ppb	973.55	0.50%
K 766.490 Radial†	39887.8	21900	µg/L	160.89	21900	ppb	160.89	0.73%
Mg 279.077 IEC†	8276.5	51615	µg/L	187.88	51615	ppb	187.88	0.36%
Mn 257.610†	3829463.2	3784.0	µg/L	15.10	3784.0	ppb	15.10	0.40%
Mo 202.031†	-28.3	6.9354	µg/L	0.10595	6.9354	ppb	0.10595	1.53%

Na 589.592 Radial†	50.4	2062.9 µg/L	41.01	2062.9 ppb	41.01	1.99%
Ni 231.604†	12783.7	215.40 µg/L	0.538	215.40 ppb	0.538	0.25%
P 214.914†	15994.9	6773.5 µg/L	22.64	6773.5 ppb	22.64	0.33%
Pb 220.353†	2029.1	146.17 µg/L	1.924	146.17 ppb	1.924	1.32%
S 181.975 Axial†	2415.0	2364.6 µg/L	13.92	2364.6 ppb	13.92	0.59%
Sb 206.836†	35.3	4.5645 µg/L	2.95282	4.5645 ppb	2.95282	64.69%
Se 196.026†	-194.8	22.358 µg/L	2.9040	22.358 ppb	2.9040	12.99%
SiO2†	870778.4	81914 µg/L	330.53	81914 ppb	330.53	0.40%
Si 251.611†	1096192.9	38025 µg/L	153.63	38025 ppb	153.63	0.40%
Sn 189.927†	-13.3	11.115 µg/L	1.5701	11.115 ppb	1.5701	14.13%
Sr 421.552†	21911.5	556.60 µg/L	7.020	556.60 ppb	7.020	1.26%
Ti 334.940†	827123.2	1874.3 µg/L	6.00	1874.3 ppb	6.00	0.32%
Tl 190.801†	-112.1	-0.8382 µg/L	1.20240	-0.8382 ppb	1.20240	143.44%
U 367.007†	4373.3	-24.35 µg/L	4.815	-24.35 ppb	4.815	19.77%
V 292.402†	49315.7	341.69 µg/L	1.130	341.69 ppb	1.130	0.33%
Zn 213.857†	126020.7	657.63 µg/L	0.166	657.63 ppb	0.166	0.03%

Sequence No.: 14 **Autosampler Location: 310**
Sample ID: 409254032|1611119|1| **Date Collected: 11/16/2016 11:59:57**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: 409254032|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8536.2	8536.2	101	%			12:00:46
1	Al 396.153Radial†	121834.1	121006.1	59635	µg/L	59635	ppb	12:00:26
1	Ca 317.933Radial†	323795.8	319529.8	155640	µg/L	155640	ppb	12:00:26
1	Fe 238.204 Radial†	85137.5	84033.4	128910	µg/L	128910	ppb	12:00:26
1	K 766.490 Radial†	24842.8	24120.4	13248	µg/L	13248	ppb	12:00:26
1	Mg 279.077 IEC†	9955.9	9816.9	61222	µg/L	61222	ppb	12:00:46
1	Na 589.592 Radial†	50.7	45.1	1870.1	µg/L	1870.1	ppb	12:00:46
1	Sr 421.552†	20902.5	20630.3	520.98	µg/L	520.98	ppb	12:00:26
1	Sc 361.383	616173.1	616173.1	98.464	%			12:01:50
1	Y 371.029	783474.9	783474.9	110.34	%			12:01:45
1	Ag 328.068†	-4244.3	-3371.1	4.4557	µg/L	4.4557	ppb	12:01:50
1	As 188.979†	335.0	318.1	89.322	µg/L	89.322	ppb	12:02:10
1	B 249.677†	-19900.0	-20402.5	107.41	µg/L	107.41	ppb	12:01:50
1	Ba 233.527†	337118.9	342248.9	1923.4	µg/L	1923.4	ppb	12:01:50
1	Be 313.107†	2714.1	8199.5	5.3296	µg/L	5.3296	ppb	12:01:50
1	Cd 226.502†	2240.4	2528.4	2.1331	µg/L	2.1331	ppb	12:02:10
1	Co 228.616†	3563.0	3946.1	52.673	µg/L	52.673	ppb	12:02:10
1	Cr 267.716†	7437.5	7436.8	93.700	µg/L	93.700	ppb	12:02:10
1	Cu 324.752†	36740.8	34820.3	152.11	µg/L	152.11	ppb	12:01:50
1	Mn 257.610†	3721448.5	3778662.3	3730.0	µg/L	3730.0	ppb	12:01:45
1	Mo 202.031†	23.3	40.2	6.9333	µg/L	6.9333	ppb	12:02:10
1	Ni 231.604†	8702.2	9014.1	152.34	µg/L	152.34	ppb	12:02:10
1	P 214.914†	11817.8	11857.3	5035.1	µg/L	5035.1	ppb	12:02:10
1	Pb 220.353†	1164.0	1075.7	84.131	µg/L	84.131	ppb	12:02:10
1	S 181.975 Axial†	5414.1	5351.5	5244.4	µg/L	5244.4	ppb	12:02:10
1	Sb 206.836†	123.8	10.5	1.6729	µg/L	1.6729	ppb	12:02:10
1	Se 196.026†	-146.4	-130.6	13.738	µg/L	13.738	ppb	12:02:10
1	SiO2†	759129.7	769339.4	72371	µg/L	72371	ppb	12:01:50
1	Si 251.611†	978641.9	993614.6	34476	µg/L	34476	ppb	12:01:45
1	Sn 189.927†	16.6	-4.4	9.5755	µg/L	9.5755	ppb	12:02:10
1	Ti 334.940†	890597.1	905288.8	2055.8	µg/L	2055.8	ppb	12:01:45
1	Tl 190.801†	-274.5	-121.4	-0.3962	µg/L	-0.3962	ppb	12:02:10
1	U 367.007†	4395.3	3039.4	-17.03	µg/L	-17.03	ppb	12:01:50
1	V 292.402†	30493.8	30550.3	212.07	µg/L	212.07	ppb	12:01:50
1	Zn 213.857†	79958.9	80420.6	417.39	µg/L	417.39	ppb	12:01:50
2	Sc RADIAL	8540.5	8540.5	101	%			12:01:12
2	Al 396.153Radial†	124603.1	123676.8	60952	µg/L	60952	ppb	12:00:51
2	Ca 317.933Radial†	330265.2	325749.7	158670	µg/L	158670	ppb	12:00:51
2	Fe 238.204 Radial†	87071.7	85898.8	131770	µg/L	131770	ppb	12:00:51
2	K 766.490 Radial†	25505.1	24761.4	13600	µg/L	13600	ppb	12:00:51
2	Mg 279.077 IEC†	9968.1	9823.9	61266	µg/L	61266	ppb	12:01:12
2	Na 589.592 Radial†	44.6	39.1	1625.5	µg/L	1625.5	ppb	12:01:12
2	Sr 421.552†	21497.8	21207.1	535.59	µg/L	535.59	ppb	12:00:51
2	Sc 361.383	613082.0	613082.0	97.970	%			12:02:22
2	Y 371.029	778385.2	778385.2	109.62	%			12:02:17
2	Ag 328.068†	-4125.7	-3271.7	5.4277	µg/L	5.4277	ppb	12:02:22
2	As 188.979†	323.1	307.6	86.022	µg/L	86.022	ppb	12:02:42
2	B 249.677†	-19691.2	-20291.3	120.78	µg/L	120.78	ppb	12:02:22
2	Ba 233.527†	335281.0	342099.1	1922.4	µg/L	1922.4	ppb	12:02:22
2	Be 313.107†	2660.1	8158.3	5.3517	µg/L	5.3517	ppb	12:02:22
2	Cd 226.502†	2231.8	2531.2	1.8669	µg/L	1.8669	ppb	12:02:42
2	Co 228.616†	3576.3	3977.9	52.994	µg/L	52.994	ppb	12:02:42
2	Cr 267.716†	7481.4	7519.6	94.757	µg/L	94.757	ppb	12:02:42
2	Cu 324.752†	36496.2	34758.7	152.01	µg/L	152.01	ppb	12:02:22
2	Mn 257.610†	3687990.6	3763566.6	3715.3	µg/L	3715.3	ppb	12:02:17
2	Mo 202.031†	-15.0	1.3	5.4754	µg/L	5.4754	ppb	12:02:42
2	Ni 231.604†	8768.5	9126.3	154.18	µg/L	154.18	ppb	12:02:42
2	P 214.914†	11899.5	12001.2	5095.0	µg/L	5095.0	ppb	12:02:42

2	Pb 220.353†	1165.5	1083.3	84.621 µg/L	84.621 ppb	12:02:42
2	S 181.975 Axial†	5438.1	5403.8	5295.3 µg/L	5295.3 ppb	12:02:42
2	Sb 206.836†	144.1	31.9	6.2544 µg/L	6.2544 ppb	12:02:42
2	Se 196.026†	-128.4	-113.0	21.477 µg/L	21.477 ppb	12:02:42
2	SiO2†	754345.7	768343.4	72277 µg/L	72277 ppb	12:02:22
2	Si 251.611†	970047.4	989853.0	34345 µg/L	34345 ppb	12:02:17
2	Sn 189.927†	17.7	-3.2	9.7551 µg/L	9.7551 ppb	12:02:42
2	Ti 334.940†	884696.9	903826.6	2052.7 µg/L	2052.7 ppb	12:02:17
2	Tl 190.801†	-266.5	-114.7	0.6749 µg/L	0.6749 ppb	12:02:42
2	U 367.007†	4407.4	3074.2	-23.29 µg/L	-23.29 ppb	12:02:22
2	V 292.402†	30364.5	30574.5	212.61 µg/L	212.61 ppb	12:02:22
2	Zn 213.857†	79366.8	80225.6	415.96 µg/L	415.96 ppb	12:02:22
3	Sc RADIAL	8570.5	8570.5	102 %		12:01:37
3	Al 396.153Radial†	124200.6	122851.7	60545 µg/L	60545 ppb	12:01:17
3	Ca 317.933Radial†	328601.9	322976.2	157320 µg/L	157320 ppb	12:01:17
3	Fe 238.204 Radial†	86569.3	85104.8	130560 µg/L	130560 ppb	12:01:17
3	K 766.490 Radial†	25301.1	24472.9	13441 µg/L	13441 ppb	12:01:17
3	Mg 279.077 IEC†	10012.4	9833.1	61323 µg/L	61323 ppb	12:01:37
3	Na 589.592 Radial†	43.3	37.6	1562.9 µg/L	1562.9 ppb	12:01:37
3	Sr 421.552†	21564.7	21198.8	535.42 µg/L	535.42 ppb	12:01:17
3	Sc 361.383	612804.1	612804.1	97.926 %		12:02:54
3	Y 371.029	780702.4	780702.4	109.95 %		12:02:49
3	Ag 328.068†	-4196.2	-3345.7	4.8407 µg/L	4.8407 ppb	12:02:54
3	As 188.979†	318.7	303.3	84.795 µg/L	84.795 ppb	12:03:14
3	B 249.677†	-19749.9	-20360.3	114.66 µg/L	114.66 ppb	12:02:54
3	Ba 233.527†	335395.5	342371.2	1924.0 µg/L	1924.0 ppb	12:02:54
3	Be 313.107†	2667.4	8167.0	5.3459 µg/L	5.3459 ppb	12:02:54
3	Cd 226.502†	2210.8	2510.7	1.8625 µg/L	1.8625 ppb	12:03:14
3	Co 228.616†	3583.7	3987.2	53.220 µg/L	53.220 ppb	12:03:14
3	Cr 267.716†	7454.2	7495.3	94.418 µg/L	94.418 ppb	12:03:14
3	Cu 324.752†	36631.7	34914.0	152.61 µg/L	152.61 ppb	12:02:54
3	Mn 257.610†	3705306.0	3782956.2	3734.3 µg/L	3734.3 ppb	12:02:49
3	Mo 202.031†	14.5	31.4	6.6441 µg/L	6.6441 ppb	12:03:14
3	Ni 231.604†	8738.6	9099.9	153.77 µg/L	153.77 ppb	12:03:14
3	P 214.914†	11922.1	12029.8	5108.6 µg/L	5108.6 ppb	12:03:14
3	Pb 220.353†	1165.4	1083.7	84.644 µg/L	84.644 ppb	12:03:14
3	S 181.975 Axial†	5420.0	5387.7	5279.8 µg/L	5279.8 ppb	12:03:14
3	Sb 206.836†	143.5	31.3	6.1647 µg/L	6.1647 ppb	12:03:14
3	Se 196.026†	-134.6	-119.4	18.571 µg/L	18.571 ppb	12:03:14
3	SiO2†	755356.9	769725.2	72407 µg/L	72407 ppb	12:02:54
3	Si 251.611†	974493.0	994841.9	34518 µg/L	34518 ppb	12:02:49
3	Sn 189.927†	5.0	-16.2	8.4976 µg/L	8.4976 ppb	12:03:14
3	Ti 334.940†	887054.4	906643.6	2059.0 µg/L	2059.0 ppb	12:02:49
3	Tl 190.801†	-280.5	-129.1	-1.6139 µg/L	-1.6139 ppb	12:03:14
3	U 367.007†	4566.5	3238.8	12.28 µg/L	12.28 ppb	12:02:54
3	V 292.402†	30331.2	30554.5	212.34 µg/L	212.34 ppb	12:02:54
3	Zn 213.857†	79481.3	80379.3	416.95 µg/L	416.95 ppb	12:02:54

Mean Data: 409254032|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	614019.7	98.120	%	0.2988				0.30%
Sc RADIAL	8549.1	101	%	0.22				0.22%
Y 371.029	780854.2	109.97	%	0.359				0.33%
Ag 328.068†	-3329.5	4.9080	µg/L	0.48945	4.9080	ppb	0.48945	9.97%
Al 396.153Radial†	122511.5	60377	µg/L	673.94	60377	ppb	673.94	1.12%
As 188.979†	309.7	86.713	µg/L	2.3417	86.713	ppb	2.3417	2.70%
B 249.677†	-20351.4	114.28	µg/L	6.693	114.28	ppb	6.693	5.86%
Ba 233.527†	342239.8	1923.3	µg/L	0.79	1923.3	ppb	0.79	0.04%
Be 313.107†	8174.9	5.3424	µg/L	0.01142	5.3424	ppb	0.01142	0.21%
Ca 317.933Radial†	322751.9	157210	µg/L	1517.77	157210	ppb	1517.77	0.97%
Cd 226.502†	2523.4	1.9542	µg/L	0.15500	1.9542	ppb	0.15500	7.93%
Co 228.616†	3970.4	52.962	µg/L	0.2748	52.962	ppb	0.2748	0.52%
Cr 267.716†	7483.9	94.291	µg/L	0.5397	94.291	ppb	0.5397	0.57%
Cu 324.752†	34831.0	152.24	µg/L	0.321	152.24	ppb	0.321	0.21%
Fe 238.204 Radial†	85012.3	130410	µg/L	1436.08	130410	ppb	1436.08	1.10%
K 766.490 Radial†	24451.6	13430	µg/L	176.22	13430	ppb	176.22	1.31%
Mg 279.077 IEC†	9824.6	61270	µg/L	50.80	61270	ppb	50.80	0.08%
Mn 257.610†	3775061.7	3726.5	µg/L	9.99	3726.5	ppb	9.99	0.27%
Mo 202.031†	24.3	6.3509	µg/L	0.77194	6.3509	ppb	0.77194	12.15%

Na 589.592 Radial†	40.6	1686.2 µg/L	162.34	1686.2 ppb	162.34	9.63%
Ni 231.604†	9080.1	153.43 µg/L	0.965	153.43 ppb	0.965	0.63%
P 214.914†	11962.7	5079.6 µg/L	39.09	5079.6 ppb	39.09	0.77%
Pb 220.353†	1080.9	84.465 µg/L	0.2896	84.465 ppb	0.2896	0.34%
S 181.975 Axial†	5381.0	5273.1 µg/L	26.09	5273.1 ppb	26.09	0.49%
Sb 206.836†	24.5	4.6974 µg/L	2.61960	4.6974 ppb	2.61960	55.77%
Se 196.026†	-121.0	17.929 µg/L	3.9090	17.929 ppb	3.9090	21.80%
SiO2†	769136.0	72352 µg/L	67.07	72352 ppb	67.07	0.09%
Si 251.611†	992769.8	34447 µg/L	90.43	34447 ppb	90.43	0.26%
Sn 189.927†	-7.9	9.2761 µg/L	0.68016	9.2761 ppb	0.68016	7.33%
Sr 421.552†	21012.1	530.67 µg/L	8.388	530.67 ppb	8.388	1.58%
Ti 334.940†	905253.0	2055.8 µg/L	3.14	2055.8 ppb	3.14	0.15%
Tl 190.801†	-121.7	-0.4451 µg/L	1.14519	-0.4451 ppb	1.14519	257.31%
U 367.007†	3117.5	-9.345 µg/L	18.9908	-9.345 ppb	18.9908	203.21%
V 292.402†	30559.8	212.34 µg/L	0.267	212.34 ppb	0.267	0.13%
Zn 213.857†	80341.9	416.77 µg/L	0.733	416.77 ppb	0.733	0.18%

Sequence No.: 15
Sample ID: 409254034|1611119|1|
Analyst: HSC
Initial Sample Wt:
Dilution:
Wash Time: 5

Autosampler Location: 311
Date Collected: 11/16/2016 12:03:23
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:
Auto Dilution Factor: 1

Replicate Data: 409254034|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8635.3	8635.3	102	%			12:04:12
1	Al 396.153Radial†	165945.4	162670.2	80169	µg/L	80169	ppb	12:03:52
1	Ca 317.933Radial†	346471.4	337987.2	164630	µg/L	164630	ppb	12:03:52
1	Fe 238.204 Radial†	113160.7	110414.1	169380	µg/L	169380	ppb	12:03:52
1	K 766.490 Radial†	32578.9	31388.0	17242	µg/L	17242	ppb	12:03:52
1	Mg 279.077 IEC†	10687.7	10418.2	64972	µg/L	64972	ppb	12:04:12
1	Na 589.592 Radial†	54.0	47.7	1978.3	µg/L	1978.3	ppb	12:04:12
1	Sr 421.552†	27435.4	26768.3	677.24	µg/L	677.24	ppb	12:03:52
1	Sc 361.383	616326.9	616326.9	98.488	%			12:05:16
1	Y 371.029	794431.2	794431.2	111.88	%			12:05:11
1	Ag 328.068†	-5306.5	-4448.5	6.2343	µg/L	6.2343	ppb	12:05:16
1	As 188.979†	445.6	430.2	121.04	µg/L	121.04	ppb	12:05:36
1	B 249.677†	-26134.7	-26727.8	142.71	µg/L	142.71	ppb	12:05:16
1	Ba 233.527†	407208.7	413329.0	2322.4	µg/L	2322.4	ppb	12:05:16
1	Be 313.107†	6057.4	11593.5	6.8454	µg/L	6.8454	ppb	12:05:16
1	Cd 226.502†	2829.5	3126.0	1.7895	µg/L	1.7895	ppb	12:05:36
1	Co 228.616†	4340.3	4734.4	63.474	µg/L	63.474	ppb	12:05:36
1	Cr 267.716†	9756.3	9789.2	122.77	µg/L	122.77	ppb	12:05:36
1	Cu 324.752†	51677.7	49977.1	217.48	µg/L	217.48	ppb	12:05:16
1	Mn 257.610†	5665663.7	5751772.1	5677.2	µg/L	5677.2	ppb	12:05:11
1	Mo 202.031†	-23.0	-6.7	6.6974	µg/L	6.6974	ppb	12:05:36
1	Ni 231.604†	10250.2	10583.6	178.00	µg/L	178.00	ppb	12:05:36
1	P 214.914†	12475.6	12522.2	5285.5	µg/L	5285.5	ppb	12:05:36
1	Pb 220.353†	1496.4	1413.0	108.28	µg/L	108.28	ppb	12:05:36
1	S 181.975 Axial†	1626.9	1504.8	1485.1	µg/L	1485.1	ppb	12:05:36
1	Sb 206.836†	144.2	31.2	4.8300	µg/L	4.8300	ppb	12:05:36
1	Se 196.026†	-180.0	-164.6	20.567	µg/L	20.567	ppb	12:05:36
1	SiO2†	803768.3	814470.7	76617	µg/L	76617	ppb	12:05:16
1	Si 251.611†	1043835.4	1059560.4	36758	µg/L	36758	ppb	12:05:11
1	Sn 189.927†	35.0	14.3	11.886	µg/L	11.886	ppb	12:05:36
1	Ti 334.940†	796674.1	809698.6	1840.0	µg/L	1840.0	ppb	12:05:11
1	Tl 190.801†	-266.9	-113.6	-1.1663	µg/L	-1.1663	ppb	12:05:36
1	U 367.007†	5309.6	3966.5	-15.88	µg/L	-15.88	ppb	12:05:16
1	V 292.402†	39435.6	39621.6	275.92	µg/L	275.92	ppb	12:05:16
1	Zn 213.857†	106381.9	107228.8	558.00	µg/L	558.00	ppb	12:05:16
2	Sc RADIAL	8696.0	8696.0	103	%			12:04:38
2	Al 396.153Radial†	169288.5	164779.3	81208	µg/L	81208	ppb	12:04:17
2	Ca 317.933Radial†	351604.0	340600.6	165900	µg/L	165900	ppb	12:04:17
2	Fe 238.204 Radial†	115138.4	111559.7	171140	µg/L	171140	ppb	12:04:17
2	K 766.490 Radial†	33106.6	31677.4	17401	µg/L	17401	ppb	12:04:17
2	Mg 279.077 IEC†	10746.0	10401.9	64870	µg/L	64870	ppb	12:04:38
2	Na 589.592 Radial†	46.3	39.9	1658.6	µg/L	1658.6	ppb	12:04:38
2	Sr 421.552†	28079.7	27205.8	688.36	µg/L	688.36	ppb	12:04:17
2	Sc 361.383	616694.7	616694.7	98.547	%			12:05:48
2	Y 371.029	797013.6	797013.6	112.25	%			12:05:43
2	Ag 328.068†	-5280.8	-4419.2	6.6769	µg/L	6.6769	ppb	12:05:48
2	As 188.979†	445.9	430.3	120.98	µg/L	120.98	ppb	12:06:08
2	B 249.677†	-26132.9	-26710.2	149.93	µg/L	149.93	ppb	12:05:48
2	Ba 233.527†	406198.2	412057.0	2315.2	µg/L	2315.2	ppb	12:05:48
2	Be 313.107†	6040.9	11573.0	6.8547	µg/L	6.8547	ppb	12:05:48
2	Cd 226.502†	2849.8	3144.9	1.7295	µg/L	1.7295	ppb	12:06:08
2	Co 228.616†	4349.6	4741.3	63.457	µg/L	63.457	ppb	12:06:08
2	Cr 267.716†	9799.3	9827.0	123.25	µg/L	123.25	ppb	12:06:08
2	Cu 324.752†	51861.8	50132.6	218.22	µg/L	218.22	ppb	12:05:48
2	Mn 257.610†	5657149.1	5739701.9	5665.4	µg/L	5665.4	ppb	12:05:43
2	Mo 202.031†	-3.8	12.7	7.5570	µg/L	7.5570	ppb	12:06:08
2	Ni 231.604†	10292.8	10620.7	178.57	µg/L	178.57	ppb	12:06:08
2	P 214.914†	12473.0	12512.0	5279.4	µg/L	5279.4	ppb	12:06:08

2	Pb 220.353†	1497.9	1413.6	108.14 µg/L	108.14 ppb	12:06:08
2	S 181.975 Axial†	1623.6	1500.5	1480.6 µg/L	1480.6 ppb	12:06:08
2	Sb 206.836†	147.3	34.2	5.4516 µg/L	5.4516 ppb	12:06:08
2	Se 196.026†	-191.6	-176.3	17.155 µg/L	17.155 ppb	12:06:08
2	SiO2†	802093.5	812284.5	76411 µg/L	76411 ppb	12:05:48
2	Si 251.611†	1042323.0	1057393.8	36683 µg/L	36683 ppb	12:05:43
2	Sn 189.927†	16.0	-5.0	10.089 µg/L	10.089 ppb	12:06:08
2	Ti 334.940†	797421.0	809974.1	1840.6 µg/L	1840.6 ppb	12:05:43
2	Tl 190.801†	-255.8	-102.2	0.7042 µg/L	0.7042 ppb	12:06:08
2	U 367.007†	5357.7	4012.2	-15.10 µg/L	-15.10 ppb	12:05:48
2	V 292.402†	39398.0	39559.6	275.78 µg/L	275.78 ppb	12:05:48
2	Zn 213.857†	106295.5	107076.7	556.95 µg/L	556.95 ppb	12:05:48
3	Sc RADIAL	8667.2	8667.2	103 %		12:05:03
3	Al 396.153Radial†	169541.7	165571.3	81598 µg/L	81598 ppb	12:04:43
3	Ca 317.933Radial†	351952.0	342072.8	166620 µg/L	166620 ppb	12:04:43
3	Fe 238.204 Radial†	115119.3	111912.5	171680 µg/L	171680 ppb	12:04:43
3	K 766.490 Radial†	33255.2	31928.6	17538 µg/L	17538 ppb	12:04:43
3	Mg 279.077 IEC†	10721.1	10412.3	64935 µg/L	64935 ppb	12:05:03
3	Na 589.592 Radial†	51.8	45.4	1885.3 µg/L	1885.3 ppb	12:05:03
3	Sr 421.552†	28187.8	27401.5	693.33 µg/L	693.33 ppb	12:04:43
3	Sc 361.383	622006.4	622006.4	99.396 %		12:06:20
3	Y 371.029	791591.4	791591.4	111.48 %		12:06:15
3	Ag 328.068†	-5282.5	-4375.2	6.9818 µg/L	6.9818 ppb	12:06:20
3	As 188.979†	453.3	433.9	122.03 µg/L	122.03 ppb	12:06:40
3	B 249.677†	-26456.6	-26809.4	150.13 µg/L	150.13 ppb	12:06:20
3	Ba 233.527†	409873.7	412234.9	2316.2 µg/L	2316.2 ppb	12:06:20
3	Be 313.107†	6067.1	11547.0	6.8542 µg/L	6.8542 ppb	12:06:20
3	Cd 226.502†	2850.3	3120.7	1.5335 µg/L	1.5335 ppb	12:06:40
3	Co 228.616†	4301.3	4655.0	62.068 µg/L	62.068 ppb	12:06:40
3	Cr 267.716†	9733.0	9675.4	121.37 µg/L	121.37 ppb	12:06:40
3	Cu 324.752†	52131.2	49954.2	217.50 µg/L	217.50 ppb	12:06:20
3	Mn 257.610†	5626933.8	5660280.4	5587.2 µg/L	5587.2 ppb	12:06:15
3	Mo 202.031†	6.9	23.5	8.0162 µg/L	8.0162 ppb	12:06:40
3	Ni 231.604†	10260.8	10499.3	176.40 µg/L	176.40 ppb	12:06:40
3	P 214.914†	12441.2	12371.9	5218.0 µg/L	5218.0 ppb	12:06:40
3	Pb 220.353†	1554.4	1457.4	111.72 µg/L	111.72 ppb	12:06:40
3	S 181.975 Axial†	1624.9	1487.7	1467.8 µg/L	1467.8 ppb	12:06:40
3	Sb 206.836†	156.8	42.5	7.2753 µg/L	7.2753 ppb	12:06:40
3	Se 196.026†	-184.2	-167.2	20.720 µg/L	20.720 ppb	12:06:40
3	SiO2†	808303.4	811581.5	76345 µg/L	76345 ppb	12:06:20
3	Si 251.611†	1036982.1	1042988.1	36183 µg/L	36183 ppb	12:06:15
3	Sn 189.927†	17.4	-3.8	10.132 µg/L	10.132 ppb	12:06:40
3	Ti 334.940†	793197.2	798814.5	1815.4 µg/L	1815.4 ppb	12:06:15
3	Tl 190.801†	-261.9	-106.1	-0.1535 µg/L	-0.1535 ppb	12:06:40
3	U 367.007†	5437.7	4046.2	-11.29 µg/L	-11.29 ppb	12:06:20
3	V 292.402†	39647.4	39469.1	275.29 µg/L	275.29 ppb	12:06:20
3	Zn 213.857†	107152.5	107017.8	556.58 µg/L	556.58 ppb	12:06:20

Mean Data: 409254034|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	618342.7	98.811	%	0.5079				0.51%
Sc RADIAL	8666.2	103	%	0.36				0.35%
Y 371.029	794345.4	111.87	%	0.382				0.34%
Ag 328.068†	-4414.3	6.6310	µg/L	0.37589	6.6310	ppb	0.37589	5.67%
Al 396.153Radial†	164340.3	80992	µg/L	739.01	80992	ppb	739.01	0.91%
As 188.979†	431.5	121.35	µg/L	0.592	121.35	ppb	0.592	0.49%
B 249.677†	-26749.1	147.59	µg/L	4.229	147.59	ppb	4.229	2.87%
Ba 233.527†	412540.3	2318.0	µg/L	3.91	2318.0	ppb	3.91	0.17%
Be 313.107†	11571.2	6.8514	µg/L	0.00525	6.8514	ppb	0.00525	0.08%
Ca 317.933Radial†	340220.2	165720	µg/L	1007.87	165720	ppb	1007.87	0.61%
Cd 226.502†	3130.5	1.6842	µg/L	0.13391	1.6842	ppb	0.13391	7.95%
Co 228.616†	4710.2	63.000	µg/L	0.8066	63.000	ppb	0.8066	1.28%
Cr 267.716†	9763.8	122.46	µg/L	0.975	122.46	ppb	0.975	0.80%
Cu 324.752†	50021.3	217.73	µg/L	0.420	217.73	ppb	0.420	0.19%
Fe 238.204 Radial†	111295.4	170730	µg/L	1201.72	170730	ppb	1201.72	0.70%
K 766.490 Radial†	31664.7	17394	µg/L	148.49	17394	ppb	148.49	0.85%
Mg 279.077 IEC†	10410.8	64926	µg/L	51.47	64926	ppb	51.47	0.08%
Mn 257.610†	5717251.4	5643.3	µg/L	48.95	5643.3	ppb	48.95	0.87%
Mo 202.031†	9.8	7.4235	µg/L	0.66944	7.4235	ppb	0.66944	9.02%

Na 589.592 Radial†	44.3	1840.7 µg/L	164.43	1840.7 ppb	164.43	8.93%
Ni 231.604†	10567.9	177.66 µg/L	1.121	177.66 ppb	1.121	0.63%
P 214.914†	12468.7	5261.0 µg/L	37.37	5261.0 ppb	37.37	0.71%
Pb 220.353†	1428.0	109.38 µg/L	2.029	109.38 ppb	2.029	1.86%
S 181.975 Axial†	1497.7	1477.8 µg/L	9.00	1477.8 ppb	9.00	0.61%
Sb 206.836†	36.0	5.8523 µg/L	1.27096	5.8523 ppb	1.27096	21.72%
Se 196.026†	-169.4	19.480 µg/L	2.0156	19.480 ppb	2.0156	10.35%
SiO2†	812778.9	76457 µg/L	141.73	76457 ppb	141.73	0.19%
Si 251.611†	1053314.1	36541 µg/L	312.95	36541 ppb	312.95	0.86%
Sn 189.927†	1.8	10.703 µg/L	1.0252	10.703 ppb	1.0252	9.58%
Sr 421.552†	27125.2	686.31 µg/L	8.235	686.31 ppb	8.235	1.20%
Ti 334.940†	806162.4	1832.0 µg/L	14.36	1832.0 ppb	14.36	0.78%
Tl 190.801†	-107.3	-0.2052 µg/L	0.93632	-0.2052 ppb	0.93632	456.38%
U 367.007†	4008.3	-14.09 µg/L	2.455	-14.09 ppb	2.455	17.42%
V 292.402†	39550.1	275.66 µg/L	0.330	275.66 ppb	0.330	0.12%
Zn 213.857†	107107.8	557.18 µg/L	0.736	557.18 ppb	0.736	0.13%

Sequence No.: 16
Sample ID: 409254036|1611119|1|
Analyst: HSC
Initial Sample Wt:
Dilution:
Wash Time: 5

Autosampler Location: 312
Date Collected: 11/16/2016 12:06:49
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:
Auto Dilution Factor: 1

Replicate Data: 409254036|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8448.6	8448.6	100	%			12:07:38
1	Al 396.153Radial†	94727.4	95216.6	46925	µg/L	46925	ppb	12:07:18
1	Ca 317.933Radial†	322071.5	321122.6	156420	µg/L	156420	ppb	12:07:18
1	Fe 238.204 Radial†	77404.4	77191.4	118420	µg/L	118420	ppb	12:07:18
1	K 766.490 Radial†	18577.9	18126.1	9969.1	µg/L	9969.1	ppb	12:07:18
1	Mg 279.077 IEC†	10046.2	10008.8	62419	µg/L	62419	ppb	12:07:38
1	Na 589.592 Radial†	53.3	48.2	1997.0	µg/L	1997.0	ppb	12:07:38
1	Sr 421.552†	17109.0	17060.5	429.90	µg/L	429.90	ppb	12:07:18
1	Sc 361.383	613498.8	613498.8	98.037	%			12:08:37
1	Y 371.029	754500.1	754500.1	106.26	%			12:08:37
1	Ag 328.068†	-3923.5	-3062.7	4.0577	µg/L	4.0577	ppb	12:08:37
1	As 188.979†	296.9	280.7	78.594	µg/L	78.594	ppb	12:08:57
1	B 249.677†	-18708.8	-19275.5	88.296	µg/L	88.296	ppb	12:08:37
1	Ba 233.527†	369137.8	376401.5	2115.9	µg/L	2115.9	ppb	12:08:37
1	Be 313.107†	-399.1	5036.0	4.0642	µg/L	4.0642	ppb	12:08:37
1	Cd 226.502†	1797.6	2086.7	0.5481	µg/L	0.5481	ppb	12:08:57
1	Co 228.616†	2824.5	3208.6	42.177	µg/L	42.177	ppb	12:08:57
1	Cr 267.716†	6634.5	6650.6	83.910	µg/L	83.910	ppb	12:08:57
1	Cu 324.752†	18574.6	16452.9	74.955	µg/L	74.955	ppb	12:08:37
1	Mn 257.610†	3370357.9	3437015.1	3392.6	µg/L	3392.6	ppb	12:08:37
1	Mo 202.031†	75.3	93.4	8.6543	µg/L	8.6543	ppb	12:08:57
1	Ni 231.604†	6615.0	6923.6	116.08	µg/L	116.08	ppb	12:08:57
1	P 214.914†	11532.8	11618.9	4941.1	µg/L	4941.1	ppb	12:08:57
1	Pb 220.353†	902.5	814.2	65.980	µg/L	65.980	ppb	12:08:57
1	S 181.975 Axial†	1214.4	1091.7	1075.2	µg/L	1075.2	ppb	12:08:57
1	Sb 206.836†	137.9	25.4	5.0272	µg/L	5.0272	ppb	12:08:57
1	Se 196.026†	-132.6	-117.1	13.663	µg/L	13.663	ppb	12:08:57
1	SiO2†	747828.3	761172.4	71602	µg/L	71602	ppb	12:08:37
1	Si 251.611†	939834.4	958362.2	33254	µg/L	33254	ppb	12:08:37
1	Sn 189.927†	15.8	-5.1	8.0987	µg/L	8.0987	ppb	12:08:57
1	Ti 334.940†	759832.7	775848.2	1763.1	µg/L	1763.1	ppb	12:08:37
1	Tl 190.801†	-258.3	-106.1	-0.4854	µg/L	-0.4854	ppb	12:08:57
1	U 367.007†	4260.8	2921.6	4.266	µg/L	4.266	ppb	12:08:37
1	V 292.402†	24563.1	24635.8	172.98	µg/L	172.98	ppb	12:08:37
1	Zn 213.857†	64026.2	64522.8	332.31	µg/L	332.31	ppb	12:08:37
2	Sc RADIAL	8431.6	8431.6	100	%			12:08:03
2	Al 396.153Radial†	96423.6	97102.4	47855	µg/L	47855	ppb	12:07:43
2	Ca 317.933Radial†	326687.4	326384.1	158980	µg/L	158980	ppb	12:07:43
2	Fe 238.204 Radial†	78590.3	78532.4	120470	µg/L	120470	ppb	12:07:43
2	K 766.490 Radial†	18831.9	18417.3	10130	µg/L	10130	ppb	12:07:43
2	Mg 279.077 IEC†	9982.6	9965.4	62148	µg/L	62148	ppb	12:08:03
2	Na 589.592 Radial†	52.0	47.0	1948.6	µg/L	1948.6	ppb	12:08:03
2	Sr 421.552†	17432.1	17417.8	438.92	µg/L	438.92	ppb	12:07:43
2	Sc 361.383	614917.4	614917.4	98.263	%			12:09:05
2	Y 371.029	756169.2	756169.2	106.50	%			12:09:05
2	Ag 328.068†	-3970.6	-3101.3	4.2087	µg/L	4.2087	ppb	12:09:05
2	As 188.979†	300.7	283.8	79.428	µg/L	79.428	ppb	12:09:25
2	B 249.677†	-18742.0	-19265.3	96.551	µg/L	96.551	ppb	12:09:05
2	Ba 233.527†	369768.0	376174.3	2114.6	µg/L	2114.6	ppb	12:09:05
2	Be 313.107†	-196.0	5243.6	4.1757	µg/L	4.1757	ppb	12:09:05
2	Cd 226.502†	1852.6	2138.4	0.6569	µg/L	0.6569	ppb	12:09:25
2	Co 228.616†	2829.9	3207.4	42.015	µg/L	42.015	ppb	12:09:25
2	Cr 267.716†	6612.9	6612.9	83.452	µg/L	83.452	ppb	12:09:25
2	Cu 324.752†	18644.0	16479.8	75.165	µg/L	75.165	ppb	12:09:05
2	Mn 257.610†	3376832.2	3435673.1	3391.4	µg/L	3391.4	ppb	12:09:05
2	Mo 202.031†	69.9	87.8	8.5098	µg/L	8.5098	ppb	12:09:25
2	Ni 231.604†	6594.4	6887.1	115.34	µg/L	115.34	ppb	12:09:25
2	P 214.914†	11468.9	11526.7	4899.0	µg/L	4899.0	ppb	12:09:25

2	Pb 220.353†	925.1	835.1	67.655 µg/L	67.655 ppb	12:09:25
2	S 181.975 Axial†	1197.6	1071.7	1055.5 µg/L	1055.5 ppb	12:09:25
2	Sb 206.836†	143.7	31.0	6.2263 µg/L	6.2263 ppb	12:09:25
2	Se 196.026†	-121.5	-105.5	18.833 µg/L	18.833 ppb	12:09:25
2	SiO2†	749442.9	761055.8	71591 µg/L	71591 ppb	12:09:05
2	Si 251.611†	941532.4	957878.8	33237 µg/L	33237 ppb	12:09:05
2	Sn 189.927†	23.5	2.7	8.8966 µg/L	8.8966 ppb	12:09:25
2	Ti 334.940†	761224.7	775476.8	1762.4 µg/L	1762.4 ppb	12:09:05
2	Tl 190.801†	-244.3	-91.2	1.9466 µg/L	1.9466 ppb	12:09:25
2	U 367.007†	4207.6	2857.5	-16.69 µg/L	-16.69 ppb	12:09:05
2	V 292.402†	24617.5	24633.4	173.23 µg/L	173.23 ppb	12:09:05
2	Zn 213.857†	64047.6	64393.9	331.38 µg/L	331.38 ppb	12:09:05
3	Sc RADIAL	8471.0	8471.0	101 %		12:08:29
3	Al 396.153Radial†	95593.8	95828.8	47227 µg/L	47227 ppb	12:08:09
3	Ca 317.933Radial†	323935.9	322128.5	156910 µg/L	156910 ppb	12:08:09
3	Fe 238.204 Radial†	78066.6	77646.2	119110 µg/L	119110 ppb	12:08:09
3	K 766.490 Radial†	18795.3	18293.4	10061 µg/L	10061 ppb	12:08:09
3	Mg 279.077 IEC†	10067.5	10003.5	62386 µg/L	62386 ppb	12:08:29
3	Na 589.592 Radial†	56.4	51.1	2116.6 µg/L	2116.6 ppb	12:08:29
3	Sr 421.552†	17310.5	17215.9	433.84 µg/L	433.84 ppb	12:08:09
3	Sc 361.383	612946.8	612946.8	97.948 %		12:09:32
3	Y 371.029	754385.2	754385.2	106.24 %		12:09:32
3	Ag 328.068†	-3878.7	-3020.5	4.3943 µg/L	4.3943 ppb	12:09:32
3	As 188.979†	297.3	281.4	78.761 µg/L	78.761 ppb	12:09:52
3	B 249.677†	-18516.0	-19095.9	94.524 µg/L	94.524 ppb	12:09:32
3	Ba 233.527†	368454.7	376043.2	2113.9 µg/L	2113.9 ppb	12:09:32
3	Be 313.107†	-313.5	5123.1	4.1018 µg/L	4.1018 ppb	12:09:32
3	Cd 226.502†	1822.4	2113.6	0.6416 µg/L	0.6416 ppb	12:09:52
3	Co 228.616†	2836.2	3223.2	42.360 µg/L	42.360 ppb	12:09:52
3	Cr 267.716†	6641.7	6664.0	84.093 µg/L	84.093 ppb	12:09:52
3	Cu 324.752†	18656.1	16553.2	75.402 µg/L	75.402 ppb	12:09:32
3	Mn 257.610†	3362392.0	3431978.4	3387.6 µg/L	3387.6 ppb	12:09:32
3	Mo 202.031†	69.2	87.2	8.4324 µg/L	8.4324 ppb	12:09:52
3	Ni 231.604†	6574.9	6888.7	115.43 µg/L	115.43 ppb	12:09:52
3	P 214.914†	11475.3	11570.8	4919.5 µg/L	4919.5 ppb	12:09:52
3	Pb 220.353†	876.4	788.4	63.806 µg/L	63.806 ppb	12:09:52
3	S 181.975 Axial†	1196.7	1074.7	1058.5 µg/L	1058.5 ppb	12:09:52
3	Sb 206.836†	119.4	6.6	0.9280 µg/L	0.9280 ppb	12:09:52
3	Se 196.026†	-109.2	-93.4	22.576 µg/L	22.576 ppb	12:09:52
3	SiO2†	746066.3	760060.4	71498 µg/L	71498 ppb	12:09:32
3	Si 251.611†	937781.3	957129.5	33211 µg/L	33211 ppb	12:09:32
3	Sn 189.927†	13.2	-7.8	7.8691 µg/L	7.8691 ppb	12:09:52
3	Ti 334.940†	759823.1	776536.4	1764.6 µg/L	1764.6 ppb	12:09:32
3	Tl 190.801†	-254.6	-102.5	0.1107 µg/L	0.1107 ppb	12:09:52
3	U 367.007†	4182.7	2845.8	-12.64 µg/L	-12.64 ppb	12:09:32
3	V 292.402†	24505.5	24599.6	172.83 µg/L	172.83 ppb	12:09:32
3	Zn 213.857†	63733.5	64282.7	330.93 µg/L	330.93 ppb	12:09:32

Mean Data: 409254036|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	613787.7	98.083	%	0.1624				0.17%
Sc RADIAL	8450.4	100	%	0.23				0.23%
Y 371.029	755018.2	106.33	%	0.141				0.13%
Ag 328.068†	-3061.5	4.2202	µg/L	0.16859	4.2202	ppb	0.16859	3.99%
Al 396.153Radial†	96049.3	47336	µg/L	474.14	47336	ppb	474.14	1.00%
As 188.979†	282.0	78.928	µg/L	0.4415	78.928	ppb	0.4415	0.56%
B 249.677†	-19212.2	93.123	µg/L	4.3019	93.123	ppb	4.3019	4.62%
Ba 233.527†	376206.3	2114.8	µg/L	1.03	2114.8	ppb	1.03	0.05%
Be 313.107†	5134.2	4.1139	µg/L	0.05672	4.1139	ppb	0.05672	1.38%
Ca 317.933Radial†	323211.7	157430	µg/L	1360.43	157430	ppb	1360.43	0.86%
Cd 226.502†	2112.9	0.6155	µg/L	0.05888	0.6155	ppb	0.05888	9.57%
Co 228.616†	3213.1	42.184	µg/L	0.1729	42.184	ppb	0.1729	0.41%
Cr 267.716†	6642.5	83.819	µg/L	0.3301	83.819	ppb	0.3301	0.39%
Cu 324.752†	16495.3	75.174	µg/L	0.2233	75.174	ppb	0.2233	0.30%
Fe 238.204 Radial†	77790.0	119330	µg/L	1046.19	119330	ppb	1046.19	0.88%
K 766.490 Radial†	18278.9	10053	µg/L	80.51	10053	ppb	80.51	0.80%
Mg 279.077 IEC†	9992.6	62318	µg/L	147.72	62318	ppb	147.72	0.24%
Mn 257.610†	3434888.9	3390.5	µg/L	2.57	3390.5	ppb	2.57	0.08%
Mo 202.031†	89.5	8.5322	µg/L	0.11261	8.5322	ppb	0.11261	1.32%

Na 589.592 Radial†	48.8	2020.7 µg/L	86.45	2020.7 ppb	86.45	4.28%
Ni 231.604†	6899.8	115.62 µg/L	0.403	115.62 ppb	0.403	0.35%
P 214.914†	11572.1	4919.9 µg/L	21.04	4919.9 ppb	21.04	0.43%
Pb 220.353†	812.6	65.814 µg/L	1.9299	65.814 ppb	1.9299	2.93%
S 181.975 Axial†	1079.4	1063.1 µg/L	10.65	1063.1 ppb	10.65	1.00%
Sb 206.836†	21.0	4.0605 µg/L	2.77829	4.0605 ppb	2.77829	68.42%
Se 196.026†	-105.3	18.357 µg/L	4.4757	18.357 ppb	4.4757	24.38%
SiO2†	760762.9	71564 µg/L	57.48	71564 ppb	57.48	0.08%
Si 251.611†	957790.2	33234 µg/L	21.61	33234 ppb	21.61	0.07%
Sn 189.927†	-3.4	8.2881 µg/L	0.53933	8.2881 ppb	0.53933	6.51%
Sr 421.552†	17231.4	434.22 µg/L	4.526	434.22 ppb	4.526	1.04%
Ti 334.940†	775953.8	1763.4 µg/L	1.17	1763.4 ppb	1.17	0.07%
Tl 190.801†	-99.9	0.5240 µg/L	1.26758	0.5240 ppb	1.26758	241.91%
U 367.007†	2875.0	-8.352 µg/L	11.1134	-8.352 ppb	11.1134	133.07%
V 292.402†	24622.9	173.01 µg/L	0.203	173.01 ppb	0.203	0.12%
Zn 213.857†	64399.8	331.54 µg/L	0.708	331.54 ppb	0.708	0.21%

Sequence No.: 17
Sample ID: 409254038|1611119|1|
Analyst: HSC
Initial Sample Wt:
Dilution:
Wash Time: 5

Autosampler Location: 313
Date Collected: 11/16/2016 12:10:01
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:
Auto Dilution Factor: 1

Replicate Data: 409254038|1611119|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8236.3	8236.3	97.7	%			12:10:50
1	Al 396.153Radial†	26651.8	28004.1	13801	µg/L	13801	ppb	12:10:30
1	Ca 317.933Radial†	108754.7	111159.2	54144	µg/L	54144	ppb	12:10:30
1	Fe 238.204 Radial†	35110.0	35910.3	55088	µg/L	55088	ppb	12:10:50
1	K 766.490 Radial†	6530.7	6278.2	3464.0	µg/L	3464.0	ppb	12:10:30
1	Mg 279.077 IEC†	2663.0	2713.4	16922	µg/L	16922	ppb	12:10:50
1	Na 589.592 Radial†	33.7	29.5	1217.9	µg/L	1217.9	ppb	12:10:50
1	Sr 421.552†	5352.4	5472.3	137.76	µg/L	137.76	ppb	12:10:50
1	Sc 361.383	607050.8	607050.8	97.006	%			12:11:48
1	Y 371.029	716374.9	716374.9	100.89	%			12:11:48
1	Ag 328.068†	-2215.7	-1344.6	2.4837	µg/L	2.4837	ppb	12:11:48
1	As 188.979†	158.4	141.2	39.742	µg/L	39.742	ppb	12:12:08
1	B 249.677†	-8878.9	-9345.0	33.712	µg/L	33.712	ppb	12:11:48
1	Ba 233.527†	123218.6	126892.1	712.91	µg/L	712.91	ppb	12:11:48
1	Be 313.107†	-3647.2	1683.3	1.3962	µg/L	1.3962	ppb	12:11:48
1	Cd 226.502†	684.9	959.1	0.2240	µg/L	0.2240	ppb	12:12:08
1	Co 228.616†	1272.6	1639.4	22.167	µg/L	22.167	ppb	12:12:08
1	Cr 267.716†	2506.2	2466.7	31.070	µg/L	31.070	ppb	12:12:08
1	Cu 324.752†	4788.5	2442.5	13.114	µg/L	13.114	ppb	12:11:48
1	Mn 257.610†	1124559.9	1158423.0	1144.4	µg/L	1144.4	ppb	12:11:48
1	Mo 202.031†	97.4	117.0	7.0041	µg/L	7.0041	ppb	12:12:08
1	Ni 231.604†	2848.2	3112.2	52.090	µg/L	52.090	ppb	12:12:08
1	P 214.914†	4262.4	4249.1	1794.8	µg/L	1794.8	ppb	12:12:08
1	Pb 220.353†	378.3	283.6	24.790	µg/L	24.790	ppb	12:12:08
1	S 181.975 Axial†	614.6	486.5	477.97	µg/L	477.97	ppb	12:12:08
1	Sb 206.836†	128.6	17.4	3.6753	µg/L	3.6753	ppb	12:12:08
1	Se 196.026†	-75.2	-59.4	4.5854	µg/L	4.5854	ppb	12:12:08
1	SiO2†	382100.0	392259.3	36899	µg/L	36899	ppb	12:11:48
1	Si 251.611†	479196.5	493690.7	17132	µg/L	17132	ppb	12:11:48
1	Sn 189.927†	24.0	3.5	3.9077	µg/L	3.9077	ppb	12:12:08
1	Ti 334.940†	269850.3	278976.2	633.82	µg/L	633.82	ppb	12:11:48
1	Tl 190.801†	-197.0	-45.7	-1.5252	µg/L	-1.5252	ppb	12:12:08
1	U 367.007†	2651.6	1308.9	-1.880	µg/L	-1.880	ppb	12:11:48
1	V 292.402†	8192.8	8026.4	58.619	µg/L	58.619	ppb	12:12:08
1	Zn 213.857†	22156.4	22054.4	111.98	µg/L	111.98	ppb	12:12:08
2	Sc RADIAL	8307.2	8307.2	98.6	%			12:11:15
2	Al 396.153Radial†	26975.1	28099.1	13848	µg/L	13848	ppb	12:10:55
2	Ca 317.933Radial†	109142.7	110602.3	53873	µg/L	53873	ppb	12:10:55
2	Fe 238.204 Radial†	35246.6	35742.0	54830	µg/L	54830	ppb	12:11:15
2	K 766.490 Radial†	6570.7	6261.7	3454.8	µg/L	3454.8	ppb	12:10:55
2	Mg 279.077 IEC†	2664.0	2691.1	16783	µg/L	16783	ppb	12:11:15
2	Na 589.592 Radial†	34.2	29.7	1225.9	µg/L	1225.9	ppb	12:11:15
2	Sr 421.552†	5380.8	5454.2	137.31	µg/L	137.31	ppb	12:11:15
2	Sc 361.383	605665.6	605665.6	96.785	%			12:12:14
2	Y 371.029	715342.3	715342.3	100.75	%			12:12:14
2	Ag 328.068†	-2229.5	-1364.1	2.3327	µg/L	2.3327	ppb	12:12:14
2	As 188.979†	154.0	137.0	38.488	µg/L	38.488	ppb	12:12:34
2	B 249.677†	-8782.8	-9266.6	34.227	µg/L	34.227	ppb	12:12:14
2	Ba 233.527†	123060.6	127019.3	713.63	µg/L	713.63	ppb	12:12:14
2	Be 313.107†	-3629.4	1693.1	1.4025	µg/L	1.4025	ppb	12:12:14
2	Cd 226.502†	655.3	930.1	0.0740	µg/L	0.0740	ppb	12:12:34
2	Co 228.616†	1257.3	1626.6	21.976	µg/L	21.976	ppb	12:12:34
2	Cr 267.716†	2518.8	2485.6	31.286	µg/L	31.286	ppb	12:12:34
2	Cu 324.752†	4751.6	2415.7	13.001	µg/L	13.001	ppb	12:12:14
2	Mn 257.610†	1122570.9	1159019.2	1145.0	µg/L	1145.0	ppb	12:12:14
2	Mo 202.031†	93.1	112.7	6.8199	µg/L	6.8199	ppb	12:12:34
2	Ni 231.604†	2849.6	3120.4	52.245	µg/L	52.245	ppb	12:12:34
2	P 214.914†	4283.4	4280.8	1808.9	µg/L	1808.9	ppb	12:12:34

2	Pb 220.353†	358.0	263.5	23.049 µg/L	23.049 ppb	12:12:34
2	S 181.975 Axial†	639.0	513.2	504.08 µg/L	504.08 ppb	12:12:34
2	Sb 206.836†	128.5	17.6	3.7089 µg/L	3.7089 ppb	12:12:34
2	Se 196.026†	-69.4	-53.6	6.5732 µg/L	6.5732 ppb	12:12:34
2	SiO2†	381461.3	392500.2	36922 µg/L	36922 ppb	12:12:14
2	Si 251.611†	478538.6	494140.8	17147 µg/L	17147 ppb	12:12:14
2	Sn 189.927†	23.4	2.9	3.8426 µg/L	3.8426 ppb	12:12:34
2	Ti 334.940†	269008.5	278742.7	633.27 µg/L	633.27 ppb	12:12:14
2	Tl 190.801†	-175.1	-23.5	2.1196 µg/L	2.1196 ppb	12:12:34
2	U 367.007†	2769.7	1437.2	22.78 µg/L	22.78 ppb	12:12:14
2	V 292.402†	8270.8	8126.4	59.239 µg/L	59.239 ppb	12:12:34
2	Zn 213.857†	22190.0	22141.4	112.49 µg/L	112.49 ppb	12:12:34
3	Sc RADIAL	8346.1	8346.1	99.0 %		12:11:40
3	Al 396.153Radial†	27157.9	28156.0	13876 µg/L	13876 ppb	12:11:20
3	Ca 317.933Radial†	109407.4	110353.5	53752 µg/L	53752 ppb	12:11:20
3	Fe 238.204 Radial†	35390.0	35720.1	54797 µg/L	54797 ppb	12:11:40
3	K 766.490 Radial†	6539.7	6199.4	3420.7 µg/L	3420.7 ppb	12:11:20
3	Mg 279.077 IEC†	2674.8	2689.4	16772 µg/L	16772 ppb	12:11:40
3	Na 589.592 Radial†	41.5	36.9	1522.2 µg/L	1522.2 ppb	12:11:40
3	Sr 421.552†	5384.5	5432.6	136.76 µg/L	136.76 ppb	12:11:40
3	Sc 361.383	607460.8	607460.8	97.072 %		12:12:40
3	Y 371.029	717357.7	717357.7	101.03 %		12:12:40
3	Ag 328.068†	-2224.9	-1352.6	2.3777 µg/L	2.3777 ppb	12:12:40
3	As 188.979†	145.9	128.1	35.823 µg/L	35.823 ppb	12:13:00
3	B 249.677†	-8854.8	-9313.9	33.173 µg/L	33.173 ppb	12:12:40
3	Ba 233.527†	123374.9	126967.4	713.34 µg/L	713.34 ppb	12:12:40
3	Be 313.107†	-3567.0	1768.5	1.4347 µg/L	1.4347 ppb	12:12:40
3	Cd 226.502†	672.0	945.4	0.1698 µg/L	0.1698 ppb	12:13:00
3	Co 228.616†	1292.2	1658.7	22.500 µg/L	22.500 ppb	12:13:00
3	Cr 267.716†	2498.6	2457.2	30.918 µg/L	30.918 ppb	12:13:00
3	Cu 324.752†	4795.0	2445.9	13.133 µg/L	13.133 ppb	12:12:40
3	Mn 257.610†	1126543.0	1159683.4	1145.6 µg/L	1145.6 ppb	12:12:40
3	Mo 202.031†	78.2	97.1	6.1863 µg/L	6.1863 ppb	12:13:00
3	Ni 231.604†	2856.0	3118.3	52.210 µg/L	52.210 ppb	12:13:00
3	P 214.914†	4279.0	4263.2	1801.2 µg/L	1801.2 ppb	12:13:00
3	Pb 220.353†	354.7	259.0	22.652 µg/L	22.652 ppb	12:13:00
3	S 181.975 Axial†	625.0	496.8	488.03 µg/L	488.03 ppb	12:13:00
3	Sb 206.836†	130.5	19.2	4.0765 µg/L	4.0765 ppb	12:13:00
3	Se 196.026†	-68.1	-52.1	7.0984 µg/L	7.0984 ppb	12:13:00
3	SiO2†	383198.9	393125.5	36981 µg/L	36981 ppb	12:12:40
3	Si 251.611†	480173.7	494363.9	17155 µg/L	17155 ppb	12:12:40
3	Sn 189.927†	35.0	14.8	4.9815 µg/L	4.9815 ppb	12:13:00
3	Ti 334.940†	270031.7	278975.4	633.78 µg/L	633.78 ppb	12:12:40
3	Tl 190.801†	-187.6	-35.9	0.0902 µg/L	0.0902 ppb	12:13:00
3	U 367.007†	2855.7	1517.3	37.64 µg/L	37.64 ppb	12:12:40
3	V 292.402†	8164.6	7991.6	58.373 µg/L	58.373 ppb	12:13:00
3	Zn 213.857†	22197.1	22081.0	112.17 µg/L	112.17 ppb	12:13:00

Mean Data: 409254038|1611119|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	606725.8	96.954	%	0.1503				0.16%
Sc RADIAL	8296.5	98.5	%	0.66				0.67%
Y 371.029	716358.3	100.89	%	0.142				0.14%
Ag 328.068†	-1353.8	2.3980	µg/L	0.07753	2.3980	ppb	0.07753	3.23%
Al 396.153Radial†	28086.4	13842	µg/L	37.86	13842	ppb	37.86	0.27%
As 188.979†	135.4	38.018	µg/L	2.0014	38.018	ppb	2.0014	5.26%
B 249.677†	-9308.5	33.704	µg/L	0.5271	33.704	ppb	0.5271	1.56%
Ba 233.527†	126959.6	713.29	µg/L	0.364	713.29	ppb	0.364	0.05%
Be 313.107†	1715.0	1.4112	µg/L	0.02062	1.4112	ppb	0.02062	1.46%
Ca 317.933Radial†	110705.0	53923	µg/L	200.96	53923	ppb	200.96	0.37%
Cd 226.502†	944.9	0.1559	µg/L	0.07593	0.1559	ppb	0.07593	48.69%
Co 228.616†	1641.6	22.214	µg/L	0.2652	22.214	ppb	0.2652	1.19%
Cr 267.716†	2469.9	31.091	µg/L	0.1851	31.091	ppb	0.1851	0.60%
Cu 324.752†	2434.7	13.083	µg/L	0.0714	13.083	ppb	0.0714	0.55%
Fe 238.204 Radial†	35790.8	54905	µg/L	159.64	54905	ppb	159.64	0.29%
K 766.490 Radial†	6246.5	3446.5	µg/L	22.77	3446.5	ppb	22.77	0.66%
Mg 279.077 IEC†	2697.9	16825	µg/L	83.44	16825	ppb	83.44	0.50%
Mn 257.610†	1159041.8	1145.0	µg/L	0.62	1145.0	ppb	0.62	0.05%
Mo 202.031†	109.0	6.6701	µg/L	0.42899	6.6701	ppb	0.42899	6.43%

Na 589.592 Radial†	32.0	1322.0 µg/L	173.47	1322.0 ppb	173.47	13.12%
Ni 231.604†	3117.0	52.182 µg/L	0.0815	52.182 ppb	0.0815	0.16%
P 214.914†	4264.4	1801.6 µg/L	7.04	1801.6 ppb	7.04	0.39%
Pb 220.353†	268.7	23.497 µg/L	1.1370	23.497 ppb	1.1370	4.84%
S 181.975 Axial†	498.8	490.03 µg/L	13.171	490.03 ppb	13.171	2.69%
Sb 206.836†	18.1	3.8202 µg/L	0.22258	3.8202 ppb	0.22258	5.83%
Se 196.026†	-55.0	6.0856 µg/L	1.32555	6.0856 ppb	1.32555	21.78%
SiO2†	392628.3	36934 µg/L	42.05	36934 ppb	42.05	0.11%
Si 251.611†	494065.1	17145 µg/L	11.94	17145 ppb	11.94	0.07%
Sn 189.927†	7.1	4.2440 µg/L	0.63956	4.2440 ppb	0.63956	15.07%
Sr 421.552†	5453.0	137.27 µg/L	0.500	137.27 ppb	0.500	0.36%
Ti 334.940†	278898.1	633.62 µg/L	0.309	633.62 ppb	0.309	0.05%
Tl 190.801†	-35.0	0.2282 µg/L	1.82627	0.2282 ppb	1.82627	800.28%
U 367.007†	1421.2	19.51 µg/L	19.963	19.51 ppb	19.963	102.30%
V 292.402†	8048.1	58.744 µg/L	0.4459	58.744 ppb	0.4459	0.76%
Zn 213.857†	22092.3	112.21 µg/L	0.260	112.21 ppb	0.260	0.23%

Sequence No.: 18 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/16/2016 12:13:08**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8625.5	8625.5	102	%			12:13:58
1	Al 396.153Radial†	9845.5	10354.7	5085.5	µg/L	5085.5	ppb	12:13:38
1	Ca 317.933Radial†	10710.7	10355.1	5043.8	µg/L	5043.8	ppb	12:13:58
1	Fe 238.204 Radial†	3627.0	3532.3	5418.7	µg/L	5418.7	ppb	12:13:58
1	K 766.490 Radial†	9690.8	9063.9	4945.5	µg/L	4945.5	ppb	12:13:38
1	Mg 279.077 IEC†	847.2	816.4	5091.5	µg/L	5091.5	ppb	12:13:58
1	Na 589.592 Radial†	267.9	256.7	10513	µg/L	10513	ppb	12:13:58
1	Sr 421.552†	21249.0	20755.0	529.25	µg/L	529.25	ppb	12:13:38
1	Sc 361.383	635106.6	635106.6	101.49	%			12:14:57
1	Y 371.029	712732.0	712732.0	100.38	%			12:14:57
1	Ag 328.068†	98673.1	98164.4	492.45	µg/L	492.45	ppb	12:14:57
1	As 188.979†	1657.6	1611.1	488.73	µg/L	488.73	ppb	12:15:18
1	B 249.677†	25446.9	24881.4	503.32	µg/L	503.32	ppb	12:14:57
1	Ba 233.527†	88167.6	86744.3	488.21	µg/L	488.21	ppb	12:14:57
1	Be 313.107†	1225689.6	1213144.5	486.43	µg/L	486.43	ppb	12:14:57
1	Cd 226.502†	80659.8	79729.2	482.59	µg/L	482.59	ppb	12:14:57
1	Co 228.616†	29461.3	29356.5	477.78	µg/L	477.78	ppb	12:15:18
1	Cr 267.716†	39310.8	38617.1	484.52	µg/L	484.52	ppb	12:14:57
1	Cu 324.752†	122362.1	118072.6	492.80	µg/L	492.80	ppb	12:14:57
1	Mn 257.610†	502574.6	494355.4	487.48	µg/L	487.48	ppb	12:14:57
1	Mo 202.031†	12192.5	12030.1	487.14	µg/L	487.14	ppb	12:15:18
1	Ni 231.604†	27228.8	27005.3	474.78	µg/L	474.78	ppb	12:15:18
1	P 214.914†	5702.5	5474.0	2367.7	µg/L	2367.7	ppb	12:15:18
1	Pb 220.353†	5965.0	5771.1	480.60	µg/L	480.60	ppb	12:15:18
1	S 181.975 Axial†	1130.7	967.1	950.36	µg/L	950.36	ppb	12:15:18
1	Sb 206.836†	2334.7	2185.2	472.53	µg/L	472.53	ppb	12:15:18
1	Se 196.026†	1331.7	1330.3	484.36	µg/L	484.36	ppb	12:15:18
1	SiO2†	57689.0	55209.1	5199.0	µg/L	5199.0	ppb	12:14:57
1	Si 251.611†	71172.8	69833.4	2417.0	µg/L	2417.0	ppb	12:14:57
1	Sn 189.927†	5133.6	5037.0	484.33	µg/L	484.33	ppb	12:15:18
1	Ti 334.940†	219868.5	217439.5	491.78	µg/L	491.78	ppb	12:14:57
1	Tl 190.801†	2864.2	2979.6	489.85	µg/L	489.85	ppb	12:15:18
1	U 367.007†	4058.1	2574.0	448.2	µg/L	448.2	ppb	12:14:57
1	V 292.402†	77262.1	75709.0	491.22	µg/L	491.22	ppb	12:14:57
1	Zn 213.857†	91329.3	89203.2	481.40	µg/L	481.40	ppb	12:14:57
2	Sc RADIAL	8540.0	8540.0	101	%			12:14:23
2	Al 396.153Radial†	9899.9	10504.7	5159.2	µg/L	5159.2	ppb	12:14:03
2	Ca 317.933Radial†	10617.9	10368.4	5050.3	µg/L	5050.3	ppb	12:14:23
2	Fe 238.204 Radial†	3608.8	3549.8	5445.6	µg/L	5445.6	ppb	12:14:23
2	K 766.490 Radial†	9748.4	9215.6	5028.3	µg/L	5028.3	ppb	12:14:03
2	Mg 279.077 IEC†	841.1	818.7	5106.0	µg/L	5106.0	ppb	12:14:23
2	Na 589.592 Radial†	263.3	254.8	10433	µg/L	10433	ppb	12:14:23
2	Sr 421.552†	21288.5	21002.1	535.55	µg/L	535.55	ppb	12:14:03
2	Sc 361.383	633078.4	633078.4	101.17	%			12:15:25
2	Y 371.029	710506.4	710506.4	100.07	%			12:15:25
2	Ag 328.068†	98558.7	98362.8	493.44	µg/L	493.44	ppb	12:15:25
2	As 188.979†	1661.7	1620.4	491.55	µg/L	491.55	ppb	12:15:45
2	B 249.677†	25403.7	24919.0	504.13	µg/L	504.13	ppb	12:15:25
2	Ba 233.527†	87897.6	86755.8	488.28	µg/L	488.28	ppb	12:15:25
2	Be 313.107†	1222133.0	1213497.9	486.57	µg/L	486.57	ppb	12:15:25
2	Cd 226.502†	80558.5	79883.6	483.53	µg/L	483.53	ppb	12:15:25
2	Co 228.616†	29750.3	29735.1	483.95	µg/L	483.95	ppb	12:15:45
2	Cr 267.716†	39364.3	38794.0	486.74	µg/L	486.74	ppb	12:15:25
2	Cu 324.752†	121888.5	117990.7	492.46	µg/L	492.46	ppb	12:15:25
2	Mn 257.610†	501212.4	494595.3	487.72	µg/L	487.72	ppb	12:15:25
2	Mo 202.031†	12290.5	12165.5	492.62	µg/L	492.62	ppb	12:15:45
2	Ni 231.604†	27523.0	27382.1	481.40	µg/L	481.40	ppb	12:15:45
2	P 214.914†	5794.2	5582.6	2414.9	µg/L	2414.9	ppb	12:15:45

2	Pb 220.353†	6071.5	5895.2	490.94 µg/L	490.94 ppb	12:15:45
2	S 181.975 Axial†	1138.7	978.5	961.55 µg/L	961.55 ppb	12:15:45
2	Sb 206.836†	2359.7	2217.3	479.54 µg/L	479.54 ppb	12:15:45
2	Se 196.026†	1352.6	1355.1	493.35 µg/L	493.35 ppb	12:15:45
2	SiO2†	57584.9	55288.4	5206.5 µg/L	5206.5 ppb	12:15:25
2	Si 251.611†	70986.8	69874.2	2418.3 µg/L	2418.3 ppb	12:15:25
2	Sn 189.927†	5179.2	5098.3	490.19 µg/L	490.19 ppb	12:15:45
2	Ti 334.940†	219238.8	217511.1	491.94 µg/L	491.94 ppb	12:15:25
2	Tl 190.801†	2882.7	3006.8	494.28 µg/L	494.28 ppb	12:15:45
2	U 367.007†	4055.2	2584.0	449.9 µg/L	449.9 ppb	12:15:25
2	V 292.402†	76990.8	75684.7	491.13 µg/L	491.13 ppb	12:15:25
2	Zn 213.857†	91099.4	89264.3	481.68 µg/L	481.68 ppb	12:15:25
3	Sc RADIAL	8506.5	8506.5	101 %		12:14:48
3	Al 396.153Radial†	9876.7	10520.2	5166.9 µg/L	5166.9 ppb	12:14:28
3	Ca 317.933Radial†	10572.0	10364.0	5048.2 µg/L	5048.2 ppb	12:14:48
3	Fe 238.204 Radial†	3586.6	3541.9	5433.4 µg/L	5433.4 ppb	12:14:48
3	K 766.490 Radial†	9591.6	9098.1	4964.2 µg/L	4964.2 ppb	12:14:28
3	Mg 279.077 IEC†	838.2	819.1	5108.4 µg/L	5108.4 ppb	12:14:48
3	Na 589.592 Radial†	263.6	256.2	10489 µg/L	10489 ppb	12:14:48
3	Sr 421.552†	21330.5	21126.2	538.71 µg/L	538.71 ppb	12:14:28
3	Sc 361.383	632451.3	632451.3	101.07 %		12:15:53
3	Y 371.029	709330.8	709330.8	99.900 %		12:15:53
3	Ag 328.068†	98345.4	98248.4	492.87 µg/L	492.87 ppb	12:15:53
3	As 188.979†	1658.4	1618.7	491.06 µg/L	491.06 ppb	12:16:13
3	B 249.677†	25417.3	24957.4	504.84 µg/L	504.84 ppb	12:15:53
3	Ba 233.527†	88007.5	86950.7	489.38 µg/L	489.38 ppb	12:15:53
3	Be 313.107†	1222876.8	1215431.7	487.35 µg/L	487.35 ppb	12:15:53
3	Cd 226.502†	80705.2	80107.7	484.89 µg/L	484.89 ppb	12:15:53
3	Co 228.616†	29603.2	29618.7	482.05 µg/L	482.05 ppb	12:16:13
3	Cr 267.716†	39335.4	38804.0	486.87 µg/L	486.87 ppb	12:15:53
3	Cu 324.752†	121645.8	117870.0	491.96 µg/L	491.96 ppb	12:15:53
3	Mn 257.610†	501531.8	495402.7	488.51 µg/L	488.51 ppb	12:15:53
3	Mo 202.031†	12270.4	12157.7	492.30 µg/L	492.30 ppb	12:16:13
3	Ni 231.604†	27397.2	27284.6	479.69 µg/L	479.69 ppb	12:16:13
3	P 214.914†	5777.1	5571.4	2410.0 µg/L	2410.0 ppb	12:16:13
3	Pb 220.353†	6033.9	5864.0	488.33 µg/L	488.33 ppb	12:16:13
3	S 181.975 Axial†	1133.2	974.2	957.34 µg/L	957.34 ppb	12:16:13
3	Sb 206.836†	2350.5	2210.5	478.06 µg/L	478.06 ppb	12:16:13
3	Se 196.026†	1348.7	1352.6	492.44 µg/L	492.44 ppb	12:16:13
3	SiO2†	57527.4	55287.9	5206.4 µg/L	5206.4 ppb	12:15:53
3	Si 251.611†	71073.0	70029.0	2423.7 µg/L	2423.7 ppb	12:15:53
3	Sn 189.927†	5161.4	5085.8	489.00 µg/L	489.00 ppb	12:16:13
3	Ti 334.940†	219289.6	217776.2	492.54 µg/L	492.54 ppb	12:15:53
3	Tl 190.801†	2873.8	3000.9	493.32 µg/L	493.32 ppb	12:16:13
3	U 367.007†	4049.3	2582.2	449.7 µg/L	449.7 ppb	12:15:53
3	V 292.402†	77166.7	75934.2	492.72 µg/L	492.72 ppb	12:15:53
3	Zn 213.857†	91223.4	89476.2	482.85 µg/L	482.85 ppb	12:15:53

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	633545.5	101.24	%	0.222				0.22%
Sc RADIAL	8557.3	102	%	0.73				0.72%
Y 371.029	710856.4	100.11	%	0.243				0.24%
Ag 328.068†	98258.5	492.92	µg/L	0.500	492.92	ppb	0.500	0.10%
QC value within limits for Ag 328.068 Recovery = 98.58%								
Al 396.153Radial†	10459.9	5137.2	µg/L	44.95	5137.2	ppb	44.95	0.87%
QC value within limits for Al 396.153Radial Recovery = 102.74%								
As 188.979†	1616.8	490.45	µg/L	1.506	490.45	ppb	1.506	0.31%
QC value within limits for As 188.979 Recovery = 98.09%								
B 249.677†	24919.3	504.10	µg/L	0.759	504.10	ppb	0.759	0.15%
QC value within limits for B 249.677 Recovery = 100.82%								
Ba 233.527†	86816.9	488.62	µg/L	0.653	488.62	ppb	0.653	0.13%
QC value within limits for Ba 233.527 Recovery = 97.72%								
Be 313.107†	1214024.7	486.78	µg/L	0.494	486.78	ppb	0.494	0.10%
QC value within limits for Be 313.107 Recovery = 97.36%								
Ca 317.933Radial†	10362.5	5047.4	µg/L	3.31	5047.4	ppb	3.31	0.07%
QC value within limits for Ca 317.933Radial Recovery = 100.95%								
Cd 226.502†	79906.8	483.67	µg/L	1.153	483.67	ppb	1.153	0.24%
QC value within limits for Cd 226.502 Recovery = 96.73%								

Co 228.616†	29570.1	481.26 µg/L	3.162	481.26 ppb	3.162	0.66%
QC value within limits for Co 228.616 Recovery = 96.25%						
Cr 267.716†	38738.4	486.05 µg/L	1.319	486.05 ppb	1.319	0.27%
QC value within limits for Cr 267.716 Recovery = 97.21%						
Cu 324.752†	117977.8	492.41 µg/L	0.426	492.41 ppb	0.426	0.09%
QC value within limits for Cu 324.752 Recovery = 98.48%						
Fe 238.204 Radial†	3541.3	5432.6 µg/L	13.48	5432.6 ppb	13.48	0.25%
QC value within limits for Fe 238.204 Radial Recovery = 108.65%						
K 766.490 Radial†	9125.9	4979.3 µg/L	43.42	4979.3 ppb	43.42	0.87%
QC value within limits for K 766.490 Radial Recovery = 99.59%						
Mg 279.077 IEC†	818.1	5102.0 µg/L	9.15	5102.0 ppb	9.15	0.18%
QC value within limits for Mg 279.077 IEC Recovery = 102.04%						
Mn 257.610†	494784.5	487.90 µg/L	0.541	487.90 ppb	0.541	0.11%
QC value within limits for Mn 257.610 Recovery = 97.58%						
Mo 202.031†	12117.8	490.69 µg/L	3.077	490.69 ppb	3.077	0.63%
QC value within limits for Mo 202.031 Recovery = 98.14%						
Na 589.592 Radial†	255.9	10478 µg/L	40.65	10478 ppb	40.65	0.39%
QC value within limits for Na 589.592 Radial Recovery = 104.78%						
Ni 231.604†	27224.0	478.62 µg/L	3.440	478.62 ppb	3.440	0.72%
QC value within limits for Ni 231.604 Recovery = 95.72%						
P 214.914†	5542.6	2397.5 µg/L	25.96	2397.5 ppb	25.96	1.08%
QC value within limits for P 214.914 Recovery = 95.90%						
Pb 220.353†	5843.4	486.62 µg/L	5.376	486.62 ppb	5.376	1.10%
QC value within limits for Pb 220.353 Recovery = 97.32%						
S 181.975 Axial†	973.3	956.42 µg/L	5.653	956.42 ppb	5.653	0.59%
QC value within limits for S 181.975 Axial Recovery = 95.64%						
Sb 206.836†	2204.3	476.71 µg/L	3.699	476.71 ppb	3.699	0.78%
QC value within limits for Sb 206.836 Recovery = 95.34%						
Se 196.026†	1346.0	490.05 µg/L	4.952	490.05 ppb	4.952	1.01%
QC value within limits for Se 196.026 Recovery = 98.01%						
SiO2†	55261.8	5204.0 µg/L	4.30	5204.0 ppb	4.30	0.08%
QC value within limits for SiO2 Recovery = 97.32%						
Si 251.611†	69912.2	2419.7 µg/L	3.56	2419.7 ppb	3.56	0.15%
QC value within limits for Si 251.611 Recovery = 96.79%						
Sn 189.927†	5073.7	487.84 µg/L	3.101	487.84 ppb	3.101	0.64%
QC value within limits for Sn 189.927 Recovery = 97.57%						
Sr 421.552†	20961.1	534.50 µg/L	4.820	534.50 ppb	4.820	0.90%
QC value within limits for Sr 421.552 Recovery = 106.90%						
Ti 334.940†	217575.6	492.09 µg/L	0.401	492.09 ppb	0.401	0.08%
QC value within limits for Ti 334.940 Recovery = 98.42%						
Tl 190.801†	2995.8	492.48 µg/L	2.334	492.48 ppb	2.334	0.47%
QC value within limits for Tl 190.801 Recovery = 98.50%						
U 367.007†	2580.1	449.3 µg/L	0.92	449.3 ppb	0.92	0.20%
QC value less than the lower limit for U 367.007 Recovery = 89.86%						
V 292.402†	75776.0	491.69 µg/L	0.894	491.69 ppb	0.894	0.18%
QC value within limits for V 292.402 Recovery = 98.34%						
Zn 213.857†	89314.6	481.98 µg/L	0.770	481.98 ppb	0.770	0.16%
QC value within limits for Zn 213.857 Recovery = 96.40%						

QC Failed. Continue with analysis.

Sequence No.: 19 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 11/16/2016 12:16:22**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8392.8	8392.8	99.6	%			12:16:52
1	Al 396.153Radial†	-317.4	417.6	205.44	µg/L	205.44	ppb	12:16:52
1	Ca 317.933Radial†	548.8	442.4	215.47	µg/L	215.47	ppb	12:17:12
1	Fe 238.204 Radial†	88.4	77.7	119.25	µg/L	119.25	ppb	12:17:12
1	K 766.490 Radial†	679.8	279.2	152.36	µg/L	152.36	ppb	12:16:52
1	Mg 279.077 IEC†	63.6	52.7	328.56	µg/L	328.56	ppb	12:17:12
1	Na 589.592 Radial†	12.1	7.2	295.29	µg/L	295.29	ppb	12:17:12
1	Sr 421.552†	250.0	247.1	6.2961	µg/L	6.2961	ppb	12:16:52
1	Sc 361.383	613981.0	613981.0	98.114	%			12:18:09
1	Y 371.029	695772.7	695772.7	97.990	%			12:18:09
1	Ag 328.068†	212.0	1155.6	5.7815	µg/L	5.7815	ppb	12:18:09
1	As 188.979†	121.3	101.5	30.583	µg/L	30.583	ppb	12:18:29
1	B 249.677†	2788.5	2650.1	52.026	µg/L	52.026	ppb	12:18:09
1	Ba 233.527†	1042.6	933.4	5.2515	µg/L	5.2515	ppb	12:18:29
1	Be 313.107†	7095.3	12674.8	5.0955	µg/L	5.0955	ppb	12:18:09
1	Cd 226.502†	641.2	906.6	5.4815	µg/L	5.4815	ppb	12:18:29
1	Co 228.616†	-11.7	315.6	5.1390	µg/L	5.1390	ppb	12:18:29
1	Cr 267.716†	525.8	419.1	5.2291	µg/L	5.2291	ppb	12:18:29
1	Cu 324.752†	5048.7	2652.1	11.092	µg/L	11.092	ppb	12:18:09
1	Mn 257.610†	11504.6	10882.4	10.723	µg/L	10.723	ppb	12:18:09
1	Mo 202.031†	231.7	252.8	10.235	µg/L	10.235	ppb	12:18:29
1	Ni 231.604†	119.8	298.3	5.2410	µg/L	5.2410	ppb	12:18:29
1	P 214.914†	454.7	318.6	138.33	µg/L	138.33	ppb	12:18:29
1	Pb 220.353†	210.1	107.8	8.9086	µg/L	8.9086	ppb	12:18:29
1	S 181.975 Axial†	252.4	110.2	107.90	µg/L	107.90	ppb	12:18:29
1	Sb 206.836†	157.7	45.5	9.9309	µg/L	9.9309	ppb	12:18:29
1	Se 196.026†	88.6	108.4	39.330	µg/L	39.330	ppb	12:18:29
1	SiO2†	3905.1	2346.9	220.81	µg/L	220.81	ppb	12:18:09
1	Si 251.611†	3102.4	2867.2	99.391	µg/L	99.391	ppb	12:18:29
1	Sn 189.927†	117.5	98.5	9.4558	µg/L	9.4558	ppb	12:18:29
1	Ti 334.940†	1601.6	2430.1	5.4818	µg/L	5.4818	ppb	12:18:09
1	Tl 190.801†	-19.3	137.7	22.622	µg/L	22.622	ppb	12:18:29
1	U 367.007†	1677.1	284.8	51.67	µg/L	51.67	ppb	12:18:09
1	V 292.402†	1157.3	760.3	5.0239	µg/L	5.0239	ppb	12:18:09
1	Zn 213.857†	2554.4	1817.8	9.8240	µg/L	9.8240	ppb	12:18:29
2	Sc RADIAL	8333.1	8333.1	98.9	%			12:17:17
2	Al 396.153Radial†	-282.2	451.0	221.89	µg/L	221.89	ppb	12:17:17
2	Ca 317.933Radial†	566.0	463.8	225.90	µg/L	225.90	ppb	12:17:37
2	Fe 238.204 Radial†	94.6	84.7	129.90	µg/L	129.90	ppb	12:17:37
2	K 766.490 Radial†	702.1	306.6	167.32	µg/L	167.32	ppb	12:17:17
2	Mg 279.077 IEC†	62.6	52.1	324.64	µg/L	324.64	ppb	12:17:37
2	Na 589.592 Radial†	10.0	5.2	211.27	µg/L	211.27	ppb	12:17:37
2	Sr 421.552†	240.4	239.3	6.0960	µg/L	6.0960	ppb	12:17:17
2	Sc 361.383	612586.6	612586.6	97.891	%			12:18:35
2	Y 371.029	694798.8	694798.8	97.853	%			12:18:35
2	Ag 328.068†	119.1	1061.1	5.3085	µg/L	5.3085	ppb	12:18:35
2	As 188.979†	123.1	103.6	31.220	µg/L	31.220	ppb	12:18:55
2	B 249.677†	2736.8	2603.7	51.164	µg/L	51.164	ppb	12:18:35
2	Ba 233.527†	1051.6	945.0	5.3167	µg/L	5.3167	ppb	12:18:55
2	Be 313.107†	7042.8	12637.6	5.0818	µg/L	5.0818	ppb	12:18:35
2	Cd 226.502†	635.5	902.3	5.4543	µg/L	5.4543	ppb	12:18:55
2	Co 228.616†	5.6	333.3	5.4268	µg/L	5.4268	ppb	12:18:55
2	Cr 267.716†	549.3	444.4	5.5427	µg/L	5.5427	ppb	12:18:55
2	Cu 324.752†	4945.2	2558.0	10.702	µg/L	10.702	ppb	12:18:35
2	Mn 257.610†	11497.8	10902.0	10.743	µg/L	10.743	ppb	12:18:35
2	Mo 202.031†	232.4	254.0	10.286	µg/L	10.286	ppb	12:18:55
2	Ni 231.604†	100.2	278.5	4.8932	µg/L	4.8932	ppb	12:18:55
2	P 214.914†	458.3	323.3	140.36	µg/L	140.36	ppb	12:18:55

2	Pb 220.353†	235.1	133.8	11.067 µg/L	11.067 ppb	12:18:55
2	S 181.975 Axial†	247.9	106.2	104.02 µg/L	104.02 ppb	12:18:55
2	Sb 206.836†	154.6	42.6	9.3181 µg/L	9.3181 ppb	12:18:55
2	Se 196.026†	78.6	98.4	35.692 µg/L	35.692 ppb	12:18:55
2	SiO2†	3905.3	2356.2	221.68 µg/L	221.68 ppb	12:18:35
2	Si 251.611†	3046.4	2817.2	97.648 µg/L	97.648 ppb	12:18:55
2	Sn 189.927†	140.4	122.2	11.726 µg/L	11.726 ppb	12:18:55
2	Ti 334.940†	1565.6	2397.1	5.4053 µg/L	5.4053 ppb	12:18:35
2	Tl 190.801†	-11.6	145.5	23.901 µg/L	23.901 ppb	12:18:55
2	U 367.007†	1698.7	310.8	56.38 µg/L	56.38 ppb	12:18:35
2	V 292.402†	1155.6	761.3	5.0353 µg/L	5.0353 ppb	12:18:35
2	Zn 213.857†	2528.9	1797.6	9.7155 µg/L	9.7155 ppb	12:18:55
3	Sc RADIAL	8372.0	8372.0	99.4 %		12:17:42
3	Al 396.153Radial†	-278.6	455.9	224.32 µg/L	224.32 ppb	12:17:42
3	Ca 317.933Radial†	564.3	459.4	223.75 µg/L	223.75 ppb	12:18:02
3	Fe 238.204 Radial†	91.8	81.3	124.79 µg/L	124.79 ppb	12:18:02
3	K 766.490 Radial†	704.9	306.1	167.03 µg/L	167.03 ppb	12:17:42
3	Mg 279.077 IEC†	61.0	50.2	313.18 µg/L	313.18 ppb	12:18:02
3	Na 589.592 Radial†	9.2	4.3	176.15 µg/L	176.15 ppb	12:18:02
3	Sr 421.552†	268.6	266.5	6.7894 µg/L	6.7894 ppb	12:17:42
3	Sc 361.383	613937.9	613937.9	98.107 %		12:19:01
3	Y 371.029	696032.1	696032.1	98.027 %		12:19:01
3	Ag 328.068†	130.6	1072.6	5.3739 µg/L	5.3739 ppb	12:19:01
3	As 188.979†	126.3	106.6	32.123 µg/L	32.123 ppb	12:19:21
3	B 249.677†	2833.7	2696.4	52.949 µg/L	52.949 ppb	12:19:01
3	Ba 233.527†	1051.0	942.0	5.3000 µg/L	5.3000 ppb	12:19:21
3	Be 313.107†	7170.0	12751.4	5.1230 µg/L	5.1230 ppb	12:19:01
3	Cd 226.502†	612.3	877.2	5.3029 µg/L	5.3029 ppb	12:19:21
3	Co 228.616†	-14.1	313.2	5.1001 µg/L	5.1001 ppb	12:19:21
3	Cr 267.716†	522.4	415.6	5.1949 µg/L	5.1949 ppb	12:19:21
3	Cu 324.752†	5030.8	2634.2	11.010 µg/L	11.010 ppb	12:19:01
3	Mn 257.610†	11601.4	10981.8	10.822 µg/L	10.822 ppb	12:19:01
3	Mo 202.031†	238.9	260.1	10.533 µg/L	10.533 ppb	12:19:21
3	Ni 231.604†	127.9	306.6	5.3864 µg/L	5.3864 ppb	12:19:21
3	P 214.914†	465.3	329.4	143.03 µg/L	143.03 ppb	12:19:21
3	Pb 220.353†	227.0	125.1	10.352 µg/L	10.352 ppb	12:19:21
3	S 181.975 Axial†	254.5	112.4	110.07 µg/L	110.07 ppb	12:19:21
3	Sb 206.836†	159.1	46.9	10.247 µg/L	10.247 ppb	12:19:21
3	Se 196.026†	68.9	88.3	32.035 µg/L	32.035 ppb	12:19:21
3	SiO2†	3953.1	2396.1	225.43 µg/L	225.43 ppb	12:19:01
3	Si 251.611†	3075.9	2840.3	98.453 µg/L	98.453 ppb	12:19:21
3	Sn 189.927†	123.0	104.2	9.9975 µg/L	9.9975 ppb	12:19:21
3	Ti 334.940†	1592.8	2421.3	5.4690 µg/L	5.4690 ppb	12:19:01
3	Tl 190.801†	-21.0	136.0	22.334 µg/L	22.334 ppb	12:19:21
3	U 367.007†	1603.7	210.1	37.95 µg/L	37.95 ppb	12:19:01
3	V 292.402†	1172.6	776.0	5.1195 µg/L	5.1195 ppb	12:19:01
3	Zn 213.857†	2507.0	1769.7	9.5611 µg/L	9.5611 ppb	12:19:21

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	613501.8	98.037	%	0.1267				0.13%
Sc RADIAL	8366.0	99.3	%	0.36				0.36%
Y 371.029	695534.5	97.957	%	0.0916				0.09%
Ag 328.068†	1096.4	5.4880	µg/L	0.25630	5.4880	ppb	0.25630	4.67%
QC value within limits for Ag 328.068 Recovery = 109.76%								
Al 396.153Radial†	441.5	217.22	µg/L	10.273	217.22	ppb	10.273	4.73%
QC value within limits for Al 396.153Radial Recovery = 108.61%								
As 188.979†	103.9	31.309	µg/L	0.7736	31.309	ppb	0.7736	2.47%
QC value within limits for As 188.979 Recovery = 104.36%								
B 249.677†	2650.1	52.046	µg/L	0.8929	52.046	ppb	0.8929	1.72%
QC value within limits for B 249.677 Recovery = 104.09%								
Ba 233.527†	940.1	5.2894	µg/L	0.03385	5.2894	ppb	0.03385	0.64%
QC value within limits for Ba 233.527 Recovery = 105.79%								
Be 313.107†	12688.0	5.1001	µg/L	0.02096	5.1001	ppb	0.02096	0.41%
QC value within limits for Be 313.107 Recovery = 102.00%								
Ca 317.933Radial†	455.2	221.71	µg/L	5.504	221.71	ppb	5.504	2.48%
QC value within limits for Ca 317.933Radial Recovery = 110.85%								
Cd 226.502†	895.3	5.4129	µg/L	0.09622	5.4129	ppb	0.09622	1.78%
QC value within limits for Cd 226.502 Recovery = 108.26%								

Co 228.616†	320.7	5.2220 µg/L	0.17847	5.2220 ppb	0.17847	3.42%
QC value within limits for Co 228.616 Recovery = 104.44%						
Cr 267.716†	426.4	5.3222 µg/L	0.19170	5.3222 ppb	0.19170	3.60%
QC value within limits for Cr 267.716 Recovery = 106.44%						
Cu 324.752†	2614.8	10.935 µg/L	0.2052	10.935 ppb	0.2052	1.88%
QC value within limits for Cu 324.752 Recovery = 109.35%						
Fe 238.204 Radial†	81.3	124.65 µg/L	5.328	124.65 ppb	5.328	4.27%
QC value within limits for Fe 238.204 Radial Recovery = 124.65%						
K 766.490 Radial†	297.3	162.24 µg/L	8.555	162.24 ppb	8.555	5.27%
QC value within limits for K 766.490 Radial Recovery = 108.16%						
Mg 279.077 IEC†	51.7	322.13 µg/L	7.993	322.13 ppb	7.993	2.48%
QC value within limits for Mg 279.077 IEC Recovery = 107.38%						
Mn 257.610†	10922.1	10.763 µg/L	0.0523	10.763 ppb	0.0523	0.49%
QC value within limits for Mn 257.610 Recovery = 107.63%						
Mo 202.031†	255.6	10.351 µg/L	0.1591	10.351 ppb	0.1591	1.54%
QC value within limits for Mo 202.031 Recovery = 103.51%						
Na 589.592 Radial†	5.6	227.57 µg/L	61.222	227.57 ppb	61.222	26.90%
QC value within limits for Na 589.592 Radial Recovery = 75.86%						
Ni 231.604†	294.5	5.1735 µg/L	0.25347	5.1735 ppb	0.25347	4.90%
QC value within limits for Ni 231.604 Recovery = 103.47%						
P 214.914†	323.8	140.57 µg/L	2.358	140.57 ppb	2.358	1.68%
QC value within limits for P 214.914 Recovery = 93.71%						
Pb 220.353†	122.2	10.109 µg/L	1.0993	10.109 ppb	1.0993	10.87%
QC value within limits for Pb 220.353 Recovery = 101.09%						
S 181.975 Axial†	109.6	107.33 µg/L	3.064	107.33 ppb	3.064	2.85%
QC value within limits for S 181.975 Axial Recovery = 107.33%						
Sb 206.836†	45.0	9.8320 µg/L	0.47224	9.8320 ppb	0.47224	4.80%
QC value within limits for Sb 206.836 Recovery = 98.32%						
Se 196.026†	98.4	35.686 µg/L	3.6474	35.686 ppb	3.6474	10.22%
QC value within limits for Se 196.026 Recovery = 118.95%						
SiO2†	2366.4	222.64 µg/L	2.457	222.64 ppb	2.457	1.10%
QC value within limits for SiO2 Recovery = 104.53%						
Si 251.611†	2841.6	98.497 µg/L	0.8722	98.497 ppb	0.8722	0.89%
QC value within limits for Si 251.611 Recovery = 98.50%						
Sn 189.927†	108.3	10.393 µg/L	1.1856	10.393 ppb	1.1856	11.41%
QC value within limits for Sn 189.927 Recovery = 103.93%						
Sr 421.552†	251.0	6.3939 µg/L	0.35688	6.3939 ppb	0.35688	5.58%
QC value within limits for Sr 421.552 Recovery = 127.88%						
Ti 334.940†	2416.2	5.4520 µg/L	0.04096	5.4520 ppb	0.04096	0.75%
QC value within limits for Ti 334.940 Recovery = 109.04%						
Tl 190.801†	139.7	22.952 µg/L	0.8342	22.952 ppb	0.8342	3.63%
QC value within limits for Tl 190.801 Recovery = 114.76%						
U 367.007†	268.6	48.66 µg/L	9.576	48.66 ppb	9.576	19.68%
QC value within limits for U 367.007 Recovery = 97.33%						
V 292.402†	765.9	5.0596 µg/L	0.05223	5.0596 ppb	0.05223	1.03%
QC value within limits for V 292.402 Recovery = 101.19%						
Zn 213.857†	1795.0	9.7002 µg/L	0.13214	9.7002 ppb	0.13214	1.36%
QC value within limits for Zn 213.857 Recovery = 97.00%						

All analyte(s) passed QC.

Sequence No.: 20 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/16/2016 12:19:30**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Wash Time: 5 **Auto Dilution Factor: 1**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	8633.5	8633.5	102	%			12:20:00
1	Al 396.153Radial†	-713.4	40.1	19.759	µg/L	19.759	ppb	12:20:00
1	Ca 317.933Radial†	121.6	10.1	4.9197	µg/L	4.9197	ppb	12:20:20
1	Fe 238.204 Radial†	13.2	1.9	2.9320	µg/L	2.9320	ppb	12:20:20
1	K 766.490 Radial†	511.0	95.4	52.069	µg/L	52.069	ppb	12:20:00
1	Mg 279.077 IEC†	8.3	-3.1	-19.340	µg/L	-19.340	ppb	12:20:20
1	Na 589.592 Radial†	3.5	-1.6	-64.921	µg/L	-64.921	ppb	12:20:20
1	Sr 421.552†	8.3	4.3	0.1089	µg/L	0.1089	ppb	12:20:00
1	Sc 361.383	628742.9	628742.9	100.47	%			12:21:17
1	Y 371.029	711831.8	711831.8	100.25	%			12:21:17
1	Ag 328.068†	-1018.3	-74.0	-0.3646	µg/L	-0.3646	ppb	12:21:17
1	As 188.979†	23.6	1.3	0.3900	µg/L	0.3900	ppb	12:21:37
1	B 249.677†	235.1	41.9	0.8263	µg/L	0.8263	ppb	12:21:37
1	Ba 233.527†	151.8	21.8	0.1229	µg/L	0.1229	ppb	12:21:37
1	Be 313.107†	-5326.0	142.1	0.0539	µg/L	0.0539	ppb	12:21:17
1	Cd 226.502†	-239.1	15.1	0.0915	µg/L	0.0915	ppb	12:21:37
1	Co 228.616†	-306.6	22.3	0.3624	µg/L	0.3624	ppb	12:21:37
1	Cr 267.716†	82.7	-34.6	-0.4254	µg/L	-0.4254	ppb	12:21:37
1	Cu 324.752†	2566.8	61.0	0.2481	µg/L	0.2481	ppb	12:21:17
1	Mn 257.610†	869.9	22.4	0.0229	µg/L	0.0229	ppb	12:21:37
1	Mo 202.031†	-31.4	-14.7	-0.5938	µg/L	-0.5938	ppb	12:21:37
1	Ni 231.604†	-160.0	16.9	0.2979	µg/L	0.2979	ppb	12:21:37
1	P 214.914†	124.3	-21.2	-9.2230	µg/L	-9.2230	ppb	12:21:37
1	Pb 220.353†	93.4	-13.4	-1.1145	µg/L	-1.1145	ppb	12:21:37
1	S 181.975 Axial†	154.2	6.5	6.3124	µg/L	6.3124	ppb	12:21:37
1	Sb 206.836†	106.0	-9.8	-2.1189	µg/L	-2.1189	ppb	12:21:37
1	Se 196.026†	-13.8	4.4	1.5976	µg/L	1.5976	ppb	12:21:37
1	SiO2†	1682.9	41.7	3.9148	µg/L	3.9148	ppb	12:21:17
1	Si 251.611†	338.5	42.0	1.4660	µg/L	1.4660	ppb	12:21:37
1	Sn 189.927†	20.8	-0.5	-0.0504	µg/L	-0.0504	ppb	12:21:37
1	Ti 334.940†	-680.0	120.9	0.2800	µg/L	0.2800	ppb	12:21:17
1	Tl 190.801†	-155.2	2.9	0.4713	µg/L	0.4713	ppb	12:21:37
1	U 367.007†	1362.4	-68.5	-12.57	µg/L	-12.57	ppb	12:21:17
1	V 292.402†	338.4	-82.4	-0.5421	µg/L	-0.5421	ppb	12:21:17
1	Zn 213.857†	649.0	-139.8	-0.7634	µg/L	-0.7634	ppb	12:21:37
2	Sc RADIAL	8640.5	8640.5	103	%			12:20:25
2	Al 396.153Radial†	-693.1	60.4	29.753	µg/L	29.753	ppb	12:20:25
2	Ca 317.933Radial†	109.9	-1.4	-0.6736	µg/L	-0.6736	ppb	12:20:45
2	Fe 238.204 Radial†	8.6	-2.6	-3.9713	µg/L	-3.9713	ppb	12:20:45
2	K 766.490 Radial†	413.8	0.2	0.0969	µg/L	0.0969	ppb	12:20:25
2	Mg 279.077 IEC†	13.5	2.0	12.373	µg/L	12.373	ppb	12:20:45
2	Na 589.592 Radial†	7.5	2.3	94.232	µg/L	94.232	ppb	12:20:45
2	Sr 421.552†	25.4	21.0	0.5345	µg/L	0.5345	ppb	12:20:25
2	Sc 361.383	629715.4	629715.4	100.63	%			12:21:42
2	Y 371.029	712781.0	712781.0	100.39	%			12:21:42
2	Ag 328.068†	-1024.8	-78.9	-0.3961	µg/L	-0.3961	ppb	12:21:42
2	As 188.979†	18.7	-3.6	-1.0710	µg/L	-1.0710	ppb	12:22:03
2	B 249.677†	250.6	57.0	1.0945	µg/L	1.0945	ppb	12:22:03
2	Ba 233.527†	136.0	5.9	0.0332	µg/L	0.0332	ppb	12:22:03
2	Be 313.107†	-5367.1	109.5	0.0441	µg/L	0.0441	ppb	12:21:42
2	Cd 226.502†	-232.7	21.9	0.1329	µg/L	0.1329	ppb	12:22:03
2	Co 228.616†	-328.3	1.3	0.0203	µg/L	0.0203	ppb	12:22:03
2	Cr 267.716†	139.8	22.1	0.2769	µg/L	0.2769	ppb	12:22:03
2	Cu 324.752†	2543.6	34.0	0.1420	µg/L	0.1420	ppb	12:21:42
2	Mn 257.610†	965.3	115.9	0.1136	µg/L	0.1136	ppb	12:22:03
2	Mo 202.031†	-19.2	-2.5	-0.1000	µg/L	-0.1000	ppb	12:22:03
2	Ni 231.604†	-163.3	13.9	0.2449	µg/L	0.2449	ppb	12:22:03
2	P 214.914†	123.9	-21.8	-9.4740	µg/L	-9.4740	ppb	12:22:03

2	Pb 220.353†	88.6	-18.3	-1.5341 µg/L	-1.5341 ppb	12:22:03
2	S 181.975 Axial†	156.7	8.6	8.4519 µg/L	8.4519 ppb	12:22:03
2	Sb 206.836†	114.5	-1.5	-0.3293 µg/L	-0.3293 ppb	12:22:03
2	Se 196.026†	-15.6	2.7	0.9585 µg/L	0.9585 ppb	12:22:03
2	SiO2†	1707.4	63.5	5.9784 µg/L	5.9784 ppb	12:21:42
2	Si 251.611†	367.4	70.2	2.4382 µg/L	2.4382 ppb	12:22:03
2	Sn 189.927†	21.0	-0.4	-0.0371 µg/L	-0.0371 ppb	12:22:03
2	Ti 334.940†	-674.2	127.8	0.2887 µg/L	0.2887 ppb	12:21:42
2	Tl 190.801†	-150.2	8.2	1.3399 µg/L	1.3399 ppb	12:22:03
2	U 367.007†	1436.2	2.7	0.519 µg/L	0.519 ppb	12:21:42
2	V 292.402†	388.0	-33.7	-0.2165 µg/L	-0.2165 ppb	12:21:42
2	Zn 213.857†	640.1	-149.7	-0.8176 µg/L	-0.8176 ppb	12:22:03
3	Sc RADIAL	8593.0	8593.0	102 %		12:20:50
3	Al 396.153Radial†	-724.4	25.9	12.773 µg/L	12.773 ppb	12:20:50
3	Ca 317.933Radial†	116.6	5.8	2.8061 µg/L	2.8061 ppb	12:21:10
3	Fe 238.204 Radial†	13.8	2.6	3.9406 µg/L	3.9406 ppb	12:21:10
3	K 766.490 Radial†	426.0	14.4	7.8758 µg/L	7.8758 ppb	12:20:50
3	Mg 279.077 IEC†	4.7	-6.6	-40.951 µg/L	-40.951 ppb	12:21:10
3	Na 589.592 Radial†	6.2	1.2	47.224 µg/L	47.224 ppb	12:21:10
3	Sr 421.552†	26.0	21.7	0.5530 µg/L	0.5530 ppb	12:20:50
3	Sc 361.383	627239.7	627239.7	100.23 %		12:22:08
3	Y 371.029	710694.2	710694.2	100.09 %		12:22:08
3	Ag 328.068†	-839.2	102.2	0.5137 µg/L	0.5137 ppb	12:22:08
3	As 188.979†	23.6	1.4	0.4115 µg/L	0.4115 ppb	12:22:28
3	B 249.677†	239.9	47.3	0.9373 µg/L	0.9373 ppb	12:22:28
3	Ba 233.527†	163.5	33.8	0.1901 µg/L	0.1901 ppb	12:22:28
3	Be 313.107†	-5385.5	70.1	0.0273 µg/L	0.0273 ppb	12:22:08
3	Cd 226.502†	-212.7	40.9	0.2473 µg/L	0.2473 ppb	12:22:28
3	Co 228.616†	-344.5	-16.2	-0.2646 µg/L	-0.2646 ppb	12:22:28
3	Cr 267.716†	103.6	-13.5	-0.1675 µg/L	-0.1675 ppb	12:22:28
3	Cu 324.752†	2531.2	31.6	0.1303 µg/L	0.1303 ppb	12:22:08
3	Mn 257.610†	875.0	29.5	0.0307 µg/L	0.0307 ppb	12:22:28
3	Mo 202.031†	-13.3	3.3	0.1346 µg/L	0.1346 ppb	12:22:28
3	Ni 231.604†	-142.6	33.9	0.5958 µg/L	0.5958 ppb	12:22:28
3	P 214.914†	132.2	-13.0	-5.6681 µg/L	-5.6681 ppb	12:22:28
3	Pb 220.353†	100.7	-5.9	-0.4969 µg/L	-0.4969 ppb	12:22:28
3	S 181.975 Axial†	159.2	11.8	11.571 µg/L	11.571 ppb	12:22:28
3	Sb 206.836†	112.1	-3.4	-0.7333 µg/L	-0.7333 ppb	12:22:28
3	Se 196.026†	-6.3	11.9	4.2970 µg/L	4.2970 ppb	12:22:28
3	SiO2†	1715.6	78.3	7.3667 µg/L	7.3667 ppb	12:22:08
3	Si 251.611†	347.7	52.0	1.8037 µg/L	1.8037 ppb	12:22:28
3	Sn 189.927†	18.7	-2.6	-0.2508 µg/L	-0.2508 ppb	12:22:28
3	Ti 334.940†	-680.9	118.4	0.2697 µg/L	0.2697 ppb	12:22:08
3	Tl 190.801†	-150.1	7.6	1.2528 µg/L	1.2528 ppb	12:22:28
3	U 367.007†	1409.0	-18.7	-3.452 µg/L	-3.452 ppb	12:22:08
3	V 292.402†	443.4	23.2	0.1479 µg/L	0.1479 ppb	12:22:08
3	Zn 213.857†	643.0	-144.3	-0.7882 µg/L	-0.7882 ppb	12:22:28

Mean Data: CCB

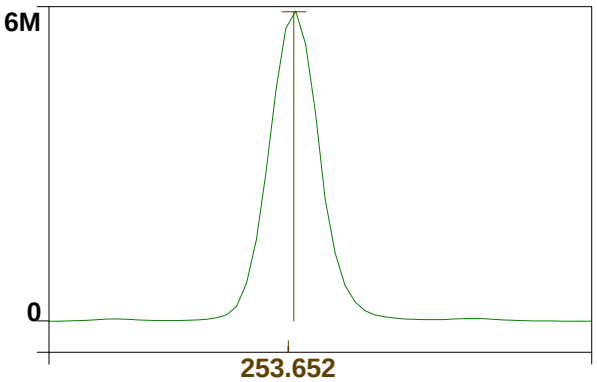
Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	628566.0	100.44	%	0.199				0.20%
Sc RADIAL	8622.3	102	%	0.30				0.30%
Y 371.029	711769.0	100.24	%	0.147				0.15%
Ag 328.068†	-16.9	-0.0823	µg/L	0.51638	-0.0823	ppb	0.51638	627.24%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	42.1	20.762	µg/L	8.5339	20.762	ppb	8.5339	41.10%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-0.3	-0.0898	µg/L	0.84978	-0.0898	ppb	0.84978	946.11%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	48.8	0.9527	µg/L	0.13478	0.9527	ppb	0.13478	14.15%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	20.5	0.1154	µg/L	0.07871	0.1154	ppb	0.07871	68.22%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	107.2	0.0418	µg/L	0.01348	0.0418	ppb	0.01348	32.29%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4.8	2.3508	µg/L	2.82431	2.3508	ppb	2.82431	120.14%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	26.0	0.1572	µg/L	0.08071	0.1572	ppb	0.08071	51.33%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	2.5	0.0394 µg/L	0.31395	0.0394 ppb	0.31395	797.77%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	-8.6	-0.1053 µg/L	0.35525	-0.1053 ppb	0.35525	337.25%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	42.2	0.1735 µg/L	0.06493	0.1735 ppb	0.06493	37.43%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	0.6	0.9671 µg/L	4.30641	0.9671 ppb	4.30641	445.29%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	36.7	20.014 µg/L	28.0314	20.014 ppb	28.0314	140.06%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	-2.6	-15.973 µg/L	26.8212	-15.973 ppb	26.8212	167.92%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	55.9	0.0557 µg/L	0.05024	0.0557 ppb	0.05024	90.14%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	-4.6	-0.1864 µg/L	0.37180	-0.1864 ppb	0.37180	199.50%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	0.6	25.512 µg/L	81.7676	25.512 ppb	81.7676	320.51%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	21.6	0.3795 µg/L	0.18918	0.3795 ppb	0.18918	49.84%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	-18.7	-8.1217 µg/L	2.12859	-8.1217 ppb	2.12859	26.21%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	-12.5	-1.0485 µg/L	0.52170	-1.0485 ppb	0.52170	49.76%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	9.0	8.7784 µg/L	2.64450	8.7784 ppb	2.64450	30.13%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	-4.9	-1.0605 µg/L	0.93860	-1.0605 ppb	0.93860	88.51%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	6.3	2.2844 µg/L	1.77206	2.2844 ppb	1.77206	77.57%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	61.2	5.7533 µg/L	1.73693	5.7533 ppb	1.73693	30.19%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	54.7	1.9026 µg/L	0.49355	1.9026 ppb	0.49355	25.94%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	-1.2	-0.1128 µg/L	0.11977	-0.1128 ppb	0.11977	106.22%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	15.6	0.3988 µg/L	0.25122	0.3988 ppb	0.25122	62.99%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	122.4	0.2795 µg/L	0.00953	0.2795 ppb	0.00953	3.41%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	6.2	1.0213 µg/L	0.47836	1.0213 ppb	0.47836	46.84%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	-28.2	-5.167 µg/L	6.7099	-5.167 ppb	6.7099	129.87%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	-31.0	-0.2036 µg/L	0.34517	-0.2036 ppb	0.34517	169.54%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	-144.6	-0.7897 µg/L	0.02712	-0.7897 ppb	0.02712	3.43%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Method: Hg_ReAlign **Sample ID: Hg_ReAlign**
Result: 111116

Hg 253.652 **Rep: 1**



Intensity: 5997658.2 cps
Conc:

1

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Reprocessing Begun
Logged In Analyst: lab **Technique: ICP Continuous**

Results Data Set (original): 111116
Results Library (original): C:\pe\optima4\Results\Results.mdb
Results Data Set (reprocessed): 111116
Results Library (reprocessed): C:\pe\optima4\Results\Results.mdb

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Method Loaded
Method Name: Gen Eng fast_new SiU **Method Last Saved: 11/11/2016 09:54:24**
IEC File: 101816.iec **MSF File:**
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Al 396.153Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
B 249.677	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Be 313.107	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Ca 317.933Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Cd 226.502	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cr 267.716	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Fe 238.204 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
K 766.490 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mg 279.077 IEC	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mn 257.610	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Na 589.592 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Ni 231.604	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
P 214.914	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
S 181.975 Axial	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sc 361.383	Lin Thru 0	Peak Area	Axial	n/a	n/a
Sc RADIAL	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Se 196.026	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
SiO2	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Si 251.611	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Ti 334.940	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
U 367.007	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes
Y 371.029	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Zn 213.857	Lin Thru 0	Peak Area	Axial	Sc 361.383	Yes

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Sequence No.: 1 **Autosampler Location: 8**
Sample ID: S0 **Date Collected: 11/11/2016 09:06:49**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:25**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc 361.383	1333918.1	1333918.1	100.20	%	09:08:28
1	Sc RADIAL	72181.7	72181.7	100	%	09:07:20
1	Y 371.029	726137.2	726137.2	100.23	%	09:08:28
1	Ag 328.068†	-1909.3	-1905.4	[0.00]	µg/L	09:08:30
1	Al 396.153Radial†	98.1	97.9	[0.00]	µg/L	09:07:40
1	As 188.979†	-24.5	-24.4	[0.00]	µg/L	09:08:50

1	B 249.677†	913.1	911.3	[0.00]	µg/L	09:08:30
1	Ba 233.527†	-238.4	-238.0	[0.00]	µg/L	09:08:50
1	Be 313.107†	-3685.1	-3677.6	[0.00]	µg/L	09:08:30
1	Ca 317.933Radial†	349.6	348.9	[0.00]	µg/L	09:07:40
1	Cd 226.502†	-176.7	-176.3	[0.00]	µg/L	09:08:50
1	Co 228.616†	-78.1	-78.0	[0.00]	µg/L	09:08:50
1	Cr 267.716†	124.8	124.6	[0.00]	µg/L	09:08:50
1	Cu 324.752†	5919.7	5907.6	[0.00]	µg/L	09:08:30
1	Fe 238.204 Radial†	-501.1	-500.1	[0.00]	µg/L	09:07:40
1	K 766.490 Radial†	1059.1	1057.0	[0.00]	µg/L	09:07:20
1	Mg 279.077 IEC†	22.7	22.7	[0.00]	µg/L	09:07:40
1	Mn 257.610†	118.5	118.3	[0.00]	µg/L	09:08:50
1	Mo 202.031†	-21.5	-21.5	[0.00]	µg/L	09:08:50
1	Na 589.592 Radial†	130.2	130.0	[0.00]	µg/L	09:07:20
1	Ni 231.604†	-206.9	-206.5	[0.00]	µg/L	09:08:50
1	P 214.914†	-98.8	-98.6	[0.00]	µg/L	09:08:50
1	Pb 220.353†	58.8	58.6	[0.00]	µg/L	09:08:50
1	S 181.975 Axial†	99.8	99.6	[0.00]	µg/L	09:08:50
1	Sb 206.836†	48.5	48.4	[0.00]	µg/L	09:08:50
1	Se 196.026†	4.1	4.1	[0.00]	µg/L	09:08:50
1	SiO2†	3015.6	3009.4	[0.00]	µg/L	09:08:30
1	Si 251.611†	583.7	582.5	[0.00]	µg/L	09:08:30
1	Sn 189.927†	-36.4	-36.3	[0.00]	µg/L	09:08:50
1	Sr 421.552†	-475.6	-474.6	[0.00]	µg/L	09:07:40
1	Ti 334.940†	-840.7	-839.0	[0.00]	µg/L	09:08:30
1	Tl 190.801†	-97.6	-97.4	[0.00]	µg/L	09:08:50
1	U 367.007†	-366.1	-365.3	[0.00]	µg/L	09:08:30
1	V 292.402†	205.4	205.0	[0.00]	µg/L	09:08:30
1	Zn 213.857†	51.5	51.4	[0.00]	µg/L	09:08:50
2	Sc 361.383	1338514.0	1338514.0	100.55	%	09:08:52
2	Sc RADIAL	71837.9	71837.9	99.7	%	09:07:42
2	Y 371.029	728356.5	728356.5	100.54	%	09:08:52
2	Ag 328.068†	-1839.0	-1828.9	[0.00]	µg/L	09:08:54
2	Al 396.153Radial†	112.3	112.6	[0.00]	µg/L	09:08:02
2	As 188.979†	-34.5	-34.3	[0.00]	µg/L	09:09:14
2	B 249.677†	897.8	892.9	[0.00]	µg/L	09:08:54
2	Ba 233.527†	-252.9	-251.6	[0.00]	µg/L	09:09:14
2	Be 313.107†	-3680.9	-3660.8	[0.00]	µg/L	09:08:54
2	Ca 317.933Radial†	335.5	336.5	[0.00]	µg/L	09:08:02
2	Cd 226.502†	-180.0	-179.1	[0.00]	µg/L	09:09:14
2	Co 228.616†	-104.1	-103.5	[0.00]	µg/L	09:09:14
2	Cr 267.716†	140.7	139.9	[0.00]	µg/L	09:09:14
2	Cu 324.752†	5674.2	5643.2	[0.00]	µg/L	09:08:54
2	Fe 238.204 Radial†	-521.2	-522.6	[0.00]	µg/L	09:08:02
2	K 766.490 Radial†	1106.8	1109.9	[0.00]	µg/L	09:07:42
2	Mg 279.077 IEC†	33.1	33.2	[0.00]	µg/L	09:08:02
2	Mn 257.610†	165.9	165.0	[0.00]	µg/L	09:09:14
2	Mo 202.031†	-36.2	-36.0	[0.00]	µg/L	09:09:14
2	Na 589.592 Radial†	37.3	37.4	[0.00]	µg/L	09:07:42
2	Ni 231.604†	-218.3	-217.1	[0.00]	µg/L	09:09:14
2	P 214.914†	-108.8	-108.2	[0.00]	µg/L	09:09:14
2	Pb 220.353†	83.1	82.7	[0.00]	µg/L	09:09:14
2	S 181.975 Axial†	102.0	101.4	[0.00]	µg/L	09:09:14
2	Sb 206.836†	34.2	34.0	[0.00]	µg/L	09:09:14
2	Se 196.026†	-1.1	-1.1	[0.00]	µg/L	09:09:14
2	SiO2†	3070.7	3054.0	[0.00]	µg/L	09:08:54
2	Si 251.611†	542.8	539.8	[0.00]	µg/L	09:08:54
2	Sn 189.927†	-22.2	-22.0	[0.00]	µg/L	09:09:14
2	Sr 421.552†	-446.3	-447.6	[0.00]	µg/L	09:08:02
2	Ti 334.940†	-856.5	-851.8	[0.00]	µg/L	09:08:54
2	Tl 190.801†	-77.0	-76.6	[0.00]	µg/L	09:09:14
2	U 367.007†	-192.0	-190.9	[0.00]	µg/L	09:08:54
2	V 292.402†	45.6	45.4	[0.00]	µg/L	09:08:54
2	Zn 213.857†	55.5	55.2	[0.00]	µg/L	09:09:14
3	Sc 361.383	1321180.6	1321180.6	99.247	%	09:09:16
3	Sc RADIAL	72094.0	72094.0	100	%	09:08:04
3	Y 371.029	718845.5	718845.5	99.227	%	09:09:16
3	Ag 328.068†	-1923.5	-1938.1	[0.00]	µg/L	09:09:18
3	Al 396.153Radial†	94.6	94.6	[0.00]	µg/L	09:08:24
3	As 188.979†	-30.9	-31.2	[0.00]	µg/L	09:09:38
3	B 249.677†	844.1	850.5	[0.00]	µg/L	09:09:18

3	Ba 233.527†	-231.0	-232.8	[0.00] µg/L	09:09:38
3	Be 313.107†	-3602.1	-3629.4	[0.00] µg/L	09:09:18
3	Ca 317.933Radial†	344.4	344.2	[0.00] µg/L	09:08:24
3	Cd 226.502†	-183.3	-184.7	[0.00] µg/L	09:09:38
3	Co 228.616†	-92.4	-93.1	[0.00] µg/L	09:09:38
3	Cr 267.716†	121.6	122.5	[0.00] µg/L	09:09:38
3	Cu 324.752†	5736.4	5779.9	[0.00] µg/L	09:09:18
3	Fe 238.204 Radial†	-531.9	-531.5	[0.00] µg/L	09:08:24
3	K 766.490 Radial†	1044.6	1043.8	[0.00] µg/L	09:08:04
3	Mg 279.077 IEC†	24.5	24.5	[0.00] µg/L	09:08:24
3	Mn 257.610†	171.3	172.6	[0.00] µg/L	09:09:38
3	Mo 202.031†	-31.5	-31.7	[0.00] µg/L	09:09:38
3	Na 589.592 Radial†	-48.2	-48.1	[0.00] µg/L	09:08:04
3	Ni 231.604†	-168.3	-169.6	[0.00] µg/L	09:09:38
3	P 214.914†	-77.9	-78.5	[0.00] µg/L	09:09:38
3	Pb 220.353†	79.2	79.8	[0.00] µg/L	09:09:38
3	S 181.975 Axial†	106.2	107.0	[0.00] µg/L	09:09:38
3	Sb 206.836†	50.1	50.5	[0.00] µg/L	09:09:38
3	Se 196.026†	20.8	21.0	[0.00] µg/L	09:09:38
3	SiO2†	2973.4	2995.9	[0.00] µg/L	09:09:18
3	Si 251.611†	626.3	631.1	[0.00] µg/L	09:09:18
3	Sn 189.927†	-23.9	-24.1	[0.00] µg/L	09:09:38
3	Sr 421.552†	-455.3	-454.9	[0.00] µg/L	09:08:24
3	Ti 334.940†	-969.6	-977.0	[0.00] µg/L	09:09:18
3	Tl 190.801†	-83.5	-84.1	[0.00] µg/L	09:09:38
3	U 367.007†	-294.2	-296.4	[0.00] µg/L	09:09:18
3	V 292.402†	59.2	59.6	[0.00] µg/L	09:09:18
3	Zn 213.857†	32.7	33.0	[0.00] µg/L	09:09:38

Mean Data: S0

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	1331204.2	8979.71	0.67%	100.00	%
Sc RADIAL	72037.9	178.61	0.25%	100	%
Y 371.029	724446.4	4975.84	0.69%	100.00	%
Ag 328.068†	-1890.8	56.03	2.96%	[0.00]	µg/L
Al 396.153Radial†	101.7	9.58	9.42%	[0.00]	µg/L
As 188.979†	-29.9	5.05	16.85%	[0.00]	µg/L
B 249.677†	884.9	31.17	3.52%	[0.00]	µg/L
Ba 233.527†	-240.8	9.70	4.03%	[0.00]	µg/L
Be 313.107†	-3655.9	24.47	0.67%	[0.00]	µg/L
Ca 317.933Radial†	343.2	6.30	1.84%	[0.00]	µg/L
Cd 226.502†	-180.0	4.26	2.36%	[0.00]	µg/L
Co 228.616†	-91.5	12.82	14.01%	[0.00]	µg/L
Cr 267.716†	129.0	9.50	7.36%	[0.00]	µg/L
Cu 324.752†	5776.9	132.24	2.29%	[0.00]	µg/L
Fe 238.204 Radial†	-518.1	16.17	3.12%	[0.00]	µg/L
K 766.490 Radial†	1070.2	34.97	3.27%	[0.00]	µg/L
Mg 279.077 IEC†	26.8	5.65	21.06%	[0.00]	µg/L
Mn 257.610†	152.0	29.42	19.36%	[0.00]	µg/L
Mo 202.031†	-29.7	7.45	25.05%	[0.00]	µg/L
Na 589.592 Radial†	39.8	89.08	224.03%	[0.00]	µg/L
Ni 231.604†	-197.7	24.95	12.62%	[0.00]	µg/L
P 214.914†	-95.1	15.17	15.96%	[0.00]	µg/L
Pb 220.353†	73.7	13.13	17.81%	[0.00]	µg/L
S 181.975 Axial†	102.7	3.86	3.76%	[0.00]	µg/L
Sb 206.836†	44.3	8.99	20.29%	[0.00]	µg/L
Se 196.026†	8.0	11.55	144.14%	[0.00]	µg/L
SiO2†	3019.8	30.37	1.01%	[0.00]	µg/L
Si 251.611†	584.5	45.65	7.81%	[0.00]	µg/L
Sn 189.927†	-27.5	7.72	28.08%	[0.00]	µg/L
Sr 421.552†	-459.0	13.98	3.05%	[0.00]	µg/L
Ti 334.940†	-889.3	76.22	8.57%	[0.00]	µg/L
Tl 190.801†	-86.1	10.56	12.27%	[0.00]	µg/L
U 367.007†	-284.2	87.82	30.90%	[0.00]	µg/L
V 292.402†	103.3	88.31	85.46%	[0.00]	µg/L
Zn 213.857†	46.5	11.88	25.55%	[0.00]	µg/L

U 367.007†	-284.2	87.82	30.90%	[0.00] µg/L
V 292.402†	103.3	88.31	85.46%	[0.00] µg/L
Zn 213.857†	46.5	11.88	25.55%	[0.00] µg/L

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.1 **Date Collected: 11/11/2016 09:09:46**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:26**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc 361.383	1349630.6	1349630.6	101.38	%	09:10:20
1	Sc RADIAL	71594.9	71594.9	99.4	%	09:10:12
1	Y 371.029	733093.0	733093.0	101.19	%	09:10:20
1	Ag 328.068†	17617.4	19267.7	[100]	µg/L	09:10:20
1	As 188.979†	151.4	179.3	[100]	µg/L	09:10:40
1	B 249.677†	7735.1	6744.6	[100]	µg/L	09:10:20
1	Ba 233.527†	11167.2	11255.5	[100]	µg/L	09:10:40
1	Be 313.107†	370466.2	369064.2	[100]	µg/L	09:10:20
1	Cd 226.502†	13567.8	13562.6	[100]	µg/L	09:10:20
1	Co 228.616†	6808.6	6807.1	[100]	µg/L	09:10:40
1	Cr 267.716†	8946.3	8695.1	[100]	µg/L	09:10:20
1	Cu 324.752†	28197.0	22035.1	[100]	µg/L	09:10:20
1	K 766.490 Radial†	2920.7	1868.5	[1000]	µg/L	09:10:12
1	Mn 257.610†	59733.0	58765.6	[100]	µg/L	09:10:20
1	Mo 202.031†	1922.0	1925.5	[100]	µg/L	09:10:40
1	Ni 231.604†	6230.0	6342.7	[100]	µg/L	09:10:40
1	P 214.914†	1300.2	1377.6	[500]	µg/L	09:10:40
1	Pb 220.353†	1105.6	1016.8	[100]	µg/L	09:10:40
1	S 181.975 Axial†	271.4	165.1	[200]	µg/L	09:10:40
1	Sb 206.836†	544.7	492.9	[100]	µg/L	09:10:40
1	Se 196.026†	184.7	174.2	[100]	µg/L	09:10:40
1	SiO2†	12613.1	9421.1	[1069.5]	µg/L	09:10:20
1	Si 251.611†	30002.9	29008.8	[500]	µg/L	09:10:20
1	Sn 189.927†	762.5	779.5	[100]	µg/L	09:10:40
1	Sr 421.552†	34418.7	35090.7	[100]	µg/L	09:10:12
1	Ti 334.940†	70228.9	70159.3	[100]	µg/L	09:10:20
1	Tl 190.801†	237.8	320.6	[100]	µg/L	09:10:40
1	U 367.007†	547.8	824.6	[100]	µg/L	09:10:20
1	V 292.402†	22557.6	22146.3	[100]	µg/L	09:10:20
1	Zn 213.857†	18271.5	17975.5	[100]	µg/L	09:10:20
2	Sc 361.383	1346498.3	1346498.3	101.15	%	09:10:42
2	Sc RADIAL	71408.8	71408.8	99.1	%	09:10:14
2	Y 371.029	731333.1	731333.1	100.95	%	09:10:42
2	Ag 328.068†	17598.1	19289.1	[100]	µg/L	09:10:42
2	As 188.979†	153.6	181.8	[100]	µg/L	09:11:03
2	B 249.677†	7685.0	6712.8	[100]	µg/L	09:10:42
2	Ba 233.527†	11191.8	11305.5	[100]	µg/L	09:11:03
2	Be 313.107†	368119.9	367594.5	[100]	µg/L	09:10:42
2	Cd 226.502†	13356.2	13384.5	[100]	µg/L	09:10:42
2	Co 228.616†	6807.4	6821.6	[100]	µg/L	09:11:03
2	Cr 267.716†	8780.7	8552.0	[100]	µg/L	09:10:42
2	Cu 324.752†	28156.8	22060.0	[100]	µg/L	09:10:42
2	K 766.490 Radial†	2991.8	1947.9	[1000]	µg/L	09:10:14
2	Mn 257.610†	59014.5	58192.3	[100]	µg/L	09:10:42
2	Mo 202.031†	1906.3	1914.4	[100]	µg/L	09:11:03
2	Ni 231.604†	6213.9	6341.0	[100]	µg/L	09:11:03
2	P 214.914†	1312.4	1392.6	[500]	µg/L	09:11:03
2	Pb 220.353†	1090.0	1003.9	[100]	µg/L	09:11:03
2	S 181.975 Axial†	271.4	165.6	[200]	µg/L	09:11:03
2	Sb 206.836†	559.4	508.7	[100]	µg/L	09:11:03
2	Se 196.026†	189.1	179.0	[100]	µg/L	09:11:03
2	SiO2†	12649.7	9486.2	[1069.5]	µg/L	09:10:42
2	Si 251.611†	29896.0	28972.0	[500]	µg/L	09:10:42
2	Sn 189.927†	767.1	785.8	[100]	µg/L	09:11:03
2	Sr 421.552†	33930.3	34688.3	[100]	µg/L	09:10:14
2	Ti 334.940†	69908.9	70004.1	[100]	µg/L	09:10:42
2	Tl 190.801†	243.1	326.4	[100]	µg/L	09:11:03
2	U 367.007†	508.6	787.1	[100]	µg/L	09:10:42

2	V 292.402†	22386.7	22029.1	[100]	µg/L	09:10:42
2	Zn 213.857†	18160.9	17908.1	[100]	µg/L	09:10:42
3	Sc 361.383	1351469.7	1351469.7	101.52	%	09:11:05
3	Sc RADIAL	71484.1	71484.1	99.2	%	09:10:16
3	Y 371.029	733402.1	733402.1	101.24	%	09:11:05
3	Ag 328.068†	17621.4	19248.0	[100]	µg/L	09:11:05
3	As 188.979†	153.5	181.1	[100]	µg/L	09:11:25
3	B 249.677†	7673.2	6673.3	[100]	µg/L	09:11:05
3	Ba 233.527†	11185.6	11258.6	[100]	µg/L	09:11:25
3	Be 313.107†	368174.7	366309.8	[100]	µg/L	09:11:05
3	Cd 226.502†	13405.5	13384.5	[100]	µg/L	09:11:05
3	Co 228.616†	6804.0	6793.5	[100]	µg/L	09:11:25
3	Cr 267.716†	8910.4	8647.8	[100]	µg/L	09:11:05
3	Cu 324.752†	28176.0	21976.6	[100]	µg/L	09:11:05
3	K 766.490 Radial†	2937.2	1889.8	[1000]	µg/L	09:10:16
3	Mn 257.610†	59244.2	58203.9	[100]	µg/L	09:11:05
3	Mo 202.031†	1916.1	1917.1	[100]	µg/L	09:11:25
3	Ni 231.604†	6272.0	6375.7	[100]	µg/L	09:11:25
3	P 214.914†	1316.6	1391.9	[500]	µg/L	09:11:25
3	Pb 220.353†	1111.9	1021.5	[100]	µg/L	09:11:25
3	S 181.975 Axial†	276.0	169.1	[200]	µg/L	09:11:25
3	Sb 206.836†	531.8	479.5	[100]	µg/L	09:11:25
3	Se 196.026†	195.1	184.2	[100]	µg/L	09:11:25
3	SiO2†	12587.3	9378.8	[1069.5]	µg/L	09:11:05
3	Si 251.611†	29905.3	28872.4	[500]	µg/L	09:11:05
3	Sn 189.927†	770.8	786.8	[100]	µg/L	09:11:25
3	Sr 421.552†	34303.4	35028.2	[100]	µg/L	09:10:16
3	Ti 334.940†	70027.8	69867.0	[100]	µg/L	09:11:05
3	Tl 190.801†	228.6	311.2	[100]	µg/L	09:11:25
3	U 367.007†	567.4	843.1	[100]	µg/L	09:11:05
3	V 292.402†	22510.6	22069.7	[100]	µg/L	09:11:05
3	Zn 213.857†	18135.6	17817.2	[100]	µg/L	09:11:05

Mean Data: S0.1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	1349199.5	2513.56	0.19%	101.35	%
Sc RADIAL	71495.9	93.64	0.13%	99.2	%
Y 371.029	732609.4	1116.04	0.15%	101.13	%
Ag 328.068†	19268.3	20.52	0.11%	[100]	µg/L
As 188.979†	180.7	1.29	0.71%	[100]	µg/L
B 249.677†	6710.2	35.71	0.53%	[100]	µg/L
Ba 233.527†	11273.2	28.02	0.25%	[100]	µg/L
Be 313.107†	367656.2	1378.25	0.37%	[100]	µg/L
Cd 226.502†	13443.9	102.79	0.76%	[100]	µg/L
Co 228.616†	6807.4	14.04	0.21%	[100]	µg/L
Cr 267.716†	8631.6	72.93	0.84%	[100]	µg/L
Cu 324.752†	22023.9	42.85	0.19%	[100]	µg/L
K 766.490 Radial†	1902.1	41.11	2.16%	[1000]	µg/L
Mn 257.610†	58387.2	327.68	0.56%	[100]	µg/L
Mo 202.031†	1919.0	5.80	0.30%	[100]	µg/L
Ni 231.604†	6353.1	19.53	0.31%	[100]	µg/L
P 214.914†	1387.3	8.48	0.61%	[500]	µg/L
Pb 220.353†	1014.1	9.13	0.90%	[100]	µg/L
S 181.975 Axial†	166.6	2.20	1.32%	[200]	µg/L
Sb 206.836†	493.7	14.62	2.96%	[100]	µg/L
Se 196.026†	179.1	5.01	2.80%	[100]	µg/L
SiO2†	9428.7	54.13	0.57%	[1069.5]	µg/L
Si 251.611†	28951.0	70.58	0.24%	[500]	µg/L
Sn 189.927†	784.0	3.93	0.50%	[100]	µg/L
Sr 421.552†	34935.7	216.55	0.62%	[100]	µg/L
Ti 334.940†	70010.1	146.26	0.21%	[100]	µg/L
Tl 190.801†	319.4	7.66	2.40%	[100]	µg/L
U 367.007†	818.2	28.56	3.49%	[100]	µg/L
V 292.402†	22081.7	59.50	0.27%	[100]	µg/L
Zn 213.857†	17900.3	79.46	0.44%	[100]	µg/L

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 11/11/2016 09:11:32**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:27**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc 361.383	1372805.2	1372805.2	103.13	%	09:12:10
1	Sc RADIAL	72442.9	72442.9	101	%	09:11:59
1	Y 371.029	737043.1	737043.1	101.74	%	09:12:10
1	Ag 328.068†	94888.3	93903.6	[500]	µg/L	09:12:13
1	Al 396.153Radial†	14038.8	13858.7	[5000]	µg/L	09:11:59
1	As 188.979†	900.7	903.4	[500]	µg/L	09:12:33
1	B 249.677†	35746.5	33778.4	[500]	µg/L	09:12:13
1	Ba 233.527†	55698.8	54251.7	[500]	µg/L	09:12:13
1	Be 313.107†	1862339.1	1809559.5	[500]	µg/L	09:12:10
1	Ca 317.933Radial†	46335.4	45733.2	[5000]	µg/L	09:11:59
1	Cd 226.502†	65766.7	63953.7	[500]	µg/L	09:12:13
1	Co 228.616†	33697.3	32767.7	[500]	µg/L	09:12:13
1	Cr 267.716†	42526.1	41108.4	[500]	µg/L	09:12:13
1	Cu 324.752†	118303.5	108941.6	[500]	µg/L	09:12:13
1	K 766.490 Radial†	10604.0	9474.5	[5000]	µg/L	09:11:59
1	Mg 279.077 IEC†	9446.4	9366.8	[5000]	µg/L	09:11:59
1	Mn 257.610†	285247.0	276451.1	[500]	µg/L	09:12:13
1	Mo 202.031†	9610.8	9349.3	[500]	µg/L	09:12:33
1	Ni 231.604†	31316.8	30565.6	[500]	µg/L	09:12:13
1	P 214.914†	6886.7	6773.1	[2500]	µg/L	09:12:33
1	Pb 220.353†	5064.9	4837.7	[500]	µg/L	09:12:33
1	S 181.975 Axial†	992.9	860.2	[1000]	µg/L	09:12:33
1	Sb 206.836†	2636.6	2512.4	[500]	µg/L	09:12:33
1	Se 196.026†	965.0	927.8	[500]	µg/L	09:12:33
1	SiO2†	52693.8	48077.3	[5347.5]	µg/L	09:12:13
1	Si 251.611†	152064.2	146871.7	[2500]	µg/L	09:12:13
1	Sn 189.927†	3923.8	3832.4	[500]	µg/L	09:12:33
1	Sr 421.552†	169188.9	168702.1	[500]	µg/L	09:11:57
1	Ti 334.940†	354708.9	344849.2	[500]	µg/L	09:12:10
1	Tl 190.801†	1557.6	1596.5	[500]	µg/L	09:12:33
1	U 367.007†	3682.0	3854.6	[500]	µg/L	09:12:13
1	V 292.402†	111384.6	107905.9	[500]	µg/L	09:12:13
1	Zn 213.857†	88461.4	85734.2	[500]	µg/L	09:12:13
2	Sc 361.383	1348205.6	1348205.6	101.28	%	09:12:35
2	Sc RADIAL	71341.1	71341.1	99.0	%	09:12:03
2	Y 371.029	723715.4	723715.4	99.899	%	09:12:35
2	Ag 328.068†	94804.1	95499.4	[500]	µg/L	09:12:37
2	Al 396.153Radial†	13651.6	13683.3	[5000]	µg/L	09:12:03
2	As 188.979†	888.3	907.0	[500]	µg/L	09:12:57
2	B 249.677†	35870.4	34533.2	[500]	µg/L	09:12:37
2	Ba 233.527†	55852.4	55388.9	[500]	µg/L	09:12:37
2	Be 313.107†	1842934.8	1823350.6	[500]	µg/L	09:12:35
2	Ca 317.933Radial†	44684.4	44777.6	[5000]	µg/L	09:12:03
2	Cd 226.502†	65998.8	65346.6	[500]	µg/L	09:12:37
2	Co 228.616†	33591.8	33259.8	[500]	µg/L	09:12:37
2	Cr 267.716†	42599.8	41933.6	[500]	µg/L	09:12:37
2	Cu 324.752†	118682.3	111408.8	[500]	µg/L	09:12:37
2	K 766.490 Radial†	10288.8	9319.1	[5000]	µg/L	09:12:03
2	Mg 279.077 IEC†	9103.4	9165.5	[5000]	µg/L	09:12:03
2	Mn 257.610†	286137.8	282377.5	[500]	µg/L	09:12:37
2	Mo 202.031†	9619.0	9527.5	[500]	µg/L	09:12:57
2	Ni 231.604†	31319.3	31122.0	[500]	µg/L	09:12:37
2	P 214.914†	6870.0	6878.4	[2500]	µg/L	09:12:57
2	Pb 220.353†	5041.3	4904.1	[500]	µg/L	09:12:57
2	S 181.975 Axial†	1015.4	899.9	[1000]	µg/L	09:12:57
2	Sb 206.836†	2639.1	2561.6	[500]	µg/L	09:12:57
2	Se 196.026†	972.2	951.9	[500]	µg/L	09:12:57
2	SiO2†	52715.4	49030.9	[5347.5]	µg/L	09:12:37

2	Si 251.611†	152815.2	150303.7	[2500]	µg/L	09:12:37
2	Sn 189.927†	3928.1	3906.0	[500]	µg/L	09:12:57
2	Sr 421.552†	170544.9	172669.7	[500]	µg/L	09:12:01
2	Ti 334.940†	350985.5	347448.7	[500]	µg/L	09:12:35
2	Tl 190.801†	1553.5	1619.9	[500]	µg/L	09:12:57
2	U 367.007†	3691.2	3928.9	[500]	µg/L	09:12:37
2	V 292.402†	111291.0	109784.2	[500]	µg/L	09:12:37
2	Zn 213.857†	88576.3	87412.8	[500]	µg/L	09:12:37
3	Sc 361.383	1351401.6	1351401.6	101.52	%	09:12:59
3	Sc RADIAL	71733.5	71733.5	99.6	%	09:12:07
3	Y 371.029	724487.9	724487.9	100.01	%	09:12:59
3	Ag 328.068†	93544.1	94036.9	[500]	µg/L	09:13:01
3	Al 396.153Radial†	13940.2	13897.6	[5000]	µg/L	09:12:07
3	As 188.979†	905.6	922.0	[500]	µg/L	09:13:22
3	B 249.677†	35455.2	34040.5	[500]	µg/L	09:13:01
3	Ba 233.527†	55190.2	54606.1	[500]	µg/L	09:13:01
3	Be 313.107†	1826062.8	1802427.2	[500]	µg/L	09:12:59
3	Ca 317.933Radial†	45607.9	45458.3	[5000]	µg/L	09:12:07
3	Cd 226.502†	64955.5	64164.7	[500]	µg/L	09:13:01
3	Co 228.616†	33236.5	32831.3	[500]	µg/L	09:13:01
3	Cr 267.716†	42198.2	41438.5	[500]	µg/L	09:13:01
3	Cu 324.752†	116951.3	109426.5	[500]	µg/L	09:13:01
3	K 766.490 Radial†	10551.3	9525.9	[5000]	µg/L	09:12:07
3	Mg 279.077 IEC†	9254.0	9266.4	[5000]	µg/L	09:12:07
3	Mn 257.610†	282064.6	277697.1	[500]	µg/L	09:13:01
3	Mo 202.031†	9607.2	9493.4	[500]	µg/L	09:13:22
3	Ni 231.604†	30955.3	30690.4	[500]	µg/L	09:13:01
3	P 214.914†	6866.2	6858.7	[2500]	µg/L	09:13:22
3	Pb 220.353†	5049.6	4900.4	[500]	µg/L	09:13:22
3	S 181.975 Axial†	999.3	881.7	[1000]	µg/L	09:13:22
3	Sb 206.836†	2644.5	2560.6	[500]	µg/L	09:13:22
3	Se 196.026†	973.4	950.9	[500]	µg/L	09:13:22
3	SiO2†	52180.5	48380.9	[5347.5]	µg/L	09:13:01
3	Si 251.611†	150552.3	147717.7	[2500]	µg/L	09:13:01
3	Sn 189.927†	3911.2	3880.2	[500]	µg/L	09:13:22
3	Sr 421.552†	168752.0	169927.0	[500]	µg/L	09:12:05
3	Ti 334.940†	348682.3	344360.3	[500]	µg/L	09:12:59
3	Tl 190.801†	1551.8	1614.6	[500]	µg/L	09:13:22
3	U 367.007†	3693.6	3922.6	[500]	µg/L	09:13:01
3	V 292.402†	110192.5	108442.3	[500]	µg/L	09:13:01
3	Zn 213.857†	87465.5	86111.7	[500]	µg/L	09:13:01

Mean Data: S0.5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	1357470.8	13375.75	0.99%	101.97	%
Sc RADIAL	71839.1	558.45	0.78%	99.7	%
Y 371.029	728415.5	7481.71	1.03%	100.55	%
Ag 328.068†	94480.0	885.37	0.94%	[500]	µg/L
Al 396.153Radial†	13813.2	114.17	0.83%	[5000]	µg/L
As 188.979†	910.8	9.85	1.08%	[500]	µg/L
B 249.677†	34117.4	383.20	1.12%	[500]	µg/L
Ba 233.527†	54748.9	581.87	1.06%	[500]	µg/L
Be 313.107†	1811779.1	10636.81	0.59%	[500]	µg/L
Ca 317.933Radial†	45323.0	491.92	1.09%	[5000]	µg/L
Cd 226.502†	64488.3	750.69	1.16%	[500]	µg/L
Co 228.616†	32952.9	267.63	0.81%	[500]	µg/L
Cr 267.716†	41493.5	415.32	1.00%	[500]	µg/L
Cu 324.752†	109925.6	1307.13	1.19%	[500]	µg/L
K 766.490 Radial†	9439.8	107.66	1.14%	[5000]	µg/L
Mg 279.077 IEC†	9266.2	100.64	1.09%	[5000]	µg/L
Mn 257.610†	278841.9	3124.68	1.12%	[500]	µg/L
Mo 202.031†	9456.7	94.56	1.00%	[500]	µg/L
Ni 231.604†	30792.7	292.01	0.95%	[500]	µg/L
P 214.914†	6836.8	55.97	0.82%	[2500]	µg/L
Pb 220.353†	4880.7	37.30	0.76%	[500]	µg/L
S 181.975 Axial†	880.6	19.91	2.26%	[1000]	µg/L
Sb 206.836†	2544.9	28.10	1.10%	[500]	µg/L
Se 196.026†	943.5	13.64	1.45%	[500]	µg/L
SiO2†	48496.3	487.18	1.00%	[5347.5]	µg/L

Si 251.611†	148297.7	1788.00	1.21%	[2500]	µg/L
Sn 189.927†	3872.9	37.37	0.96%	[500]	µg/L
Sr 421.552†	170432.9	2031.61	1.19%	[500]	µg/L
Ti 334.940†	345552.7	1660.03	0.48%	[500]	µg/L
Tl 190.801†	1610.3	12.30	0.76%	[500]	µg/L
U 367.007†	3902.0	41.22	1.06%	[500]	µg/L
V 292.402†	108710.8	967.53	0.89%	[500]	µg/L
Zn 213.857†	86419.6	880.65	1.02%	[500]	µg/L

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SCAL **Date Collected: 11/11/2016 09:13:29**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:28**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: SCAL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc 361.383	1336156.4	1336156.4	100.37	%	09:14:08
1	Sc RADIAL	72485.2	72485.2	101	%	09:13:56
1	Y 371.029	734995.4	734995.4	101.46	%	09:14:10
1	Ag 328.068†	198982.2	200135.6	[1000]	µg/L	09:14:10
1	Al 396.153Radial†	27932.1	27658.0	[10000]	µg/L	09:13:56
1	As 188.979†	1853.0	1876.1	[1000]	µg/L	09:14:30
1	B 249.677†	72868.4	71713.5	[1000]	µg/L	09:14:10
1	Ba 233.527†	115961.7	115772.7	[1000]	µg/L	09:14:10
1	Be 313.107†	3686617.7	3676610.0	[1000]	µg/L	09:14:08
1	Ca 317.933Radial†	92516.8	91602.6	[10000]	µg/L	09:13:56
1	Cd 226.502†	137090.3	136762.3	[1000]	µg/L	09:14:10
1	Co 228.616†	69687.5	69520.8	[1000]	µg/L	09:14:10
1	Cr 267.716†	88243.4	87787.3	[1000]	µg/L	09:14:10
1	Cu 324.752†	240569.2	233900.7	[1000]	µg/L	09:14:10
1	Fe 238.204 Radial†	108923.8	108769.6	[10000]	µg/L	09:13:56
1	K 766.490 Radial†	20134.1	18939.6	[10000]	µg/L	09:13:56
1	Mg 279.077 IEC†	18950.9	18807.1	[10000]	µg/L	09:13:56
1	Mn 257.610†	591182.4	588839.4	[1000]	µg/L	09:14:10
1	Mo 202.031†	19662.8	19619.7	[1000]	µg/L	09:14:30
1	Na 589.592 Radial†	59732.8	59324.4	[10000]	µg/L	09:13:56
1	Ni 231.604†	65047.4	65004.1	[1000]	µg/L	09:14:10
1	P 214.914†	14068.8	14111.7	[5000]	µg/L	09:14:30
1	Pb 220.353†	10171.8	10060.4	[1000]	µg/L	09:14:30
1	S 181.975 Axial†	1955.0	1845.0	[2000]	µg/L	09:14:30
1	Sb 206.836†	5340.1	5276.0	[1000]	µg/L	09:14:30
1	Se 196.026†	1964.3	1949.0	[1000]	µg/L	09:14:30
1	SiO2†	102400.2	99000.9	[10695]	µg/L	09:14:10
1	Si 251.611†	303242.5	301534.1	[5000]	µg/L	09:14:10
1	Sn 189.927†	7964.8	7962.8	[1000]	µg/L	09:14:30
1	Sr 421.552†	342246.9	340593.6	[1000]	µg/L	09:13:54
1	Ti 334.940†	709113.9	707375.0	[1000]	µg/L	09:14:08
1	Tl 190.801†	3251.7	3325.7	[1000]	µg/L	09:14:30
1	U 367.007†	8148.0	8402.0	[1000]	µg/L	09:14:10
1	V 292.402†	231388.2	230427.2	[1000]	µg/L	09:14:10
1	Zn 213.857†	182526.9	181803.9	[1000]	µg/L	09:14:10
2	Sc 361.383	1350248.6	1350248.6	101.43	%	09:14:33
2	Sc RADIAL	71410.1	71410.1	99.1	%	09:14:00
2	Y 371.029	718796.9	718796.9	99.220	%	09:14:35
2	Ag 328.068†	195768.6	194898.3	[1000]	µg/L	09:14:35
2	Al 396.153Radial†	27397.9	27537.1	[10000]	µg/L	09:14:00
2	As 188.979†	1841.6	1845.6	[1000]	µg/L	09:14:55
2	B 249.677†	71578.5	69684.1	[1000]	µg/L	09:14:35
2	Ba 233.527†	114174.4	112804.9	[1000]	µg/L	09:14:35
2	Be 313.107†	3724282.7	3675410.2	[1000]	µg/L	09:14:33
2	Ca 317.933Radial†	90672.5	91126.5	[10000]	µg/L	09:14:00
2	Cd 226.502†	134427.8	132711.8	[1000]	µg/L	09:14:35
2	Co 228.616†	68289.3	67417.7	[1000]	µg/L	09:14:35
2	Cr 267.716†	86798.2	85445.0	[1000]	µg/L	09:14:35
2	Cu 324.752†	237724.2	228594.4	[1000]	µg/L	09:14:35
2	Fe 238.204 Radial†	106661.5	108117.3	[10000]	µg/L	09:14:00
2	K 766.490 Radial†	20053.3	19159.4	[10000]	µg/L	09:14:00
2	Mg 279.077 IEC†	18524.1	18660.1	[10000]	µg/L	09:14:00
2	Mn 257.610†	581281.6	572931.1	[1000]	µg/L	09:14:35
2	Mo 202.031†	19706.7	19458.4	[1000]	µg/L	09:14:55
2	Na 589.592 Radial†	58960.9	59439.5	[10000]	µg/L	09:14:00
2	Ni 231.604†	63746.3	63044.9	[1000]	µg/L	09:14:35
2	P 214.914†	14117.8	14013.8	[5000]	µg/L	09:14:55
2	Pb 220.353†	10180.6	9963.3	[1000]	µg/L	09:14:55

2	S 181.975 Axial†	1938.6	1808.6	[2000]	µg/L	09:14:55
2	Sb 206.836†	5365.4	5245.5	[1000]	µg/L	09:14:55
2	Se 196.026†	1958.4	1922.8	[1000]	µg/L	09:14:55
2	SiO2†	100937.8	96494.4	[10695]	µg/L	09:14:35
2	Si 251.611†	299264.6	294459.2	[5000]	µg/L	09:14:35
2	Sn 189.927†	7966.8	7882.0	[1000]	µg/L	09:14:55
2	Sr 421.552†	345148.1	348641.5	[1000]	µg/L	09:13:58
2	Ti 334.940†	715473.1	706271.1	[1000]	µg/L	09:14:33
2	Tl 190.801†	3232.8	3273.3	[1000]	µg/L	09:14:55
2	U 367.007†	8046.1	8216.8	[1000]	µg/L	09:14:35
2	V 292.402†	227745.1	224429.6	[1000]	µg/L	09:14:35
2	Zn 213.857†	179434.7	176857.4	[1000]	µg/L	09:14:35
3	Sc 361.383	1387260.1	1387260.1	104.21	%	09:14:57
3	Sc RADIAL	70554.5	70554.5	97.9	%	09:14:04
3	Y 371.029	722788.6	722788.6	99.771	%	09:15:00
3	Ag 328.068†	195963.9	189936.3	[1000]	µg/L	09:15:00
3	Al 396.153Radial†	27285.8	27757.8	[10000]	µg/L	09:14:04
3	As 188.979†	1860.4	1815.2	[1000]	µg/L	09:15:20
3	B 249.677†	72049.7	68253.5	[1000]	µg/L	09:15:00
3	Ba 233.527†	114215.2	109840.9	[1000]	µg/L	09:15:00
3	Be 313.107†	3831650.4	3680478.4	[1000]	µg/L	09:14:57
3	Ca 317.933Radial†	89711.4	91254.3	[10000]	µg/L	09:14:04
3	Cd 226.502†	134595.1	129336.4	[1000]	µg/L	09:15:00
3	Co 228.616†	68735.0	66049.1	[1000]	µg/L	09:15:00
3	Cr 267.716†	87002.0	83357.5	[1000]	µg/L	09:15:00
3	Cu 324.752†	237979.0	222585.9	[1000]	µg/L	09:15:00
3	Fe 238.204 Radial†	105651.7	108391.0	[10000]	µg/L	09:14:04
3	K 766.490 Radial†	19755.9	19101.0	[10000]	µg/L	09:14:04
3	Mg 279.077 IEC†	18479.3	18841.0	[10000]	µg/L	09:14:04
3	Mn 257.610†	582936.8	559229.7	[1000]	µg/L	09:15:00
3	Mo 202.031†	19656.8	18892.3	[1000]	µg/L	09:15:20
3	Na 589.592 Radial†	58407.1	59595.3	[10000]	µg/L	09:14:04
3	Ni 231.604†	64008.7	61619.9	[1000]	µg/L	09:15:00
3	P 214.914†	14114.0	13638.7	[5000]	µg/L	09:15:20
3	Pb 220.353†	10200.3	9714.4	[1000]	µg/L	09:15:20
3	S 181.975 Axial†	1928.4	1747.8	[2000]	µg/L	09:15:20
3	Sb 206.836†	5338.8	5078.8	[1000]	µg/L	09:15:20
3	Se 196.026†	1962.3	1875.0	[1000]	µg/L	09:15:20
3	SiO2†	101315.6	94201.9	[10695]	µg/L	09:15:00
3	Si 251.611†	300310.3	287591.0	[5000]	µg/L	09:15:00
3	Sn 189.927†	7969.2	7674.7	[1000]	µg/L	09:15:20
3	Sr 421.552†	339899.6	347504.6	[1000]	µg/L	09:14:02
3	Ti 334.940†	735135.5	706319.7	[1000]	µg/L	09:14:57
3	Tl 190.801†	3240.4	3195.5	[1000]	µg/L	09:15:20
3	U 367.007†	8048.4	8007.4	[1000]	µg/L	09:15:00
3	V 292.402†	228338.6	219008.7	[1000]	µg/L	09:15:00
3	Zn 213.857†	179908.5	172592.3	[1000]	µg/L	09:15:00

Mean Data: SCAL

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	1357888.4	26394.55	1.94%	102.00	%
Sc RADIAL	71483.3	967.43	1.35%	99.2	%
Y 371.029	725527.0	8439.32	1.16%	100.15	%
Ag 328.068†	194990.0	5100.27	2.62%	[1000]	µg/L
Al 396.153Radial†	27650.9	110.53	0.40%	[10000]	µg/L
As 188.979†	1845.6	30.44	1.65%	[1000]	µg/L
B 249.677†	69883.7	1738.62	2.49%	[1000]	µg/L
Ba 233.527†	112806.1	2965.90	2.63%	[1000]	µg/L
Be 313.107†	3677499.5	2648.61	0.07%	[1000]	µg/L
Ca 317.933Radial†	91327.8	246.43	0.27%	[10000]	µg/L
Cd 226.502†	132936.8	3718.02	2.80%	[1000]	µg/L
Co 228.616†	67662.5	1748.73	2.58%	[1000]	µg/L
Cr 267.716†	85529.9	2216.14	2.59%	[1000]	µg/L
Cu 324.752†	228360.3	5661.04	2.48%	[1000]	µg/L
Fe 238.204 Radial†	108426.0	327.57	0.30%	[10000]	µg/L
K 766.490 Radial†	19066.7	113.83	0.60%	[10000]	µg/L
Mg 279.077 IEC†	18769.4	96.14	0.51%	[10000]	µg/L
Mn 257.610†	573666.7	14818.52	2.58%	[1000]	µg/L
Mo 202.031†	19323.5	382.05	1.98%	[1000]	µg/L

Na 589.592 Radial†	59453.0	135.97	0.23%	[10000]	µg/L
Ni 231.604†	63223.0	1699.08	2.69%	[1000]	µg/L
P 214.914†	13921.4	249.65	1.79%	[5000]	µg/L
Pb 220.353†	9912.7	178.45	1.80%	[1000]	µg/L
S 181.975 Axial†	1800.5	49.13	2.73%	[2000]	µg/L
Sb 206.836†	5200.1	106.13	2.04%	[1000]	µg/L
Se 196.026†	1915.6	37.52	1.96%	[1000]	µg/L
SiO2†	96565.7	2400.29	2.49%	[10695]	µg/L
Si 251.611†	294528.1	6971.79	2.37%	[5000]	µg/L
Sn 189.927†	7839.8	148.59	1.90%	[1000]	µg/L
Sr 421.552†	345579.9	4355.53	1.26%	[1000]	µg/L
Ti 334.940†	706655.3	623.77	0.09%	[1000]	µg/L
Tl 190.801†	3264.8	65.53	2.01%	[1000]	µg/L
U 367.007†	8208.8	197.41	2.40%	[1000]	µg/L
V 292.402†	224621.8	5711.71	2.54%	[1000]	µg/L
Zn 213.857†	177084.5	4609.96	2.60%	[1000]	µg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S10 **Date Collected: 11/11/2016 09:15:27**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:28**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc 361.383	1334502.3	1334502.3	100.25	%	09:15:59
1	Sc RADIAL	70187.4	70187.4	97.4	%	09:15:52
1	Y 371.029	713482.1	713482.1	98.487	%	09:15:59
1	Al 396.153Radial†	133997.4	137428.4	[50000]	µg/L	09:15:52
1	Ca 317.933Radial†	438396.0	449610.6	[50000]	µg/L	09:15:52
1	Fe 238.204 Radial†	204761.9	210678.4	[20000]	µg/L	09:15:52
1	Mg 279.077 IEC†	90286.6	92640.1	[50000]	µg/L	09:15:52
1	Na 589.592 Radial†	117313.0	120366.0	[20000]	µg/L	09:15:52
2	Sc 361.383	1317485.7	1317485.7	98.969	%	09:16:02
2	Sc RADIAL	69877.0	69877.0	97.0	%	09:15:54
2	Y 371.029	705239.3	705239.3	97.349	%	09:16:02
2	Al 396.153Radial†	133166.3	137182.6	[50000]	µg/L	09:15:54
2	Ca 317.933Radial†	436453.8	449607.3	[50000]	µg/L	09:15:54
2	Fe 238.204 Radial†	203439.0	210248.1	[20000]	µg/L	09:15:54
2	Mg 279.077 IEC†	90013.6	92770.3	[50000]	µg/L	09:15:54
2	Na 589.592 Radial†	116833.1	120406.3	[20000]	µg/L	09:15:54
3	Sc 361.383	1302453.2	1302453.2	97.840	%	09:16:04
3	Sc RADIAL	71105.7	71105.7	98.7	%	09:15:56
3	Y 371.029	696447.7	696447.7	96.135	%	09:16:04
3	Al 396.153Radial†	134419.9	136080.4	[50000]	µg/L	09:15:56
3	Ca 317.933Radial†	441775.1	447223.4	[50000]	µg/L	09:15:56
3	Fe 238.204 Radial†	206066.1	209285.6	[20000]	µg/L	09:15:56
3	Mg 279.077 IEC†	91508.0	92680.9	[50000]	µg/L	09:15:56
3	Na 589.592 Radial†	118299.4	119810.5	[20000]	µg/L	09:15:56

Mean Data: S10

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc 361.383	1318147.1	16034.74	1.22%	99.019	%
Sc RADIAL	70390.0	638.90	0.91%	97.7	%
Y 371.029	705056.3	8518.66	1.21%	97.323	%
Al 396.153Radial†	136897.1	717.89	0.52%	[50000]	µg/L
Ca 317.933Radial†	448813.8	1377.31	0.31%	[50000]	µg/L
Fe 238.204 Radial†	210070.7	713.12	0.34%	[20000]	µg/L
Mg 279.077 IEC†	92697.1	66.62	0.07%	[50000]	µg/L
Na 589.592 Radial†	120194.3	332.96	0.28%	[20000]	µg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	3	Lin Thru 0	0.0	193.8	0.00000	0.999923	
Al 396.153Radial	3	Lin Thru 0	0.0	2.739	0.00000	0.999998	
As 188.979	3	Lin Thru 0	0.0	1.841	0.00000	0.999985	
B 249.677	3	Lin Thru 0	0.0	69.53	0.00000	0.999950	
Ba 233.527	3	Lin Thru 0	0.0	112.1	0.00000	0.999931	
Be 313.107	3	Lin Thru 0	0.0	3667	0.00000	0.999983	
Ca 317.933Radial	3	Lin Thru 0	0.0	8.983	0.00000	0.999994	
Cd 226.502	3	Lin Thru 0	0.0	132.2	0.00000	0.999928	
Co 228.616	3	Lin Thru 0	0.0	67.32	0.00000	0.999945	
Cr 267.716	3	Lin Thru 0	0.0	85.03	0.00000	0.999928	
Cu 324.752	3	Lin Thru 0	0.0	226.6	0.00000	0.999885	
Fe 238.204 Radia	2	Lin Thru 0	0.0	10.57	0.00000	0.999918	
K 766.490 Radial	3	Lin Thru 0	0.0	1.903	0.00000	0.999992	
Mg 279.077 IEC	3	Lin Thru 0	0.0	1.855	0.00000	0.999997	
Mn 257.610	3	Lin Thru 0	0.0	570.6	0.00000	0.999936	
Mo 202.031	3	Lin Thru 0	0.0	19.24	0.00000	0.999964	

Na 589.592 Radia	2	Lin Thru 0	0.0	5.997	0.00000	0.999991
Ni 231.604	3	Lin Thru 0	0.0	62.90	0.00000	0.999946
P 214.914	3	Lin Thru 0	0.0	2.774	0.00000	0.999975
Pb 220.353	3	Lin Thru 0	0.0	9.885	0.00000	0.999979
S 181.975 Axial	3	Lin Thru 0	0.0	0.8958	0.00000	0.999942
Sb 206.836	3	Lin Thru 0	0.0	5.176	0.00000	0.999955
Se 196.026	3	Lin Thru 0	0.0	1.909	0.00000	0.999967
SiO2	3	Lin Thru 0	0.0	9.035	0.00000	0.999996
Si 251.611	3	Lin Thru 0	0.0	58.98	0.00000	0.999995
Sn 189.927	3	Lin Thru 0	0.0	7.821	0.00000	0.999989
Sr 421.552	3	Lin Thru 0	0.0	344.7	0.00000	0.999984
Ti 334.940	3	Lin Thru 0	0.0	703.5	0.00000	0.999961
Tl 190.801	3	Lin Thru 0	0.0	3.256	0.00000	0.999984
U 367.007	3	Lin Thru 0	0.0	8.128	0.00000	0.999803
V 292.402	3	Lin Thru 0	0.0	223.2	0.00000	0.999917
Zn 213.857	3	Lin Thru 0	0.0	176.3	0.00000	0.999953

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Sequence No.: 6 **Autosampler Location: 9**
Sample ID: ICV **Date Collected: 11/11/2016 09:16:11**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:29**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1338220.6	1338220.6	100.53	%			09:16:56
1	Sc RADIAL	72452.2	72452.2	101	%			09:16:44
1	Y 371.029	720087.9	720087.9	99.398	%			09:16:56
1	Ag 328.068†	47327.5	48970.2	252.68	µg/L	252.68	ppb	09:16:56
1	Al 396.153Radial†	14144.2	13961.6	5097.8	µg/L	5097.8	ppb	09:16:44
1	As 188.979†	909.5	934.7	513.00	µg/L	513.00	ppb	09:17:17
1	B 249.677†	35253.0	34183.3	495.38	µg/L	495.38	ppb	09:16:56
1	Ba 233.527†	56669.1	56612.7	504.82	µg/L	504.82	ppb	09:16:56
1	Be 313.107†	933038.6	931802.6	241.89	µg/L	241.89	ppb	09:16:56
1	Ca 317.933Radial†	46835.6	46224.6	5145.7	µg/L	5145.7	ppb	09:16:44
1	Cd 226.502†	67514.7	67340.8	508.94	µg/L	508.94	ppb	09:16:56
1	Co 228.616†	34022.7	33935.8	504.65	µg/L	504.65	ppb	09:16:56
1	Cr 267.716†	42884.8	42530.9	499.78	µg/L	499.78	ppb	09:16:56
1	Cu 324.752†	119948.6	113542.8	501.85	µg/L	501.85	ppb	09:16:56
1	Fe 238.204 Radial†	54286.1	54493.7	5154.9	µg/L	5154.9	ppb	09:16:44
1	K 766.490 Radial†	6057.5	4952.6	2604.1	µg/L	2604.1	ppb	09:16:44
1	Mg 279.077 IEC†	9595.1	9513.4	5130.7	µg/L	5130.7	ppb	09:16:44
1	Mn 257.610†	290768.2	289091.7	506.48	µg/L	506.48	ppb	09:16:56
1	Mo 202.031†	9851.8	9829.9	511.06	µg/L	511.06	ppb	09:17:17
1	Na 589.592 Radial†	15164.0	15037.5	2507.6	µg/L	2507.6	ppb	09:16:44
1	Ni 231.604†	32052.6	32082.3	510.05	µg/L	510.05	ppb	09:17:17
1	P 214.914†	6971.7	7030.2	2533.7	µg/L	2533.7	ppb	09:17:17
1	Pb 220.353†	5261.4	5160.1	521.54	µg/L	521.54	ppb	09:17:17
1	S 181.975 Axial†	2430.4	2315.0	2583.1	µg/L	2583.1	ppb	09:17:17
1	Sb 206.836†	2714.4	2655.9	504.97	µg/L	504.97	ppb	09:17:17
1	Se 196.026†	4971.1	4937.0	2590	µg/L	2590	ppb	09:17:17
1	SiO2†	97258.7	93729.0	10374	µg/L	10374	ppb	09:16:56
1	Si 251.611†	288070.1	285975.2	4849.4	µg/L	4849.4	ppb	09:16:56
1	Sn 189.927†	4015.5	4021.9	514.26	µg/L	514.26	ppb	09:17:17
1	Sr 421.552†	175792.0	175245.7	508.26	µg/L	508.26	ppb	09:16:42
1	Ti 334.940†	349920.6	348975.2	495.70	µg/L	495.70	ppb	09:16:56
1	Tl 190.801†	1618.3	1695.9	521.02	µg/L	521.02	ppb	09:17:17
1	U 367.007†	3852.3	4116.3	477.95	µg/L	477.95	ppb	09:16:56
1	V 292.402†	111790.6	111101.1	499.21	µg/L	499.21	ppb	09:16:56
1	Zn 213.857†	90034.1	89515.6	506.53	µg/L	506.53	ppb	09:16:56
2	Sc 361.383	1339980.6	1339980.6	100.66	%			09:17:20
2	Sc RADIAL	72998.4	72998.4	101	%			09:16:48
2	Y 371.029	720228.3	720228.3	99.418	%			09:17:20
2	Ag 328.068†	47268.6	48849.9	252.06	µg/L	252.06	ppb	09:17:20
2	Al 396.153Radial†	14329.8	14039.6	5126.3	µg/L	5126.3	ppb	09:16:48
2	As 188.979†	900.3	924.4	507.41	µg/L	507.41	ppb	09:17:40
2	B 249.677†	35486.1	34368.8	498.10	µg/L	498.10	ppb	09:17:20
2	Ba 233.527†	56963.3	56831.0	506.77	µg/L	506.77	ppb	09:17:20
2	Be 313.107†	937647.5	935162.2	242.76	µg/L	242.76	ppb	09:17:20
2	Ca 317.933Radial†	47863.1	46890.1	5219.8	µg/L	5219.8	ppb	09:16:48
2	Cd 226.502†	67772.1	67508.2	510.20	µg/L	510.20	ppb	09:17:20
2	Co 228.616†	34247.4	34114.6	507.30	µg/L	507.30	ppb	09:17:20
2	Cr 267.716†	42989.3	42578.8	500.35	µg/L	500.35	ppb	09:17:20
2	Cu 324.752†	120210.8	113646.6	502.32	µg/L	502.32	ppb	09:17:20
2	Fe 238.204 Radial†	55387.4	55176.7	5219.5	µg/L	5219.5	ppb	09:16:48
2	K 766.490 Radial†	6184.2	5032.6	2646.1	µg/L	2646.1	ppb	09:16:48
2	Mg 279.077 IEC†	9902.7	9745.6	5255.9	µg/L	5255.9	ppb	09:16:48
2	Mn 257.610†	292266.3	290200.1	508.42	µg/L	508.42	ppb	09:17:20
2	Mo 202.031†	9876.3	9841.3	511.66	µg/L	511.66	ppb	09:17:40
2	Na 589.592 Radial†	15428.4	15185.6	2532.3	µg/L	2532.3	ppb	09:16:48
2	Ni 231.604†	32131.0	32118.3	510.62	µg/L	510.62	ppb	09:17:40
2	P 214.914†	6982.8	7032.2	2534.4	µg/L	2534.4	ppb	09:17:40
2	Pb 220.353†	5274.5	5166.2	522.16	µg/L	522.16	ppb	09:17:40

2	S 181.975 Axial†	2428.9	2310.4	2577.8 µg/L	2577.8 ppb		09:17:40
2	Sb 206.836†	2716.3	2654.2	504.63 µg/L	504.63 ppb		09:17:40
2	Se 196.026†	4993.4	4952.7	2600 µg/L	2600 ppb		09:17:40
2	SiO2†	97981.6	94320.1	10439 µg/L	10439 ppb		09:17:20
2	Si 251.611†	289814.3	287331.7	4872.4 µg/L	4872.4 ppb		09:17:20
2	Sn 189.927†	4019.7	4020.9	514.12 µg/L	514.12 ppb		09:17:40
2	Sr 421.552†	176818.9	174951.2	507.40 µg/L	507.40 ppb		09:16:46
2	Ti 334.940†	351470.4	350057.7	497.24 µg/L	497.24 ppb		09:17:20
2	Tl 190.801†	1633.9	1709.3	525.13 µg/L	525.13 ppb		09:17:40
2	U 367.007†	3882.6	4141.4	480.68 µg/L	480.68 ppb		09:17:20
2	V 292.402†	111961.8	111125.2	499.33 µg/L	499.33 ppb		09:17:20
2	Zn 213.857†	90544.9	89905.3	508.72 µg/L	508.72 ppb		09:17:20
3	Sc 361.383	1364204.4	1364204.4	102.48 %			09:17:43
3	Sc RADIAL	73546.4	73546.4	102 %			09:16:52
3	Y 371.029	733106.9	733106.9	101.20 %			09:17:43
3	Ag 328.068†	48236.6	48960.6	252.64 µg/L	252.64 ppb		09:17:43
3	Al 396.153Radial†	14318.2	13922.9	5083.7 µg/L	5083.7 ppb		09:16:52
3	As 188.979†	899.9	908.1	498.59 µg/L	498.59 ppb		09:18:03
3	B 249.677†	36394.9	34629.6	501.80 µg/L	501.80 ppb		09:17:43
3	Ba 233.527†	58140.8	56975.1	508.06 µg/L	508.06 ppb		09:17:43
3	Be 313.107†	957905.1	938389.2	243.60 µg/L	243.60 ppb		09:17:43
3	Ca 317.933Radial†	47679.0	46357.8	5160.6 µg/L	5160.6 ppb		09:16:52
3	Cd 226.502†	69466.2	67965.8	513.67 µg/L	513.67 ppb		09:17:43
3	Co 228.616†	34916.7	34163.6	508.03 µg/L	508.03 ppb		09:17:43
3	Cr 267.716†	44034.8	42840.6	503.43 µg/L	503.43 ppb		09:17:43
3	Cu 324.752†	122927.5	114177.0	504.65 µg/L	504.65 ppb		09:17:43
3	Fe 238.204 Radial†	55160.8	54547.4	5159.9 µg/L	5159.9 ppb		09:16:52
3	K 766.490 Radial†	6082.3	4887.3	2569.8 µg/L	2569.8 ppb		09:16:52
3	Mg 279.077 IEC†	9808.8	9580.8	5167.0 µg/L	5167.0 ppb		09:16:52
3	Mn 257.610†	298573.5	291199.0	510.17 µg/L	510.17 ppb		09:17:43
3	Mo 202.031†	9759.3	9553.0	496.67 µg/L	496.67 ppb		09:18:03
3	Na 589.592 Radial†	15316.0	14962.1	2495.0 µg/L	2495.0 ppb		09:16:52
3	Ni 231.604†	31769.6	31198.8	496.00 µg/L	496.00 ppb		09:18:03
3	P 214.914†	6923.5	6851.1	2469.2 µg/L	2469.2 ppb		09:18:03
3	Pb 220.353†	5198.9	4999.4	505.29 µg/L	505.29 ppb		09:18:03
3	S 181.975 Axial†	2395.2	2234.6	2493.3 µg/L	2493.3 ppb		09:18:03
3	Sb 206.836†	2691.3	2581.9	490.60 µg/L	490.60 ppb		09:18:03
3	Se 196.026†	4919.3	4792.3	2510 µg/L	2510 ppb		09:18:03
3	SiO2†	100288.6	94842.9	10497 µg/L	10497 ppb		09:17:43
3	Si 251.611†	296514.9	288757.7	4896.5 µg/L	4896.5 ppb		09:17:43
3	Sn 189.927†	3992.7	3923.6	501.68 µg/L	501.68 ppb		09:18:03
3	Sr 421.552†	176877.5	173708.5	503.80 µg/L	503.80 ppb		09:16:50
3	Ti 334.940†	359264.9	351463.5	499.24 µg/L	499.24 ppb		09:17:43
3	Tl 190.801†	1608.8	1656.0	508.75 µg/L	508.75 ppb		09:18:03
3	U 367.007†	3881.4	4071.7	472.43 µg/L	472.43 ppb		09:17:43
3	V 292.402†	114598.5	111723.1	502.00 µg/L	502.00 ppb		09:17:43
3	Zn 213.857†	92595.6	90309.2	511.02 µg/L	511.02 ppb		09:17:43

Mean Data: ICV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1347468.5	101.22	%	1.091				1.08%
Sc RADIAL	72999.0	101	%	0.8				0.75%
Y 371.029	724474.4	100.00	%	1.032				1.03%
Ag 328.068†	48926.9	252.46	µg/L	0.345	252.46	ppb	0.345	0.14%
QC value within limits for Ag 328.068 Recovery = 100.99%								
Al 396.153Radial†	13974.7	5102.6	µg/L	21.71	5102.6	ppb	21.71	0.43%
QC value within limits for Al 396.153Radial Recovery = 102.05%								
As 188.979†	922.4	506.33	µg/L	7.267	506.33	ppb	7.267	1.44%
QC value within limits for As 188.979 Recovery = 101.27%								
B 249.677†	34393.9	498.43	µg/L	3.224	498.43	ppb	3.224	0.65%
QC value within limits for B 249.677 Recovery = 99.69%								
Ba 233.527†	56806.3	506.55	µg/L	1.627	506.55	ppb	1.627	0.32%
QC value within limits for Ba 233.527 Recovery = 101.31%								
Be 313.107†	935118.0	242.75	µg/L	0.857	242.75	ppb	0.857	0.35%
QC value within limits for Be 313.107 Recovery = 97.10%								
Ca 317.933Radial†	46490.8	5175.4	µg/L	39.20	5175.4	ppb	39.20	0.76%
QC value within limits for Ca 317.933Radial Recovery = 103.51%								
Cd 226.502†	67604.9	510.93	µg/L	2.449	510.93	ppb	2.449	0.48%
QC value within limits for Cd 226.502 Recovery = 102.19%								

Co 228.616†	34071.3	506.66 µg/L	1.783	506.66 ppb	1.783	0.35%
QC value within limits for Co 228.616 Recovery = 101.33%						
Cr 267.716†	42650.1	501.19 µg/L	1.963	501.19 ppb	1.963	0.39%
QC value within limits for Cr 267.716 Recovery = 100.24%						
Cu 324.752†	113788.8	502.94 µg/L	1.497	502.94 ppb	1.497	0.30%
QC value within limits for Cu 324.752 Recovery = 100.59%						
Fe 238.204 Radial†	54739.3	5178.1 µg/L	35.92	5178.1 ppb	35.92	0.69%
QC value within limits for Fe 238.204 Radial Recovery = 103.56%						
K 766.490 Radial†	4957.5	2606.7 µg/L	38.25	2606.7 ppb	38.25	1.47%
QC value within limits for K 766.490 Radial Recovery = 104.27%						
Mg 279.077 IEC†	9613.2	5184.5 µg/L	64.41	5184.5 ppb	64.41	1.24%
QC value within limits for Mg 279.077 IEC Recovery = 103.69%						
Mn 257.610†	290163.6	508.36 µg/L	1.847	508.36 ppb	1.847	0.36%
QC value within limits for Mn 257.610 Recovery = 101.67%						
Mo 202.031†	9741.4	506.46 µg/L	8.487	506.46 ppb	8.487	1.68%
QC value within limits for Mo 202.031 Recovery = 101.29%						
Na 589.592 Radial†	15061.7	2511.6 µg/L	18.96	2511.6 ppb	18.96	0.75%
QC value within limits for Na 589.592 Radial Recovery = 100.46%						
Ni 231.604†	31799.8	505.56 µg/L	8.279	505.56 ppb	8.279	1.64%
QC value within limits for Ni 231.604 Recovery = 101.11%						
P 214.914†	6971.2	2512.4 µg/L	37.47	2512.4 ppb	37.47	1.49%
QC value within limits for P 214.914 Recovery = 100.50%						
Pb 220.353†	5108.6	516.33 µg/L	9.567	516.33 ppb	9.567	1.85%
QC value within limits for Pb 220.353 Recovery = 103.27%						
S 181.975 Axial†	2286.7	2551.4 µg/L	50.39	2551.4 ppb	50.39	1.98%
QC value within limits for S 181.975 Axial Recovery = 102.06%						
Sb 206.836†	2630.7	500.07 µg/L	8.198	500.07 ppb	8.198	1.64%
QC value within limits for Sb 206.836 Recovery = 100.01%						
Se 196.026†	4894.0	2570 µg/L	46.3	2570 ppb	46.3	1.81%
QC value within limits for Se 196.026 Recovery = 102.66%						
SiO2†	94297.3	10437 µg/L	61.7	10437 ppb	61.7	0.59%
QC value within limits for SiO2 Recovery = 97.58%						
Si 251.611†	287354.9	4872.7 µg/L	23.59	4872.7 ppb	23.59	0.48%
QC value within limits for Si 251.611 Recovery = 97.45%						
Sn 189.927†	3988.8	510.02 µg/L	7.219	510.02 ppb	7.219	1.42%
QC value within limits for Sn 189.927 Recovery = 102.00%						
Sr 421.552†	174635.1	506.49 µg/L	2.367	506.49 ppb	2.367	0.47%
QC value within limits for Sr 421.552 Recovery = 101.30%						
Ti 334.940†	350165.5	497.39 µg/L	1.775	497.39 ppb	1.775	0.36%
QC value within limits for Ti 334.940 Recovery = 99.48%						
Tl 190.801†	1687.0	518.30 µg/L	8.522	518.30 ppb	8.522	1.64%
QC value within limits for Tl 190.801 Recovery = 103.66%						
U 367.007†	4109.8	477.02 µg/L	4.201	477.02 ppb	4.201	0.88%
QC value within limits for U 367.007 Recovery = 95.40%						
V 292.402†	111316.5	500.18 µg/L	1.580	500.18 ppb	1.580	0.32%
QC value within limits for V 292.402 Recovery = 100.04%						
Zn 213.857†	89910.1	508.76 µg/L	2.249	508.76 ppb	2.249	0.44%
QC value within limits for Zn 213.857 Recovery = 101.75%						

All analyte(s) passed QC.

Sequence No.: 7 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 11/11/2016 09:18:10**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:30**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1322662.0	1322662.0	99.358	%			09:19:42
1	Sc RADIAL	72696.9	72696.9	101	%			09:18:35
1	Y 371.029	720684.5	720684.5	99.481	%			09:19:42
1	Ag 328.068†	-1795.1	84.1	0.4332	µg/L	0.4332	ppb	09:19:44
1	Al 396.153Radial†	148.8	45.8	16.717	µg/L	16.717	ppb	09:18:55
1	As 188.979†	-29.9	-0.1	-0.0808	µg/L	-0.0808	ppb	09:20:04
1	B 249.677†	915.9	36.9	0.5343	µg/L	0.5343	ppb	09:19:44
1	Ba 233.527†	-238.1	1.1	0.0099	µg/L	0.0099	ppb	09:20:04
1	Be 313.107†	-3645.3	-12.9	-0.0031	µg/L	-0.0031	ppb	09:19:44
1	Ca 317.933Radial†	391.0	44.3	4.9304	µg/L	4.9304	ppb	09:18:55
1	Cd 226.502†	-157.6	21.3	0.1611	µg/L	0.1611	ppb	09:20:04
1	Co 228.616†	-85.2	5.8	0.0864	µg/L	0.0864	ppb	09:20:04
1	Cr 267.716†	130.0	1.8	0.0194	µg/L	0.0194	ppb	09:20:04
1	Cu 324.752†	5557.4	-183.6	-0.8084	µg/L	-0.8084	ppb	09:19:44
1	Fe 238.204 Radial†	-479.6	42.8	4.0476	µg/L	4.0476	ppb	09:18:55
1	K 766.490 Radial†	1094.6	14.5	7.6165	µg/L	7.6165	ppb	09:18:35
1	Mg 279.077 IEC†	33.4	6.3	3.3912	µg/L	3.3912	ppb	09:18:55
1	Mn 257.610†	168.8	18.0	0.0314	µg/L	0.0314	ppb	09:20:04
1	Mo 202.031†	-4.0	25.7	1.3379	µg/L	1.3379	ppb	09:20:04
1	Na 589.592 Radial†	162.2	121.0	20.179	µg/L	20.179	ppb	09:18:35
1	Ni 231.604†	-207.3	-10.9	-0.1729	µg/L	-0.1729	ppb	09:20:04
1	P 214.914†	-85.3	9.2	3.3286	µg/L	3.3286	ppb	09:20:04
1	Pb 220.353†	76.1	2.9	0.2928	µg/L	0.2928	ppb	09:20:04
1	S 181.975 Axial†	99.2	-2.9	-3.2073	µg/L	-3.2073	ppb	09:20:04
1	Sb 206.836†	63.9	20.0	3.8570	µg/L	3.8570	ppb	09:20:04
1	Se 196.026†	8.4	0.5	0.258	µg/L	0.258	ppb	09:20:04
1	SiO2†	2783.2	-218.6	-24.191	µg/L	-24.191	ppb	09:19:44
1	Si 251.611†	449.2	-132.4	-2.2438	µg/L	-2.2438	ppb	09:19:44
1	Sn 189.927†	-25.6	1.7	0.2152	µg/L	0.2152	ppb	09:20:04
1	Sr 421.552†	-389.6	73.0	0.2116	µg/L	0.2116	ppb	09:18:55
1	Ti 334.940†	-492.1	393.9	0.5590	µg/L	0.5590	ppb	09:19:44
1	Tl 190.801†	-75.1	10.4	3.2075	µg/L	3.2075	ppb	09:20:04
1	U 367.007†	-267.2	15.3	1.8644	µg/L	1.8644	ppb	09:19:44
1	V 292.402†	125.5	22.9	0.1038	µg/L	0.1038	ppb	09:19:44
1	Zn 213.857†	75.5	29.4	0.1673	µg/L	0.1673	ppb	09:20:04
2	Sc 361.383	1336038.8	1336038.8	100.36	%			09:20:06
2	Sc RADIAL	70572.0	70572.0	98.0	%			09:18:57
2	Y 371.029	727236.6	727236.6	100.39	%			09:20:06
2	Ag 328.068†	-1904.2	-6.5	-0.0332	µg/L	-0.0332	ppb	09:20:09
2	Al 396.153Radial†	119.7	20.5	7.4884	µg/L	7.4884	ppb	09:19:17
2	As 188.979†	-26.7	3.3	1.8073	µg/L	1.8073	ppb	09:20:29
2	B 249.677†	857.0	-31.0	-0.4424	µg/L	-0.4424	ppb	09:20:09
2	Ba 233.527†	-220.4	21.1	0.1886	µg/L	0.1886	ppb	09:20:29
2	Be 313.107†	-3193.2	474.3	0.1248	µg/L	0.1248	ppb	09:20:09
2	Ca 317.933Radial†	348.9	12.9	1.4412	µg/L	1.4412	ppb	09:19:17
2	Cd 226.502†	-149.0	31.5	0.2381	µg/L	0.2381	ppb	09:20:29
2	Co 228.616†	-77.7	14.1	0.2099	µg/L	0.2099	ppb	09:20:29
2	Cr 267.716†	100.1	-29.2	-0.3438	µg/L	-0.3438	ppb	09:20:29
2	Cu 324.752†	5669.0	-128.4	-0.5661	µg/L	-0.5661	ppb	09:20:09
2	Fe 238.204 Radial†	-459.5	49.1	4.6422	µg/L	4.6422	ppb	09:19:17
2	K 766.490 Radial†	923.2	-127.9	-67.185	µg/L	-67.185	ppb	09:18:57
2	Mg 279.077 IEC†	36.5	10.5	5.6473	µg/L	5.6473	ppb	09:19:17
2	Mn 257.610†	174.7	22.1	0.0385	µg/L	0.0385	ppb	09:20:29
2	Mo 202.031†	-25.6	4.3	0.2213	µg/L	0.2213	ppb	09:20:29
2	Na 589.592 Radial†	141.5	104.7	17.457	µg/L	17.457	ppb	09:18:57
2	Ni 231.604†	-214.7	-16.2	-0.2577	µg/L	-0.2577	ppb	09:20:29
2	P 214.914†	-84.3	11.1	3.9836	µg/L	3.9836	ppb	09:20:29
2	Pb 220.353†	75.0	1.0	0.1018	µg/L	0.1018	ppb	09:20:29

2	S 181.975 Axial†	94.1	-8.9	-9.9534 µg/L	-9.9534 ppb		09:20:29
2	Sb 206.836†	77.7	33.2	6.4108 µg/L	6.4108 ppb		09:20:29
2	Se 196.026†	0.3	-7.7	-4.04 µg/L	-4.04 ppb		09:20:29
2	SiO2†	2835.6	-194.4	-21.518 µg/L	-21.518 ppb		09:20:09
2	Si 251.611†	534.7	-51.7	-0.8767 µg/L	-0.8767 ppb		09:20:09
2	Sn 189.927†	-33.3	-5.7	-0.7247 µg/L	-0.7247 ppb		09:20:29
2	Sr 421.552†	-435.2	14.8	0.0429 µg/L	0.0429 ppb		09:19:17
2	Ti 334.940†	-220.8	669.2	0.9512 µg/L	0.9512 ppb		09:20:09
2	Tl 190.801†	-71.9	14.4	4.4169 µg/L	4.4169 ppb		09:20:29
2	U 367.007†	-283.4	1.8	0.1970 µg/L	0.1970 ppb		09:20:09
2	V 292.402†	-10.2	-113.5	-0.5088 µg/L	-0.5088 ppb		09:20:09
2	Zn 213.857†	65.1	18.4	0.1041 µg/L	0.1041 ppb		09:20:29
3	Sc 361.383	1324922.7	1324922.7	99.528 %			09:20:31
3	Sc RADIAL	70929.2	70929.2	98.5 %			09:19:19
3	Y 371.029	721029.6	721029.6	99.528 %			09:20:31
3	Ag 328.068†	-1768.5	113.9	0.5950 µg/L	0.5950 ppb		09:20:33
3	Al 396.153Radial†	107.3	7.3	2.6761 µg/L	2.6761 ppb		09:19:39
3	As 188.979†	-30.7	-0.9	-0.4607 µg/L	-0.4607 ppb		09:20:53
3	B 249.677†	836.2	-44.7	-0.6390 µg/L	-0.6390 ppb		09:20:33
3	Ba 233.527†	-227.2	12.5	0.1113 µg/L	0.1113 ppb		09:20:53
3	Be 313.107†	-3542.5	96.6	0.0193 µg/L	0.0193 ppb		09:20:33
3	Ca 317.933Radial†	364.2	26.7	2.9685 µg/L	2.9685 ppb		09:19:39
3	Cd 226.502†	-167.0	12.3	0.0921 µg/L	0.0921 ppb		09:20:53
3	Co 228.616†	-86.1	5.1	0.0752 µg/L	0.0752 ppb		09:20:53
3	Cr 267.716†	138.0	9.6	0.1243 µg/L	0.1243 ppb		09:20:53
3	Cu 324.752†	5541.9	-208.7	-0.9302 µg/L	-0.9302 ppb		09:20:33
3	Fe 238.204 Radial†	-445.2	65.9	6.2344 µg/L	6.2344 ppb		09:19:39
3	K 766.490 Radial†	982.9	-71.9	-37.791 µg/L	-37.791 ppb		09:19:19
3	Mg 279.077 IEC†	31.9	5.6	3.0060 µg/L	3.0060 ppb		09:19:39
3	Mn 257.610†	184.3	33.2	0.0581 µg/L	0.0581 ppb		09:20:53
3	Mo 202.031†	-21.9	7.7	0.4003 µg/L	0.4003 ppb		09:20:53
3	Na 589.592 Radial†	10.3	-29.3	-4.8851 µg/L	-4.8851 ppb		09:19:19
3	Ni 231.604†	-191.3	5.5	0.0875 µg/L	0.0875 ppb		09:20:53
3	P 214.914†	-58.8	36.0	12.980 µg/L	12.980 ppb		09:20:53
3	Pb 220.353†	73.9	0.5	0.0663 µg/L	0.0663 ppb		09:20:53
3	S 181.975 Axial†	92.1	-10.1	-11.304 µg/L	-11.304 ppb		09:20:53
3	Sb 206.836†	68.6	24.6	4.7557 µg/L	4.7557 ppb		09:20:53
3	Se 196.026†	7.9	-0.1	-0.039 µg/L	-0.039 ppb		09:20:53
3	SiO2†	2942.9	-63.0	-6.9674 µg/L	-6.9674 ppb		09:20:33
3	Si 251.611†	459.4	-122.9	-2.0826 µg/L	-2.0826 ppb		09:20:33
3	Sn 189.927†	-17.5	9.9	1.2684 µg/L	1.2684 ppb		09:20:53
3	Sr 421.552†	-435.1	17.1	0.0496 µg/L	0.0496 ppb		09:19:39
3	Ti 334.940†	-331.4	556.2	0.7969 µg/L	0.7969 ppb		09:20:33
3	Tl 190.801†	-68.1	17.6	5.4072 µg/L	5.4072 ppb		09:20:53
3	U 367.007†	-379.2	-96.8	-11.938 µg/L	-11.938 ppb		09:20:33
3	V 292.402†	84.7	-18.3	-0.0856 µg/L	-0.0856 ppb		09:20:33
3	Zn 213.857†	65.7	19.5	0.1107 µg/L	0.1107 ppb		09:20:53

Mean Data: ICB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1327874.5	99.750	%	0.5379				0.54%
Sc RADIAL	71399.4	99.1	%	1.58				1.59%
Y 371.029	722983.6	99.798	%	0.5090				0.51%
Ag 328.068†	63.9	0.3317	µg/L	0.32620	0.3317	ppb	0.32620	98.34%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	24.5	8.9605	µg/L	7.13523	8.9605	ppb	7.13523	79.63%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.8	0.4219	µg/L	1.21470	0.4219	ppb	1.21470	287.89%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-12.9	-0.1823	µg/L	0.62840	-0.1823	ppb	0.62840	344.62%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	11.6	0.1033	µg/L	0.08963	0.1033	ppb	0.08963	86.78%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	186.0	0.0470	µg/L	0.06828	0.0470	ppb	0.06828	145.28%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	28.0	3.1134	µg/L	1.74909	3.1134	ppb	1.74909	56.18%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	21.7	0.1638	µg/L	0.07308	0.1638	ppb	0.07308	44.63%
QC value within limits for Cd 226.502 Recovery = Not calculated								

```
Co 228.616†                8.3      0.1238 µg/L       0.07475      0.1238 ppb        0.07475  60.36%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†               -5.9     -0.0667 µg/L       0.24562     -0.0667 ppb        0.24562 368.32%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -173.6     -0.7682 µg/L       0.18535     -0.7682 ppb        0.18535  24.13%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        52.6      4.9747 µg/L       1.13067      4.9747 ppb        1.13067  22.73%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        -61.8     -32.453 µg/L       37.6855     -32.453 ppb        37.6855 116.12%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            7.4      4.0148 µg/L       1.42680      4.0148 ppb        1.42680  35.54%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               24.4      0.0426 µg/L       0.01384      0.0426 ppb        0.01384  32.45%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               12.6      0.6532 µg/L       0.59970      0.6532 ppb        0.59970  91.81%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        65.5      10.917 µg/L       13.7524      10.917 ppb        13.7524 125.97%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               -7.2     -0.1144 µg/L       0.17990     -0.1144 ppb        0.17990 157.30%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                18.8      6.7641 µg/L       5.39318      6.7641 ppb        5.39318  79.73%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                1.5      0.1536 µg/L       0.12179      0.1536 ppb        0.12179  79.28%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -7.3     -8.1551 µg/L       4.33776     -8.1551 ppb        4.33776  53.19%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               25.9      5.0078 µg/L       1.29543      5.0078 ppb        1.29543  25.87%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -2.4       -1.28 µg/L         2.403       -1.28 ppb          2.403 188.39%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -158.6     -17.559 µg/L        9.2690     -17.559 ppb         9.2690  52.79%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -102.3     -1.7344 µg/L       0.74712     -1.7344 ppb        0.74712  43.08%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                2.0      0.2530 µg/L       0.99710      0.2530 ppb        0.99710 394.12%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               35.0      0.1014 µg/L       0.09556      0.1014 ppb        0.09556  94.28%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              539.8      0.7691 µg/L       0.19758      0.7691 ppb        0.19758  25.69%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               14.1      4.3439 µg/L       1.10166      4.3439 ppb        1.10166  25.36%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -26.5     -3.2921 µg/L       7.53354     -3.2921 ppb        7.53354 228.84%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -36.3     -0.1635 µg/L       0.31362     -0.1635 ppb        0.31362 191.77%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†               22.4      0.1274 µg/L       0.03471      0.1274 ppb        0.03471  27.25%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 11/11/2016 09:21:00**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:31**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc 361.383	1368966.1	1368966.1	102.84	%			09:22:32
1	Sc RADIAL	73226.8	73226.8	102	%			09:21:25
1	Y 371.029	746701.0	746701.0	103.07	%			09:22:32
1	Ag 328.068†	-917.6	998.6	5.1397	µg/L	5.1397	ppb	09:22:34
1	Al 396.153Radial†	690.7	577.8	210.97	µg/L	210.97	ppb	09:21:45
1	As 188.979†	25.2	54.5	29.648	µg/L	29.648	ppb	09:22:54
1	B 249.677†	4281.4	3278.5	47.228	µg/L	47.228	ppb	09:22:34
1	Ba 233.527†	361.8	592.6	5.2844	µg/L	5.2844	ppb	09:22:54
1	Be 313.107†	15104.9	18344.2	4.8841	µg/L	4.8841	ppb	09:22:34
1	Ca 317.933Radial†	2333.7	1952.6	217.37	µg/L	217.37	ppb	09:21:45
1	Cd 226.502†	504.5	670.6	5.0616	µg/L	5.0616	ppb	09:22:54
1	Co 228.616†	284.3	368.0	5.4714	µg/L	5.4714	ppb	09:22:54
1	Cr 267.716†	610.0	464.2	5.4306	µg/L	5.4306	ppb	09:22:54
1	Cu 324.752†	8052.4	2053.4	9.0974	µg/L	9.0974	ppb	09:22:34
1	Fe 238.204 Radial†	630.6	1138.4	107.69	µg/L	107.69	ppb	09:21:45
1	K 766.490 Radial†	1245.6	155.1	81.537	µg/L	81.537	ppb	09:21:25
1	Mg 279.077 IEC†	609.7	573.0	308.94	µg/L	308.94	ppb	09:21:45
1	Mn 257.610†	6161.8	5839.9	10.224	µg/L	10.224	ppb	09:22:34
1	Mo 202.031†	161.5	186.8	9.7141	µg/L	9.7141	ppb	09:22:54
1	Na 589.592 Radial†	1909.3	1838.5	306.58	µg/L	306.58	ppb	09:21:25
1	Ni 231.604†	123.3	317.6	5.0498	µg/L	5.0498	ppb	09:22:54
1	P 214.914†	336.5	422.3	152.19	µg/L	152.19	ppb	09:22:54
1	Pb 220.353†	172.7	94.3	9.5057	µg/L	9.5057	ppb	09:22:54
1	S 181.975 Axial†	174.4	66.9	74.606	µg/L	74.606	ppb	09:22:54
1	Sb 206.836†	94.1	47.2	9.0361	µg/L	9.0361	ppb	09:22:54
1	Se 196.026†	64.7	54.9	28.9	µg/L	28.9	ppb	09:22:54
1	SiO2†	4778.5	1627.0	180.07	µg/L	180.07	ppb	09:22:34
1	Si 251.611†	6074.4	5322.4	90.254	µg/L	90.254	ppb	09:22:34
1	Sn 189.927†	61.4	87.2	11.149	µg/L	11.149	ppb	09:22:54
1	Sr 421.552†	1363.1	1800.0	5.2149	µg/L	5.2149	ppb	09:21:45
1	Ti 334.940†	2737.0	3550.7	5.0320	µg/L	5.0320	ppb	09:22:34
1	Tl 190.801†	-26.3	60.5	18.572	µg/L	18.572	ppb	09:22:54
1	U 367.007†	-31.4	253.7	30.605	µg/L	30.605	ppb	09:22:34
1	V 292.402†	1350.0	1209.4	5.4470	µg/L	5.4470	ppb	09:22:34
1	Zn 213.857†	1944.7	1844.6	10.429	µg/L	10.429	ppb	09:22:54
2	Sc 361.383	1374309.4	1374309.4	103.24	%			09:22:56
2	Sc RADIAL	72122.5	72122.5	100	%			09:21:47
2	Y 371.029	747984.6	747984.6	103.25	%			09:22:56
2	Ag 328.068†	-580.7	1328.3	6.8401	µg/L	6.8401	ppb	09:22:58
2	Al 396.153Radial†	715.6	613.1	223.87	µg/L	223.87	ppb	09:22:07
2	As 188.979†	25.0	54.2	29.482	µg/L	29.482	ppb	09:23:19
2	B 249.677†	4400.4	3377.5	48.654	µg/L	48.654	ppb	09:22:58
2	Ba 233.527†	347.0	576.9	5.1445	µg/L	5.1445	ppb	09:23:19
2	Be 313.107†	15348.9	18523.4	4.9375	µg/L	4.9375	ppb	09:22:58
2	Ca 317.933Radial†	2335.9	1990.0	221.52	µg/L	221.52	ppb	09:22:07
2	Cd 226.502†	526.5	690.0	5.2086	µg/L	5.2086	ppb	09:23:19
2	Co 228.616†	249.4	333.1	4.9532	µg/L	4.9532	ppb	09:23:19
2	Cr 267.716†	600.3	452.4	5.2903	µg/L	5.2903	ppb	09:23:19
2	Cu 324.752†	8032.0	2003.2	8.8781	µg/L	8.8781	ppb	09:22:58
2	Fe 238.204 Radial†	644.5	1161.8	109.90	µg/L	109.90	ppb	09:22:07
2	K 766.490 Radial†	1349.7	277.9	146.06	µg/L	146.06	ppb	09:21:47
2	Mg 279.077 IEC†	621.4	593.9	320.23	µg/L	320.23	ppb	09:22:07
2	Mn 257.610†	6152.3	5807.3	10.166	µg/L	10.166	ppb	09:22:58
2	Mo 202.031†	163.1	187.8	9.7643	µg/L	9.7643	ppb	09:23:19
2	Na 589.592 Radial†	1804.6	1762.7	293.93	µg/L	293.93	ppb	09:21:47
2	Ni 231.604†	144.2	337.4	5.3634	µg/L	5.3634	ppb	09:23:19
2	P 214.914†	329.0	413.8	149.15	µg/L	149.15	ppb	09:23:19
2	Pb 220.353†	179.1	99.8	10.059	µg/L	10.059	ppb	09:23:19

2	S 181.975 Axial†	189.3	80.6	89.985 µg/L	89.985 ppb	09:23:19
2	Sb 206.836†	96.6	49.2	9.4219 µg/L	9.4219 ppb	09:23:19
2	Se 196.026†	77.0	66.6	35.0 µg/L	35.0 ppb	09:23:19
2	SiO2†	4782.0	1612.3	178.44 µg/L	178.44 ppb	09:22:58
2	Si 251.611†	6167.1	5389.2	91.387 µg/L	91.387 ppb	09:22:58
2	Sn 189.927†	59.6	85.2	10.894 µg/L	10.894 ppb	09:23:19
2	Sr 421.552†	1414.4	1871.7	5.4228 µg/L	5.4228 ppb	09:22:07
2	Ti 334.940†	2731.7	3535.2	5.0086 µg/L	5.0086 ppb	09:22:58
2	Tl 190.801†	-8.9	77.5	23.792 µg/L	23.792 ppb	09:23:19
2	U 367.007†	-8.3	276.1	33.357 µg/L	33.357 ppb	09:22:58
2	V 292.402†	1202.5	1061.4	4.7849 µg/L	4.7849 ppb	09:22:58
2	Zn 213.857†	1920.2	1813.5	10.252 µg/L	10.252 ppb	09:23:19
3	Sc 361.383	1323781.0	1323781.0	99.442 %		09:23:21
3	Sc RADIAL	72084.8	72084.8	100 %		09:22:09
3	Y 371.029	721660.9	721660.9	99.616 %		09:23:21
3	Ag 328.068†	-832.4	1053.8	5.4110 µg/L	5.4110 ppb	09:23:23
3	Al 396.153Radial†	691.5	589.3	215.19 µg/L	215.19 ppb	09:22:29
3	As 188.979†	30.1	60.2	32.779 µg/L	32.779 ppb	09:23:43
3	B 249.677†	4433.0	3573.0	51.464 µg/L	51.464 ppb	09:23:23
3	Ba 233.527†	358.8	601.6	5.3646 µg/L	5.3646 ppb	09:23:43
3	Be 313.107†	15292.4	19034.0	5.0788 µg/L	5.0788 ppb	09:23:23
3	Ca 317.933Radial†	2361.3	2016.6	224.49 µg/L	224.49 ppb	09:22:29
3	Cd 226.502†	522.4	705.3	5.3244 µg/L	5.3244 ppb	09:23:43
3	Co 228.616†	263.8	356.8	5.3048 µg/L	5.3048 ppb	09:23:43
3	Cr 267.716†	594.0	468.4	5.4586 µg/L	5.4586 ppb	09:23:43
3	Cu 324.752†	8131.9	2400.7	10.649 µg/L	10.649 ppb	09:23:23
3	Fe 238.204 Radial†	630.2	1147.8	108.58 µg/L	108.58 ppb	09:22:29
3	K 766.490 Radial†	1317.3	246.3	129.43 µg/L	129.43 ppb	09:22:09
3	Mg 279.077 IEC†	628.0	600.8	323.92 µg/L	323.92 ppb	09:22:29
3	Mn 257.610†	6222.9	6105.8	10.689 µg/L	10.689 ppb	09:23:23
3	Mo 202.031†	179.0	209.8	10.909 µg/L	10.909 ppb	09:23:43
3	Na 589.592 Radial†	1943.4	1902.4	317.23 µg/L	317.23 ppb	09:22:09
3	Ni 231.604†	126.7	325.1	5.1689 µg/L	5.1689 ppb	09:23:43
3	P 214.914†	350.8	447.8	161.41 µg/L	161.41 ppb	09:23:43
3	Pb 220.353†	184.1	111.4	11.219 µg/L	11.219 ppb	09:23:43
3	S 181.975 Axial†	181.3	79.6	88.848 µg/L	88.848 ppb	09:23:43
3	Sb 206.836†	91.0	47.2	9.0280 µg/L	9.0280 ppb	09:23:43
3	Se 196.026†	60.6	52.9	27.8 µg/L	27.8 ppb	09:23:43
3	SiO2†	4819.1	1826.4	202.14 µg/L	202.14 ppb	09:23:23
3	Si 251.611†	6067.3	5516.8	93.551 µg/L	93.551 ppb	09:23:23
3	Sn 189.927†	58.2	86.0	11.001 µg/L	11.001 ppb	09:23:43
3	Sr 421.552†	1377.4	1835.5	5.3176 µg/L	5.3176 ppb	09:22:29
3	Ti 334.940†	2926.8	3832.5	5.4203 µg/L	5.4203 ppb	09:23:23
3	Tl 190.801†	-16.6	69.3	21.303 µg/L	21.303 ppb	09:23:43
3	U 367.007†	160.3	445.4	54.191 µg/L	54.191 ppb	09:23:23
3	V 292.402†	1327.2	1231.3	5.5542 µg/L	5.5542 ppb	09:23:23
3	Zn 213.857†	1912.0	1876.2	10.606 µg/L	10.606 ppb	09:23:43

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1355685.5	101.84	%	2.085				2.05%
Sc RADIAL	72478.0	101	%	0.9				0.90%
Y 371.029	738782.2	101.98	%	2.049				2.01%
Ag 328.068†	1126.9	5.7969	µg/L	0.91350	5.7969	ppb	0.91350	15.76%
QC value within limits for Ag 328.068 Recovery = 115.94%								
Al 396.153Radial†	593.4	216.68	µg/L	6.574	216.68	ppb	6.574	3.03%
QC value within limits for Al 396.153Radial Recovery = 108.34%								
As 188.979†	56.3	30.636	µg/L	1.8572	30.636	ppb	1.8572	6.06%
QC value within limits for As 188.979 Recovery = 102.12%								
B 249.677†	3409.7	49.115	µg/L	2.1555	49.115	ppb	2.1555	4.39%
QC value within limits for B 249.677 Recovery = 98.23%								
Ba 233.527†	590.3	5.2645	µg/L	0.11138	5.2645	ppb	0.11138	2.12%
QC value within limits for Ba 233.527 Recovery = 105.29%								
Be 313.107†	18633.9	4.9668	µg/L	0.10061	4.9668	ppb	0.10061	2.03%
QC value within limits for Be 313.107 Recovery = 99.34%								
Ca 317.933Radial†	1986.4	221.13	µg/L	3.579	221.13	ppb	3.579	1.62%
QC value within limits for Ca 317.933Radial Recovery = 110.56%								
Cd 226.502†	688.7	5.1982	µg/L	0.13171	5.1982	ppb	0.13171	2.53%
QC value within limits for Cd 226.502 Recovery = 103.96%								

Co 228.616†	352.6	5.2431 µg/L	0.26458	5.2431 ppb	0.26458	5.05%
QC value within limits for Co 228.616 Recovery = 104.86%						
Cr 267.716†	461.6	5.3932 µg/L	0.09019	5.3932 ppb	0.09019	1.67%
QC value within limits for Cr 267.716 Recovery = 107.86%						
Cu 324.752†	2152.4	9.5414 µg/L	0.96522	9.5414 ppb	0.96522	10.12%
QC value within limits for Cu 324.752 Recovery = 95.41%						
Fe 238.204 Radial†	1149.4	108.72 µg/L	1.112	108.72 ppb	1.112	1.02%
QC value within limits for Fe 238.204 Radial Recovery = 108.72%						
K 766.490 Radial†	226.4	119.01 µg/L	33.500	119.01 ppb	33.500	28.15%
QC value within limits for K 766.490 Radial Recovery = 79.34%						
Mg 279.077 IEC†	589.2	317.70 µg/L	7.808	317.70 ppb	7.808	2.46%
QC value within limits for Mg 279.077 IEC Recovery = 105.90%						
Mn 257.610†	5917.7	10.360 µg/L	0.2868	10.360 ppb	0.2868	2.77%
QC value within limits for Mn 257.610 Recovery = 103.60%						
Mo 202.031†	194.8	10.129 µg/L	0.6760	10.129 ppb	0.6760	6.67%
QC value within limits for Mo 202.031 Recovery = 101.29%						
Na 589.592 Radial†	1834.5	305.92 µg/L	11.661	305.92 ppb	11.661	3.81%
QC value within limits for Na 589.592 Radial Recovery = 101.97%						
Ni 231.604†	326.7	5.1940 µg/L	0.15831	5.1940 ppb	0.15831	3.05%
QC value within limits for Ni 231.604 Recovery = 103.88%						
P 214.914†	428.0	154.25 µg/L	6.385	154.25 ppb	6.385	4.14%
QC value within limits for P 214.914 Recovery = 102.83%						
Pb 220.353†	101.8	10.261 µg/L	0.8741	10.261 ppb	0.8741	8.52%
QC value within limits for Pb 220.353 Recovery = 102.61%						
S 181.975 Axial†	75.7	84.480 µg/L	8.5698	84.480 ppb	8.5698	10.14%
QC value within limits for S 181.975 Axial Recovery = 84.48%						
Sb 206.836†	47.9	9.1620 µg/L	0.22515	9.1620 ppb	0.22515	2.46%
QC value within limits for Sb 206.836 Recovery = 91.62%						
Se 196.026†	58.1	30.5 µg/L	3.85	30.5 ppb	3.85	12.62%
QC value within limits for Se 196.026 Recovery = 101.81%						
SiO2†	1688.5	186.88 µg/L	13.237	186.88 ppb	13.237	7.08%
QC value within limits for SiO2 Recovery = 87.74%						
Si 251.611†	5409.5	91.731 µg/L	1.6751	91.731 ppb	1.6751	1.83%
QC value within limits for Si 251.611 Recovery = 91.73%						
Sn 189.927†	86.1	11.015 µg/L	0.1281	11.015 ppb	0.1281	1.16%
QC value within limits for Sn 189.927 Recovery = 110.15%						
Sr 421.552†	1835.8	5.3184 µg/L	0.10395	5.3184 ppb	0.10395	1.95%
QC value within limits for Sr 421.552 Recovery = 106.37%						
Ti 334.940†	3639.5	5.1536 µg/L	0.23122	5.1536 ppb	0.23122	4.49%
QC value within limits for Ti 334.940 Recovery = 103.07%						
Tl 190.801†	69.1	21.223 µg/L	2.6110	21.223 ppb	2.6110	12.30%
QC value within limits for Tl 190.801 Recovery = 106.11%						
U 367.007†	325.1	39.384 µg/L	12.8967	39.384 ppb	12.8967	32.75%
QC value within limits for U 367.007 Recovery = 78.77%						
V 292.402†	1167.4	5.2621 µg/L	0.41666	5.2621 ppb	0.41666	7.92%
QC value within limits for V 292.402 Recovery = 105.24%						
Zn 213.857†	1844.8	10.429 µg/L	0.1771	10.429 ppb	0.1771	1.70%
QC value within limits for Zn 213.857 Recovery = 104.29%						

All analyte(s) passed QC.

Sequence No.: 9 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 11/11/2016 09:23:51**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:31**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1181899.3	1181899.3	88.784	%			09:24:32
1	Sc RADIAL	66327.9	66327.9	92.1	%			09:24:20
1	Y 371.029	633740.0	633740.0	87.479	%			09:24:32
1	Ag 328.068†	-2849.8	-1318.9	-0.3555	µg/L	-0.3555	ppb	09:24:32
1	Al 396.153Radial†	1273645.7	1383187.9	505040	µg/L	505040	ppb	09:24:18
1	As 188.979†	-61.7	-39.6	1.8623	µg/L	1.8623	ppb	09:24:52
1	B 249.677†	-8966.3	-10983.8	-17.955	µg/L	-17.955	ppb	09:24:32
1	Ba 233.527†	-99.0	129.3	2.0784	µg/L	2.0784	ppb	09:24:52
1	Be 313.107†	-3818.9	-645.4	0.1909	µg/L	0.1909	ppb	09:24:32
1	Ca 317.933Radial†	4013093.6	4358224.1	485160	µg/L	485160	ppb	09:24:18
1	Cd 226.502†	2725.0	3249.2	2.7294	µg/L	2.7294	ppb	09:24:52
1	Co 228.616†	35.2	131.2	-0.3884	µg/L	-0.3884	ppb	09:24:52
1	Cr 267.716†	161.6	53.1	0.2849	µg/L	0.2849	ppb	09:24:52
1	Cu 324.752†	963.0	-4692.2	-1.0482	µg/L	-1.0482	ppb	09:24:52
1	Fe 238.204 Radial†	1857269.4	2017673.4	190860	µg/L	190860	ppb	09:24:18
1	K 766.490 Radial†	1003.0	19.1	41.385	µg/L	41.385	ppb	09:24:20
1	Mg 279.077 IEC†	854850.3	928414.7	500610	µg/L	500610	ppb	09:24:18
1	Mn 257.610†	8373.9	9279.8	-1.8357	µg/L	-1.8357	ppb	09:24:32
1	Mo 202.031†	-259.2	-262.2	-3.6815	µg/L	-3.6815	ppb	09:24:52
1	Na 589.592 Radial†	-23.9	-65.7	-10.958	µg/L	-10.958	ppb	09:24:20
1	Ni 231.604†	-242.6	-75.5	-1.1998	µg/L	-1.1998	ppb	09:24:52
1	P 214.914†	-37.9	52.4	8.8678	µg/L	8.8678	ppb	09:24:52
1	Pb 220.353†	-88.4	-173.3	2.1493	µg/L	2.1493	ppb	09:24:52
1	S 181.975 Axial†	142.2	57.4	13.532	µg/L	13.532	ppb	09:24:52
1	Sb 206.836†	93.5	61.1	3.8446	µg/L	3.8446	ppb	09:24:52
1	Se 196.026†	-134.3	-159.3	-6.91	µg/L	-6.91	ppb	09:24:52
1	SiO2†	3472.6	891.5	98.664	µg/L	98.664	ppb	09:24:52
1	Si 251.611†	1735.0	1369.7	47.354	µg/L	47.354	ppb	09:24:52
1	Sn 189.927†	-28.8	-4.9	0.9305	µg/L	0.9305	ppb	09:24:52
1	Sr 421.552†	4615.3	5471.6	-0.8633	µg/L	-0.8633	ppb	09:24:20
1	Ti 334.940†	-4434.8	-4105.7	-0.3577	µg/L	-0.3577	ppb	09:24:32
1	Tl 190.801†	-108.9	-36.6	-8.0041	µg/L	-8.0041	ppb	09:24:52
1	U 367.007†	7642.0	8891.6	13.727	µg/L	13.727	ppb	09:24:32
1	V 292.402†	-2235.3	-2621.0	1.3897	µg/L	1.3897	ppb	09:24:52
1	Zn 213.857†	7904.4	8856.5	5.0303	µg/L	5.0303	ppb	09:24:52
2	Sc 361.383	1223481.8	1223481.8	91.908	%			09:24:54
2	Sc RADIAL	68085.4	68085.4	94.5	%			09:24:24
2	Y 371.029	654984.7	654984.7	90.412	%			09:24:54
2	Ag 328.068†	-3124.6	-1508.9	-1.5910	µg/L	-1.5910	ppb	09:24:54
2	Al 396.153Radial†	1257668.2	1330576.1	485830	µg/L	485830	ppb	09:24:22
2	As 188.979†	-75.0	-51.6	-5.5726	µg/L	-5.5726	ppb	09:25:14
2	B 249.677†	-9004.2	-10681.9	-18.886	µg/L	-18.886	ppb	09:24:54
2	Ba 233.527†	-72.5	161.8	2.3338	µg/L	2.3338	ppb	09:25:14
2	Be 313.107†	-4414.5	-1147.3	0.0385	µg/L	0.0385	ppb	09:24:54
2	Ca 317.933Radial†	3966287.9	4196193.8	467120	µg/L	467120	ppb	09:24:22
2	Cd 226.502†	2691.0	3108.0	2.4838	µg/L	2.4838	ppb	09:25:14
2	Co 228.616†	50.8	146.8	-0.0674	µg/L	-0.0674	ppb	09:25:14
2	Cr 267.716†	158.5	43.5	0.1696	µg/L	0.1696	ppb	09:25:14
2	Cu 324.752†	935.4	-4759.1	-2.0714	µg/L	-2.0714	ppb	09:25:14
2	Fe 238.204 Radial†	1834659.0	1941681.9	183670	µg/L	183670	ppb	09:24:22
2	K 766.490 Radial†	941.9	-73.6	-8.5460	µg/L	-8.5460	ppb	09:24:24
2	Mg 279.077 IEC†	844212.4	893193.4	481610	µg/L	481610	ppb	09:24:22
2	Mn 257.610†	8740.2	9357.7	-1.0125	µg/L	-1.0125	ppb	09:24:54
2	Mo 202.031†	-256.9	-249.8	-3.4113	µg/L	-3.4113	ppb	09:25:14
2	Na 589.592 Radial†	-137.7	-185.4	-30.918	µg/L	-30.918	ppb	09:24:24
2	Ni 231.604†	-241.1	-64.6	-1.0269	µg/L	-1.0269	ppb	09:25:14
2	P 214.914†	-67.1	22.1	-1.6844	µg/L	-1.6844	ppb	09:25:14
2	Pb 220.353†	-102.2	-184.9	0.2097	µg/L	0.2097	ppb	09:25:14

2	S 181.975 Axial†	133.3	42.3	-1.4097 µg/L	-1.4097 ppb		09:25:14
2	Sb 206.836†	92.3	56.2	3.1949 µg/L	3.1949 ppb		09:25:14
2	Se 196.026†	-124.2	-143.2	-1.33 µg/L	-1.33 ppb		09:25:14
2	SiO2†	3480.6	767.3	84.917 µg/L	84.917 ppb		09:25:14
2	Si 251.611†	1677.0	1240.1	44.249 µg/L	44.249 ppb		09:25:14
2	Sn 189.927†	-26.3	-1.1	1.3549 µg/L	1.3549 ppb		09:25:14
2	Sr 421.552†	4827.4	5566.6	0.0347 µg/L	0.0347 ppb		09:24:24
2	Ti 334.940†	-4810.5	-4344.8	-0.9102 µg/L	-0.9102 ppb		09:24:54
2	Tl 190.801†	-116.5	-40.8	-9.4078 µg/L	-9.4078 ppb		09:25:14
2	U 367.007†	7736.0	8701.3	30.980 µg/L	30.980 ppb		09:24:54
2	V 292.402†	-2263.4	-2566.1	1.1475 µg/L	1.1475 ppb		09:25:14
2	Zn 213.857†	7929.4	8581.1	5.1787 µg/L	5.1787 ppb		09:25:14
3	Sc 361.383	1219903.5	1219903.5	91.639 %			09:25:16
3	Sc RADIAL	66371.3	66371.3	92.1 %			09:24:28
3	Y 371.029	653451.9	653451.9	90.200 %			09:25:16
3	Ag 328.068†	-3005.7	-1389.1	-0.6146 µg/L	-0.6146 ppb		09:25:16
3	Al 396.153Radial†	1295184.7	1405661.0	513250 µg/L	513250 ppb		09:24:26
3	As 188.979†	-77.1	-54.2	-5.7302 µg/L	-5.7302 ppb		09:25:37
3	B 249.677†	-9013.9	-10721.2	-12.092 µg/L	-12.092 ppb		09:25:16
3	Ba 233.527†	-85.1	147.9	2.2581 µg/L	2.2581 ppb		09:25:37
3	Be 313.107†	-4501.6	-1256.5	0.0179 µg/L	0.0179 ppb		09:25:16
3	Ca 317.933Radial†	4081344.1	4429450.6	493090 µg/L	493090 ppb		09:24:26
3	Cd 226.502†	2734.0	3163.4	1.7544 µg/L	1.7544 ppb		09:25:37
3	Co 228.616†	52.2	148.5	-0.1661 µg/L	-0.1661 ppb		09:25:37
3	Cr 267.716†	140.4	24.3	-0.0392 µg/L	-0.0392 ppb		09:25:37
3	Cu 324.752†	896.1	-4799.1	-1.2426 µg/L	-1.2426 ppb		09:25:37
3	Fe 238.204 Radial†	1886183.9	2047737.1	193710 µg/L	193710 ppb		09:24:26
3	K 766.490 Radial†	878.3	-117.0	-29.698 µg/L	-29.698 ppb		09:24:28
3	Mg 279.077 IEC†	868437.3	942554.4	508230 µg/L	508230 ppb		09:24:26
3	Mn 257.610†	8558.6	9187.5	-2.2731 µg/L	-2.2731 ppb		09:25:16
3	Mo 202.031†	-266.4	-261.0	-3.4671 µg/L	-3.4671 ppb		09:25:37
3	Na 589.592 Radial†	-92.6	-140.3	-23.390 µg/L	-23.390 ppb		09:24:28
3	Ni 231.604†	-236.3	-60.1	-0.9553 µg/L	-0.9553 ppb		09:25:37
3	P 214.914†	-66.9	22.1	-2.1988 µg/L	-2.1988 ppb		09:25:37
3	Pb 220.353†	-64.3	-143.9	5.4764 µg/L	5.4764 ppb		09:25:37
3	S 181.975 Axial†	126.3	35.1	-12.116 µg/L	-12.116 ppb		09:25:37
3	Sb 206.836†	102.5	67.5	4.9928 µg/L	4.9928 ppb		09:25:37
3	Se 196.026†	-134.1	-154.4	-3.23 µg/L	-3.23 ppb		09:25:37
3	SiO2†	3489.5	788.1	87.221 µg/L	87.221 ppb		09:25:37
3	Si 251.611†	1728.5	1301.7	46.561 µg/L	46.561 ppb		09:25:37
3	Sn 189.927†	-27.4	-2.4	1.2794 µg/L	1.2794 ppb		09:25:37
3	Sr 421.552†	4801.4	5670.4	-0.5601 µg/L	-0.5601 ppb		09:24:28
3	Ti 334.940†	-4416.8	-3930.5	-0.0063 µg/L	-0.0063 ppb		09:25:16
3	Tl 190.801†	-101.4	-24.7	-4.2933 µg/L	-4.2933 ppb		09:25:37
3	U 367.007†	7840.0	8839.5	-8.8389 µg/L	-8.8389 ppb		09:25:16
3	V 292.402†	-2166.4	-2467.3	2.2649 µg/L	2.2649 ppb		09:25:37
3	Zn 213.857†	7954.0	8633.2	3.0820 µg/L	3.0820 ppb		09:25:37

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1208428.2	90.777	%	1.7311				1.91%
Sc RADIAL	66928.2	92.9	%	1.39				1.50%
Y 371.029	647392.2	89.364	%	1.6354				1.83%
Ag 328.068†	-1405.7	-0.8537	µg/L	0.65153	-0.8537	ppb	0.65153	76.32%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	1373141.7	501370	µg/L	14071.1	501370	ppb	14071.1	2.81%
QC value within limits for Al 396.153Radial Recovery = 100.27%								
As 188.979†	-48.5	-3.1468	µg/L	4.33873	-3.1468	ppb	4.33873	137.88%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-10795.6	-16.311	µg/L	3.6832	-16.311	ppb	3.6832	22.58%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	146.3	2.2234	µg/L	0.13119	2.2234	ppb	0.13119	5.90%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-1016.4	0.0824	µg/L	0.09453	0.0824	ppb	0.09453	114.65%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4327956.1	481790	µg/L	13307.0	481790	ppb	13307.0	2.76%
QC value within limits for Ca 317.933Radial Recovery = 96.36%								
Cd 226.502†	3173.6	2.3226	µg/L	0.50713	2.3226	ppb	0.50713	21.83%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	142.1	-0.2073 µg/L	0.16441	-0.2073 ppb	0.16441	79.30%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	40.3	0.1384 µg/L	0.16429	0.1384 ppb	0.16429	118.68%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	-4750.1	-1.4541 µg/L	0.54338	-1.4541 ppb	0.54338	37.37%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	2002364.2	189410 µg/L	5170.6	189410 ppb	5170.6	2.73%
QC value within limits for Fe 238.204 Radial Recovery = 94.71%						
K 766.490 Radial†	-57.2	1.0469 µg/L	36.49943	1.0469 ppb	36.49943	>999.9%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	921387.5	496820 µg/L	13706.4	496820 ppb	13706.4	2.76%
QC value within limits for Mg 279.077 IEC Recovery = 99.36%						
Mn 257.610†	9275.0	-1.7071 µg/L	0.64006	-1.7071 ppb	0.64006	37.49%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	-257.7	-3.5200 µg/L	0.14269	-3.5200 ppb	0.14269	4.05%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	-130.5	-21.755 µg/L	10.0801	-21.755 ppb	10.0801	46.33%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	-66.7	-1.0607 µg/L	0.12572	-1.0607 ppb	0.12572	11.85%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	32.2	1.6615 µg/L	6.24613	1.6615 ppb	6.24613	375.93%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	-167.4	2.6118 µg/L	2.66361	2.6118 ppb	2.66361	101.98%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	45.0	0.0020 µg/L	12.88221	0.0020 ppb	12.88221	>999.9%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	61.6	4.0108 µg/L	0.91039	4.0108 ppb	0.91039	22.70%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	-152.3	-3.82 µg/L	2.836	-3.82 ppb	2.836	74.22%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	815.6	90.268 µg/L	7.3625	90.268 ppb	7.3625	8.16%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	1303.9	46.055 µg/L	1.6136	46.055 ppb	1.6136	3.50%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	-2.8	1.1883 µg/L	0.22640	1.1883 ppb	0.22640	19.05%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	5569.5	-0.4629 µg/L	0.45683	-0.4629 ppb	0.45683	98.69%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	-4127.0	-0.4247 µg/L	0.45568	-0.4247 ppb	0.45568	107.29%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	-34.0	-7.2351 µg/L	2.64254	-7.2351 ppb	2.64254	36.52%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	8810.8	11.956 µg/L	19.9683	11.956 ppb	19.9683	167.02%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	-2551.5	1.6007 µg/L	0.58785	1.6007 ppb	0.58785	36.72%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	8690.3	4.4303 µg/L	1.17008	4.4303 ppb	1.17008	26.41%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 10 **Autosampler Location: 104**
Sample ID: ICSAB **Date Collected: 11/11/2016 09:25:45**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:32**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc 361.383	1219334.5	1219334.5	91.596	%			09:26:24
1	Sc RADIAL	67152.7	67152.7	93.2	%			09:26:12
1	Y 371.029	653759.6	653759.6	90.243	%			09:26:24
1	Ag 328.068†	45059.9	51084.8	269.82	µg/L	269.82	ppb	09:26:24
1	Al 396.153Radial†	1292530.3	1386457.1	506240	µg/L	506240	ppb	09:26:10
1	As 188.979†	774.4	875.4	503.52	µg/L	503.52	ppb	09:26:44
1	B 249.677†	23978.6	25293.7	504.37	µg/L	504.37	ppb	09:26:24
1	Ba 233.527†	51391.6	56347.4	503.36	µg/L	503.36	ppb	09:26:24
1	Be 313.107†	805766.2	883348.4	229.13	µg/L	229.13	ppb	09:26:24
1	Ca 317.933Radial†	4080818.6	4377345.3	487290	µg/L	487290	ppb	09:26:10
1	Cd 226.502†	60309.2	66022.4	477.60	µg/L	477.60	ppb	09:26:24
1	Co 228.616†	28991.0	31742.3	469.77	µg/L	469.77	ppb	09:26:44
1	Cr 267.716†	38133.0	41502.5	487.32	µg/L	487.32	ppb	09:26:24
1	Cu 324.752†	121889.9	127295.9	581.82	µg/L	581.82	ppb	09:26:24
1	Fe 238.204 Radial†	1888509.0	2026411.6	191690	µg/L	191690	ppb	09:26:10
1	K 766.490 Radial†	11039.1	10772.0	5692.2	µg/L	5692.2	ppb	09:26:12
1	Mg 279.077 IEC†	860237.1	922790.5	497570	µg/L	497570	ppb	09:26:12
1	Mn 257.610†	264224.2	288313.9	487.31	µg/L	487.31	ppb	09:26:24
1	Mo 202.031†	8486.9	9295.3	493.03	µg/L	493.03	ppb	09:26:44
1	Na 589.592 Radial†	29462.0	31565.6	5263.7	µg/L	5263.7	ppb	09:26:12
1	Ni 231.604†	26297.2	28907.6	459.58	µg/L	459.58	ppb	09:26:44
1	P 214.914†	6431.3	7116.5	2555.0	µg/L	2555.0	ppb	09:26:44
1	Pb 220.353†	4355.5	4681.4	492.66	µg/L	492.66	ppb	09:26:44
1	S 181.975 Axial†	2271.4	2377.2	2602.9	µg/L	2602.9	ppb	09:26:44
1	Sb 206.836†	2516.4	2703.0	506.66	µg/L	506.66	ppb	09:26:44
1	Se 196.026†	3951.3	4305.8	2330	µg/L	2330	ppb	09:26:44
1	SiO2†	90470.4	95751.0	10597	µg/L	10597	ppb	09:26:24
1	Si 251.611†	268112.8	292126.8	4977.2	µg/L	4977.2	ppb	09:26:24
1	Sn 189.927†	3429.0	3771.1	483.73	µg/L	483.73	ppb	09:26:44
1	Sr 421.552†	167218.2	179842.0	504.96	µg/L	504.96	ppb	09:26:12
1	Ti 334.940†	319916.4	350156.9	502.83	µg/L	502.83	ppb	09:26:24
1	Tl 190.801†	1349.7	1559.6	482.32	µg/L	482.32	ppb	09:26:44
1	U 367.007†	11623.3	12973.9	511.29	µg/L	511.29	ppb	09:26:24
1	V 292.402†	99845.3	108902.4	502.18	µg/L	502.18	ppb	09:26:24
1	Zn 213.857†	89358.0	97509.8	507.45	µg/L	507.45	ppb	09:26:24
2	Sc 361.383	1196991.1	1196991.1	89.918	%			09:26:47
2	Sc RADIAL	65588.0	65588.0	91.0	%			09:26:16
2	Y 371.029	642299.7	642299.7	88.661	%			09:26:47
2	Ag 328.068†	43926.1	50742.2	268.13	µg/L	268.13	ppb	09:26:47
2	Al 396.153Radial†	1273444.5	1398571.3	510660	µg/L	510660	ppb	09:26:14
2	As 188.979†	781.1	898.6	516.29	µg/L	516.29	ppb	09:27:07
2	B 249.677†	23398.3	25137.0	503.22	µg/L	503.22	ppb	09:26:47
2	Ba 233.527†	50259.7	56135.9	501.48	µg/L	501.48	ppb	09:26:47
2	Be 313.107†	784325.1	875923.8	227.14	µg/L	227.14	ppb	09:26:47
2	Ca 317.933Radial†	4017310.0	4412022.7	491150	µg/L	491150	ppb	09:26:14
2	Cd 226.502†	58514.3	65255.3	471.62	µg/L	471.62	ppb	09:26:47
2	Co 228.616†	29207.1	32573.5	482.10	µg/L	482.10	ppb	09:27:07
2	Cr 267.716†	37163.0	41200.9	483.85	µg/L	483.85	ppb	09:26:47
2	Cu 324.752†	118853.4	126403.0	577.90	µg/L	577.90	ppb	09:26:47
2	Fe 238.204 Radial†	1859056.0	2042390.7	193200	µg/L	193200	ppb	09:26:14
2	K 766.490 Radial†	10635.8	10611.5	5608.2	µg/L	5608.2	ppb	09:26:16
2	Mg 279.077 IEC†	834261.2	916274.3	494060	µg/L	494060	ppb	09:26:16
2	Mn 257.610†	257590.1	286320.6	483.95	µg/L	483.95	ppb	09:26:47
2	Mo 202.031†	8537.4	9524.4	504.94	µg/L	504.94	ppb	09:27:07
2	Na 589.592 Radial†	28755.0	31543.0	5259.9	µg/L	5259.9	ppb	09:26:16
2	Ni 231.604†	26483.9	29651.1	471.40	µg/L	471.40	ppb	09:27:07
2	P 214.914†	6460.9	7280.4	2614.0	µg/L	2614.0	ppb	09:27:07
2	Pb 220.353†	4392.3	4811.1	506.07	µg/L	506.07	ppb	09:27:07

2	S 181.975 Axial†	2265.9	2417.3	2647.3 µg/L	2647.3 ppb		09:27:07
2	Sb 206.836†	2512.5	2749.9	515.73 µg/L	515.73 ppb		09:27:07
2	Se 196.026†	4015.1	4457.3	2410 µg/L	2410 ppb		09:27:07
2	SiO2†	88123.4	94984.5	10513 µg/L	10513 ppb		09:26:47
2	Si 251.611†	261404.7	290130.4	4943.6 µg/L	4943.6 ppb		09:26:47
2	Sn 189.927†	3468.6	3885.0	498.31 µg/L	498.31 ppb		09:27:07
2	Sr 421.552†	162735.6	179197.8	502.96 µg/L	502.96 ppb		09:26:16
2	Ti 334.940†	312143.7	348032.2	499.87 µg/L	499.87 ppb		09:26:47
2	Tl 190.801†	1370.4	1610.1	497.84 µg/L	497.84 ppb		09:27:07
2	U 367.007†	11181.1	12719.0	471.37 µg/L	471.37 ppb		09:26:47
2	V 292.402†	97329.5	108139.3	498.85 µg/L	498.85 ppb		09:26:47
2	Zn 213.857†	87190.5	96920.2	504.12 µg/L	504.12 ppb		09:26:47
3	Sc 361.383	1211786.1	1211786.1	91.029 %			09:27:09
3	Sc RADIAL	67842.3	67842.3	94.2 %			09:26:21
3	Y 371.029	649931.9	649931.9	89.714 %			09:27:09
3	Ag 328.068†	44008.1	50235.8	265.29 µg/L	265.29 ppb		09:27:09
3	Al 396.153Radial†	1280703.0	1359803.2	496500 µg/L	496500 ppb		09:26:18
3	As 188.979†	777.0	883.5	507.29 µg/L	507.29 ppb		09:27:29
3	B 249.677†	23659.1	25105.7	498.25 µg/L	498.25 ppb		09:27:09
3	Ba 233.527†	50591.6	55818.0	498.62 µg/L	498.62 ppb		09:27:09
3	Be 313.107†	791839.0	873528.4	226.55 µg/L	226.55 ppb		09:27:09
3	Ca 317.933Radial†	4022769.3	4271204.2	475470 µg/L	475470 ppb		09:26:18
3	Cd 226.502†	59285.3	65307.8	472.73 µg/L	472.73 ppb		09:27:09
3	Co 228.616†	28813.4	31744.5	469.86 µg/L	469.86 ppb		09:27:29
3	Cr 267.716†	37488.0	41053.3	482.00 µg/L	482.00 ppb		09:27:09
3	Cu 324.752†	120185.9	126253.0	576.86 µg/L	576.86 ppb		09:27:09
3	Fe 238.204 Radial†	1861482.0	1977118.8	187030 µg/L	187030 ppb		09:26:18
3	K 766.490 Radial†	11075.9	10690.6	5648.7 µg/L	5648.7 ppb		09:26:21
3	Mg 279.077 IEC†	865874.6	919395.7	495740 µg/L	495740 ppb		09:26:21
3	Mn 257.610†	259928.1	285391.3	482.26 µg/L	482.26 ppb		09:27:09
3	Mo 202.031†	8460.8	9324.4	494.41 µg/L	494.41 ppb		09:27:29
3	Na 589.592 Radial†	29615.7	31407.5	5237.3 µg/L	5237.3 ppb		09:26:21
3	Ni 231.604†	26154.3	28929.5	459.92 µg/L	459.92 ppb		09:27:29
3	P 214.914†	6394.9	7120.2	2556.6 µg/L	2556.6 ppb		09:27:29
3	Pb 220.353†	4351.9	4707.1	494.82 µg/L	494.82 ppb		09:27:29
3	S 181.975 Axial†	2230.0	2347.1	2570.5 µg/L	2570.5 ppb		09:27:29
3	Sb 206.836†	2476.4	2676.1	501.81 µg/L	501.81 ppb		09:27:29
3	Se 196.026†	3956.9	4338.8	2350 µg/L	2350 ppb		09:27:29
3	SiO2†	88907.3	94649.1	10476 µg/L	10476 ppb		09:27:09
3	Si 251.611†	263825.3	289240.1	4927.7 µg/L	4927.7 ppb		09:27:09
3	Sn 189.927†	3427.2	3792.5	486.43 µg/L	486.43 ppb		09:27:29
3	Sr 421.552†	168095.2	178949.7	502.78 µg/L	502.78 ppb		09:26:21
3	Ti 334.940†	315167.4	347115.5	498.38 µg/L	498.38 ppb		09:27:09
3	Tl 190.801†	1333.7	1551.2	479.65 µg/L	479.65 ppb		09:27:29
3	U 367.007†	11275.2	12670.5	500.35 µg/L	500.35 ppb		09:27:09
3	V 292.402†	98161.1	107731.3	496.60 µg/L	496.60 ppb		09:27:09
3	Zn 213.857†	88250.0	96900.3	504.59 µg/L	504.59 ppb		09:27:09

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1209370.6	90.848	%	0.8538				0.94%
Sc RADIAL	66861.0	92.8	%	1.60				1.73%
Y 371.029	648663.8	89.539	%	0.8053				0.90%
Ag 328.068†	50687.6	267.75	µg/L	2.291	267.75	ppb	2.291	0.86%
QC value within limits for Ag 328.068 Recovery = 107.10%								
Al 396.153Radial†	1381610.5	504470	µg/L	7241.9	504470	ppb	7241.9	1.44%
QC value within limits for Al 396.153Radial Recovery = 100.89%								
As 188.979†	885.9	509.03	µg/L	6.562	509.03	ppb	6.562	1.29%
QC value within limits for As 188.979 Recovery = 101.81%								
B 249.677†	25178.8	501.95	µg/L	3.256	501.95	ppb	3.256	0.65%
QC value within limits for B 249.677 Recovery = 100.39%								
Ba 233.527†	56100.4	501.16	µg/L	2.388	501.16	ppb	2.388	0.48%
QC value within limits for Ba 233.527 Recovery = 100.23%								
Be 313.107†	877600.2	227.60	µg/L	1.350	227.60	ppb	1.350	0.59%
QC value within limits for Be 313.107 Recovery = 91.04%								
Ca 317.933Radial†	4353524.1	484640	µg/L	8167.5	484640	ppb	8167.5	1.69%
QC value within limits for Ca 317.933Radial Recovery = 96.93%								
Cd 226.502†	65528.5	473.99	µg/L	3.180	473.99	ppb	3.180	0.67%
QC value within limits for Cd 226.502 Recovery = 94.80%								

Co 228.616†	32020.1	473.91 µg/L	7.093	473.91 ppb	7.093	1.50%
QC value within limits for Co 228.616 Recovery = 94.78%						
Cr 267.716†	41252.2	484.39 µg/L	2.702	484.39 ppb	2.702	0.56%
QC value within limits for Cr 267.716 Recovery = 96.88%						
Cu 324.752†	126650.6	578.86 µg/L	2.612	578.86 ppb	2.612	0.45%
QC value within limits for Cu 324.752 Recovery = 115.77%						
Fe 238.204 Radial†	2015307.0	190640 µg/L	3218.4	190640 ppb	3218.4	1.69%
QC value within limits for Fe 238.204 Radial Recovery = 95.32%						
K 766.490 Radial†	10691.4	5649.7 µg/L	42.05	5649.7 ppb	42.05	0.74%
QC value within limits for K 766.490 Radial Recovery = 112.99%						
Mg 279.077 IEC†	919486.8	495790 µg/L	1756.9	495790 ppb	1756.9	0.35%
QC value within limits for Mg 279.077 IEC Recovery = 99.16%						
Mn 257.610†	286675.3	484.51 µg/L	2.574	484.51 ppb	2.574	0.53%
QC value within limits for Mn 257.610 Recovery = 96.90%						
Mo 202.031†	9381.4	497.46 µg/L	6.514	497.46 ppb	6.514	1.31%
QC value within limits for Mo 202.031 Recovery = 99.49%						
Na 589.592 Radial†	31505.3	5253.7 µg/L	14.26	5253.7 ppb	14.26	0.27%
QC value within limits for Na 589.592 Radial Recovery = 105.07%						
Ni 231.604†	29162.7	463.63 µg/L	6.726	463.63 ppb	6.726	1.45%
QC value within limits for Ni 231.604 Recovery = 92.73%						
P 214.914†	7172.3	2575.2 µg/L	33.62	2575.2 ppb	33.62	1.31%
QC value within limits for P 214.914 Recovery = 103.01%						
Pb 220.353†	4733.2	497.85 µg/L	7.200	497.85 ppb	7.200	1.45%
QC value within limits for Pb 220.353 Recovery = 99.57%						
S 181.975 Axial†	2380.5	2606.9 µg/L	38.56	2606.9 ppb	38.56	1.48%
QC value within limits for S 181.975 Axial Recovery = 104.28%						
Sb 206.836†	2709.7	508.07 µg/L	7.067	508.07 ppb	7.067	1.39%
QC value within limits for Sb 206.836 Recovery = 101.61%						
Se 196.026†	4367.3	2360 µg/L	42.4	2360 ppb	42.4	1.79%
QC value within limits for Se 196.026 Recovery = 94.59%						
SiO2†	95128.2	10529 µg/L	62.5	10529 ppb	62.5	0.59%
QC value within limits for SiO2 Recovery = 98.44%						
Si 251.611†	290499.1	4949.5 µg/L	25.29	4949.5 ppb	25.29	0.51%
QC value within limits for Si 251.611 Recovery = 98.99%						
Sn 189.927†	3816.2	489.49 µg/L	7.756	489.49 ppb	7.756	1.58%
QC value within limits for Sn 189.927 Recovery = 97.90%						
Sr 421.552†	179329.8	503.57 µg/L	1.211	503.57 ppb	1.211	0.24%
QC value within limits for Sr 421.552 Recovery = 100.71%						
Ti 334.940†	348434.9	500.36 µg/L	2.264	500.36 ppb	2.264	0.45%
QC value within limits for Ti 334.940 Recovery = 100.07%						
Tl 190.801†	1573.6	486.60 µg/L	9.824	486.60 ppb	9.824	2.02%
QC value within limits for Tl 190.801 Recovery = 97.32%						
U 367.007†	12787.8	494.34 µg/L	20.627	494.34 ppb	20.627	4.17%
QC value within limits for U 367.007 Recovery = 98.87%						
V 292.402†	108257.7	499.21 µg/L	2.808	499.21 ppb	2.808	0.56%
QC value within limits for V 292.402 Recovery = 99.84%						
Zn 213.857†	97110.1	505.38 µg/L	1.803	505.38 ppb	1.803	0.36%
QC value within limits for Zn 213.857 Recovery = 101.08%						

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location: 105**
Sample ID: LR1 **Date Collected: 11/11/2016 09:27:37**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:33**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc 361.383	1161737.6	1161737.6	87.270	%			09:28:17
1	Sc RADIAL	65193.7	65193.7	90.5	%			09:28:04
1	Y 371.029	620626.5	620626.5	85.669	%			09:28:17
1	Ag 328.068†	2128.6	4329.9	36.485	µg/L	36.485	ppb	09:28:17
1	Al 396.153Radial†	1265306.9	1398040.3	510470	µg/L	510470	ppb	09:28:02
1	As 188.979†	-81.7	-63.6	24.824	µg/L	24.824	ppb	09:28:37
1	B 249.677†	-23920.5	-28294.7	-51.694	µg/L	-51.694	ppb	09:28:17
1	Ba 233.527†	69.9	320.9	5.2096	µg/L	5.2096	ppb	09:28:37
1	Be 313.107†	-20675.6	-20035.7	0.7355	µg/L	0.7355	ppb	09:28:17
1	Ca 317.933Radial†	4085999.2	4514614.5	502570	µg/L	502570	ppb	09:28:02
1	Cd 226.502†	7291.1	8534.6	9.1249	µg/L	9.1249	ppb	09:28:17
1	Co 228.616†	2251.4	2671.3	33.754	µg/L	33.754	ppb	09:28:37
1	Cr 267.716†	1152.9	1192.1	4.3641	µg/L	4.3641	ppb	09:28:37
1	Cu 324.752†	-4612.6	-11062.4	2.3362	µg/L	2.3362	ppb	09:28:17
1	Fe 238.204 Radial†	4632360.8	5119195.8	484250	µg/L	484250	ppb	09:28:02
1	K 766.490 Radial†	604900.5	667334.3	350820	µg/L	350820	ppb	09:28:02
1	Mg 279.077 IEC†	819353.9	905345.0	488260	µg/L	488260	ppb	09:28:04
1	Mn 257.610†	11747.0	13308.7	5.6750	µg/L	5.6750	ppb	09:28:17
1	Mo 202.031†	-369.6	-393.8	-3.5148	µg/L	-3.5148	ppb	09:28:17
1	Na 589.592 Radial†	2746141.5	3034398.6	506000	µg/L	506000	ppb	09:28:02
1	Ni 231.604†	1072.6	1426.8	22.683	µg/L	22.683	ppb	09:28:37
1	P 214.914†	580.1	759.8	248.42	µg/L	248.42	ppb	09:28:37
1	Pb 220.353†	63.0	-1.6	1.7285	µg/L	1.7285	ppb	09:28:37
1	S 181.975 Axial†	42715.6	48844.0	54410	µg/L	54410	ppb	09:28:37
1	Sb 206.836†	107.2	78.5	-23.644	µg/L	-23.644	ppb	09:28:37
1	Se 196.026†	-378.1	-441.3	-3.02	µg/L	-3.02	ppb	09:28:37
1	SiO2†	3648.7	1161.2	128.52	µg/L	128.52	ppb	09:28:37
1	Si 251.611†	1107.5	684.6	72.832	µg/L	72.832	ppb	09:28:37
1	Sn 189.927†	39.5	72.7	10.878	µg/L	10.878	ppb	09:28:37
1	Sr 421.552†	14902.7	16926.2	31.769	µg/L	31.769	ppb	09:28:04
1	Ti 334.940†	55.1	952.5	-1.4470	µg/L	-1.4470	ppb	09:28:17
1	Tl 190.801†	-121.4	-53.1	-8.1033	µg/L	-8.1033	ppb	09:28:37
1	U 367.007†	122827.5	141029.0	14674	µg/L	14674	ppb	09:28:17
1	V 292.402†	-6875.4	-7981.7	2.9205	µg/L	2.9205	ppb	09:28:17
1	Zn 213.857†	15440.6	17646.5	23.990	µg/L	23.990	ppb	09:28:37
2	Sc 361.383	1161316.5	1161316.5	87.238	%			09:28:39
2	Sc RADIAL	65500.1	65500.1	90.9	%			09:28:09
2	Y 371.029	620796.9	620796.9	85.693	%			09:28:39
2	Ag 328.068†	1968.9	4147.7	34.400	µg/L	34.400	ppb	09:28:39
2	Al 396.153Radial†	1212734.9	1333680.3	486970	µg/L	486970	ppb	09:28:07
2	As 188.979†	-90.3	-73.6	16.470	µg/L	16.470	ppb	09:29:00
2	B 249.677†	-23893.9	-28274.1	-68.996	µg/L	-68.996	ppb	09:28:39
2	Ba 233.527†	60.3	309.9	4.9953	µg/L	4.9953	ppb	09:29:00
2	Be 313.107†	-20559.8	-19911.6	0.7485	µg/L	0.7485	ppb	09:28:39
2	Ca 317.933Radial†	3890499.8	4278480.2	476280	µg/L	476280	ppb	09:28:07
2	Cd 226.502†	7295.4	8542.6	11.933	µg/L	11.933	ppb	09:28:39
2	Co 228.616†	2267.6	2690.8	34.337	µg/L	34.337	ppb	09:29:00
2	Cr 267.716†	1120.2	1155.1	3.5382	µg/L	3.5382	ppb	09:29:00
2	Cu 324.752†	-4441.4	-10868.1	1.6479	µg/L	1.6479	ppb	09:28:39
2	Fe 238.204 Radial†	4423529.8	4865575.0	460260	µg/L	460260	ppb	09:28:07
2	K 766.490 Radial†	577670.6	634259.6	333440	µg/L	333440	ppb	09:28:07
2	Mg 279.077 IEC†	827686.4	910273.7	490910	µg/L	490910	ppb	09:28:09
2	Mn 257.610†	11788.7	13361.3	5.6711	µg/L	5.6711	ppb	09:28:39
2	Mo 202.031†	-425.0	-457.5	-7.3812	µg/L	-7.3812	ppb	09:28:39
2	Na 589.592 Radial†	2640596.1	2904122.9	484280	µg/L	484280	ppb	09:28:07
2	Ni 231.604†	1038.7	1388.4	22.073	µg/L	22.073	ppb	09:29:00
2	P 214.914†	559.2	736.1	241.14	µg/L	241.14	ppb	09:29:00
2	Pb 220.353†	38.0	-30.2	-2.3165	µg/L	-2.3165	ppb	09:29:00

2	S 181.975 Axial†	42544.8	48666.0	54217	µg/L	54217	ppb	09:29:00
2	Sb 206.836†	112.8	85.0	-20.423	µg/L	-20.423	ppb	09:29:00
2	Se 196.026†	-393.2	-458.7	-22.6	µg/L	-22.6	ppb	09:29:00
2	SiO2†	3600.8	1107.7	122.60	µg/L	122.60	ppb	09:29:00
2	Si 251.611†	1116.1	694.9	69.973	µg/L	69.973	ppb	09:29:00
2	Sn 189.927†	55.2	90.7	13.103	µg/L	13.103	ppb	09:29:00
2	Sr 421.552†	14942.7	16893.2	32.580	µg/L	32.580	ppb	09:28:09
2	Ti 334.940†	289.6	1221.2	-1.3590	µg/L	-1.3590	ppb	09:28:39
2	Tl 190.801†	-114.9	-45.6	-6.2284	µg/L	-6.2284	ppb	09:29:00
2	U 367.007†	122327.0	140506.2	14742	µg/L	14742	ppb	09:28:39
2	V 292.402†	-6857.5	-7964.0	1.3752	µg/L	1.3752	ppb	09:28:39
2	Zn 213.857†	15431.7	17642.7	26.417	µg/L	26.417	ppb	09:29:00
3	Sc 361.383	1166930.3	1166930.3	87.660	%			09:29:02
3	Sc RADIAL	66236.4	66236.4	91.9	%			09:28:13
3	Y 371.029	623924.6	623924.6	86.124	%			09:29:02
3	Ag 328.068†	2090.9	4276.1	35.619	µg/L	35.619	ppb	09:29:02
3	Al 396.153Radial†	1248227.8	1357454.8	495650	µg/L	495650	ppb	09:28:11
3	As 188.979†	-96.5	-80.1	14.062	µg/L	14.062	ppb	09:29:22
3	B 249.677†	-24158.9	-28444.7	-64.623	µg/L	-64.623	ppb	09:29:02
3	Ba 233.527†	46.3	293.6	4.8951	µg/L	4.8951	ppb	09:29:22
3	Be 313.107†	-20708.2	-19967.4	0.6724	µg/L	0.6724	ppb	09:29:02
3	Ca 317.933Radial†	4022594.8	4374578.9	486980	µg/L	486980	ppb	09:28:11
3	Cd 226.502†	7086.5	8264.1	8.7595	µg/L	8.7595	ppb	09:29:02
3	Co 228.616†	2309.5	2726.1	34.748	µg/L	34.748	ppb	09:29:22
3	Cr 267.716†	1145.2	1177.4	4.1417	µg/L	4.1417	ppb	09:29:22
3	Cu 324.752†	-4496.2	-10906.1	1.9042	µg/L	1.9042	ppb	09:29:02
3	Fe 238.204 Radial†	4563718.6	4963959.5	469570	µg/L	469570	ppb	09:28:11
3	K 766.490 Radial†	594691.1	645708.1	339460	µg/L	339460	ppb	09:28:11
3	Mg 279.077 IEC†	833490.8	906467.0	488860	µg/L	488860	ppb	09:28:13
3	Mn 257.610†	11664.7	13154.8	5.3835	µg/L	5.3835	ppb	09:29:02
3	Mo 202.031†	-312.6	-326.8	-0.3858	µg/L	-0.3858	ppb	09:29:02
3	Na 589.592 Radial†	2715828.8	2953660.6	492540	µg/L	492540	ppb	09:28:11
3	Ni 231.604†	1149.7	1509.3	23.995	µg/L	23.995	ppb	09:29:22
3	P 214.914†	601.1	780.8	256.76	µg/L	256.76	ppb	09:29:22
3	Pb 220.353†	70.2	6.4	2.0418	µg/L	2.0418	ppb	09:29:22
3	S 181.975 Axial†	42695.5	48603.3	54145	µg/L	54145	ppb	09:29:22
3	Sb 206.836†	127.8	101.5	-18.018	µg/L	-18.018	ppb	09:29:22
3	Se 196.026†	-377.0	-438.1	-7.96	µg/L	-7.96	ppb	09:29:22
3	SiO2†	3676.8	1174.7	130.01	µg/L	130.01	ppb	09:29:22
3	Si 251.611†	1072.7	639.3	70.207	µg/L	70.207	ppb	09:29:22
3	Sn 189.927†	51.0	85.6	12.480	µg/L	12.480	ppb	09:29:22
3	Sr 421.552†	15059.7	16837.8	32.051	µg/L	32.051	ppb	09:28:13
3	Ti 334.940†	16.4	907.9	-1.5778	µg/L	-1.5778	ppb	09:29:02
3	Tl 190.801†	-119.3	-50.1	-7.4388	µg/L	-7.4388	ppb	09:29:22
3	U 367.007†	121647.4	139056.5	14512	µg/L	14512	ppb	09:29:02
3	V 292.402†	-6783.0	-7841.2	2.4812	µg/L	2.4812	ppb	09:29:02
3	Zn 213.857†	15485.5	17619.0	25.383	µg/L	25.383	ppb	09:29:22

Mean Data: LR1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1163328.1	87.389	%	0.2349				0.27%
Sc RADIAL	65643.4	91.1	%	0.74				0.82%
Y 371.029	621782.6	85.829	%	0.2563				0.30%
Ag 328.068†	4251.2	35.502	µg/L	1.0476	35.502	ppb	1.0476	2.95%
Al 396.153Radial†	1363058.5	497700	µg/L	11883.1	497700	ppb	11883.1	2.39%
QC value within limits for Al 396.153Radial Recovery = 99.54%								
As 188.979†	-72.5	18.452	µg/L	5.6480	18.452	ppb	5.6480	30.61%
B 249.677†	-28337.9	-61.771	µg/L	8.9969	-61.771	ppb	8.9969	14.56%
Ba 233.527†	308.1	5.0333	µg/L	0.16064	5.0333	ppb	0.16064	3.19%
Be 313.107†	-19971.6	0.7188	µg/L	0.04071	0.7188	ppb	0.04071	5.66%
Ca 317.933Radial†	4389224.5	488610	µg/L	13218.9	488610	ppb	13218.9	2.71%
QC value within limits for Ca 317.933Radial Recovery = 97.72%								
Cd 226.502†	8447.1	9.9391	µg/L	1.73624	9.9391	ppb	1.73624	17.47%
Co 228.616†	2696.1	34.280	µg/L	0.4993	34.280	ppb	0.4993	1.46%
Cr 267.716†	1174.9	4.0147	µg/L	0.42736	4.0147	ppb	0.42736	10.64%
Cu 324.752†	-10945.5	1.9628	µg/L	0.34786	1.9628	ppb	0.34786	17.72%
Fe 238.204 Radial†	4982910.1	471360	µg/L	12095.7	471360	ppb	12095.7	2.57%
QC value within limits for Fe 238.204 Radial Recovery = 94.27%								
K 766.490 Radial†	649100.6	341240	µg/L	8829.9	341240	ppb	8829.9	2.59%

```
   QC value greater than the upper limit for K 766.490 Radial  Recovery = 113.75%
Mg 279.077 IEC†       907361.9      489350 µg/L        1389.2      489350 ppb         1389.2   0.28%
   QC value within limits for Mg 279.077 IEC  Recovery = 97.87%
Mn 257.610†            13274.9      5.5765 µg/L       0.16720      5.5765 ppb        0.16720   3.00%
Mo 202.031†             -392.7     -3.7606 µg/L       3.50415     -3.7606 ppb        3.50415  93.18%
Na 589.592 Radial†   2964060.7      494270 µg/L       10965.4      494270 ppb        10965.4   2.22%
   QC value within limits for Na 589.592 Radial  Recovery = 98.85%
Ni 231.604†             1441.5      22.917 µg/L        0.9823      22.917 ppb         0.9823   4.29%
P 214.914†               758.9      248.77 µg/L         7.817      248.77 ppb          7.817   3.14%
Pb 220.353†               -8.4      0.4846 µg/L       2.43087      0.4846 ppb        2.43087 501.63%
S 181.975 Axial†       48704.4       54257 µg/L         137.1       54257 ppb          137.1   0.25%
   QC value within limits for S 181.975 Axial  Recovery = 108.51%
Sb 206.836†               88.4     -20.695 µg/L        2.8231     -20.695 ppb         2.8231  13.64%
Se 196.026†             -446.0       -11.2 µg/L         10.19       -11.2 ppb          10.19  90.98%
SiO2†                  1147.9      127.04 µg/L         3.917      127.04 ppb          3.917   3.08%
Si 251.611†             672.9      71.004 µg/L        1.5872      71.004 ppb         1.5872   2.24%
Sn 189.927†              83.0      12.154 µg/L        1.1475      12.154 ppb         1.1475   9.44%
Sr 421.552†            16885.8      32.133 µg/L        0.4119      32.133 ppb         0.4119   1.28%
Ti 334.940†             1027.2     -1.4613 µg/L       0.11008     -1.4613 ppb        0.11008   7.53%
Tl 190.801†              -49.6     -7.2568 µg/L       0.95058     -7.2568 ppb        0.95058  13.10%
U 367.007†           140197.2       14643 µg/L         118.0       14643 ppb          118.0   0.81%
   QC value within limits for U 367.007  Recovery = 97.62%
V 292.402†             -7929.0      2.2590 µg/L       0.79628      2.2590 ppb        0.79628  35.25%
Zn 213.857†            17636.1      25.263 µg/L        1.2176      25.263 ppb         1.2176   4.82%
QC Failed.  Continue with analysis.
```

Sequence No.: 12 **Autosampler Location: 108**
Sample ID: LR2 **Date Collected: 11/11/2016 09:29:29**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:34**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR2

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1341844.8	1341844.8	100.80	%			09:30:15
1	Sc RADIAL	73768.8	73768.8	102	%			09:29:55
1	Y 371.029	718921.9	718921.9	99.237	%			09:30:15
1	Ag 328.068†	-2817.6	-904.5	-4.6542	µg/L	-4.6542	ppb	09:30:17
1	Al 396.153Radial†	1744.3	1601.7	584.30	µg/L	584.30	ppb	09:29:58
1	As 188.979†	18001.1	17888.3	9945.1	µg/L	9945.1	ppb	09:30:17
1	B 249.677†	347728.4	344086.2	4948.4	µg/L	4948.4	ppb	09:30:15
1	Ba 233.527†	1692292.7	1679113.9	14972	µg/L	14972	ppb	09:30:15
1	Be 313.107†	11356744.4	11270343.4	2705.4	µg/L	2705.4	ppb	09:30:12
1	Ca 317.933Radial†	2687.8	2281.6	253.98	µg/L	253.98	ppb	09:29:58
1	Cd 226.502†	1320047.0	1309759.2	9910.2	µg/L	9910.2	ppb	09:30:15
1	Co 228.616†	679873.6	674573.9	10038	µg/L	10038	ppb	09:30:15
1	Cr 267.716†	2139228.8	2122136.1	24957	µg/L	24957	ppb	09:30:15
1	Cu 324.752†	4774937.6	4731296.4	20879	µg/L	20879	ppb	09:30:15
1	Fe 238.204 Radial†	-18.1	500.4	47.336	µg/L	47.336	ppb	09:29:58
1	K 766.490 Radial†	1087.9	-7.8	-4.1250	µg/L	-4.1250	ppb	09:29:58
1	Mg 279.077 IEC†	236.1	203.7	109.85	µg/L	109.85	ppb	09:29:58
1	Mn 257.610†	5673919.5	5628774.3	9865.1	µg/L	9865.1	ppb	09:30:15
1	Mo 202.031†	194500.2	192987.6	10030	µg/L	10030	ppb	09:30:17
1	Na 589.592 Radial†	989.3	926.3	154.47	µg/L	154.47	ppb	09:29:58
1	Ni 231.604†	638516.2	633650.6	10074	µg/L	10074	ppb	09:30:15
1	P 214.914†	41762.8	41526.8	14968	µg/L	14968	ppb	09:30:17
1	Pb 220.353†	257299.8	255185.7	25811	µg/L	25811	ppb	09:30:17
1	S 181.975 Axial†	103.4	-0.1	-0.0791	µg/L	-0.0791	ppb	09:30:38
1	Sb 206.836†	53967.3	53495.0	9949.2	µg/L	9949.2	ppb	09:30:17
1	Se 196.026†	19182.1	19021.9	9960	µg/L	9960	ppb	09:30:17
1	SiO2†	884186.0	874154.8	96749	µg/L	96749	ppb	09:30:15
1	Si 251.611†	2682433.2	2660577.5	45110	µg/L	45110	ppb	09:30:15
1	Sn 189.927†	78710.9	78114.3	9987.6	µg/L	9987.6	ppb	09:30:17
1	Sr 421.552†	3527263.5	3444958.1	9994.8	µg/L	9994.8	ppb	09:29:55
1	Ti 334.940†	7188287.1	7132174.6	10131	µg/L	10131	ppb	09:30:12
1	Tl 190.801†	33413.3	33234.4	10209	µg/L	10209	ppb	09:30:17
1	U 367.007†	-371.7	-84.5	-10.676	µg/L	-10.676	ppb	09:30:17
1	V 292.402†	2250692.0	2232741.0	10047	µg/L	10047	ppb	09:30:15
1	Zn 213.857†	2540351.9	2520160.9	14276	µg/L	14276	ppb	09:30:15
2	Sc 361.383	1371907.8	1371907.8	103.06	%			09:30:45
2	Sc RADIAL	71599.5	71599.5	99.4	%			09:30:00
2	Y 371.029	734152.2	734152.2	101.34	%			09:30:45
2	Ag 328.068†	-2621.4	-652.8	-3.3506	µg/L	-3.3506	ppb	09:30:47
2	Al 396.153Radial†	1800.1	1709.5	623.66	µg/L	623.66	ppb	09:30:02
2	As 188.979†	17924.4	17422.6	9692.6	µg/L	9692.6	ppb	09:30:47
2	B 249.677†	357588.8	346094.5	4977.3	µg/L	4977.3	ppb	09:30:45
2	Ba 233.527†	1734952.9	1683718.8	15013	µg/L	15013	ppb	09:30:45
2	Be 313.107†	11375287.8	11041447.0	2642.0	µg/L	2642.0	ppb	09:30:41
2	Ca 317.933Radial†	2647.2	2320.3	258.29	µg/L	258.29	ppb	09:30:02
2	Cd 226.502†	1357976.1	1317865.9	9971.5	µg/L	9971.5	ppb	09:30:45
2	Co 228.616†	698332.0	677704.5	10085	µg/L	10085	ppb	09:30:45
2	Cr 267.716†	2192813.3	2127625.1	25022	µg/L	25022	ppb	09:30:45
2	Cu 324.752†	4884930.8	4734221.4	20892	µg/L	20892	ppb	09:30:45
2	Fe 238.204 Radial†	29.8	548.0	51.842	µg/L	51.842	ppb	09:30:02
2	K 766.490 Radial†	1210.6	147.8	77.679	µg/L	77.679	ppb	09:30:02
2	Mg 279.077 IEC†	121.7	95.6	51.585	µg/L	51.585	ppb	09:30:02
2	Mn 257.610†	5813011.5	5640391.6	9885.4	µg/L	9885.4	ppb	09:30:45
2	Mo 202.031†	193913.7	188190.1	9780.7	µg/L	9780.7	ppb	09:30:47
2	Na 589.592 Radial†	1145.1	1112.4	185.49	µg/L	185.49	ppb	09:30:02
2	Ni 231.604†	655644.0	636389.2	10117	µg/L	10117	ppb	09:30:45
2	P 214.914†	41651.2	40510.5	14602	µg/L	14602	ppb	09:30:47
2	Pb 220.353†	255816.2	248152.6	25099	µg/L	25099	ppb	09:30:47

2	S 181.975 Axial†	92.6	-12.9	-14.296 µg/L	-14.296 ppb		09:31:07
2	Sb 206.836†	53772.9	52133.2	9685.1 µg/L	9685.1 ppb		09:30:47
2	Se 196.026†	19029.2	18456.6	9670 µg/L	9670 ppb		09:30:47
2	SiO2†	912775.2	882674.0	97692 µg/L	97692 ppb		09:30:45
2	Si 251.611†	2767870.7	2685165.4	45527 µg/L	45527 ppb		09:30:45
2	Sn 189.927†	78561.1	76257.7	9750.2 µg/L	9750.2 ppb		09:30:47
2	Sr 421.552†	3456123.7	3477744.4	10090 µg/L	10090 ppb		09:30:00
2	Ti 334.940†	7193241.1	6980711.9	9915.5 µg/L	9915.5 ppb		09:30:41
2	Tl 190.801†	33408.7	32503.5	9984.2 µg/L	9984.2 ppb		09:30:47
2	U 367.007†	-444.9	-147.5	-18.451 µg/L	-18.451 ppb		09:30:47
2	V 292.402†	2304896.2	2236408.2	10063 µg/L	10063 ppb		09:30:45
2	Zn 213.857†	2605040.8	2527704.6	14319 µg/L	14319 ppb		09:30:45
3	Sc 361.383	1356987.2	1356987.2	101.94 %			09:31:15
3	Sc RADIAL	73230.0	73230.0	102 %			09:30:04
3	Y 371.029	726894.4	726894.4	100.34 %			09:31:15
3	Ag 328.068†	-2778.9	-835.2	-4.2915 µg/L	-4.2915 ppb		09:31:17
3	Al 396.153Radial†	1810.7	1679.6	612.73 µg/L	612.73 ppb		09:30:06
3	As 188.979†	18624.7	18300.8	10171 µg/L	10171 ppb		09:31:17
3	B 249.677†	355766.1	348121.6	5006.5 µg/L	5006.5 ppb		09:31:15
3	Ba 233.527†	1726893.1	1694322.6	15108 µg/L	15108 ppb		09:31:15
3	Be 313.107†	11214973.2	11005542.9	2629.9 µg/L	2629.9 ppb		09:31:11
3	Ca 317.933Radial†	2669.7	2283.1	254.15 µg/L	254.15 ppb		09:30:06
3	Cd 226.502†	1348743.9	1323297.6	10013 µg/L	10013 ppb		09:31:15
3	Co 228.616†	694278.0	681178.1	10137 µg/L	10137 ppb		09:31:15
3	Cr 267.716†	2182062.9	2140474.4	25173 µg/L	25173 ppb		09:31:15
3	Cu 324.752†	4872323.2	4773971.4	21067 µg/L	21067 ppb		09:31:15
3	Fe 238.204 Radial†	-42.4	476.3	45.060 µg/L	45.060 ppb		09:30:06
3	K 766.490 Radial†	1183.7	94.2	49.482 µg/L	49.482 ppb		09:30:06
3	Mg 279.077 IEC†	252.3	221.3	119.35 µg/L	119.35 ppb		09:30:06
3	Mn 257.610†	5785307.3	5675233.6	9946.5 µg/L	9946.5 ppb		09:31:15
3	Mo 202.031†	200144.6	196371.6	10206 µg/L	10206 ppb		09:31:17
3	Na 589.592 Radial†	963.9	908.4	151.49 µg/L	151.49 ppb		09:30:06
3	Ni 231.604†	652631.7	640429.3	10182 µg/L	10182 ppb		09:31:15
3	P 214.914†	43083.4	42359.9	15268 µg/L	15268 ppb		09:31:17
3	Pb 220.353†	264922.9	259815.6	26279 µg/L	26279 ppb		09:31:17
3	S 181.975 Axial†	89.9	-14.5	-16.117 µg/L	-16.117 ppb		09:31:37
3	Sb 206.836†	55610.8	54509.9	10142 µg/L	10142 ppb		09:31:17
3	Se 196.026†	19641.5	19260.3	10100 µg/L	10100 ppb		09:31:17
3	SiO2†	910371.5	890054.5	98509 µg/L	98509 ppb		09:31:15
3	Si 251.611†	2759762.6	2706742.2	45893 µg/L	45893 ppb		09:31:15
3	Sn 189.927†	81584.1	80061.5	10237 µg/L	10237 ppb		09:31:17
3	Sr 421.552†	3525472.8	3468540.9	10063 µg/L	10063 ppb		09:30:04
3	Ti 334.940†	7100742.9	6966716.9	9895.6 µg/L	9895.6 ppb		09:31:11
3	Tl 190.801†	34570.6	33999.8	10444 µg/L	10444 ppb		09:31:17
3	U 367.007†	-455.2	-162.3	-20.238 µg/L	-20.238 ppb		09:31:17
3	V 292.402†	2297413.0	2253658.4	10141 µg/L	10141 ppb		09:31:15
3	Zn 213.857†	2592365.4	2543063.6	14406 µg/L	14406 ppb		09:31:15

Mean Data: LR2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1356913.3	101.93	%	1.129				1.11%
Sc RADIAL	72866.1	101	%	1.6				1.55%
Y 371.029	726656.2	100.31	%	1.052				1.05%
Ag 328.068†	-797.5	-4.0987	µg/L	0.67282	-4.0987	ppb	0.67282	16.42%
Al 396.153Radial†	1663.6	606.90	µg/L	20.320	606.90	ppb	20.320	3.35%
As 188.979†	17870.5	9936.3	µg/L	239.39	9936.3	ppb	239.39	2.41%
QC value within limits for As 188.979 Recovery = 99.36%								
B 249.677†	346100.8	4977.4	µg/L	29.02	4977.4	ppb	29.02	0.58%
QC value within limits for B 249.677 Recovery = 99.55%								
Ba 233.527†	1685718.5	15031	µg/L	69.5	15031	ppb	69.5	0.46%
QC value within limits for Ba 233.527 Recovery = 100.21%								
Be 313.107†	11105777.8	2659.1	µg/L	40.58	2659.1	ppb	40.58	1.53%
QC value less than the lower limit for Be 313.107 Recovery = 88.64%								
Ca 317.933Radial†	2295.0	255.48	µg/L	2.439	255.48	ppb	2.439	0.95%
Cd 226.502†	1316974.2	9964.8	µg/L	51.55	9964.8	ppb	51.55	0.52%
QC value within limits for Cd 226.502 Recovery = 99.65%								
Co 228.616†	677818.8	10087	µg/L	49.2	10087	ppb	49.2	0.49%
QC value within limits for Co 228.616 Recovery = 100.87%								
Cr 267.716†	2130078.5	25050	µg/L	110.7	25050	ppb	110.7	0.44%

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   QC value within limits for Cr 267.716  Recovery = 100.20%
Cu 324.752†          4746496.4       20946 µg/L         105.2       20946 ppb          105.2   0.50%
   QC value within limits for Cu 324.752  Recovery = 104.73%
Fe 238.204 Radial†       508.3      48.080 µg/L        3.4516      48.080 ppb         3.4516   7.18%
K 766.490 Radial†         78.0      41.012 µg/L       41.5545      41.012 ppb        41.5545 101.32%
Mg 279.077 IEC†          173.6      93.596 µg/L       36.6912      93.596 ppb        36.6912  39.20%
Mn 257.610†          5648133.2      9899.0 µg/L         42.37      9899.0 ppb          42.37   0.43%
   QC value within limits for Mn 257.610  Recovery = 98.99%
Mo 202.031†           192516.5       10006 µg/L         213.7       10006 ppb          213.7   2.14%
   QC value within limits for Mo 202.031  Recovery = 100.06%
Na 589.592 Radial†       982.4      163.82 µg/L        18.833      163.82 ppb         18.833  11.50%
Ni 231.604†           636823.0       10124 µg/L          54.2       10124 ppb           54.2   0.54%
   QC value within limits for Ni 231.604  Recovery = 101.24%
P 214.914†             41465.7       14946 µg/L         333.8       14946 ppb          333.8   2.23%
   QC value within limits for P 214.914  Recovery = 99.64%
Pb 220.353†           254384.7       25730 µg/L         594.1       25730 ppb          594.1   2.31%
   QC value within limits for Pb 220.353  Recovery = 102.92%
S 181.975 Axial†          -9.2     -10.164 µg/L        8.7813     -10.164 ppb         8.7813  86.39%
Sb 206.836†            53379.4      9925.5 µg/L        229.35      9925.5 ppb         229.35   2.31%
   QC value within limits for Sb 206.836  Recovery = 99.25%
Se 196.026†            18912.9        9910 µg/L         216.2        9910 ppb          216.2   2.18%
   QC value within limits for Se 196.026  Recovery = 99.08%
SiO2†                  882294.5       97650 µg/L         880.6       97650 ppb          880.6   0.90%
   QC value within limits for SiO2  Recovery = 91.26%
Si 251.611†           2684161.7       45510 µg/L         391.6       45510 ppb          391.6   0.86%
   QC value within limits for Si 251.611  Recovery = 91.02%
Sn 189.927†            78144.5      9991.4 µg/L        243.19      9991.4 ppb         243.19   2.43%
   QC value within limits for Sn 189.927  Recovery = 99.91%
Sr 421.552†           3463747.8       10049 µg/L          49.1       10049 ppb           49.1   0.49%
   QC value within limits for Sr 421.552  Recovery = 100.49%
Ti 334.940†           7026534.5      9980.6 µg/L        130.44      9980.6 ppb         130.44   1.31%
   QC value within limits for Ti 334.940  Recovery = 99.81%
Tl 190.801†            33245.9       10212 µg/L         229.8       10212 ppb          229.8   2.25%
   QC value within limits for Tl 190.801  Recovery = 102.12%
U 367.007†              -131.4     -16.455 µg/L        5.0837     -16.455 ppb         5.0837  30.89%
V 292.402†            2240935.9       10083 µg/L          50.2       10083 ppb           50.2   0.50%
   QC value within limits for V 292.402  Recovery = 100.83%
Zn 213.857†           2530309.7       14333 µg/L          66.1       14333 ppb           66.1   0.46%
   QC value within limits for Zn 213.857  Recovery = 95.56%
QC Failed.  Continue with analysis.
```

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/11/2016 09:31:44**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:35**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1372097.0	1372097.0	103.07	%			09:32:24
1	Sc RADIAL	73488.3	73488.3	102	%			09:32:13
1	Y 371.029	738252.3	738252.3	101.91	%			09:32:24
1	Ag 328.068†	98249.7	97212.4	501.64	µg/L	501.64	ppb	09:32:27
1	Al 396.153Radial†	14383.3	13997.8	5111.0	µg/L	5111.0	ppb	09:32:13
1	As 188.979†	900.9	904.0	496.40	µg/L	496.40	ppb	09:32:47
1	B 249.677†	37860.4	35847.2	519.29	µg/L	519.29	ppb	09:32:27
1	Ba 233.527†	58369.1	56870.3	507.12	µg/L	507.12	ppb	09:32:27
1	Be 313.107†	1887205.0	1834616.2	488.05	µg/L	488.05	ppb	09:32:24
1	Ca 317.933Radial†	47360.6	46082.6	5129.9	µg/L	5129.9	ppb	09:32:13
1	Cd 226.502†	68681.5	66814.6	504.96	µg/L	504.96	ppb	09:32:27
1	Co 228.616†	35039.7	34087.0	506.89	µg/L	506.89	ppb	09:32:27
1	Cr 267.716†	44717.4	43255.7	508.30	µg/L	508.30	ppb	09:32:27
1	Cu 324.752†	123661.3	114198.9	504.75	µg/L	504.75	ppb	09:32:27
1	Fe 238.204 Radial†	54743.2	54180.8	5125.3	µg/L	5125.3	ppb	09:32:13
1	K 766.490 Radial†	10648.9	9368.5	4924.7	µg/L	4924.7	ppb	09:32:13
1	Mg 279.077 IEC†	9578.6	9362.8	5049.5	µg/L	5049.5	ppb	09:32:13
1	Mn 257.610†	297382.2	288367.3	505.21	µg/L	505.21	ppb	09:32:27
1	Mo 202.031†	9811.3	9548.6	496.44	µg/L	496.44	ppb	09:32:47
1	Na 589.592 Radial†	58929.5	57726.7	9626.2	µg/L	9626.2	ppb	09:32:11
1	Ni 231.604†	32601.8	31827.9	506.00	µg/L	506.00	ppb	09:32:27
1	P 214.914†	6903.2	6792.6	2448.1	µg/L	2448.1	ppb	09:32:47
1	Pb 220.353†	5112.3	4886.2	493.83	µg/L	493.83	ppb	09:32:47
1	S 181.975 Axial†	1019.3	886.2	988.07	µg/L	988.07	ppb	09:32:47
1	Sb 206.836†	2689.0	2564.5	487.18	µg/L	487.18	ppb	09:32:47
1	Se 196.026†	993.2	955.6	503	µg/L	503	ppb	09:32:47
1	SiO2†	55275.5	50608.4	5601.2	µg/L	5601.2	ppb	09:32:27
1	Si 251.611†	160313.8	154951.5	2627.8	µg/L	2627.8	ppb	09:32:27
1	Sn 189.927†	3955.8	3865.4	494.23	µg/L	494.23	ppb	09:32:47
1	Sr 421.552†	172806.3	169854.7	492.62	µg/L	492.62	ppb	09:32:11
1	Ti 334.940†	364376.2	354405.9	503.41	µg/L	503.41	ppb	09:32:27
1	Tl 190.801†	1597.9	1636.4	502.73	µg/L	502.73	ppb	09:32:47
1	U 367.007†	4014.4	4179.0	485.81	µg/L	485.81	ppb	09:32:27
1	V 292.402†	116091.9	112528.7	505.62	µg/L	505.62	ppb	09:32:27
1	Zn 213.857†	92482.3	89679.5	507.46	µg/L	507.46	ppb	09:32:27
2	Sc 361.383	1335065.4	1335065.4	100.29	%			09:32:49
2	Sc RADIAL	73161.0	73161.0	102	%			09:32:17
2	Y 371.029	717267.7	717267.7	99.009	%			09:32:49
2	Ag 328.068†	96613.0	98224.4	506.86	µg/L	506.86	ppb	09:32:51
2	Al 396.153Radial†	14280.4	13959.5	5097.0	µg/L	5097.0	ppb	09:32:17
2	As 188.979†	906.1	933.4	512.40	µg/L	512.40	ppb	09:33:11
2	B 249.677†	37067.3	36075.3	522.56	µg/L	522.56	ppb	09:32:51
2	Ba 233.527†	57203.9	57279.2	510.77	µg/L	510.77	ppb	09:32:51
2	Be 313.107†	1823141.0	1821524.3	484.39	µg/L	484.39	ppb	09:32:49
2	Ca 317.933Radial†	46921.8	45858.3	5105.0	µg/L	5105.0	ppb	09:32:17
2	Cd 226.502†	67269.0	67254.5	508.29	µg/L	508.29	ppb	09:32:51
2	Co 228.616†	34192.5	34185.2	508.36	µg/L	508.36	ppb	09:32:51
2	Cr 267.716†	43696.7	43441.3	510.49	µg/L	510.49	ppb	09:32:51
2	Cu 324.752†	120949.3	114822.6	507.50	µg/L	507.50	ppb	09:32:51
2	Fe 238.204 Radial†	54378.6	54061.9	5114.0	µg/L	5114.0	ppb	09:32:17
2	K 766.490 Radial†	10748.7	9513.4	5000.8	µg/L	5000.8	ppb	09:32:17
2	Mg 279.077 IEC†	9571.2	9397.5	5068.2	µg/L	5068.2	ppb	09:32:17
2	Mn 257.610†	291314.5	290320.0	508.64	µg/L	508.64	ppb	09:32:51
2	Mo 202.031†	9870.0	9871.2	513.21	µg/L	513.21	ppb	09:33:11
2	Na 589.592 Radial†	59053.2	58106.9	9689.6	µg/L	9689.6	ppb	09:32:15
2	Ni 231.604†	32059.5	32164.5	511.36	µg/L	511.36	ppb	09:32:51
2	P 214.914†	6909.8	6984.9	2517.4	µg/L	2517.4	ppb	09:33:11
2	Pb 220.353†	5125.8	5037.3	509.11	µg/L	509.11	ppb	09:33:11

2	S 181.975 Axial†	1035.9	930.2	1037.2 µg/L	1037.2 ppb		09:33:11
2	Sb 206.836†	2729.4	2677.2	508.91 µg/L	508.91 ppb		09:33:11
2	Se 196.026†	996.6	985.7	519 µg/L	519 ppb		09:33:11
2	SiO2†	53973.8	50797.9	5622.2 µg/L	5622.2 ppb		09:32:51
2	Si 251.611†	156219.3	155183.1	2631.8 µg/L	2631.8 ppb		09:32:51
2	Sn 189.927†	3962.9	3978.9	508.76 µg/L	508.76 ppb		09:33:11
2	Sr 421.552†	173239.4	171038.9	496.06 µg/L	496.06 ppb		09:32:15
2	Ti 334.940†	356997.4	356854.2	506.90 µg/L	506.90 ppb		09:32:51
2	Tl 190.801†	1608.3	1689.7	519.10 µg/L	519.10 ppb		09:33:11
2	U 367.007†	3855.6	4128.7	479.70 µg/L	479.70 ppb		09:32:51
2	V 292.402†	113606.8	113174.9	508.52 µg/L	508.52 ppb		09:32:51
2	Zn 213.857†	90434.2	90126.2	509.99 µg/L	509.99 ppb		09:32:51
3	Sc 361.383	1339410.5	1339410.5	100.62 %			09:33:13
3	Sc RADIAL	71264.1	71264.1	98.9 %			09:32:21
3	Y 371.029	720069.0	720069.0	99.396 %			09:33:13
3	Ag 328.068†	94811.6	96121.5	496.01 µg/L	496.01 ppb		09:33:15
3	Al 396.153Radial†	14004.0	14054.3	5131.7 µg/L	5131.7 ppb		09:32:21
3	As 188.979†	903.1	927.5	509.08 µg/L	509.08 ppb		09:33:35
3	B 249.677†	36400.6	35292.7	511.33 µg/L	511.33 ppb		09:33:15
3	Ba 233.527†	55973.2	55871.0	498.21 µg/L	498.21 ppb		09:33:15
3	Be 313.107†	1827175.4	1819636.6	484.18 µg/L	484.18 ppb		09:33:13
3	Ca 317.933Radial†	46059.8	46216.7	5144.9 µg/L	5144.9 ppb		09:32:21
3	Cd 226.502†	66048.4	65823.8	497.46 µg/L	497.46 ppb		09:33:15
3	Co 228.616†	33641.5	33526.9	498.57 µg/L	498.57 ppb		09:33:15
3	Cr 267.716†	42780.8	42389.7	498.13 µg/L	498.13 ppb		09:33:15
3	Cu 324.752†	118837.1	112332.1	496.51 µg/L	496.51 ppb		09:33:15
3	Fe 238.204 Radial†	53251.1	54347.4	5141.0 µg/L	5141.0 ppb		09:32:21
3	K 766.490 Radial†	10514.5	9558.4	5024.5 µg/L	5024.5 ppb		09:32:21
3	Mg 279.077 IEC†	9338.1	9412.7	5076.4 µg/L	5076.4 ppb		09:32:21
3	Mn 257.610†	286266.6	284360.7	498.19 µg/L	498.19 ppb		09:33:15
3	Mo 202.031†	9876.7	9845.9	511.89 µg/L	511.89 ppb		09:33:35
3	Na 589.592 Radial†	58147.2	58738.8	9795.0 µg/L	9795.0 ppb		09:32:19
3	Ni 231.604†	31404.9	31410.2	499.36 µg/L	499.36 ppb		09:33:15
3	P 214.914†	6940.3	6992.9	2520.3 µg/L	2520.3 ppb		09:33:35
3	Pb 220.353†	5138.5	5033.3	508.72 µg/L	508.72 ppb		09:33:35
3	S 181.975 Axial†	1023.0	914.1	1019.2 µg/L	1019.2 ppb		09:33:35
3	Sb 206.836†	2716.7	2655.8	504.97 µg/L	504.97 ppb		09:33:35
3	Se 196.026†	1003.3	989.2	521 µg/L	521 ppb		09:33:35
3	SiO2†	52860.5	49516.9	5480.4 µg/L	5480.4 ppb		09:33:15
3	Si 251.611†	153234.5	151711.2	2572.9 µg/L	2572.9 ppb		09:33:15
3	Sn 189.927†	3970.7	3973.8	508.10 µg/L	508.10 ppb		09:33:35
3	Sr 421.552†	169943.1	172247.3	499.56 µg/L	499.56 ppb		09:32:19
3	Ti 334.940†	351586.8	350322.0	497.62 µg/L	497.62 ppb		09:33:15
3	Tl 190.801†	1598.9	1675.2	514.65 µg/L	514.65 ppb		09:33:35
3	U 367.007†	3843.5	4104.1	476.52 µg/L	476.52 ppb		09:33:15
3	V 292.402†	111718.1	110930.3	498.44 µg/L	498.44 ppb		09:33:15
3	Zn 213.857†	88987.9	88396.2	500.18 µg/L	500.18 ppb		09:33:15

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1348857.6	101.33	%	1.521				1.50%
Sc RADIAL	72637.8	101	%	1.7				1.65%
Y 371.029	725196.3	100.10	%	1.573				1.57%
Ag 328.068†	97186.1	501.51	µg/L	5.426	501.51	ppb	5.426	1.08%
QC value within limits for Ag 328.068 Recovery = 100.30%								
Al 396.153Radial†	14003.9	5113.2	µg/L	17.42	5113.2	ppb	17.42	0.34%
QC value within limits for Al 396.153Radial Recovery = 102.26%								
As 188.979†	921.7	505.96	µg/L	8.442	505.96	ppb	8.442	1.67%
QC value within limits for As 188.979 Recovery = 101.19%								
B 249.677†	35738.4	517.73	µg/L	5.778	517.73	ppb	5.778	1.12%
QC value within limits for B 249.677 Recovery = 103.55%								
Ba 233.527†	56673.5	505.37	µg/L	6.460	505.37	ppb	6.460	1.28%
QC value within limits for Ba 233.527 Recovery = 101.07%								
Be 313.107†	1825259.0	485.54	µg/L	2.177	485.54	ppb	2.177	0.45%
QC value within limits for Be 313.107 Recovery = 97.11%								
Ca 317.933Radial†	46052.5	5126.6	µg/L	20.16	5126.6	ppb	20.16	0.39%
QC value within limits for Ca 317.933Radial Recovery = 102.53%								
Cd 226.502†	66631.0	503.57	µg/L	5.546	503.57	ppb	5.546	1.10%
QC value within limits for Cd 226.502 Recovery = 100.71%								

Co 228.616†	33933.0	504.61 µg/L	5.283	504.61 ppb	5.283	1.05%
QC value within limits for Co 228.616 Recovery = 100.92%						
Cr 267.716†	43028.9	505.64 µg/L	6.598	505.64 ppb	6.598	1.30%
QC value within limits for Cr 267.716 Recovery = 101.13%						
Cu 324.752†	113784.5	502.92 µg/L	5.720	502.92 ppb	5.720	1.14%
QC value within limits for Cu 324.752 Recovery = 100.58%						
Fe 238.204 Radial†	54196.7	5126.8 µg/L	13.56	5126.8 ppb	13.56	0.26%
QC value within limits for Fe 238.204 Radial Recovery = 102.54%						
K 766.490 Radial†	9480.1	4983.3 µg/L	52.16	4983.3 ppb	52.16	1.05%
QC value within limits for K 766.490 Radial Recovery = 99.67%						
Mg 279.077 IEC†	9391.0	5064.7 µg/L	13.79	5064.7 ppb	13.79	0.27%
QC value within limits for Mg 279.077 IEC Recovery = 101.29%						
Mn 257.610†	287682.7	504.01 µg/L	5.325	504.01 ppb	5.325	1.06%
QC value within limits for Mn 257.610 Recovery = 100.80%						
Mo 202.031†	9755.2	507.18 µg/L	9.325	507.18 ppb	9.325	1.84%
QC value within limits for Mo 202.031 Recovery = 101.44%						
Na 589.592 Radial†	58190.8	9703.6 µg/L	85.25	9703.6 ppb	85.25	0.88%
QC value within limits for Na 589.592 Radial Recovery = 97.04%						
Ni 231.604†	31800.9	505.57 µg/L	6.007	505.57 ppb	6.007	1.19%
QC value within limits for Ni 231.604 Recovery = 101.11%						
P 214.914†	6923.4	2495.2 µg/L	40.88	2495.2 ppb	40.88	1.64%
QC value within limits for P 214.914 Recovery = 99.81%						
Pb 220.353†	4985.6	503.89 µg/L	8.716	503.89 ppb	8.716	1.73%
QC value within limits for Pb 220.353 Recovery = 100.78%						
S 181.975 Axial†	910.2	1014.8 µg/L	24.84	1014.8 ppb	24.84	2.45%
QC value within limits for S 181.975 Axial Recovery = 101.48%						
Sb 206.836†	2632.5	500.35 µg/L	11.577	500.35 ppb	11.577	2.31%
QC value within limits for Sb 206.836 Recovery = 100.07%						
Se 196.026†	976.8	514 µg/L	9.7	514 ppb	9.7	1.88%
QC value within limits for Se 196.026 Recovery = 102.90%						
SiO2†	50307.7	5567.9 µg/L	76.52	5567.9 ppb	76.52	1.37%
QC value within limits for SiO2 Recovery = 104.12%						
Si 251.611†	153948.6	2610.8 µg/L	32.91	2610.8 ppb	32.91	1.26%
QC value within limits for Si 251.611 Recovery = 104.43%						
Sn 189.927†	3939.4	503.70 µg/L	8.203	503.70 ppb	8.203	1.63%
QC value within limits for Sn 189.927 Recovery = 100.74%						
Sr 421.552†	171047.0	496.08 µg/L	3.471	496.08 ppb	3.471	0.70%
QC value within limits for Sr 421.552 Recovery = 99.22%						
Ti 334.940†	353860.7	502.64 µg/L	4.688	502.64 ppb	4.688	0.93%
QC value within limits for Ti 334.940 Recovery = 100.53%						
Tl 190.801†	1667.1	512.16 µg/L	8.463	512.16 ppb	8.463	1.65%
QC value within limits for Tl 190.801 Recovery = 102.43%						
U 367.007†	4137.3	480.68 µg/L	4.723	480.68 ppb	4.723	0.98%
QC value within limits for U 367.007 Recovery = 96.14%						
V 292.402†	112211.3	504.19 µg/L	5.189	504.19 ppb	5.189	1.03%
QC value within limits for V 292.402 Recovery = 100.84%						
Zn 213.857†	89400.6	505.88 µg/L	5.091	505.88 ppb	5.091	1.01%
QC value within limits for Zn 213.857 Recovery = 101.18%						

All analyte(s) passed QC.

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 09:33:43**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:36**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1374142.3	1374142.3	103.23	%			09:35:15
1	Sc RADIAL	72386.5	72386.5	100	%			09:34:08
1	Y 371.029	748903.6	748903.6	103.38	%			09:35:15
1	Ag 328.068†	-1627.7	314.0	1.6259	µg/L	1.6259	ppb	09:35:17
1	Al 396.153Radial†	142.0	39.7	14.489	µg/L	14.489	ppb	09:34:28
1	As 188.979†	-27.7	3.1	1.7098	µg/L	1.7098	ppb	09:35:37
1	B 249.677†	1129.7	209.5	3.0223	µg/L	3.0223	ppb	09:35:17
1	Ba 233.527†	-186.3	60.3	0.5375	µg/L	0.5375	ppb	09:35:37
1	Be 313.107†	-3254.5	503.1	0.1208	µg/L	0.1208	ppb	09:35:17
1	Ca 317.933Radial†	436.0	90.7	10.096	µg/L	10.096	ppb	09:34:28
1	Cd 226.502†	-91.8	91.1	0.6880	µg/L	0.6880	ppb	09:35:37
1	Co 228.616†	-59.4	34.0	0.5059	µg/L	0.5059	ppb	09:35:37
1	Cr 267.716†	213.1	77.4	0.9188	µg/L	0.9188	ppb	09:35:37
1	Cu 324.752†	5897.4	-63.8	-0.2875	µg/L	-0.2875	ppb	09:35:17
1	Fe 238.204 Radial†	-388.6	131.3	12.424	µg/L	12.424	ppb	09:34:28
1	K 766.490 Radial†	982.1	-92.9	-48.817	µg/L	-48.817	ppb	09:34:08
1	Mg 279.077 IEC†	36.2	9.2	4.9573	µg/L	4.9573	ppb	09:34:28
1	Mn 257.610†	387.0	222.9	0.3905	µg/L	0.3905	ppb	09:35:37
1	Mo 202.031†	-0.4	29.4	1.5274	µg/L	1.5274	ppb	09:35:37
1	Na 589.592 Radial†	14.7	-25.1	-4.1907	µg/L	-4.1907	ppb	09:34:08
1	Ni 231.604†	-157.7	44.9	0.7146	µg/L	0.7146	ppb	09:35:37
1	P 214.914†	-93.5	4.5	1.6318	µg/L	1.6318	ppb	09:35:37
1	Pb 220.353†	80.7	4.5	0.4631	µg/L	0.4631	ppb	09:35:37
1	S 181.975 Axial†	113.2	7.0	7.7962	µg/L	7.7962	ppb	09:35:37
1	Sb 206.836†	72.5	25.9	4.9932	µg/L	4.9932	ppb	09:35:37
1	Se 196.026†	-0.5	-8.5	-4.48	µg/L	-4.48	ppb	09:35:37
1	SiO2†	3119.4	2.1	0.2370	µg/L	0.2370	ppb	09:35:17
1	Si 251.611†	678.3	72.7	1.2336	µg/L	1.2336	ppb	09:35:17
1	Sn 189.927†	-11.0	16.9	2.1561	µg/L	2.1561	ppb	09:35:37
1	Sr 421.552†	-273.7	186.7	0.5413	µg/L	0.5413	ppb	09:34:28
1	Ti 334.940†	255.6	1136.9	1.6205	µg/L	1.6205	ppb	09:35:17
1	Tl 190.801†	-72.5	15.8	4.8535	µg/L	4.8535	ppb	09:35:37
1	U 367.007†	-366.5	-70.8	-8.7829	µg/L	-8.7829	ppb	09:35:17
1	V 292.402†	163.4	54.9	0.2452	µg/L	0.2452	ppb	09:35:17
1	Zn 213.857†	204.5	151.6	0.8590	µg/L	0.8590	ppb	09:35:37
2	Sc 361.383	1347207.9	1347207.9	101.20	%			09:35:39
2	Sc RADIAL	72974.0	72974.0	101	%			09:34:30
2	Y 371.029	734920.6	734920.6	101.45	%			09:35:39
2	Ag 328.068†	-1746.6	164.9	0.8471	µg/L	0.8471	ppb	09:35:42
2	Al 396.153Radial†	167.0	63.2	23.084	µg/L	23.084	ppb	09:34:50
2	As 188.979†	-27.7	2.6	1.4190	µg/L	1.4190	ppb	09:36:02
2	B 249.677†	1067.4	169.8	2.4533	µg/L	2.4533	ppb	09:35:42
2	Ba 233.527†	-182.2	60.7	0.5416	µg/L	0.5416	ppb	09:36:02
2	Be 313.107†	-3104.0	588.8	0.1503	µg/L	0.1503	ppb	09:35:42
2	Ca 317.933Radial†	481.8	132.5	14.747	µg/L	14.747	ppb	09:34:50
2	Cd 226.502†	-106.3	75.0	0.5654	µg/L	0.5654	ppb	09:36:02
2	Co 228.616†	-62.0	30.2	0.4495	µg/L	0.4495	ppb	09:36:02
2	Cr 267.716†	192.6	61.4	0.7141	µg/L	0.7141	ppb	09:36:02
2	Cu 324.752†	6061.3	212.4	0.9454	µg/L	0.9454	ppb	09:35:42
2	Fe 238.204 Radial†	-367.5	155.3	14.690	µg/L	14.690	ppb	09:34:50
2	K 766.490 Radial†	1089.9	5.7	2.9896	µg/L	2.9896	ppb	09:34:30
2	Mg 279.077 IEC†	57.2	29.7	16.006	µg/L	16.006	ppb	09:34:50
2	Mn 257.610†	344.4	188.3	0.3295	µg/L	0.3295	ppb	09:36:02
2	Mo 202.031†	7.8	37.4	1.9441	µg/L	1.9441	ppb	09:36:02
2	Na 589.592 Radial†	200.8	158.4	26.422	µg/L	26.422	ppb	09:34:30
2	Ni 231.604†	-188.5	11.5	0.1824	µg/L	0.1824	ppb	09:36:02
2	P 214.914†	-89.9	6.3	2.2530	µg/L	2.2530	ppb	09:36:02
2	Pb 220.353†	66.5	-8.0	-0.8208	µg/L	-0.8208	ppb	09:36:02

2	S 181.975 Axial†	101.8	-2.1	-2.3860 µg/L	-2.3860 ppb		09:36:02
2	Sb 206.836†	89.3	43.9	8.4734 µg/L	8.4734 ppb		09:36:02
2	Se 196.026†	4.2	-3.8	-1.99 µg/L	-1.99 ppb		09:36:02
2	SiO2†	3155.5	98.3	10.878 µg/L	10.878 ppb		09:35:42
2	Si 251.611†	754.5	161.1	2.7333 µg/L	2.7333 ppb		09:35:42
2	Sn 189.927†	-16.9	10.8	1.3786 µg/L	1.3786 ppb		09:36:02
2	Sr 421.552†	-293.1	169.7	0.4920 µg/L	0.4920 ppb		09:34:50
2	Ti 334.940†	528.6	1411.6	2.0020 µg/L	2.0020 ppb		09:35:42
2	Tl 190.801†	-66.3	20.6	6.3201 µg/L	6.3201 ppb		09:36:02
2	U 367.007†	-218.5	68.4	8.3279 µg/L	8.3279 ppb		09:35:42
2	V 292.402†	108.3	3.7	0.0220 µg/L	0.0220 ppb		09:35:42
2	Zn 213.857†	176.0	127.4	0.7193 µg/L	0.7193 ppb		09:36:02
3	Sc 361.383	1332189.6	1332189.6	100.07 %			09:36:04
3	Sc RADIAL	71255.8	71255.8	98.9 %			09:34:52
3	Y 371.029	727090.6	727090.6	100.37 %			09:36:04
3	Ag 328.068†	-1647.6	244.5	1.2731 µg/L	1.2731 ppb		09:36:06
3	Al 396.153Radial†	152.9	52.9	19.303 µg/L	19.303 ppb		09:35:12
3	As 188.979†	-33.0	-3.0	-1.6399 µg/L	-1.6399 ppb		09:36:26
3	B 249.677†	1103.0	217.4	3.1379 µg/L	3.1379 ppb		09:36:06
3	Ba 233.527†	-174.8	66.0	0.5890 µg/L	0.5890 ppb		09:36:26
3	Be 313.107†	-3189.7	468.6	0.1065 µg/L	0.1065 ppb		09:36:06
3	Ca 317.933Radial†	494.2	156.4	17.414 µg/L	17.414 ppb		09:35:12
3	Cd 226.502†	-109.6	70.5	0.5318 µg/L	0.5318 ppb		09:36:26
3	Co 228.616†	-68.4	23.2	0.3449 µg/L	0.3449 ppb		09:36:26
3	Cr 267.716†	214.3	85.1	1.0185 µg/L	1.0185 ppb		09:36:26
3	Cu 324.752†	5933.8	152.5	0.6592 µg/L	0.6592 ppb		09:36:06
3	Fe 238.204 Radial†	-341.4	173.0	16.361 µg/L	16.361 ppb		09:35:12
3	K 766.490 Radial†	973.4	-86.1	-45.242 µg/L	-45.242 ppb		09:34:52
3	Mg 279.077 IEC†	34.4	8.0	4.2969 µg/L	4.2969 ppb		09:35:12
3	Mn 257.610†	368.4	216.2	0.3787 µg/L	0.3787 ppb		09:36:26
3	Mo 202.031†	16.1	45.9	2.3836 µg/L	2.3836 ppb		09:36:26
3	Na 589.592 Radial†	88.7	49.9	8.3188 µg/L	8.3188 ppb		09:34:52
3	Ni 231.604†	-186.2	11.7	0.1853 µg/L	0.1853 ppb		09:36:26
3	P 214.914†	-80.4	14.8	5.3180 µg/L	5.3180 ppb		09:36:26
3	Pb 220.353†	87.3	13.5	1.3919 µg/L	1.3919 ppb		09:36:26
3	S 181.975 Axial†	105.7	3.0	3.2897 µg/L	3.2897 ppb		09:36:26
3	Sb 206.836†	82.8	38.5	7.4122 µg/L	7.4122 ppb		09:36:26
3	Se 196.026†	7.3	-0.7	-0.382 µg/L	-0.382 ppb		09:36:26
3	SiO2†	3025.9	3.9	0.4290 µg/L	0.4290 ppb		09:36:06
3	Si 251.611†	682.3	97.3	1.6516 µg/L	1.6516 ppb		09:36:06
3	Sn 189.927†	-13.4	14.1	1.8041 µg/L	1.8041 ppb		09:36:26
3	Sr 421.552†	-298.0	157.7	0.4570 µg/L	0.4570 ppb		09:35:12
3	Ti 334.940†	498.1	1387.0	1.9813 µg/L	1.9813 ppb		09:36:06
3	Tl 190.801†	-73.9	12.2	3.7426 µg/L	3.7426 ppb		09:36:26
3	U 367.007†	-437.2	-152.7	-18.875 µg/L	-18.875 ppb		09:36:06
3	V 292.402†	28.6	-74.8	-0.3392 µg/L	-0.3392 ppb		09:36:06
3	Zn 213.857†	171.7	125.1	0.7071 µg/L	0.7071 ppb		09:36:26

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1351179.9	101.50	%	1.597				1.57%
Sc RADIAL	72205.4	100	%	1.2				1.21%
Y 371.029	736971.6	101.73	%	1.525				1.50%
Ag 328.068†	241.1	1.2487	µg/L	0.38996	1.2487	ppb	0.38996	31.23%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	51.9	18.959	µg/L	4.3077	18.959	ppb	4.3077	22.72%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.9	0.4963	µg/L	1.85571	0.4963	ppb	1.85571	373.88%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	198.9	2.8712	µg/L	0.36647	2.8712	ppb	0.36647	12.76%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	62.4	0.5560	µg/L	0.02864	0.5560	ppb	0.02864	5.15%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	520.2	0.1259	µg/L	0.02232	0.1259	ppb	0.02232	17.73%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	126.5	14.086	µg/L	3.7037	14.086	ppb	3.7037	26.29%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	78.9	0.5951	µg/L	0.08219	0.5951	ppb	0.08219	13.81%
QC value within limits for Cd 226.502 Recovery = Not calculated								

Co 228.616†	29.1	0.4334 µg/L	0.08172	0.4334 ppb	0.08172	18.85%
QC value within limits for Co 228.616 Recovery = Not calculated						
Cr 267.716†	74.6	0.8838 µg/L	0.15516	0.8838 ppb	0.15516	17.56%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	100.4	0.4390 µg/L	0.64523	0.4390 ppb	0.64523	146.96%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	153.2	14.491 µg/L	1.9758	14.491 ppb	1.9758	13.63%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	-57.8	-30.356 µg/L	28.9337	-30.356 ppb	28.9337	95.31%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	15.6	8.4200 µg/L	6.57773	8.4200 ppb	6.57773	78.12%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	209.1	0.3662 µg/L	0.03240	0.3662 ppb	0.03240	8.85%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	37.5	1.9517 µg/L	0.42811	1.9517 ppb	0.42811	21.94%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	61.1	10.183 µg/L	15.3912	10.183 ppb	15.3912	151.14%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	22.7	0.3608 µg/L	0.30640	0.3608 ppb	0.30640	84.93%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	8.5	3.0676 µg/L	1.97349	3.0676 ppb	1.97349	64.33%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	3.3	0.3447 µg/L	1.11107	0.3447 ppb	1.11107	322.31%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	2.6	2.8999 µg/L	5.10227	2.8999 ppb	5.10227	175.94%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	36.1	6.9596 µg/L	1.78371	6.9596 ppb	1.78371	25.63%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	-4.4	-2.28 µg/L	2.065	-2.28 ppb	2.065	90.42%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	34.8	3.8479 µg/L	6.08871	3.8479 ppb	6.08871	158.24%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	110.4	1.8728 µg/L	0.77392	1.8728 ppb	0.77392	41.32%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	13.9	1.7796 µg/L	0.38932	1.7796 ppb	0.38932	21.88%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	171.4	0.4968 µg/L	0.04236	0.4968 ppb	0.04236	8.53%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	1311.8	1.8679 µg/L	0.21455	1.8679 ppb	0.21455	11.49%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	16.2	4.9721 µg/L	1.29285	4.9721 ppb	1.29285	26.00%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	-51.7	-6.4433 µg/L	13.75149	-6.4433 ppb	13.75149	213.42%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	-5.4	-0.0240 µg/L	0.29490	-0.0240 ppb	0.29490	>999.9%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	134.7	0.7618 µg/L	0.08439	0.7618 ppb	0.08439	11.08%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 15 **Autosampler Location: 113**
Sample ID: LR3 **Date Collected: 11/11/2016 09:36:46**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:37**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR3

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1341962.6	1341962.6	100.81	%			09:38:21
1	Sc RADIAL	71769.2	71769.2	99.6	%			09:37:13
1	Y 371.029	718724.4	718724.4	99.210	%			09:38:21
1	Ag 328.068†	-1756.8	148.1	0.7690	µg/L	0.7690	ppb	09:38:23
1	Al 396.153Radial†	116.7	15.5	5.6563	µg/L	5.6563	ppb	09:37:33
1	As 188.979†	-22.4	7.7	4.1895	µg/L	4.1895	ppb	09:38:43
1	B 249.677†	966.6	74.0	1.0677	µg/L	1.0677	ppb	09:38:23
1	Ba 233.527†	-197.2	45.1	0.4022	µg/L	0.4022	ppb	09:38:43
1	Be 313.107†	-3815.8	-129.3	-0.0481	µg/L	-0.0481	ppb	09:38:23
1	Ca 317.933Radial†	537.3	196.2	21.836	µg/L	21.836	ppb	09:37:33
1	Cd 226.502†	-100.3	80.5	0.6089	µg/L	0.6089	ppb	09:38:43
1	Co 228.616†	-71.4	20.7	0.3078	µg/L	0.3078	ppb	09:38:43
1	Cr 267.716†	205.8	75.2	0.8918	µg/L	0.8918	ppb	09:38:43
1	Cu 324.752†	5983.1	158.3	0.6923	µg/L	0.6923	ppb	09:38:23
1	Fe 238.204 Radial†	-470.1	46.2	4.3738	µg/L	4.3738	ppb	09:37:33
1	K 766.490 Radial†	363899.9	364191.7	191390	µg/L	191390	ppb	09:37:13
1	Mg 279.077 IEC†	28.2	1.5	0.7885	µg/L	0.7885	ppb	09:37:33
1	Mn 257.610†	313.9	159.5	0.2795	µg/L	0.2795	ppb	09:38:43
1	Mo 202.031†	-23.0	6.9	0.3574	µg/L	0.3574	ppb	09:38:43
1	Na 589.592 Radial†	-6.0	-45.8	-7.6331	µg/L	-7.6331	ppb	09:37:13
1	Ni 231.604†	-178.0	21.2	0.3368	µg/L	0.3368	ppb	09:38:43
1	P 214.914†	-89.6	6.2	2.2326	µg/L	2.2326	ppb	09:38:43
1	Pb 220.353†	76.6	2.3	0.2444	µg/L	0.2444	ppb	09:38:43
1	S 181.975 Axial†	92.3	-11.1	-12.442	µg/L	-12.442	ppb	09:38:43
1	Sb 206.836†	51.2	6.5	1.2427	µg/L	1.2427	ppb	09:38:43
1	Se 196.026†	-3.0	-11.0	-5.75	µg/L	-5.75	ppb	09:38:43
1	SiO2†	3252.0	206.2	22.822	µg/L	22.822	ppb	09:38:23
1	Si 251.611†	1321.3	726.3	12.314	µg/L	12.314	ppb	09:38:23
1	Sn 189.927†	-20.2	7.5	0.9559	µg/L	0.9559	ppb	09:38:43
1	Sr 421.552†	-420.6	36.9	0.1062	µg/L	0.1062	ppb	09:37:33
1	Ti 334.940†	-436.8	455.9	0.6523	µg/L	0.6523	ppb	09:38:23
1	Tl 190.801†	-73.7	13.0	3.9829	µg/L	3.9829	ppb	09:38:43
1	U 367.007†	-352.9	-65.8	-8.1224	µg/L	-8.1224	ppb	09:38:23
1	V 292.402†	172.7	68.0	0.3036	µg/L	0.3036	ppb	09:38:23
1	Zn 213.857†	361.5	312.1	1.7694	µg/L	1.7694	ppb	09:38:43
2	Sc 361.383	1335241.1	1335241.1	100.30	%			09:38:45
2	Sc RADIAL	72945.4	72945.4	101	%			09:37:35
2	Y 371.029	714671.3	714671.3	98.651	%			09:38:45
2	Ag 328.068†	-1715.7	180.3	0.9381	µg/L	0.9381	ppb	09:38:47
2	Al 396.153Radial†	133.5	30.2	11.018	µg/L	11.018	ppb	09:37:55
2	As 188.979†	-22.4	7.6	4.1349	µg/L	4.1349	ppb	09:39:07
2	B 249.677†	921.6	34.0	0.4930	µg/L	0.4930	ppb	09:38:47
2	Ba 233.527†	-188.7	52.7	0.4695	µg/L	0.4695	ppb	09:39:07
2	Be 313.107†	-3386.0	280.1	0.0602	µg/L	0.0602	ppb	09:38:47
2	Ca 317.933Radial†	545.1	195.1	21.722	µg/L	21.722	ppb	09:37:55
2	Cd 226.502†	-114.7	65.6	0.4960	µg/L	0.4960	ppb	09:39:07
2	Co 228.616†	-66.2	25.5	0.3790	µg/L	0.3790	ppb	09:39:07
2	Cr 267.716†	199.8	70.2	0.8372	µg/L	0.8372	ppb	09:39:07
2	Cu 324.752†	5902.4	107.6	0.4652	µg/L	0.4652	ppb	09:38:47
2	Fe 238.204 Radial†	-458.7	65.1	6.1537	µg/L	6.1537	ppb	09:37:55
2	K 766.490 Radial†	368819.3	363160.3	190840	µg/L	190840	ppb	09:37:35
2	Mg 279.077 IEC†	27.2	0.1	0.0394	µg/L	0.0394	ppb	09:37:55
2	Mn 257.610†	315.2	162.2	0.2843	µg/L	0.2843	ppb	09:39:07
2	Mo 202.031†	-10.5	19.2	0.9996	µg/L	0.9996	ppb	09:39:07
2	Na 589.592 Radial†	81.4	40.6	6.7710	µg/L	6.7710	ppb	09:37:35
2	Ni 231.604†	-215.4	-17.0	-0.2700	µg/L	-0.2700	ppb	09:39:07
2	P 214.914†	-101.3	-5.9	-2.1444	µg/L	-2.1444	ppb	09:39:07
2	Pb 220.353†	85.6	11.6	1.1901	µg/L	1.1901	ppb	09:39:07

2	S 181.975 Axial†	93.3	-9.6	-10.753 µg/L	-10.753 ppb		09:39:07
2	Sb 206.836†	51.6	7.2	1.3692 µg/L	1.3692 ppb		09:39:07
2	Se 196.026†	10.5	2.4	1.25 µg/L	1.25 ppb		09:39:07
2	SiO2†	3276.3	246.7	27.300 µg/L	27.300 ppb		09:38:47
2	Si 251.611†	1432.0	843.2	14.298 µg/L	14.298 ppb		09:38:47
2	Sn 189.927†	-20.7	6.9	0.8787 µg/L	0.8787 ppb		09:39:07
2	Sr 421.552†	-404.1	60.0	0.1732 µg/L	0.1732 ppb		09:37:55
2	Ti 334.940†	-211.0	678.9	0.9717 µg/L	0.9717 ppb		09:38:47
2	Tl 190.801†	-71.2	15.0	4.6207 µg/L	4.6207 ppb		09:39:07
2	U 367.007†	-389.3	-103.9	-12.823 µg/L	-12.823 ppb		09:38:47
2	V 292.402†	87.5	-16.1	-0.0752 µg/L	-0.0752 ppb		09:38:47
2	Zn 213.857†	388.6	340.9	1.9332 µg/L	1.9332 ppb		09:39:07
3	Sc 361.383	1332982.7	1332982.7	100.13 %			09:39:09
3	Sc RADIAL	72038.2	72038.2	100 %			09:37:57
3	Y 371.029	713060.9	713060.9	98.428 %			09:39:09
3	Ag 328.068†	-1871.4	21.9	0.1151 µg/L	0.1151 ppb		09:39:11
3	Al 396.153Radial†	129.2	27.5	10.056 µg/L	10.056 ppb		09:38:17
3	As 188.979†	-25.6	4.4	2.4079 µg/L	2.4079 ppb		09:39:31
3	B 249.677†	957.1	70.9	1.0245 µg/L	1.0245 ppb		09:39:11
3	Ba 233.527†	-211.3	29.7	0.2653 µg/L	0.2653 ppb		09:39:31
3	Be 313.107†	-3413.1	247.4	0.0597 µg/L	0.0597 ppb		09:39:11
3	Ca 317.933Radial†	569.9	226.7	25.237 µg/L	25.237 ppb		09:38:17
3	Cd 226.502†	-107.5	72.6	0.5490 µg/L	0.5490 ppb		09:39:31
3	Co 228.616†	-84.5	7.1	0.1055 µg/L	0.1055 ppb		09:39:31
3	Cr 267.716†	214.4	85.1	1.0039 µg/L	1.0039 ppb		09:39:31
3	Cu 324.752†	5827.4	42.7	0.1861 µg/L	0.1861 ppb		09:39:11
3	Fe 238.204 Radial†	-458.4	59.6	5.6416 µg/L	5.6416 ppb		09:38:17
3	K 766.490 Radial†	366157.5	365085.7	191860 µg/L	191860 ppb		09:37:57
3	Mg 279.077 IEC†	26.1	-0.7	-0.3740 µg/L	-0.3740 ppb		09:38:17
3	Mn 257.610†	315.3	163.0	0.2856 µg/L	0.2856 ppb		09:39:31
3	Mo 202.031†	-13.1	16.7	0.8665 µg/L	0.8665 ppb		09:39:31
3	Na 589.592 Radial†	-36.8	-76.6	-12.771 µg/L	-12.771 ppb		09:37:57
3	Ni 231.604†	-174.6	23.3	0.3710 µg/L	0.3710 ppb		09:39:31
3	P 214.914†	-87.7	7.5	2.7069 µg/L	2.7069 ppb		09:39:31
3	Pb 220.353†	79.6	5.7	0.5856 µg/L	0.5856 ppb		09:39:31
3	S 181.975 Axial†	86.2	-16.6	-18.519 µg/L	-18.519 ppb		09:39:31
3	Sb 206.836†	47.3	2.9	0.5485 µg/L	0.5485 ppb		09:39:31
3	Se 196.026†	-2.6	-10.6	-5.54 µg/L	-5.54 ppb		09:39:31
3	SiO2†	3241.0	216.9	24.009 µg/L	24.009 ppb		09:39:11
3	Si 251.611†	1307.4	721.2	12.228 µg/L	12.228 ppb		09:39:11
3	Sn 189.927†	-20.2	7.3	0.9379 µg/L	0.9379 ppb		09:39:31
3	Sr 421.552†	-400.0	59.0	0.1704 µg/L	0.1704 ppb		09:38:17
3	Ti 334.940†	-42.7	846.7	1.2053 µg/L	1.2053 ppb		09:39:11
3	Tl 190.801†	-89.2	-3.1	-0.9415 µg/L	-0.9415 ppb		09:39:31
3	U 367.007†	-313.1	-28.5	-3.5351 µg/L	-3.5351 ppb		09:39:11
3	V 292.402†	181.9	78.4	0.3519 µg/L	0.3519 ppb		09:39:11
3	Zn 213.857†	349.7	302.7	1.7165 µg/L	1.7165 ppb		09:39:31

Mean Data: LR3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1336728.8	100.42	%	0.351				0.35%
Sc RADIAL	72250.9	100	%	0.9				0.85%
Y 371.029	715485.5	98.763	%	0.4028				0.41%
Ag 328.068†	116.8	0.6074	µg/L	0.43461	0.6074	ppb	0.43461	71.56%
Al 396.153Radial†	24.4	8.9102	µg/L	2.85870	8.9102	ppb	2.85870	32.08%
As 188.979†	6.6	3.5774	µg/L	1.01319	3.5774	ppb	1.01319	28.32%
B 249.677†	59.6	0.8617	µg/L	0.32004	0.8617	ppb	0.32004	37.14%
Ba 233.527†	42.5	0.3790	µg/L	0.10407	0.3790	ppb	0.10407	27.46%
Be 313.107†	132.7	0.0239	µg/L	0.06238	0.0239	ppb	0.06238	260.58%
Ca 317.933Radial†	206.0	22.932	µg/L	1.9975	22.932	ppb	1.9975	8.71%
Cd 226.502†	72.9	0.5513	µg/L	0.05648	0.5513	ppb	0.05648	10.24%
Co 228.616†	17.8	0.2641	µg/L	0.14187	0.2641	ppb	0.14187	53.72%
Cr 267.716†	76.8	0.9109	µg/L	0.08502	0.9109	ppb	0.08502	9.33%
Cu 324.752†	102.9	0.4479	µg/L	0.25356	0.4479	ppb	0.25356	56.61%
Fe 238.204 Radial†	57.0	5.3897	µg/L	0.91632	5.3897	ppb	0.91632	17.00%
K 766.490 Radial†	364145.9	191360	µg/L	506.3	191360	ppb	506.3	0.26%
QC value within limits for K 766.490 Radial Recovery = 95.68%								
Mg 279.077 IEC†	0.3	0.1513	µg/L	0.58925	0.1513	ppb	0.58925	389.45%
Mn 257.610†	161.6	0.2831	µg/L	0.00325	0.2831	ppb	0.00325	1.15%

Mo 202.031†	14.3	0.7412 µg/L	0.33897	0.7412 ppb	0.33897	45.74%
Na 589.592 Radial†	-27.3	-4.5443 µg/L	10.13045	-4.5443 ppb	10.13045	222.93%
Ni 231.604†	9.2	0.1459 µg/L	0.36059	0.1459 ppb	0.36059	247.10%
P 214.914†	2.6	0.9317 µg/L	2.67450	0.9317 ppb	2.67450	287.06%
Pb 220.353†	6.6	0.6734 µg/L	0.47895	0.6734 ppb	0.47895	71.13%
S 181.975 Axial†	-12.5	-13.905 µg/L	4.0847	-13.905 ppb	4.0847	29.38%
Sb 206.836†	5.5	1.0535 µg/L	0.44184	1.0535 ppb	0.44184	41.94%
Se 196.026†	-6.4	-3.35 µg/L	3.986	-3.35 ppb	3.986	119.06%
SiO2†	223.3	24.710 µg/L	2.3202	24.710 ppb	2.3202	9.39%
Si 251.611†	763.6	12.947 µg/L	1.1707	12.947 ppb	1.1707	9.04%
Sn 189.927†	7.2	0.9242 µg/L	0.04041	0.9242 ppb	0.04041	4.37%
Sr 421.552†	52.0	0.1499 µg/L	0.03790	0.1499 ppb	0.03790	25.27%
Ti 334.940†	660.5	0.9431 µg/L	0.27762	0.9431 ppb	0.27762	29.44%
Tl 190.801†	8.3	2.5540 µg/L	3.04401	2.5540 ppb	3.04401	119.18%
U 367.007†	-66.1	-8.1603 µg/L	4.64427	-8.1603 ppb	4.64427	56.91%
V 292.402†	43.4	0.1935 µg/L	0.23387	0.1935 ppb	0.23387	120.89%
Zn 213.857†	318.6	1.8064 µg/L	0.11297	1.8064 ppb	0.11297	6.25%

All analyte(s) passed QC.

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Sequence No.: 16 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/11/2016 09:39:39**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:38**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1378881.0	1378881.0	103.58	%			09:40:19
1	Sc RADIAL	74621.4	74621.4	104	%			09:40:07
1	Y 371.029	740663.9	740663.9	102.24	%			09:40:19
1	Ag 328.068†	97573.8	96090.9	495.85	µg/L	495.85	ppb	09:40:21
1	Al 396.153Radial†	14411.9	13811.3	5042.9	µg/L	5042.9	ppb	09:40:07
1	As 188.979†	894.4	893.4	490.49	µg/L	490.49	ppb	09:40:41
1	B 249.677†	36947.0	34784.6	503.96	µg/L	503.96	ppb	09:40:21
1	Ba 233.527†	57440.9	55695.6	496.65	µg/L	496.65	ppb	09:40:21
1	Be 313.107†	1876641.0	1815409.3	483.07	µg/L	483.07	ppb	09:40:19
1	Ca 317.933Radial†	47411.4	45426.7	5056.9	µg/L	5056.9	ppb	09:40:07
1	Cd 226.502†	67701.1	65540.2	495.33	µg/L	495.33	ppb	09:40:21
1	Co 228.616†	34428.9	33330.0	495.64	µg/L	495.64	ppb	09:40:21
1	Cr 267.716†	43687.4	42047.9	494.10	µg/L	494.10	ppb	09:40:21
1	Cu 324.752†	121801.1	111812.8	494.21	µg/L	494.21	ppb	09:40:21
1	Fe 238.204 Radial†	54841.4	53460.7	5057.1	µg/L	5057.1	ppb	09:40:07
1	K 766.490 Radial†	11059.2	9606.0	5049.5	µg/L	5049.5	ppb	09:40:07
1	Mg 279.077 IEC†	9693.8	9331.4	5032.5	µg/L	5032.5	ppb	09:40:07
1	Mn 257.610†	293400.1	283103.4	495.99	µg/L	495.99	ppb	09:40:21
1	Mo 202.031†	9757.9	9450.2	491.33	µg/L	491.33	ppb	09:40:41
1	Na 589.592 Radial†	59509.9	57409.8	9573.4	µg/L	9573.4	ppb	09:40:05
1	Ni 231.604†	32021.8	31112.3	494.63	µg/L	494.63	ppb	09:40:21
1	P 214.914†	6939.6	6794.7	2448.8	µg/L	2448.8	ppb	09:40:41
1	Pb 220.353†	5112.1	4861.6	491.34	µg/L	491.34	ppb	09:40:41
1	S 181.975 Axial†	1028.9	890.7	993.09	µg/L	993.09	ppb	09:40:41
1	Sb 206.836†	2669.4	2532.8	481.27	µg/L	481.27	ppb	09:40:41
1	Se 196.026†	985.5	943.4	497	µg/L	497	ppb	09:40:41
1	SiO2†	53984.5	49098.1	5434.0	µg/L	5434.0	ppb	09:40:21
1	Si 251.611†	156370.9	150379.6	2550.3	µg/L	2550.3	ppb	09:40:21
1	Sn 189.927†	3954.8	3845.6	491.71	µg/L	491.71	ppb	09:40:41
1	Sr 421.552†	173916.8	168354.4	488.27	µg/L	488.27	ppb	09:40:05
1	Ti 334.940†	357473.2	346002.3	491.48	µg/L	491.48	ppb	09:40:19
1	Tl 190.801†	1575.2	1606.8	493.66	µg/L	493.66	ppb	09:40:41
1	U 367.007†	3980.6	4127.1	479.82	µg/L	479.82	ppb	09:40:21
1	V 292.402†	114498.6	110436.3	496.22	µg/L	496.22	ppb	09:40:21
1	Zn 213.857†	90810.9	87624.5	495.82	µg/L	495.82	ppb	09:40:21
2	Sc 361.383	1334218.0	1334218.0	100.23	%			09:40:44
2	Sc RADIAL	73420.3	73420.3	102	%			09:40:11
2	Y 371.029	717724.5	717724.5	99.072	%			09:40:44
2	Ag 328.068†	94928.4	96604.8	498.50	µg/L	498.50	ppb	09:40:46
2	Al 396.153Radial†	14103.0	13735.8	5015.4	µg/L	5015.4	ppb	09:40:11
2	As 188.979†	900.5	928.5	509.55	µg/L	509.55	ppb	09:41:06
2	B 249.677†	35904.2	34938.2	506.15	µg/L	506.15	ppb	09:40:46
2	Ba 233.527†	55760.1	55874.9	498.24	µg/L	498.24	ppb	09:40:46
2	Be 313.107†	1813160.0	1812720.3	482.29	µg/L	482.29	ppb	09:40:44
2	Ca 317.933Radial†	46554.4	45334.7	5046.7	µg/L	5046.7	ppb	09:40:11
2	Cd 226.502†	65575.0	65606.9	495.83	µg/L	495.83	ppb	09:40:46
2	Co 228.616†	33523.3	33539.1	498.75	µg/L	498.75	ppb	09:40:46
2	Cr 267.716†	42424.9	42200.1	495.89	µg/L	495.89	ppb	09:40:46
2	Cu 324.752†	118605.6	112560.8	497.51	µg/L	497.51	ppb	09:40:46
2	Fe 238.204 Radial†	53711.4	53218.1	5034.2	µg/L	5034.2	ppb	09:40:11
2	K 766.490 Radial†	10720.4	9448.3	4966.6	µg/L	4966.6	ppb	09:40:11
2	Mg 279.077 IEC†	9449.7	9245.0	4986.0	µg/L	4986.0	ppb	09:40:11
2	Mn 257.610†	285334.3	284537.8	498.50	µg/L	498.50	ppb	09:40:46
2	Mo 202.031†	9727.5	9735.3	506.14	µg/L	506.14	ppb	09:41:06
2	Na 589.592 Radial†	59376.3	58218.5	9708.2	µg/L	9708.2	ppb	09:40:09
2	Ni 231.604†	31184.1	31311.3	497.79	µg/L	497.79	ppb	09:40:46
2	P 214.914†	6932.6	7012.0	2527.2	µg/L	2527.2	ppb	09:41:06
2	Pb 220.353†	5106.6	5021.4	507.50	µg/L	507.50	ppb	09:41:06

2	S 181.975 Axial†	1014.7	909.7	1014.3 µg/L	1014.3 ppb		09:41:06
2	Sb 206.836†	2657.0	2606.7	495.53 µg/L	495.53 ppb		09:41:06
2	Se 196.026†	982.3	972.1	512 µg/L	512 ppb		09:41:06
2	SiO2†	52486.2	49347.9	5461.7 µg/L	5461.7 ppb		09:40:46
2	Si 251.611†	151722.0	150794.9	2557.4 µg/L	2557.4 ppb		09:40:46
2	Sn 189.927†	3940.1	3958.7	506.17 µg/L	506.17 ppb		09:41:06
2	Sr 421.552†	173242.8	170439.9	494.32 µg/L	494.32 ppb		09:40:09
2	Ti 334.940†	345809.9	345918.1	491.36 µg/L	491.36 ppb		09:40:44
2	Tl 190.801†	1590.6	1673.0	514.00 µg/L	514.00 ppb		09:41:06
2	U 367.007†	3836.1	4111.7	478.04 µg/L	478.04 ppb		09:40:46
2	V 292.402†	111126.1	110771.7	497.72 µg/L	497.72 ppb		09:40:46
2	Zn 213.857†	88243.9	87998.1	497.94 µg/L	497.94 ppb		09:40:46
3	Sc 361.383	1341545.0	1341545.0	100.78 %			09:41:08
3	Sc RADIAL	71485.2	71485.2	99.2 %			09:40:15
3	Y 371.029	721010.3	721010.3	99.526 %			09:41:08
3	Ag 328.068†	95892.4	97044.1	500.77 µg/L	500.77 ppb		09:41:10
3	Al 396.153Radial†	13917.0	13922.9	5083.7 µg/L	5083.7 ppb		09:40:15
3	As 188.979†	905.2	928.2	509.46 µg/L	509.46 ppb		09:41:30
3	B 249.677†	36215.1	35051.0	507.80 µg/L	507.80 ppb		09:41:10
3	Ba 233.527†	56267.2	56074.2	500.02 µg/L	500.02 ppb		09:41:10
3	Be 313.107†	1842281.8	1831737.2	487.44 µg/L	487.44 ppb		09:41:08
3	Ca 317.933Radial†	45581.9	45591.1	5075.2 µg/L	5075.2 ppb		09:40:15
3	Cd 226.502†	66501.9	66169.3	500.08 µg/L	500.08 ppb		09:41:10
3	Co 228.616†	33897.9	33728.1	501.56 µg/L	501.56 ppb		09:41:10
3	Cr 267.716†	43074.4	42613.4	500.74 µg/L	500.74 ppb		09:41:10
3	Cu 324.752†	119453.0	112755.4	498.38 µg/L	498.38 ppb		09:41:10
3	Fe 238.204 Radial†	52749.4	53675.3	5077.4 µg/L	5077.4 ppb		09:40:15
3	K 766.490 Radial†	10536.3	9547.5	5018.7 µg/L	5018.7 ppb		09:40:15
3	Mg 279.077 IEC†	9216.6	9261.0	4994.6 µg/L	4994.6 ppb		09:40:15
3	Mn 257.610†	288285.9	285911.8	500.91 µg/L	500.91 ppb		09:41:10
3	Mo 202.031†	9763.0	9717.4	505.21 µg/L	505.21 ppb		09:41:30
3	Na 589.592 Radial†	58490.8	58903.2	9822.4 µg/L	9822.4 ppb		09:40:13
3	Ni 231.604†	31496.3	31451.2	500.02 µg/L	500.02 ppb		09:41:10
3	P 214.914†	6973.6	7014.9	2528.2 µg/L	2528.2 ppb		09:41:30
3	Pb 220.353†	5110.2	4997.1	505.04 µg/L	505.04 ppb		09:41:30
3	S 181.975 Axial†	1010.4	899.9	1003.4 µg/L	1003.4 ppb		09:41:30
3	Sb 206.836†	2675.0	2610.1	496.11 µg/L	496.11 ppb		09:41:30
3	Se 196.026†	984.9	969.3	511 µg/L	511 ppb		09:41:30
3	SiO2†	53078.8	49649.9	5495.1 µg/L	5495.1 ppb		09:41:10
3	Si 251.611†	153778.6	152008.8	2577.9 µg/L	2577.9 ppb		09:41:10
3	Sn 189.927†	3960.8	3957.7	506.05 µg/L	506.05 ppb		09:41:30
3	Sr 421.552†	171045.8	172827.2	501.25 µg/L	501.25 ppb		09:40:13
3	Ti 334.940†	351464.8	349645.0	496.65 µg/L	496.65 ppb		09:41:08
3	Tl 190.801†	1579.5	1653.4	507.96 µg/L	507.96 ppb		09:41:30
3	U 367.007†	3943.1	4197.0	488.29 µg/L	488.29 ppb		09:41:10
3	V 292.402†	112394.9	111425.2	500.66 µg/L	500.66 ppb		09:41:10
3	Zn 213.857†	89565.4	88828.6	502.65 µg/L	502.65 ppb		09:41:10

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1351548.0	101.53	%	1.799				1.77%
Sc RADIAL	73175.6	102	%	2.2				2.16%
Y 371.029	726466.3	100.28	%	1.712				1.71%
Ag 328.068†	96579.9	498.37	µg/L	2.460	498.37	ppb	2.460	0.49%
QC value within limits for Ag 328.068 Recovery = 99.67%								
Al 396.153Radial†	13823.3	5047.3	µg/L	34.36	5047.3	ppb	34.36	0.68%
QC value within limits for Al 396.153Radial Recovery = 100.95%								
As 188.979†	916.7	503.17	µg/L	10.979	503.17	ppb	10.979	2.18%
QC value within limits for As 188.979 Recovery = 100.63%								
B 249.677†	34924.6	505.97	µg/L	1.929	505.97	ppb	1.929	0.38%
QC value within limits for B 249.677 Recovery = 101.19%								
Ba 233.527†	55881.6	498.30	µg/L	1.689	498.30	ppb	1.689	0.34%
QC value within limits for Ba 233.527 Recovery = 99.66%								
Be 313.107†	1819955.6	484.27	µg/L	2.775	484.27	ppb	2.775	0.57%
QC value within limits for Be 313.107 Recovery = 96.85%								
Ca 317.933Radial†	45450.8	5059.6	µg/L	14.46	5059.6	ppb	14.46	0.29%
QC value within limits for Ca 317.933Radial Recovery = 101.19%								
Cd 226.502†	65772.1	497.08	µg/L	2.613	497.08	ppb	2.613	0.53%
QC value within limits for Cd 226.502 Recovery = 99.42%								

Co 228.616†	33532.4	498.65 µg/L	2.960	498.65 ppb	2.960	0.59%
QC value within limits for Co 228.616 Recovery = 99.73%						
Cr 267.716†	42287.1	496.91 µg/L	3.437	496.91 ppb	3.437	0.69%
QC value within limits for Cr 267.716 Recovery = 99.38%						
Cu 324.752†	112376.3	496.70 µg/L	2.198	496.70 ppb	2.198	0.44%
QC value within limits for Cu 324.752 Recovery = 99.34%						
Fe 238.204 Radial†	53451.4	5056.2 µg/L	21.64	5056.2 ppb	21.64	0.43%
QC value within limits for Fe 238.204 Radial Recovery = 101.12%						
K 766.490 Radial†	9533.9	5011.6 µg/L	41.91	5011.6 ppb	41.91	0.84%
QC value within limits for K 766.490 Radial Recovery = 100.23%						
Mg 279.077 IEC†	9279.1	5004.4 µg/L	24.78	5004.4 ppb	24.78	0.50%
QC value within limits for Mg 279.077 IEC Recovery = 100.09%						
Mn 257.610†	284517.6	498.47 µg/L	2.462	498.47 ppb	2.462	0.49%
QC value within limits for Mn 257.610 Recovery = 99.69%						
Mo 202.031†	9634.3	500.89 µg/L	8.298	500.89 ppb	8.298	1.66%
QC value within limits for Mo 202.031 Recovery = 100.18%						
Na 589.592 Radial†	58177.2	9701.3 µg/L	124.66	9701.3 ppb	124.66	1.29%
QC value within limits for Na 589.592 Radial Recovery = 97.01%						
Ni 231.604†	31291.6	497.48 µg/L	2.707	497.48 ppb	2.707	0.54%
QC value within limits for Ni 231.604 Recovery = 99.50%						
P 214.914†	6940.5	2501.4 µg/L	45.51	2501.4 ppb	45.51	1.82%
QC value within limits for P 214.914 Recovery = 100.06%						
Pb 220.353†	4960.0	501.30 µg/L	8.708	501.30 ppb	8.708	1.74%
QC value within limits for Pb 220.353 Recovery = 100.26%						
S 181.975 Axial†	900.1	1003.6 µg/L	10.61	1003.6 ppb	10.61	1.06%
QC value within limits for S 181.975 Axial Recovery = 100.36%						
Sb 206.836†	2583.2	490.97 µg/L	8.403	490.97 ppb	8.403	1.71%
QC value within limits for Sb 206.836 Recovery = 98.19%						
Se 196.026†	961.6	506 µg/L	8.3	506 ppb	8.3	1.64%
QC value within limits for Se 196.026 Recovery = 101.30%						
SiO2†	49365.3	5463.6 µg/L	30.58	5463.6 ppb	30.58	0.56%
QC value within limits for SiO2 Recovery = 102.17%						
Si 251.611†	151061.1	2561.9 µg/L	14.36	2561.9 ppb	14.36	0.56%
QC value within limits for Si 251.611 Recovery = 102.47%						
Sn 189.927†	3920.7	501.31 µg/L	8.316	501.31 ppb	8.316	1.66%
QC value within limits for Sn 189.927 Recovery = 100.26%						
Sr 421.552†	170540.5	494.61 µg/L	6.493	494.61 ppb	6.493	1.31%
QC value within limits for Sr 421.552 Recovery = 98.92%						
Ti 334.940†	347188.5	493.16 µg/L	3.021	493.16 ppb	3.021	0.61%
QC value within limits for Ti 334.940 Recovery = 98.63%						
Tl 190.801†	1644.4	505.20 µg/L	10.448	505.20 ppb	10.448	2.07%
QC value within limits for Tl 190.801 Recovery = 101.04%						
U 367.007†	4145.3	482.05 µg/L	5.480	482.05 ppb	5.480	1.14%
QC value within limits for U 367.007 Recovery = 96.41%						
V 292.402†	110877.7	498.20 µg/L	2.262	498.20 ppb	2.262	0.45%
QC value within limits for V 292.402 Recovery = 99.64%						
Zn 213.857†	88150.4	498.80 µg/L	3.494	498.80 ppb	3.494	0.70%
QC value within limits for Zn 213.857 Recovery = 99.76%						

All analyte(s) passed QC.

Sequence No.: 17 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 09:41:38**
Analyst: **Data Type: Reprocessed on 11/11/2016 09:56:38**
Logged In Analyst (Original) : lab
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc 361.383	1363976.8	1363976.8	102.46	%			09:43:10
1	Sc RADIAL	74439.6	74439.6	103	%			09:42:03
1	Y 371.029	743449.0	743449.0	102.62	%			09:43:10
1	Ag 328.068†	-1885.5	50.7	0.2678	µg/L	0.2678	ppb	09:43:12
1	Al 396.153Radial†	103.3	-1.7	-0.6161	µg/L	-0.6161	ppb	09:42:23
1	As 188.979†	-22.8	7.7	4.1672	µg/L	4.1672	ppb	09:43:32
1	B 249.677†	985.6	77.1	1.1109	µg/L	1.1109	ppb	09:43:12
1	Ba 233.527†	-216.6	29.3	0.2617	µg/L	0.2617	ppb	09:43:32
1	Be 313.107†	-3525.3	215.3	0.0485	µg/L	0.0485	ppb	09:43:12
1	Ca 317.933Radial†	355.2	0.5	0.0604	µg/L	0.0604	ppb	09:42:23
1	Cd 226.502†	-162.8	21.1	0.1594	µg/L	0.1594	ppb	09:43:32
1	Co 228.616†	-65.7	27.4	0.4071	µg/L	0.4071	ppb	09:43:32
1	Cr 267.716†	166.6	33.6	0.4046	µg/L	0.4046	ppb	09:43:32
1	Cu 324.752†	5901.8	-16.9	-0.0830	µg/L	-0.0830	ppb	09:43:12
1	Fe 238.204 Radial†	-499.1	35.1	3.3186	µg/L	3.3186	ppb	09:42:23
1	K 766.490 Radial†	1198.6	89.7	47.155	µg/L	47.155	ppb	09:42:03
1	Mg 279.077 IEC†	17.8	-9.6	-5.1633	µg/L	-5.1633	ppb	09:42:23
1	Mn 257.610†	193.2	36.6	0.0643	µg/L	0.0643	ppb	09:43:32
1	Mo 202.031†	-1.7	28.1	1.4599	µg/L	1.4599	ppb	09:43:32
1	Na 589.592 Radial†	103.4	60.3	10.061	µg/L	10.061	ppb	09:42:03
1	Ni 231.604†	-182.8	19.3	0.3073	µg/L	0.3073	ppb	09:43:32
1	P 214.914†	-90.8	6.5	2.3481	µg/L	2.3481	ppb	09:43:32
1	Pb 220.353†	99.3	23.2	2.3580	µg/L	2.3580	ppb	09:43:32
1	S 181.975 Axial†	110.1	4.7	5.2912	µg/L	5.2912	ppb	09:43:32
1	Sb 206.836†	65.7	19.8	3.8205	µg/L	3.8205	ppb	09:43:32
1	Se 196.026†	0.3	-7.8	-4.08	µg/L	-4.08	ppb	09:43:32
1	SiO2†	3092.9	-1.2	-0.1346	µg/L	-0.1346	ppb	09:43:12
1	Si 251.611†	546.4	-51.2	-0.8671	µg/L	-0.8671	ppb	09:43:12
1	Sn 189.927†	-25.4	2.7	0.3499	µg/L	0.3499	ppb	09:43:32
1	Sr 421.552†	-391.2	80.5	0.2335	µg/L	0.2335	ppb	09:42:23
1	Ti 334.940†	-309.0	587.7	0.8408	µg/L	0.8408	ppb	09:43:12
1	Tl 190.801†	-74.0	13.8	4.2380	µg/L	4.2380	ppb	09:43:32
1	U 367.007†	-379.0	-85.7	-10.559	µg/L	-10.559	ppb	09:43:12
1	V 292.402†	237.2	128.2	0.5714	µg/L	0.5714	ppb	09:43:12
1	Zn 213.857†	76.2	27.9	0.1581	µg/L	0.1581	ppb	09:43:32
2	Sc 361.383	1359760.5	1359760.5	102.15	%			09:43:34
2	Sc RADIAL	74690.4	74690.4	104	%			09:42:25
2	Y 371.029	740009.7	740009.7	102.15	%			09:43:34
2	Ag 328.068†	-1861.3	68.6	0.3611	µg/L	0.3611	ppb	09:43:37
2	Al 396.153Radial†	131.5	25.2	9.1835	µg/L	9.1835	ppb	09:42:45
2	As 188.979†	-29.8	0.8	0.4436	µg/L	0.4436	ppb	09:43:57
2	B 249.677†	926.0	21.7	0.3149	µg/L	0.3149	ppb	09:43:37
2	Ba 233.527†	-228.4	17.2	0.1535	µg/L	0.1535	ppb	09:43:57
2	Be 313.107†	-3603.8	127.8	0.0268	µg/L	0.0268	ppb	09:43:37
2	Ca 317.933Radial†	353.6	-2.2	-0.2399	µg/L	-0.2399	ppb	09:42:45
2	Cd 226.502†	-146.9	36.2	0.2736	µg/L	0.2736	ppb	09:43:57
2	Co 228.616†	-103.9	-10.2	-0.1519	µg/L	-0.1519	ppb	09:43:57
2	Cr 267.716†	142.4	10.4	0.1332	µg/L	0.1332	ppb	09:43:57
2	Cu 324.752†	5892.6	-8.0	-0.0447	µg/L	-0.0447	ppb	09:43:37
2	Fe 238.204 Radial†	-486.7	48.6	4.5990	µg/L	4.5990	ppb	09:42:45
2	K 766.490 Radial†	1192.8	80.2	42.143	µg/L	42.143	ppb	09:42:25
2	Mg 279.077 IEC†	11.7	-15.5	-8.3745	µg/L	-8.3745	ppb	09:42:45
2	Mn 257.610†	195.4	39.3	0.0692	µg/L	0.0692	ppb	09:43:57
2	Mo 202.031†	-1.4	28.4	1.4762	µg/L	1.4762	ppb	09:43:57
2	Na 589.592 Radial†	157.3	112.0	18.668	µg/L	18.668	ppb	09:42:25
2	Ni 231.604†	-190.9	10.9	0.1730	µg/L	0.1730	ppb	09:43:57
2	P 214.914†	-96.4	0.7	0.2550	µg/L	0.2550	ppb	09:43:57
2	Pb 220.353†	82.8	7.4	0.7583	µg/L	0.7583	ppb	09:43:57

2	S 181.975 Axial†	96.3	-8.4	-9.4177 µg/L	-9.4177 ppb	09:43:57
2	Sb 206.836†	85.5	39.4	7.6066 µg/L	7.6066 ppb	09:43:57
2	Se 196.026†	12.2	4.0	2.07 µg/L	2.07 ppb	09:43:57
2	SiO2†	3074.7	-9.6	-1.0620 µg/L	-1.0620 ppb	09:43:37
2	Si 251.611†	620.7	23.2	0.3933 µg/L	0.3933 ppb	09:43:37
2	Sn 189.927†	-20.4	7.6	0.9660 µg/L	0.9660 ppb	09:43:57
2	Sr 421.552†	-411.4	62.3	0.1807 µg/L	0.1807 ppb	09:42:45
2	Ti 334.940†	-301.5	594.1	0.8505 µg/L	0.8505 ppb	09:43:37
2	Tl 190.801†	-76.3	11.4	3.5008 µg/L	3.5008 ppb	09:43:57
2	U 367.007†	-387.8	-95.5	-11.770 µg/L	-11.770 ppb	09:43:37
2	V 292.402†	208.2	100.5	0.4465 µg/L	0.4465 ppb	09:43:37
2	Zn 213.857†	71.9	23.9	0.1353 µg/L	0.1353 ppb	09:43:57
3	Sc 361.383	1367969.4	1367969.4	102.76 %		09:43:59
3	Sc RADIAL	74753.2	74753.2	104 %		09:42:47
3	Y 371.029	744449.2	744449.2	102.76 %		09:43:59
3	Ag 328.068†	-1876.2	65.0	0.3489 µg/L	0.3489 ppb	09:44:01
3	Al 396.153Radial†	121.5	15.5	5.6446 µg/L	5.6446 ppb	09:43:07
3	As 188.979†	-22.8	7.7	4.2065 µg/L	4.2065 ppb	09:44:21
3	B 249.677†	997.3	85.6	1.2354 µg/L	1.2354 ppb	09:44:01
3	Ba 233.527†	-228.9	18.0	0.1604 µg/L	0.1604 ppb	09:44:21
3	Be 313.107†	-3280.1	464.0	0.1143 µg/L	0.1143 ppb	09:44:01
3	Ca 317.933Radial†	375.1	18.3	2.0385 µg/L	2.0385 ppb	09:43:07
3	Cd 226.502†	-163.6	20.8	0.1570 µg/L	0.1570 ppb	09:44:21
3	Co 228.616†	-83.8	10.0	0.1488 µg/L	0.1488 ppb	09:44:21
3	Cr 267.716†	136.9	4.3	0.0709 µg/L	0.0709 ppb	09:44:21
3	Cu 324.752†	5818.0	-115.2	-0.5265 µg/L	-0.5265 ppb	09:44:01
3	Fe 238.204 Radial†	-471.3	63.9	6.0429 µg/L	6.0429 ppb	09:43:07
3	K 766.490 Radial†	1395.8	274.9	144.45 µg/L	144.45 ppb	09:42:47
3	Mg 279.077 IEC†	12.5	-14.8	-7.9829 µg/L	-7.9829 ppb	09:43:07
3	Mn 257.610†	200.1	42.8	0.0752 µg/L	0.0752 ppb	09:44:21
3	Mo 202.031†	-12.3	17.7	0.9222 µg/L	0.9222 ppb	09:44:21
3	Na 589.592 Radial†	97.3	54.0	9.0073 µg/L	9.0073 ppb	09:42:47
3	Ni 231.604†	-224.3	-20.6	-0.3270 µg/L	-0.3270 ppb	09:44:21
3	P 214.914†	-92.2	5.4	1.9484 µg/L	1.9484 ppb	09:44:21
3	Pb 220.353†	90.8	14.7	1.5112 µg/L	1.5112 ppb	09:44:21
3	S 181.975 Axial†	99.0	-6.3	-7.0513 µg/L	-7.0513 ppb	09:44:21
3	Sb 206.836†	77.9	31.5	6.0768 µg/L	6.0768 ppb	09:44:21
3	Se 196.026†	10.5	2.2	1.11 µg/L	1.11 ppb	09:44:21
3	SiO2†	3039.0	-62.4	-6.9093 µg/L	-6.9093 ppb	09:44:01
3	Si 251.611†	373.8	-220.7	-3.7417 µg/L	-3.7417 ppb	09:44:01
3	Sn 189.927†	-24.8	3.4	0.4304 µg/L	0.4304 ppb	09:44:21
3	Sr 421.552†	-428.0	46.5	0.1350 µg/L	0.1350 ppb	09:43:07
3	Ti 334.940†	-191.3	703.1	1.0113 µg/L	1.0113 ppb	09:44:01
3	Tl 190.801†	-72.2	15.7	4.8361 µg/L	4.8361 ppb	09:44:21
3	U 367.007†	-482.8	-185.6	-22.866 µg/L	-22.866 ppb	09:44:01
3	V 292.402†	146.9	39.7	0.1699 µg/L	0.1699 ppb	09:44:01
3	Zn 213.857†	91.2	42.3	0.2402 µg/L	0.2402 ppb	09:44:21

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1363902.2	102.46	%	0.308				0.30%
Sc RADIAL	74627.7	104	%	0.2				0.22%
Y 371.029	742636.0	102.51	%	0.321				0.31%
Ag 328.068†	61.4	0.3259	µg/L	0.05071	0.3259	ppb	0.05071	15.56%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	13.0	4.7373	µg/L	4.96242	4.7373	ppb	4.96242	104.75%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	5.4	2.9391	µg/L	2.16126	2.9391	ppb	2.16126	73.53%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	61.4	0.8870	µg/L	0.49941	0.8870	ppb	0.49941	56.30%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	21.5	0.1919	µg/L	0.06056	0.1919	ppb	0.06056	31.56%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	269.0	0.0632	µg/L	0.04558	0.0632	ppb	0.04558	72.11%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	5.6	0.6197	µg/L	1.23787	0.6197	ppb	1.23787	199.76%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	26.1	0.1967	µg/L	0.06660	0.1967	ppb	0.06660	33.86%
QC value within limits for Cd 226.502 Recovery = Not calculated								

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Co 228.616†                9.1      0.1346 µg/L       0.27974      0.1346 ppb        0.27974 207.77%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†               16.1      0.2029 µg/L       0.17745      0.2029 ppb        0.17745  87.46%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -46.7     -0.2181 µg/L       0.26780     -0.2181 ppb        0.26780 122.81%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        49.2      4.6535 µg/L       1.36297      4.6535 ppb        1.36297  29.29%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        148.3      77.918 µg/L       57.6773      77.918 ppb        57.6773  74.02%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          -13.3     -7.1736 µg/L       1.75193     -7.1736 ppb        1.75193  24.42%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               39.6      0.0696 µg/L       0.00548      0.0696 ppb        0.00548   7.88%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               24.7      1.2861 µg/L       0.31523      1.2861 ppb        0.31523  24.51%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        75.4      12.579 µg/L        5.2997      12.579 ppb         5.2997  42.13%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†                3.2      0.0511 µg/L       0.33426      0.0511 ppb        0.33426 653.73%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                 4.2      1.5172 µg/L       1.11118      1.5172 ppb        1.11118  73.24%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               15.1      1.5425 µg/L       0.80034      1.5425 ppb        0.80034  51.89%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -3.3     -3.7259 µg/L       7.89821     -3.7259 ppb        7.89821 211.98%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               30.2      5.8346 µg/L       1.90460      5.8346 ppb        1.90460  32.64%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -0.5      -0.297 µg/L        3.3066      -0.297 ppb         3.3066 >999.9%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -24.4     -2.7020 µg/L       3.67303     -2.7020 ppb        3.67303 135.94%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              -82.9     -1.4052 µg/L       2.11938     -1.4052 ppb        2.11938 150.83%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                4.6      0.5821 µg/L       0.33488      0.5821 ppb        0.33488  57.53%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               63.1      0.1831 µg/L       0.04930      0.1831 ppb        0.04930  26.93%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              628.3      0.9009 µg/L       0.09579      0.9009 ppb        0.09579  10.63%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               13.6      4.1916 µg/L       0.66889      4.1916 ppb        0.66889  15.96%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              -122.2     -15.065 µg/L        6.7829     -15.065 ppb         6.7829  45.02%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                89.4      0.3959 µg/L       0.20547      0.3959 ppb        0.20547  51.90%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†               31.3      0.1779 µg/L       0.05516      0.1779 ppb        0.05516  31.01%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 14 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 11/11/2016 10:48:14**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	65215.0	65215.0	90.5	%			10:48:43
1	Al 396.153Radial†	1245660.7	1375881.5	502370	µg/L	502370	ppb	10:48:41
1	Ca 317.933Radial†	3878733.7	4284188.0	476920	µg/L	476920	ppb	10:48:41
1	Fe 238.204 Radial†	1801354.2	1990332.0	188280	µg/L	188280	ppb	10:48:41
1	K 766.490 Radial†	879.9	-98.3	-20.597	µg/L	-20.597	ppb	10:48:43
1	Mg 279.077 IEC†	821610.5	907541.6	489350	µg/L	489350	ppb	10:48:41
1	Na 589.592 Radial†	-83.2	-131.6	-21.949	µg/L	-21.949	ppb	10:48:43
1	Sr 421.552†	4667.4	5614.7	-0.1638	µg/L	-0.1638	ppb	10:48:43
1	Sc 361.383	1188088.4	1188088.4	89.249	%			10:48:55
1	Y 371.029	634812.7	634812.7	87.627	%			10:48:55
1	Ag 328.068†	-2948.9	-1413.3	-0.9065	µg/L	-0.9065	ppb	10:48:55
1	As 188.979†	-77.9	-57.4	-8.1189	µg/L	-8.1189	ppb	10:49:15
1	B 249.677†	-8698.0	-10630.6	-14.772	µg/L	-14.772	ppb	10:48:55
1	Ba 233.527†	-92.7	136.9	2.1336	µg/L	2.1336	ppb	10:49:15
1	Be 313.107†	-3921.1	-737.5	0.1530	µg/L	0.1530	ppb	10:48:55
1	Cd 226.502†	2683.6	3186.9	2.5536	µg/L	2.5536	ppb	10:49:15
1	Co 228.616†	45.8	142.9	-0.1824	µg/L	-0.1824	ppb	10:49:15
1	Cr 267.716†	187.9	81.6	0.6643	µg/L	0.6643	ppb	10:49:15
1	Cu 324.752†	859.8	-4813.5	-1.9217	µg/L	-1.9217	ppb	10:49:15
1	Mn 257.610†	8352.7	9206.9	-1.5566	µg/L	-1.5566	ppb	10:48:55
1	Mo 202.031†	-257.9	-259.2	-3.7074	µg/L	-3.7074	ppb	10:49:15
1	Ni 231.604†	-224.0	-53.3	-0.8468	µg/L	-0.8468	ppb	10:49:15
1	P 214.914†	-49.7	39.4	4.3016	µg/L	4.3016	ppb	10:49:15
1	Pb 220.353†	-105.8	-192.3	0.2389	µg/L	0.2389	ppb	10:49:15
1	S 181.975 Axial†	132.4	45.6	0.9622	µg/L	0.9622	ppb	10:49:15
1	Sb 206.836†	76.1	41.0	0.1609	µg/L	0.1609	ppb	10:49:15
1	Se 196.026†	-149.1	-175.0	-16.3	µg/L	-16.3	ppb	10:49:15
1	SiO2†	3468.6	866.6	95.915	µg/L	95.915	ppb	10:49:15
1	Si 251.611†	1739.7	1364.8	46.944	µg/L	46.944	ppb	10:49:15
1	Sn 189.927†	-28.6	-4.6	0.9651	µg/L	0.9651	ppb	10:49:15
1	Ti 334.940†	-4506.4	-4160.0	-0.5215	µg/L	-0.5215	ppb	10:48:55
1	Tl 190.801†	-97.1	-22.7	-3.7926	µg/L	-3.7926	ppb	10:49:15
1	U 367.007†	7457.0	8639.5	-2.4998	µg/L	-2.4998	ppb	10:48:55
1	V 292.402†	-2089.4	-2444.4	1.9975	µg/L	1.9975	ppb	10:49:15
1	Zn 213.857†	7860.9	8761.4	5.3249	µg/L	5.3249	ppb	10:49:15
2	Sc RADIAL	67501.6	67501.6	93.7	%			10:48:47
2	Al 396.153Radial†	1270779.7	1356076.6	495140	µg/L	495140	ppb	10:48:45
2	Ca 317.933Radial†	3976325.2	4243198.1	472350	µg/L	472350	ppb	10:48:45
2	Fe 238.204 Radial†	1846525.4	1971133.2	186460	µg/L	186460	ppb	10:48:45
2	K 766.490 Radial†	897.5	-112.5	-28.345	µg/L	-28.345	ppb	10:48:47
2	Mg 279.077 IEC†	845385.5	902170.1	486450	µg/L	486450	ppb	10:48:45
2	Na 589.592 Radial†	-105.4	-152.3	-25.391	µg/L	-25.391	ppb	10:48:47
2	Sr 421.552†	4916.8	5706.3	0.2593	µg/L	0.2593	ppb	10:48:47
2	Sc 361.383	1207501.8	1207501.8	90.707	%			10:49:18
2	Y 371.029	645357.2	645357.2	89.083	%			10:49:18
2	Ag 328.068†	-2957.3	-1369.4	-0.7632	µg/L	-0.7632	ppb	10:49:18
2	As 188.979†	-70.1	-47.3	-2.8959	µg/L	-2.8959	ppb	10:49:38
2	B 249.677†	-8911.1	-10708.8	-17.230	µg/L	-17.230	ppb	10:49:18
2	Ba 233.527†	-92.6	138.7	2.1413	µg/L	2.1413	ppb	10:49:38
2	Be 313.107†	-3957.8	-707.3	0.1704	µg/L	0.1704	ppb	10:49:18
2	Cd 226.502†	2680.5	3135.2	2.3705	µg/L	2.3705	ppb	10:49:38
2	Co 228.616†	42.6	138.5	-0.2248	µg/L	-0.2248	ppb	10:49:38
2	Cr 267.716†	158.6	45.8	0.2035	µg/L	0.2035	ppb	10:49:38
2	Cu 324.752†	844.2	-4846.2	-2.1988	µg/L	-2.1988	ppb	10:49:38
2	Mn 257.610†	8491.0	9208.9	-1.4484	µg/L	-1.4484	ppb	10:49:18
2	Mo 202.031†	-270.0	-267.9	-4.2348	µg/L	-4.2348	ppb	10:49:38
2	Ni 231.604†	-217.8	-42.4	-0.6736	µg/L	-0.6736	ppb	10:49:38
2	P 214.914†	-34.9	56.6	10.620	µg/L	10.620	ppb	10:49:38
2	Pb 220.353†	-95.6	-179.2	1.1956	µg/L	1.1956	ppb	10:49:38

2	S 181.975 Axial†	135.9	47.1	3.1797 µg/L	3.1797 ppb	10:49:38
2	Sb 206.836†	89.8	54.7	2.8439 µg/L	2.8439 ppb	10:49:38
2	Se 196.026†	-128.4	-149.6	-3.62 µg/L	-3.62 ppb	10:49:38
2	SiO2†	3444.1	777.1	86.010 µg/L	86.010 ppb	10:49:38
2	Si 251.611†	1721.1	1313.0	45.836 µg/L	45.836 ppb	10:49:38
2	Sn 189.927†	-29.1	-4.5	0.9487 µg/L	0.9487 ppb	10:49:38
2	Ti 334.940†	-4492.2	-4063.2	-0.4545 µg/L	-0.4545 ppb	10:49:18
2	Tl 190.801†	-98.2	-22.2	-3.6743 µg/L	-3.6743 ppb	10:49:38
2	U 367.007†	7774.1	8854.8	34.257 µg/L	34.257 ppb	10:49:18
2	V 292.402†	-2073.4	-2389.1	2.1331 µg/L	2.1331 ppb	10:49:38
2	Zn 213.857†	7837.3	8593.7	4.7119 µg/L	4.7119 ppb	10:49:38
3	Sc RADIAL	65996.2	65996.2	91.6 %		10:48:52
3	Al 396.153Radial†	1274946.9	1391561.2	508100 µg/L	508100 ppb	10:48:50
3	Ca 317.933Radial†	3991573.9	4356642.3	484980 µg/L	484980 ppb	10:48:50
3	Fe 238.204 Radial†	1855181.6	2025533.6	191610 µg/L	191610 ppb	10:48:50
3	K 766.490 Radial†	845.0	-147.8	-46.062 µg/L	-46.062 ppb	10:48:52
3	Mg 279.077 IEC†	848588.2	926246.0	499440 µg/L	499440 ppb	10:48:50
3	Na 589.592 Radial†	25.7	-11.7	-1.9454 µg/L	-1.9454 ppb	10:48:52
3	Sr 421.552†	4665.1	5551.2	-0.6262 µg/L	-0.6262 ppb	10:48:52
3	Sc 361.383	1204221.3	1204221.3	90.461 %		10:49:40
3	Y 371.029	644439.4	644439.4	88.956 %		10:49:40
3	Ag 328.068†	-3016.6	-1443.9	-0.9369 µg/L	-0.9369 ppb	10:49:40
3	As 188.979†	-64.0	-40.8	1.3190 µg/L	1.3190 ppb	10:50:00
3	B 249.677†	-8543.6	-10329.4	-7.9978 µg/L	-7.9978 ppb	10:49:40
3	Ba 233.527†	-85.0	146.8	2.2385 µg/L	2.2385 ppb	10:50:00
3	Be 313.107†	-3841.9	-591.1	0.1903 µg/L	0.1903 ppb	10:49:40
3	Cd 226.502†	2714.4	3180.6	2.1252 µg/L	2.1252 ppb	10:50:00
3	Co 228.616†	28.0	122.4	-0.5267 µg/L	-0.5267 ppb	10:50:00
3	Cr 267.716†	169.3	58.2	0.3938 µg/L	0.3938 ppb	10:50:00
3	Cu 324.752†	815.7	-4875.2	-1.8491 µg/L	-1.8491 ppb	10:50:00
3	Mn 257.610†	8387.5	9120.0	-2.0736 µg/L	-2.0736 ppb	10:49:40
3	Mo 202.031†	-225.3	-219.3	-1.4436 µg/L	-1.4436 ppb	10:50:00
3	Ni 231.604†	-196.2	-19.1	-0.3040 µg/L	-0.3040 ppb	10:50:00
3	P 214.914†	-40.5	50.3	8.0757 µg/L	8.0757 ppb	10:50:00
3	Pb 220.353†	-100.1	-184.3	1.2373 µg/L	1.2373 ppb	10:50:00
3	S 181.975 Axial†	128.2	39.1	-7.1665 µg/L	-7.1665 ppb	10:50:00
3	Sb 206.836†	93.4	59.0	3.4331 µg/L	3.4331 ppb	10:50:00
3	Se 196.026†	-124.4	-145.5	0.519 µg/L	0.519 ppb	10:50:00
3	SiO2†	3472.8	819.2	90.670 µg/L	90.670 ppb	10:50:00
3	Si 251.611†	1685.4	1278.7	45.905 µg/L	45.905 ppb	10:50:00
3	Sn 189.927†	-22.1	3.1	1.9666 µg/L	1.9666 ppb	10:50:00
3	Ti 334.940†	-4777.0	-4391.5	-0.7493 µg/L	-0.7493 ppb	10:49:40
3	Tl 190.801†	-100.3	-24.9	-4.3950 µg/L	-4.3950 ppb	10:50:00
3	U 367.007†	7550.3	8630.7	-22.394 µg/L	-22.394 ppb	10:49:40
3	V 292.402†	-1918.3	-2223.9	3.2067 µg/L	3.2067 ppb	10:50:00
3	Zn 213.857†	7846.4	8627.3	3.7088 µg/L	3.7088 ppb	10:50:00

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1199937.2	90.139	%	0.7806				0.87%
Sc RADIAL	66237.6	91.9	%	1.61				1.75%
Y 371.029	641536.4	88.555	%	0.8063				0.91%
Ag 328.068†	-1408.9	-0.8689	µg/L	0.09276	-0.8689	ppb	0.09276	10.68%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	1374506.4	501870	µg/L	6492.8	501870	ppb	6492.8	1.29%
QC value within limits for Al 396.153Radial Recovery = 100.37%								
As 188.979†	-48.5	-3.2319	µg/L	4.72789	-3.2319	ppb	4.72789	146.29%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-10556.3	-13.333	µg/L	4.7813	-13.333	ppb	4.7813	35.86%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	140.8	2.1711	µg/L	0.05850	2.1711	ppb	0.05850	2.69%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-678.6	0.1712	µg/L	0.01870	0.1712	ppb	0.01870	10.92%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4294676.1	478090	µg/L	6394.8	478090	ppb	6394.8	1.34%
QC value within limits for Ca 317.933Radial Recovery = 95.62%								
Cd 226.502†	3167.6	2.3498	µg/L	0.21495	2.3498	ppb	0.21495	9.15%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	134.6	-0.3113	µg/L	0.18774	-0.3113	ppb	0.18774	60.30%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              61.8      0.4205 µg/L       0.23157      0.4205 ppb        0.23157  55.07%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -4844.9     -1.9899 µg/L       0.18458     -1.9899 ppb        0.18458   9.28%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†   1995666.3      188780 µg/L        2609.9      188780 ppb         2609.9   1.38%
   QC value within limits for Fe 238.204 Radial  Recovery = 94.39%
K 766.490 Radial†       -119.5     -31.668 µg/L       13.0536     -31.668 ppb        13.0536  41.22%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†       911985.9      491750 µg/L        6814.6      491750 ppb         6814.6   1.39%
   QC value within limits for Mg 279.077 IEC  Recovery = 98.35%
Mn 257.610†             9178.6     -1.6928 µg/L       0.33411     -1.6928 ppb        0.33411  19.74%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†             -248.8     -3.1286 µg/L       1.48288     -3.1286 ppb        1.48288  47.40%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -98.5     -16.428 µg/L       12.6600     -16.428 ppb        12.6600  77.06%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              -38.3     -0.6081 µg/L       0.27725     -0.6081 ppb        0.27725  45.59%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                48.8      7.6658 µg/L       3.17909      7.6658 ppb        3.17909  41.47%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†             -185.3      0.8906 µg/L       0.56479      0.8906 ppb        0.56479  63.42%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          43.9     -1.0082 µg/L       5.44726     -1.0082 ppb        5.44726 540.30%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               51.5      2.1460 µg/L       1.74422      2.1460 ppb        1.74422  81.28%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†             -156.7       -6.47 µg/L         8.773       -6.47 ppb          8.773 135.57%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    821.0      90.865 µg/L        4.9553      90.865 ppb         4.9553   5.45%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             1318.8      46.228 µg/L        0.6211      46.228 ppb         0.6211   1.34%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               -2.0      1.2934 µg/L       0.58304      1.2934 ppb        0.58304  45.08%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             5624.1     -0.1769 µg/L       0.44287     -0.1769 ppb        0.44287 250.37%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -4204.9     -0.5751 µg/L       0.15452     -0.5751 ppb        0.15452  26.87%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              -23.3     -3.9540 µg/L       0.38653     -3.9540 ppb        0.38653   9.78%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              8708.3      3.1210 µg/L      28.74097      3.1210 ppb       28.74097 920.90%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†             -2352.5      2.4458 µg/L       0.66249      2.4458 ppb        0.66249  27.09%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             8660.8      4.5819 µg/L       0.81588      4.5819 ppb        0.81588  17.81%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 15 **Autosampler Location: 104**
Sample ID: ICSAB **Date Collected: 11/11/2016 10:50:08**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	67114.3	67114.3	93.2	%			10:50:35
1	Al 396.153Radial†	1277553.1	1371173.4	500660	µg/L	500660	ppb	10:50:33
1	Ca 317.933Radial†	4004930.1	4298390.7	478500	µg/L	478500	ppb	10:50:33
1	Fe 238.204 Radial†	1860326.1	1997318.7	188940	µg/L	188940	ppb	10:50:33
1	K 766.490 Radial†	11060.0	10801.1	5707.2	µg/L	5707.2	ppb	10:50:35
1	Mg 279.077 IEC†	856068.7	918843.6	495450	µg/L	495450	ppb	10:50:35
1	Na 589.592 Radial†	29555.6	31684.0	5283.5	µg/L	5283.5	ppb	10:50:35
1	Sr 421.552†	166893.1	179595.5	504.55	µg/L	504.55	ppb	10:50:35
1	Sc 361.383	1184060.3	1184060.3	88.947	%			10:50:47
1	Y 371.029	633982.4	633982.4	87.513	%			10:50:47
1	Ag 328.068†	43459.8	50751.4	268.03	µg/L	268.03	ppb	10:50:47
1	As 188.979†	772.2	898.1	515.46	µg/L	515.46	ppb	10:51:07
1	B 249.677†	23125.0	25113.9	499.77	µg/L	499.77	ppb	10:50:47
1	Ba 233.527†	49673.9	56087.7	501.03	µg/L	501.03	ppb	10:50:47
1	Be 313.107†	775580.2	875618.0	227.07	µg/L	227.07	ppb	10:50:47
1	Cd 226.502†	57906.0	65282.1	472.32	µg/L	472.32	ppb	10:50:47
1	Co 228.616†	28890.0	32571.7	482.13	µg/L	482.13	ppb	10:51:07
1	Cr 267.716†	36841.1	41290.4	484.81	µg/L	484.81	ppb	10:50:47
1	Cu 324.752†	117862.1	126732.0	579.10	µg/L	579.10	ppb	10:50:47
1	Mn 257.610†	255591.2	287201.8	485.44	µg/L	485.44	ppb	10:50:47
1	Mo 202.031†	8469.0	9551.2	506.24	µg/L	506.24	ppb	10:51:07
1	Ni 231.604†	26123.9	29568.0	470.08	µg/L	470.08	ppb	10:51:07
1	P 214.914†	6370.1	7256.8	2605.7	µg/L	2605.7	ppb	10:51:07
1	Pb 220.353†	4320.8	4784.1	502.81	µg/L	502.81	ppb	10:51:07
1	S 181.975 Axial†	2243.1	2419.2	2650.5	µg/L	2650.5	ppb	10:51:07
1	Sb 206.836†	2501.5	2768.0	519.42	µg/L	519.42	ppb	10:51:07
1	Se 196.026†	3944.5	4426.6	2400	µg/L	2400	ppb	10:51:07
1	SiO2†	87424.7	95269.3	10544	µg/L	10544	ppb	10:50:47
1	Si 251.611†	258772.7	290346.1	4946.7	µg/L	4946.7	ppb	10:50:47
1	Sn 189.927†	3431.9	3885.8	498.38	µg/L	498.38	ppb	10:51:07
1	Ti 334.940†	309970.2	349379.7	501.63	µg/L	501.63	ppb	10:50:47
1	Tl 190.801†	1302.1	1550.0	479.30	µg/L	479.30	ppb	10:51:07
1	U 367.007†	11099.3	12762.8	501.05	µg/L	501.05	ppb	10:50:47
1	V 292.402†	96609.8	108512.2	500.24	µg/L	500.24	ppb	10:50:47
1	Zn 213.857†	86238.9	96909.4	504.44	µg/L	504.44	ppb	10:50:47
2	Sc RADIAL	68220.7	68220.7	94.7	%			10:50:39
2	Al 396.153Radial†	1300165.7	1372812.0	501250	µg/L	501250	ppb	10:50:37
2	Ca 317.933Radial†	4085656.8	4313917.7	480230	µg/L	480230	ppb	10:50:37
2	Fe 238.204 Radial†	1897349.0	2004029.1	189570	µg/L	189570	ppb	10:50:37
2	K 766.490 Radial†	11133.1	10685.8	5646.7	µg/L	5646.7	ppb	10:50:39
2	Mg 279.077 IEC†	854168.2	901934.5	486330	µg/L	486330	ppb	10:50:39
2	Na 589.592 Radial†	29694.9	31316.6	5222.2	µg/L	5222.2	ppb	10:50:39
2	Sr 421.552†	168381.3	178261.8	500.62	µg/L	500.62	ppb	10:50:39
2	Sc 361.383	1188774.0	1188774.0	89.301	%			10:51:10
2	Y 371.029	635503.5	635503.5	87.723	%			10:51:10
2	Ag 328.068†	43543.2	50651.1	267.55	µg/L	267.55	ppb	10:51:10
2	As 188.979†	777.4	900.5	516.86	µg/L	516.86	ppb	10:51:30
2	B 249.677†	23334.0	25244.9	502.11	µg/L	502.11	ppb	10:51:10
2	Ba 233.527†	49930.8	56153.9	501.63	µg/L	501.63	ppb	10:51:10
2	Be 313.107†	778815.9	875783.8	227.09	µg/L	227.09	ppb	10:51:10
2	Cd 226.502†	58135.4	65280.8	472.23	µg/L	472.23	ppb	10:51:10
2	Co 228.616†	29118.7	32699.1	484.01	µg/L	484.01	ppb	10:51:30
2	Cr 267.716†	36978.6	41280.1	484.77	µg/L	484.77	ppb	10:51:10
2	Cu 324.752†	119092.7	127584.7	582.77	µg/L	582.77	ppb	10:51:10
2	Mn 257.610†	256552.7	287139.0	485.66	µg/L	485.66	ppb	10:51:10
2	Mo 202.031†	8523.3	9574.2	507.36	µg/L	507.36	ppb	10:51:30
2	Ni 231.604†	26378.6	29736.8	472.76	µg/L	472.76	ppb	10:51:30
2	P 214.914†	6451.6	7319.6	2628.3	µg/L	2628.3	ppb	10:51:30
2	Pb 220.353†	4389.3	4841.5	508.75	µg/L	508.75	ppb	10:51:30

2	S 181.975 Axial†	2251.8	2418.9	2650.0 µg/L	2650.0 ppb		10:51:30
2	Sb 206.836†	2499.9	2755.1	516.88 µg/L	516.88 ppb		10:51:30
2	Se 196.026†	3986.4	4456.0	2410 µg/L	2410 ppb		10:51:30
2	SiO2†	87864.6	95372.2	10556 µg/L	10556 ppb		10:51:10
2	Si 251.611†	260358.5	290968.3	4957.3 µg/L	4957.3 ppb		10:51:10
2	Sn 189.927†	3473.4	3917.0	502.37 µg/L	502.37 ppb		10:51:30
2	Ti 334.940†	312150.2	350439.0	503.16 µg/L	503.16 ppb		10:51:10
2	Tl 190.801†	1336.4	1582.6	489.34 µg/L	489.34 ppb		10:51:30
2	U 367.007†	11019.8	12624.3	480.41 µg/L	480.41 ppb		10:51:10
2	V 292.402†	97370.8	108933.7	502.16 µg/L	502.16 ppb		10:51:10
2	Zn 213.857†	86607.1	96937.2	504.98 µg/L	504.98 ppb		10:51:10
3	Sc RADIAL	66462.4	66462.4	92.3 %			10:50:43
3	Al 396.153Radial†	1279316.9	1386534.7	506260 µg/L	506260 ppb		10:50:41
3	Ca 317.933Radial†	4010658.0	4346761.2	483880 µg/L	483880 ppb		10:50:41
3	Fe 238.204 Radial†	1862042.2	2018763.4	190970 µg/L	190970 ppb		10:50:41
3	K 766.490 Radial†	10913.9	10759.2	5685.5 µg/L	5685.5 ppb		10:50:43
3	Mg 279.077 IEC†	841991.5	912597.7	492080 µg/L	492080 ppb		10:50:43
3	Na 589.592 Radial†	29242.5	31655.8	5278.8 µg/L	5278.8 ppb		10:50:43
3	Sr 421.552†	166075.2	180466.0	506.89 µg/L	506.89 ppb		10:50:43
3	Sc 361.383	1189147.6	1189147.6	89.329 %			10:51:32
3	Y 371.029	636065.0	636065.0	87.800 %			10:51:32
3	Ag 328.068†	43163.6	50210.8	265.32 µg/L	265.32 ppb		10:51:32
3	As 188.979†	766.6	888.2	510.30 µg/L	510.30 ppb		10:51:52
3	B 249.677†	22984.2	24845.0	497.39 µg/L	497.39 ppb		10:51:32
3	Ba 233.527†	49333.6	55467.8	495.52 µg/L	495.52 ppb		10:51:32
3	Be 313.107†	772847.6	868828.6	225.34 µg/L	225.34 ppb		10:51:32
3	Cd 226.502†	57805.0	64890.4	469.12 µg/L	469.12 ppb		10:51:32
3	Co 228.616†	28869.2	32409.5	479.68 µg/L	479.68 ppb		10:51:52
3	Cr 267.716†	36731.1	40990.0	481.35 µg/L	481.35 ppb		10:51:32
3	Cu 324.752†	117844.1	126145.0	576.59 µg/L	576.59 ppb		10:51:32
3	Mn 257.610†	254509.2	284761.1	481.28 µg/L	481.28 ppb		10:51:32
3	Mo 202.031†	8445.6	9484.2	502.78 µg/L	502.78 ppb		10:51:52
3	Ni 231.604†	26189.3	29515.6	469.24 µg/L	469.24 ppb		10:51:52
3	P 214.914†	6373.2	7229.6	2595.8 µg/L	2595.8 ppb		10:51:52
3	Pb 220.353†	4345.6	4791.1	503.86 µg/L	503.86 ppb		10:51:52
3	S 181.975 Axial†	2243.2	2408.5	2638.1 µg/L	2638.1 ppb		10:51:52
3	Sb 206.836†	2487.0	2739.8	513.95 µg/L	513.95 ppb		10:51:52
3	Se 196.026†	3940.2	4402.9	2380 µg/L	2380 ppb		10:51:52
3	SiO2†	87072.8	94454.9	10454 µg/L	10454 ppb		10:51:32
3	Si 251.611†	258251.2	288517.7	4916.0 µg/L	4916.0 ppb		10:51:32
3	Sn 189.927†	3428.3	3865.3	495.78 µg/L	495.78 ppb		10:51:52
3	Ti 334.940†	309169.5	346992.4	498.31 µg/L	498.31 ppb		10:51:32
3	Tl 190.801†	1329.0	1573.8	486.66 µg/L	486.66 ppb		10:51:52
3	U 367.007†	11038.1	12641.0	474.56 µg/L	474.56 ppb		10:51:32
3	V 292.402†	96596.4	108032.6	498.21 µg/L	498.21 ppb		10:51:32
3	Zn 213.857†	85960.6	96183.0	500.27 µg/L	500.27 ppb		10:51:32

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1187327.3	89.192	%	0.2130				0.24%
Sc RADIAL	67265.8	93.4	%	1.23				1.32%
Y 371.029	635183.6	87.678	%	0.1487				0.17%
Ag 328.068†	50537.8	266.97	µg/L	1.444	266.97	ppb	1.444	0.54%
QC value within limits for Ag 328.068 Recovery = 106.79%								
Al 396.153Radial†	1376840.0	502720	µg/L	3080.1	502720	ppb	3080.1	0.61%
QC value within limits for Al 396.153Radial Recovery = 100.54%								
As 188.979†	895.6	514.21	µg/L	3.457	514.21	ppb	3.457	0.67%
QC value within limits for As 188.979 Recovery = 102.84%								
B 249.677†	25067.9	499.76	µg/L	2.364	499.76	ppb	2.364	0.47%
QC value within limits for B 249.677 Recovery = 99.95%								
Ba 233.527†	55903.1	499.39	µg/L	3.370	499.39	ppb	3.370	0.67%
QC value within limits for Ba 233.527 Recovery = 99.88%								
Be 313.107†	873410.1	226.50	µg/L	1.001	226.50	ppb	1.001	0.44%
QC value within limits for Be 313.107 Recovery = 90.60%								
Ca 317.933Radial†	4319689.9	480870	µg/L	2749.2	480870	ppb	2749.2	0.57%
QC value within limits for Ca 317.933Radial Recovery = 96.17%								
Cd 226.502†	65151.1	471.22	µg/L	1.822	471.22	ppb	1.822	0.39%
QC value within limits for Cd 226.502 Recovery = 94.24%								
Co 228.616†	32560.1	481.94	µg/L	2.169	481.94	ppb	2.169	0.45%

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   QC value within limits for Co 228.616  Recovery = 96.39%
Cr 267.716†           41186.8      483.64 µg/L         1.987      483.64 ppb          1.987   0.41%
   QC value within limits for Cr 267.716  Recovery = 96.73%
Cu 324.752†          126820.6      579.49 µg/L         3.111      579.49 ppb          3.111   0.54%
   QC value within limits for Cu 324.752  Recovery = 115.90%
Fe 238.204 Radial†   2006703.7      189820 µg/L        1037.7      189820 ppb         1037.7   0.55%
   QC value within limits for Fe 238.204 Radial  Recovery = 94.91%
K 766.490 Radial†      10748.7      5679.8 µg/L         30.65      5679.8 ppb          30.65   0.54%
   QC value within limits for K 766.490 Radial  Recovery = 113.60%
Mg 279.077 IEC†       911125.3      491280 µg/L        4609.7      491280 ppb         4609.7   0.94%
   QC value within limits for Mg 279.077 IEC  Recovery = 98.26%
Mn 257.610†           286367.3      484.13 µg/L         2.465      484.13 ppb          2.465   0.51%
   QC value within limits for Mn 257.610  Recovery = 96.83%
Mo 202.031†             9536.6      505.46 µg/L         2.390      505.46 ppb          2.390   0.47%
   QC value within limits for Mo 202.031  Recovery = 101.09%
Na 589.592 Radial†     31552.2      5261.5 µg/L         34.10      5261.5 ppb          34.10   0.65%
   QC value within limits for Na 589.592 Radial  Recovery = 105.23%
Ni 231.604†            29606.8      470.69 µg/L         1.838      470.69 ppb          1.838   0.39%
   QC value within limits for Ni 231.604  Recovery = 94.14%
P 214.914†              7268.7      2610.0 µg/L         16.66      2610.0 ppb          16.66   0.64%
   QC value within limits for P 214.914  Recovery = 104.40%
Pb 220.353†             4805.5      505.14 µg/L         3.173      505.14 ppb          3.173   0.63%
   QC value within limits for Pb 220.353  Recovery = 101.03%
S 181.975 Axial†        2415.5      2646.2 µg/L          7.04      2646.2 ppb           7.04   0.27%
   QC value within limits for S 181.975 Axial  Recovery = 105.85%
Sb 206.836†             2754.3      516.75 µg/L         2.737      516.75 ppb          2.737   0.53%
   QC value within limits for Sb 206.836  Recovery = 103.35%
Se 196.026†             4428.5       2400 µg/L          13.7       2400 ppb           13.7   0.57%
   QC value within limits for Se 196.026  Recovery = 95.86%
SiO2†                  95032.1       10518 µg/L          55.6       10518 ppb          55.6   0.53%
   QC value within limits for SiO2  Recovery = 98.34%
Si 251.611†           289944.0      4940.0 µg/L         21.49      4940.0 ppb          21.49   0.43%
   QC value within limits for Si 251.611  Recovery = 98.80%
Sn 189.927†             3889.4      498.85 µg/L         3.323      498.85 ppb          3.323   0.67%
   QC value within limits for Sn 189.927  Recovery = 99.77%
Sr 421.552†           179441.1      504.02 µg/L         3.168      504.02 ppb          3.168   0.63%
   QC value within limits for Sr 421.552  Recovery = 100.80%
Ti 334.940†           348937.0      501.03 µg/L         2.481      501.03 ppb          2.481   0.50%
   QC value within limits for Ti 334.940  Recovery = 100.21%
Tl 190.801†             1568.8      485.10 µg/L         5.198      485.10 ppb          5.198   1.07%
   QC value within limits for Tl 190.801  Recovery = 97.02%
U 367.007†             12676.1      485.34 µg/L        13.918      485.34 ppb         13.918   2.87%
   QC value within limits for U 367.007  Recovery = 97.07%
V 292.402†            108492.8      500.20 µg/L         1.975      500.20 ppb          1.975   0.39%
   QC value within limits for V 292.402  Recovery = 100.04%
Zn 213.857†            96676.6      503.23 µg/L         2.576      503.23 ppb          2.576   0.51%
   QC value within limits for Zn 213.857  Recovery = 100.65%
All analyte(s) passed QC.
```

Sequence No.: 16 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/11/2016 10:52:00**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71637.9	71637.9	99.4	%			10:52:28
1	Al 396.153Radial†	14113.5	14090.6	5144.9	µg/L	5144.9	ppb	10:52:28
1	Ca 317.933Radial†	46541.2	46457.9	5171.7	µg/L	5171.7	ppb	10:52:28
1	Fe 238.204 Radial†	53294.1	54109.7	5118.5	µg/L	5118.5	ppb	10:52:28
1	K 766.490 Radial†	10667.7	9657.1	5076.3	µg/L	5076.3	ppb	10:52:28
1	Mg 279.077 IEC†	9503.2	9529.4	5139.3	µg/L	5139.3	ppb	10:52:28
1	Na 589.592 Radial†	58760.9	59049.2	9846.7	µg/L	9846.7	ppb	10:52:26
1	Sr 421.552†	172024.3	173443.7	503.03	µg/L	503.03	ppb	10:52:26
1	Sc 361.383	1335020.6	1335020.6	100.29	%			10:52:40
1	Y 371.029	716614.2	716614.2	98.919	%			10:52:40
1	Ag 328.068†	94550.9	96171.4	496.28	µg/L	496.28	ppb	10:52:42
1	As 188.979†	905.6	932.9	512.01	µg/L	512.01	ppb	10:53:02
1	B 249.677†	35597.8	34611.2	501.51	µg/L	501.51	ppb	10:52:42
1	Ba 233.527†	55617.2	55699.0	496.68	µg/L	496.68	ppb	10:52:42
1	Be 313.107†	1814579.7	1813048.3	482.41	µg/L	482.41	ppb	10:52:40
1	Cd 226.502†	65241.9	65235.4	493.01	µg/L	493.01	ppb	10:52:42
1	Co 228.616†	33328.8	33325.1	495.56	µg/L	495.56	ppb	10:52:42
1	Cr 267.716†	42452.4	42202.0	495.93	µg/L	495.93	ppb	10:52:42
1	Cu 324.752†	117764.3	111650.8	493.49	µg/L	493.49	ppb	10:52:42
1	Mn 257.610†	284114.6	283150.5	496.07	µg/L	496.07	ppb	10:52:42
1	Mo 202.031†	9658.6	9660.7	502.27	µg/L	502.27	ppb	10:53:02
1	Ni 231.604†	31039.1	31148.1	495.20	µg/L	495.20	ppb	10:52:42
1	P 214.914†	6867.2	6942.6	2502.2	µg/L	2502.2	ppb	10:53:02
1	Pb 220.353†	5051.0	4962.8	501.61	µg/L	501.61	ppb	10:53:02
1	S 181.975 Axial†	1000.6	895.1	998.01	µg/L	998.01	ppb	10:53:02
1	Sb 206.836†	2649.0	2597.2	493.68	µg/L	493.68	ppb	10:53:02
1	Se 196.026†	976.2	965.4	508	µg/L	508	ppb	10:53:02
1	SiO2†	52267.7	49098.6	5434.1	µg/L	5434.1	ppb	10:52:42
1	Si 251.611†	151010.2	149994.0	2543.8	µg/L	2543.8	ppb	10:52:42
1	Sn 189.927†	3906.5	3922.9	501.59	µg/L	501.59	ppb	10:53:02
1	Ti 334.940†	346279.1	346178.5	491.74	µg/L	491.74	ppb	10:52:42
1	Tl 190.801†	1548.2	1629.8	500.73	µg/L	500.73	ppb	10:53:02
1	U 367.007†	3703.2	3976.8	460.98	µg/L	460.98	ppb	10:52:42
1	V 292.402†	110464.2	110045.1	494.46	µg/L	494.46	ppb	10:52:42
1	Zn 213.857†	87818.2	87520.7	495.22	µg/L	495.22	ppb	10:52:42
2	Sc RADIAL	72195.8	72195.8	100	%			10:52:33
2	Al 396.153Radial†	14363.4	14230.3	5195.9	µg/L	5195.9	ppb	10:52:33
2	Ca 317.933Radial†	47057.2	46611.1	5188.8	µg/L	5188.8	ppb	10:52:33
2	Fe 238.204 Radial†	54054.6	54454.4	5151.1	µg/L	5151.1	ppb	10:52:33
2	K 766.490 Radial†	10721.9	9628.2	5061.1	µg/L	5061.1	ppb	10:52:33
2	Mg 279.077 IEC†	9573.4	9525.6	5137.3	µg/L	5137.3	ppb	10:52:33
2	Na 589.592 Radial†	57807.5	57641.2	9611.9	µg/L	9611.9	ppb	10:52:31
2	Sr 421.552†	168997.5	169086.7	490.39	µg/L	490.39	ppb	10:52:31
2	Sc 361.383	1360508.5	1360508.5	102.20	%			10:53:05
2	Y 371.029	729628.2	729628.2	100.72	%			10:53:05
2	Ag 328.068†	94973.0	94818.2	489.30	µg/L	489.30	ppb	10:53:07
2	As 188.979†	895.4	906.0	497.33	µg/L	497.33	ppb	10:53:27
2	B 249.677†	35950.0	34290.8	496.93	µg/L	496.93	ppb	10:53:07
2	Ba 233.527†	56052.3	55085.7	491.21	µg/L	491.21	ppb	10:53:07
2	Be 313.107†	1862812.3	1826344.7	486.17	µg/L	486.17	ppb	10:53:05
2	Cd 226.502†	65877.6	64638.6	488.49	µg/L	488.49	ppb	10:53:07
2	Co 228.616†	33757.5	33121.9	492.54	µg/L	492.54	ppb	10:53:07
2	Cr 267.716†	42827.1	41775.7	490.93	µg/L	490.93	ppb	10:53:07
2	Cu 324.752†	118915.3	110577.1	488.75	µg/L	488.75	ppb	10:53:07
2	Mn 257.610†	285977.6	279665.9	489.96	µg/L	489.96	ppb	10:53:07
2	Mo 202.031†	9591.5	9414.7	489.48	µg/L	489.48	ppb	10:53:27
2	Ni 231.604†	31241.9	30766.7	489.13	µg/L	489.13	ppb	10:53:07
2	P 214.914†	6816.8	6765.1	2438.2	µg/L	2438.2	ppb	10:53:27
2	Pb 220.353†	5042.8	4860.5	491.27	µg/L	491.27	ppb	10:53:27

2	S 181.975 Axial†	987.5	863.6	962.79 µg/L	962.79 ppb	10:53:27
2	Sb 206.836†	2637.0	2535.9	481.93 µg/L	481.93 ppb	10:53:27
2	Se 196.026†	985.0	955.8	503 µg/L	503 ppb	10:53:27
2	SiO2†	52673.4	48519.1	5370.0 µg/L	5370.0 ppb	10:53:07
2	Si 251.611†	152422.1	148554.6	2519.4 µg/L	2519.4 ppb	10:53:07
2	Sn 189.927†	3884.2	3828.0	489.46 µg/L	489.46 ppb	10:53:27
2	Ti 334.940†	348317.1	341703.9	485.38 µg/L	485.38 ppb	10:53:07
2	Tl 190.801†	1545.0	1597.7	490.87 µg/L	490.87 ppb	10:53:27
2	U 367.007†	3702.0	3906.4	452.14 µg/L	452.14 ppb	10:53:07
2	V 292.402†	111394.9	108892.2	489.29 µg/L	489.29 ppb	10:53:07
2	Zn 213.857†	88595.5	86640.8	490.23 µg/L	490.23 ppb	10:53:07
3	Sc RADIAL	73764.2	73764.2	102 %		10:52:37
3	Al 396.153Radial†	14599.3	14155.9	5168.8 µg/L	5168.8 ppb	10:52:37
3	Ca 317.933Radial†	47936.5	46471.4	5173.2 µg/L	5173.2 ppb	10:52:37
3	Fe 238.204 Radial†	55105.3	54333.7	5139.7 µg/L	5139.7 ppb	10:52:37
3	K 766.490 Radial†	10872.5	9547.8	5018.9 µg/L	5018.9 ppb	10:52:37
3	Mg 279.077 IEC†	9740.4	9485.7	5115.7 µg/L	5115.7 ppb	10:52:37
3	Na 589.592 Radial†	58446.7	57039.1	9511.5 µg/L	9511.5 ppb	10:52:35
3	Sr 421.552†	171035.2	167491.5	485.76 µg/L	485.76 ppb	10:52:35
3	Sc 361.383	1345798.0	1345798.0	101.10 %		10:53:29
3	Y 371.029	721991.1	721991.1	99.661 %		10:53:29
3	Ag 328.068†	95338.0	96194.9	496.39 µg/L	496.39 ppb	10:53:31
3	As 188.979†	891.4	911.7	500.47 µg/L	500.47 ppb	10:53:51
3	B 249.677†	36084.2	34808.0	504.36 µg/L	504.36 ppb	10:53:31
3	Ba 233.527†	56121.5	55753.7	497.16 µg/L	497.16 ppb	10:53:31
3	Be 313.107†	1820208.2	1804125.8	479.98 µg/L	479.98 ppb	10:53:29
3	Cd 226.502†	66196.5	65658.7	496.21 µg/L	496.21 ppb	10:53:31
3	Co 228.616†	33833.0	33557.7	499.02 µg/L	499.02 ppb	10:53:31
3	Cr 267.716†	42796.2	42203.1	495.92 µg/L	495.92 ppb	10:53:31
3	Cu 324.752†	119061.2	111993.2	495.02 µg/L	495.02 ppb	10:53:31
3	Mn 257.610†	287100.4	283835.2	497.27 µg/L	497.27 ppb	10:53:31
3	Mo 202.031†	9561.9	9487.9	493.29 µg/L	493.29 ppb	10:53:51
3	Ni 231.604†	31409.9	31267.0	497.09 µg/L	497.09 ppb	10:53:31
3	P 214.914†	6792.5	6813.9	2455.8 µg/L	2455.8 ppb	10:53:51
3	Pb 220.353†	4993.3	4865.4	491.73 µg/L	491.73 ppb	10:53:51
3	S 181.975 Axial†	997.4	883.9	985.50 µg/L	985.50 ppb	10:53:51
3	Sb 206.836†	2629.3	2556.5	485.83 µg/L	485.83 ppb	10:53:51
3	Se 196.026†	967.5	949.0	500 µg/L	500 ppb	10:53:51
3	SiO2†	52900.1	49306.6	5457.1 µg/L	5457.1 ppb	10:53:31
3	Si 251.611†	152720.3	150479.8	2552.0 µg/L	2552.0 ppb	10:53:31
3	Sn 189.927†	3868.2	3853.8	492.75 µg/L	492.75 ppb	10:53:51
3	Ti 334.940†	349202.2	346304.7	491.90 µg/L	491.90 ppb	10:53:31
3	Tl 190.801†	1550.2	1619.4	497.54 µg/L	497.54 ppb	10:53:51
3	U 367.007†	3959.4	4200.6	488.40 µg/L	488.40 ppb	10:53:31
3	V 292.402†	111907.3	110590.4	496.92 µg/L	496.92 ppb	10:53:31
3	Zn 213.857†	88873.7	87863.4	497.16 µg/L	497.16 ppb	10:53:31

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1347109.1	101.19	%	0.961				0.95%
Sc RADIAL	72532.6	101	%	1.5				1.52%
Y 371.029	722744.5	99.765	%	0.9027				0.90%
Ag 328.068†	95728.2	493.99	µg/L	4.059	493.99	ppb	4.059	0.82%
QC value within limits for Ag 328.068 Recovery = 98.80%								
Al 396.153Radial†	14159.0	5169.9	µg/L	25.52	5169.9	ppb	25.52	0.49%
QC value within limits for Al 396.153Radial Recovery = 103.40%								
As 188.979†	916.9	503.27	µg/L	7.726	503.27	ppb	7.726	1.54%
QC value within limits for As 188.979 Recovery = 100.65%								
B 249.677†	34570.0	500.93	µg/L	3.749	500.93	ppb	3.749	0.75%
QC value within limits for B 249.677 Recovery = 100.19%								
Ba 233.527†	55512.8	495.02	µg/L	3.307	495.02	ppb	3.307	0.67%
QC value within limits for Ba 233.527 Recovery = 99.00%								
Be 313.107†	1814506.3	482.86	µg/L	3.120	482.86	ppb	3.120	0.65%
QC value within limits for Be 313.107 Recovery = 96.57%								
Ca 317.933Radial†	46513.5	5177.9	µg/L	9.44	5177.9	ppb	9.44	0.18%
QC value within limits for Ca 317.933Radial Recovery = 103.56%								
Cd 226.502†	65177.6	492.57	µg/L	3.878	492.57	ppb	3.878	0.79%
QC value within limits for Cd 226.502 Recovery = 98.51%								
Co 228.616†	33334.9	495.71	µg/L	3.243	495.71	ppb	3.243	0.65%

QC value within limits for Co 228.616 Recovery = 99.14%

Cr 267.716†	42060.3	494.26 µg/L	2.887	494.26 ppb	2.887	0.58%

QC value within limits for Cr 267.716 Recovery = 98.85%

Cu 324.752†	111407.0	492.42 µg/L	3.272	492.42 ppb	3.272	0.66%

QC value within limits for Cu 324.752 Recovery = 98.48%

Fe 238.204 Radial†	54299.3	5136.5 µg/L	16.55	5136.5 ppb	16.55	0.32%

QC value within limits for Fe 238.204 Radial Recovery = 102.73%

K 766.490 Radial†	9611.0	5052.1 µg/L	29.74	5052.1 ppb	29.74	0.59%

QC value within limits for K 766.490 Radial Recovery = 101.04%

Mg 279.077 IEC†	9513.6	5130.8 µg/L	13.06	5130.8 ppb	13.06	0.25%

QC value within limits for Mg 279.077 IEC Recovery = 102.62%

Mn 257.610†	282217.2	494.43 µg/L	3.919	494.43 ppb	3.919	0.79%

QC value within limits for Mn 257.610 Recovery = 98.89%

Mo 202.031†	9521.1	495.01 µg/L	6.566	495.01 ppb	6.566	1.33%

QC value within limits for Mo 202.031 Recovery = 99.00%

Na 589.592 Radial†	57909.8	9656.7 µg/L	172.03	9656.7 ppb	172.03	1.78%

QC value within limits for Na 589.592 Radial Recovery = 96.57%

Ni 231.604†	31060.6	493.81 µg/L	4.155	493.81 ppb	4.155	0.84%

QC value within limits for Ni 231.604 Recovery = 98.76%

P 214.914†	6840.6	2465.4 µg/L	33.06	2465.4 ppb	33.06	1.34%

QC value within limits for P 214.914 Recovery = 98.61%

Pb 220.353†	4896.2	494.87 µg/L	5.843	494.87 ppb	5.843	1.18%

QC value within limits for Pb 220.353 Recovery = 98.97%

S 181.975 Axial†	880.9	982.10 µg/L	17.854	982.10 ppb	17.854	1.82%

QC value within limits for S 181.975 Axial Recovery = 98.21%

Sb 206.836†	2563.2	487.15 µg/L	5.988	487.15 ppb	5.988	1.23%

QC value within limits for Sb 206.836 Recovery = 97.43%

Se 196.026†	956.7	504 µg/L	4.3	504 ppb	4.3	0.86%

QC value within limits for Se 196.026 Recovery = 100.79%

SiO2†	48974.8	5420.4 µg/L	45.17	5420.4 ppb	45.17	0.83%

QC value within limits for SiO2 Recovery = 101.36%

Si 251.611†	149676.1	2538.4 µg/L	16.97	2538.4 ppb	16.97	0.67%

QC value within limits for Si 251.611 Recovery = 101.54%

Sn 189.927†	3868.2	494.60 µg/L	6.270	494.60 ppb	6.270	1.27%

QC value within limits for Sn 189.927 Recovery = 98.92%

Sr 421.552†	170007.3	493.06 µg/L	8.939	493.06 ppb	8.939	1.81%

QC value within limits for Sr 421.552 Recovery = 98.61%

Ti 334.940†	344729.0	489.67 µg/L	3.717	489.67 ppb	3.717	0.76%

QC value within limits for Ti 334.940 Recovery = 97.93%

Tl 190.801†	1615.7	496.38 µg/L	5.034	496.38 ppb	5.034	1.01%

QC value within limits for Tl 190.801 Recovery = 99.28%

U 367.007†	4028.0	467.17 µg/L	18.908	467.17 ppb	18.908	4.05%

QC value within limits for U 367.007 Recovery = 93.43%

V 292.402†	109842.6	493.56 µg/L	3.895	493.56 ppb	3.895	0.79%

QC value within limits for V 292.402 Recovery = 98.71%

Zn 213.857†	87341.6	494.20 µg/L	3.576	494.20 ppb	3.576	0.72%

QC value within limits for Zn 213.857 Recovery = 98.84%

All analyte(s) passed QC.

Sequence No.: 17 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 10:53:59**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71564.7	71564.7	99.3	%			10:54:24
1	Al 396.153Radial†	200.2	99.9	36.475	µg/L	36.475	ppb	10:54:44
1	Ca 317.933Radial†	553.4	213.9	23.808	µg/L	23.808	ppb	10:54:44
1	Fe 238.204 Radial†	-370.9	144.7	13.686	µg/L	13.686	ppb	10:54:44
1	K 766.490 Radial†	1121.1	58.3	30.626	µg/L	30.626	ppb	10:54:24
1	Mg 279.077 IEC†	89.7	63.5	34.223	µg/L	34.223	ppb	10:54:44
1	Na 589.592 Radial†	113.3	74.3	12.386	µg/L	12.386	ppb	10:54:24
1	Sr 421.552†	-458.7	-2.7	-0.0086	µg/L	-0.0086	ppb	10:54:44
1	Sc 361.383	1317500.6	1317500.6	98.971	%			10:55:31
1	Y 371.029	716906.5	716906.5	98.959	%			10:55:31
1	Ag 328.068†	-1941.1	-70.4	-0.3688	µg/L	-0.3688	ppb	10:55:33
1	As 188.979†	-23.8	5.9	3.1909	µg/L	3.1909	ppb	10:55:53
1	B 249.677†	936.3	61.2	0.8896	µg/L	0.8896	ppb	10:55:33
1	Ba 233.527†	-228.0	10.4	0.0928	µg/L	0.0928	ppb	10:55:53
1	Be 313.107†	-3056.5	567.7	0.1563	µg/L	0.1563	ppb	10:55:33
1	Cd 226.502†	-148.1	30.4	0.2281	µg/L	0.2281	ppb	10:55:53
1	Co 228.616†	-67.1	23.7	0.3527	µg/L	0.3527	ppb	10:55:53
1	Cr 267.716†	145.9	18.4	0.2071	µg/L	0.2071	ppb	10:55:53
1	Cu 324.752†	5586.6	-132.2	-0.5736	µg/L	-0.5736	ppb	10:55:33
1	Mn 257.610†	215.1	65.4	0.1133	µg/L	0.1133	ppb	10:55:53
1	Mo 202.031†	-17.1	12.5	0.6491	µg/L	0.6491	ppb	10:55:53
1	Ni 231.604†	-195.2	0.5	0.0082	µg/L	0.0082	ppb	10:55:53
1	P 214.914†	-77.6	16.6	5.9972	µg/L	5.9972	ppb	10:55:53
1	Pb 220.353†	76.6	3.6	0.3585	µg/L	0.3585	ppb	10:55:53
1	S 181.975 Axial†	93.5	-8.2	-9.1585	µg/L	-9.1585	ppb	10:55:53
1	Sb 206.836†	71.0	27.4	5.2901	µg/L	5.2901	ppb	10:55:53
1	Se 196.026†	10.6	2.7	1.41	µg/L	1.41	ppb	10:55:53
1	SiO2†	2818.0	-172.5	-19.090	µg/L	-19.090	ppb	10:55:33
1	Si 251.611†	438.3	-141.6	-2.3991	µg/L	-2.3991	ppb	10:55:33
1	Sn 189.927†	-19.3	7.9	1.0161	µg/L	1.0161	ppb	10:55:53
1	Ti 334.940†	-620.8	262.0	0.3672	µg/L	0.3672	ppb	10:55:33
1	Tl 190.801†	-79.8	5.4	1.6605	µg/L	1.6605	ppb	10:55:53
1	U 367.007†	-197.0	85.2	10.403	µg/L	10.403	ppb	10:55:33
1	V 292.402†	-77.2	-181.3	-0.8075	µg/L	-0.8075	ppb	10:55:33
1	Zn 213.857†	57.3	11.4	0.0620	µg/L	0.0620	ppb	10:55:53
2	Sc RADIAL	69367.3	69367.3	96.3	%			10:54:46
2	Al 396.153Radial†	254.7	162.8	59.439	µg/L	59.439	ppb	10:55:06
2	Ca 317.933Radial†	758.9	444.9	49.532	µg/L	49.532	ppb	10:55:06
2	Fe 238.204 Radial†	-273.9	233.6	22.097	µg/L	22.097	ppb	10:55:06
2	K 766.490 Radial†	975.4	-57.2	-30.079	µg/L	-30.079	ppb	10:54:46
2	Mg 279.077 IEC†	122.6	100.5	54.189	µg/L	54.189	ppb	10:55:06
2	Na 589.592 Radial†	197.8	165.7	27.630	µg/L	27.630	ppb	10:54:46
2	Sr 421.552†	-419.4	23.5	0.0664	µg/L	0.0664	ppb	10:55:06
2	Sc 361.383	1338650.9	1338650.9	100.56	%			10:55:55
2	Y 371.029	728557.7	728557.7	100.57	%			10:55:55
2	Ag 328.068†	-1733.1	167.4	0.8629	µg/L	0.8629	ppb	10:55:57
2	As 188.979†	-26.4	3.7	2.0129	µg/L	2.0129	ppb	10:56:17
2	B 249.677†	937.8	47.7	0.7028	µg/L	0.7028	ppb	10:55:57
2	Ba 233.527†	-213.3	28.6	0.2553	µg/L	0.2553	ppb	10:56:17
2	Be 313.107†	-3181.0	492.6	0.1291	µg/L	0.1291	ppb	10:55:57
2	Cd 226.502†	-159.5	21.4	0.1592	µg/L	0.1592	ppb	10:56:17
2	Co 228.616†	-82.9	9.1	0.1353	µg/L	0.1353	ppb	10:56:17
2	Cr 267.716†	143.9	14.1	0.1633	µg/L	0.1633	ppb	10:56:17
2	Cu 324.752†	5650.9	-157.4	-0.6902	µg/L	-0.6902	ppb	10:55:57
2	Mn 257.610†	244.4	91.1	0.1577	µg/L	0.1577	ppb	10:56:17
2	Mo 202.031†	-9.2	20.5	1.0691	µg/L	1.0691	ppb	10:56:17
2	Ni 231.604†	-185.0	13.7	0.2186	µg/L	0.2186	ppb	10:56:17
2	P 214.914†	-79.9	15.6	5.6216	µg/L	5.6216	ppb	10:56:17
2	Pb 220.353†	79.2	5.0	0.5080	µg/L	0.5080	ppb	10:56:17

2	S 181.975 Axial†	82.7	-20.4	-22.800 µg/L	-22.800 ppb		10:56:17
2	Sb 206.836†	65.4	20.7	4.0046 µg/L	4.0046 ppb		10:56:17
2	Se 196.026†	5.8	-2.3	-1.17 µg/L	-1.17 ppb		10:56:17
2	SiO2†	2918.0	-118.0	-13.058 µg/L	-13.058 ppb		10:55:57
2	Si 251.611†	425.4	-161.5	-2.7349 µg/L	-2.7349 ppb		10:55:57
2	Sn 189.927†	-17.9	9.7	1.2419 µg/L	1.2419 ppb		10:56:17
2	Ti 334.940†	-607.0	285.7	0.4051 µg/L	0.4051 ppb		10:55:57
2	Tl 190.801†	-75.1	11.4	3.5039 µg/L	3.5039 ppb		10:56:17
2	U 367.007†	-261.6	24.1	2.8413 µg/L	2.8413 ppb		10:55:57
2	V 292.402†	203.6	99.2	0.4472 µg/L	0.4472 ppb		10:55:57
2	Zn 213.857†	74.2	27.3	0.1505 µg/L	0.1505 ppb		10:56:17
3	Sc RADIAL	70294.8	70294.8	97.6 %			10:55:08
3	Al 396.153Radial†	309.2	215.2	78.588 µg/L	78.588 ppb		10:55:28
3	Ca 317.933Radial†	966.9	647.7	72.101 µg/L	72.101 ppb		10:55:28
3	Fe 238.204 Radial†	-134.6	380.2	35.961 µg/L	35.961 ppb		10:55:28
3	K 766.490 Radial†	1050.1	6.0	3.1403 µg/L	3.1403 ppb		10:55:08
3	Mg 279.077 IEC†	155.6	132.7	71.530 µg/L	71.530 ppb		10:55:28
3	Na 589.592 Radial†	116.0	79.1	13.185 µg/L	13.185 ppb		10:55:08
3	Sr 421.552†	-436.2	12.0	0.0322 µg/L	0.0322 ppb		10:55:28
3	Sc 361.383	1341894.8	1341894.8	100.80 %			10:56:20
3	Y 371.029	728402.8	728402.8	100.55 %			10:56:20
3	Ag 328.068†	-1838.9	66.6	0.3485 µg/L	0.3485 ppb		10:56:22
3	As 188.979†	-27.0	3.2	1.7401 µg/L	1.7401 ppb		10:56:42
3	B 249.677†	929.5	37.2	0.5617 µg/L	0.5617 ppb		10:56:22
3	Ba 233.527†	-216.2	26.3	0.2350 µg/L	0.2350 ppb		10:56:42
3	Be 313.107†	-2945.0	734.4	0.1923 µg/L	0.1923 ppb		10:56:22
3	Cd 226.502†	-135.6	45.5	0.3400 µg/L	0.3400 ppb		10:56:42
3	Co 228.616†	-96.3	-4.0	-0.0601 µg/L	-0.0601 ppb		10:56:42
3	Cr 267.716†	128.5	-1.6	-0.0125 µg/L	-0.0125 ppb		10:56:42
3	Cu 324.752†	5578.0	-243.3	-1.0753 µg/L	-1.0753 ppb		10:56:22
3	Mn 257.610†	233.4	79.6	0.1369 µg/L	0.1369 ppb		10:56:42
3	Mo 202.031†	-13.4	16.4	0.8544 µg/L	0.8544 ppb		10:56:42
3	Ni 231.604†	-198.0	1.3	0.0206 µg/L	0.0206 ppb		10:56:42
3	P 214.914†	-91.4	4.4	1.5794 µg/L	1.5794 ppb		10:56:42
3	Pb 220.353†	83.7	9.3	0.9545 µg/L	0.9545 ppb		10:56:42
3	S 181.975 Axial†	98.3	-5.2	-5.7773 µg/L	-5.7773 ppb		10:56:42
3	Sb 206.836†	64.5	19.7	3.8045 µg/L	3.8045 ppb		10:56:42
3	Se 196.026†	8.1	-0.0	0.002 µg/L	0.002 ppb		10:56:42
3	SiO2†	3001.0	-42.6	-4.7182 µg/L	-4.7182 ppb		10:56:22
3	Si 251.611†	456.1	-132.0	-2.2336 µg/L	-2.2336 ppb		10:56:22
3	Sn 189.927†	-19.3	8.3	1.0632 µg/L	1.0632 ppb		10:56:42
3	Ti 334.940†	-433.1	459.7	0.6575 µg/L	0.6575 ppb		10:56:22
3	Tl 190.801†	-81.0	5.7	1.7609 µg/L	1.7609 ppb		10:56:42
3	U 367.007†	-336.6	-49.7	-6.3148 µg/L	-6.3148 ppb		10:56:22
3	V 292.402†	-3.1	-106.4	-0.4768 µg/L	-0.4768 ppb		10:56:22
3	Zn 213.857†	67.3	20.2	0.1084 µg/L	0.1084 ppb		10:56:42

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1332682.1	100.11	%	0.995				0.99%
Sc RADIAL	70408.9	97.7	%	1.53				1.57%
Y 371.029	724622.3	100.02	%	0.922				0.92%
Ag 328.068†	54.5	0.2809	µg/L	0.61861	0.2809	ppb	0.61861	220.25%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	159.3	58.168	µg/L	21.0852	58.168	ppb	21.0852	36.25%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	4.3	2.3146	µg/L	0.77102	2.3146	ppb	0.77102	33.31%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	48.7	0.7180	µg/L	0.16448	0.7180	ppb	0.16448	22.91%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	21.8	0.1944	µg/L	0.08851	0.1944	ppb	0.08851	45.54%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	598.2	0.1592	µg/L	0.03168	0.1592	ppb	0.03168	19.89%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	435.5	48.480	µg/L	24.1634	48.480	ppb	24.1634	49.84%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	32.4	0.2425	µg/L	0.09123	0.2425	ppb	0.09123	37.63%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	9.6	0.1426	µg/L	0.20647	0.1426	ppb	0.20647	144.78%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              10.3      0.1193 µg/L       0.11620      0.1193 ppb        0.11620  97.41%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -177.6     -0.7797 µg/L       0.26251     -0.7797 ppb        0.26251  33.67%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†       252.8      23.915 µg/L       11.2484      23.915 ppb        11.2484  47.04%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†          2.3      1.2291 µg/L      30.39767      1.2291 ppb       30.39767 >999.9%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           98.9      53.314 µg/L       18.6685      53.314 ppb        18.6685  35.02%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               78.7      0.1359 µg/L       0.02220      0.1359 ppb        0.02220  16.33%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               16.5      0.8576 µg/L       0.21000      0.8576 ppb        0.21000  24.49%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       106.3      17.734 µg/L        8.5797      17.734 ppb         8.5797  48.38%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†                5.2      0.0825 µg/L       0.11805      0.0825 ppb        0.11805 143.17%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                12.2      4.3994 µg/L       2.44941      4.3994 ppb        2.44941  55.68%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                6.0      0.6070 µg/L       0.31012      0.6070 ppb        0.31012  51.09%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -11.3     -12.579 µg/L        9.0123     -12.579 ppb         9.0123  71.65%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               22.6      4.3664 µg/L       0.80621      4.3664 ppb        0.80621  18.46%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                0.1       0.082 µg/L        1.2935       0.082 ppb         1.2935 >999.9%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -111.0     -12.289 µg/L        7.2165     -12.289 ppb         7.2165  58.72%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -145.0     -2.4559 µg/L       0.25546     -2.4559 ppb        0.25546  10.40%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                8.7      1.1071 µg/L       0.11910      1.1071 ppb        0.11910  10.76%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               10.9      0.0300 µg/L       0.03754      0.0300 ppb        0.03754 124.98%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              335.8      0.4766 µg/L       0.15780      0.4766 ppb        0.15780  33.11%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                7.5      2.3085 µg/L       1.03654      2.3085 ppb        1.03654  44.90%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                19.9      2.3097 µg/L       8.37135      2.3097 ppb        8.37135 362.44%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -62.9     -0.2791 µg/L       0.65030     -0.2791 ppb        0.65030 233.04%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†               19.6      0.1070 µg/L       0.04424      0.1070 ppb        0.04424  41.35%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

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Analysis Begun

Start Time: 11/11/2016 11:45:31 **Plasma On Time: 11/7/2016 06:01:25**
Logged In Analyst: lab **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N No Serial #Autosampler Model: AS-93plus

Sample Information File: C:\pe\optima4\Sample Information\111116.sif
Batch ID:
Results Data Set: 111116
Results Library: C:\pe\optima4\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 301**
Sample ID: 1203657595|1611117|1 **Date Collected: 11/11/2016 11:45:33**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203657595|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	68926.7	68926.7	95.7	%			11:46:03
1	Al 396.153Radial†	132.0	36.3	13.290	µg/L	13.290	ppb	11:46:23
1	Ca 317.933Radial†	2279.6	2039.3	227.02	µg/L	227.02	ppb	11:46:23
1	Fe 238.204 Radial†	-350.7	151.6	14.338	µg/L	14.338	ppb	11:46:23
1	K 766.490 Radial†	1137.6	118.8	62.399	µg/L	62.399	ppb	11:46:03
1	Mg 279.077 IEC†	66.3	42.5	22.929	µg/L	22.929	ppb	11:46:23
1	Na 589.592 Radial†	1180.6	1194.2	199.13	µg/L	199.13	ppb	11:46:03
1	Sr 421.552†	-183.0	267.8	0.7691	µg/L	0.7691	ppb	11:46:23
1	Sc 361.383	1312493.9	1312493.9	98.594	%			11:47:10
1	Y 371.029	711099.8	711099.8	98.158	%			11:47:10
1	Ag 328.068†	-1847.3	17.2	0.0973	µg/L	0.0973	ppb	11:47:13
1	As 188.979†	-24.8	4.8	2.6275	µg/L	2.6275	ppb	11:47:33
1	B 249.677†	953.6	82.3	1.1941	µg/L	1.1941	ppb	11:47:13
1	Ba 233.527†	-207.4	30.4	0.2715	µg/L	0.2715	ppb	11:47:33
1	Be 313.107†	-3372.3	235.5	0.0515	µg/L	0.0515	ppb	11:47:13
1	Cd 226.502†	-158.3	19.5	0.1456	µg/L	0.1456	ppb	11:47:33
1	Co 228.616†	-89.2	1.1	0.0162	µg/L	0.0162	ppb	11:47:33
1	Cr 267.716†	134.8	7.7	0.1063	µg/L	0.1063	ppb	11:47:33
1	Cu 324.752†	5609.3	-87.6	-0.3986	µg/L	-0.3986	ppb	11:47:13
1	Mn 257.610†	482.9	337.8	0.5912	µg/L	0.5912	ppb	11:47:33
1	Mo 202.031†	-25.6	3.8	0.1986	µg/L	0.1986	ppb	11:47:33
1	Ni 231.604†	-162.3	33.1	0.5268	µg/L	0.5268	ppb	11:47:33
1	P 214.914†	-10.7	84.3	30.372	µg/L	30.372	ppb	11:47:33
1	Pb 220.353†	88.9	16.4	1.6808	µg/L	1.6808	ppb	11:47:33
1	S 181.975 Axial†	270.8	172.0	192.02	µg/L	192.02	ppb	11:47:33
1	Sb 206.836†	51.8	8.2	1.5807	µg/L	1.5807	ppb	11:47:33
1	Se 196.026†	1.3	-6.7	-3.50	µg/L	-3.50	ppb	11:47:33
1	SiO2†	4164.2	1203.8	133.23	µg/L	133.23	ppb	11:47:13
1	Si 251.611†	4361.8	3839.5	65.100	µg/L	65.100	ppb	11:47:13
1	Sn 189.927†	-0.4	27.1	3.4641	µg/L	3.4641	ppb	11:47:33
1	Ti 334.940†	-435.6	447.4	0.6475	µg/L	0.6475	ppb	11:47:13
1	Tl 190.801†	-86.3	-1.5	-0.4662	µg/L	-0.4662	ppb	11:47:33
1	U 367.007†	-413.7	-135.4	-16.759	µg/L	-16.759	ppb	11:47:13
1	V 292.402†	33.5	-69.4	-0.3158	µg/L	-0.3158	ppb	11:47:13
1	Zn 213.857†	1302.5	1274.6	7.2292	µg/L	7.2292	ppb	11:47:33
2	Sc RADIAL	70589.3	70589.3	98.0	%			11:46:25
2	Al 396.153Radial†	138.1	39.3	14.372	µg/L	14.372	ppb	11:46:45
2	Ca 317.933Radial†	2280.0	1983.6	220.82	µg/L	220.82	ppb	11:46:45
2	Fe 238.204 Radial†	-346.1	164.9	15.598	µg/L	15.598	ppb	11:46:45
2	K 766.490 Radial†	968.4	-81.9	-43.061	µg/L	-43.061	ppb	11:46:25
2	Mg 279.077 IEC†	75.4	50.1	27.033	µg/L	27.033	ppb	11:46:45
2	Na 589.592 Radial†	1076.0	1058.4	176.49	µg/L	176.49	ppb	11:46:25
2	Sr 421.552†	-190.2	264.9	0.7610	µg/L	0.7610	ppb	11:46:45
2	Sc 361.383	1311936.5	1311936.5	98.553	%			11:47:35
2	Y 371.029	710574.0	710574.0	98.085	%			11:47:35
2	Ag 328.068†	-1800.7	63.7	0.3278	µg/L	0.3278	ppb	11:47:37
2	As 188.979†	-29.7	-0.2	-0.0828	µg/L	-0.0828	ppb	11:47:57

2	B 249.677†	870.9	-1.2	-0.0059 µg/L	-0.0059 ppb	11:47:37
2	Ba 233.527†	-206.3	31.4	0.2802 µg/L	0.2802 ppb	11:47:57
2	Be 313.107†	-3392.3	213.8	0.0513 µg/L	0.0513 ppb	11:47:37
2	Cd 226.502†	-152.0	25.8	0.1931 µg/L	0.1931 ppb	11:47:57
2	Co 228.616†	-92.1	-1.9	-0.0281 µg/L	-0.0281 ppb	11:47:57
2	Cr 267.716†	140.0	13.1	0.1539 µg/L	0.1539 ppb	11:47:57
2	Cu 324.752†	5797.8	106.0	0.4690 µg/L	0.4690 ppb	11:47:37
2	Mn 257.610†	466.5	321.3	0.5622 µg/L	0.5622 ppb	11:47:57
2	Mo 202.031†	-19.2	10.3	0.5353 µg/L	0.5353 ppb	11:47:57
2	Ni 231.604†	-182.1	13.0	0.2066 µg/L	0.2066 ppb	11:47:57
2	P 214.914†	5.1	100.2	36.129 µg/L	36.129 ppb	11:47:57
2	Pb 220.353†	44.4	-28.7	-2.8986 µg/L	-2.8986 ppb	11:47:57
2	S 181.975 Axial†	272.3	173.6	193.78 µg/L	193.78 ppb	11:47:57
2	Sb 206.836†	52.3	8.8	1.6894 µg/L	1.6894 ppb	11:47:57
2	Se 196.026†	3.5	-4.5	-2.35 µg/L	-2.35 ppb	11:47:57
2	SiO2†	4145.0	1186.1	131.28 µg/L	131.28 ppb	11:47:37
2	Si 251.611†	4431.3	3912.0	66.329 µg/L	66.329 ppb	11:47:37
2	Sn 189.927†	0.9	28.4	3.6357 µg/L	3.6357 ppb	11:47:57
2	Ti 334.940†	-580.5	300.2	0.4296 µg/L	0.4296 ppb	11:47:37
2	Tl 190.801†	-76.0	9.0	2.7535 µg/L	2.7535 ppb	11:47:57
2	U 367.007†	-282.5	-2.4	-0.4009 µg/L	-0.4009 ppb	11:47:37
2	V 292.402†	80.0	-22.1	-0.0979 µg/L	-0.0979 ppb	11:47:37
2	Zn 213.857†	1300.7	1273.3	7.2204 µg/L	7.2204 ppb	11:47:57
3	Sc RADIAL	71178.0	71178.0	98.8 %		11:46:47
3	Al 396.153Radial†	172.2	72.6	26.527 µg/L	26.527 ppb	11:47:07
3	Ca 317.933Radial†	2224.1	1907.8	212.37 µg/L	212.37 ppb	11:47:07
3	Fe 238.204 Radial†	-348.3	165.6	15.662 µg/L	15.662 ppb	11:47:07
3	K 766.490 Radial†	973.4	-85.0	-44.698 µg/L	-44.698 ppb	11:46:47
3	Mg 279.077 IEC†	53.0	26.9	14.484 µg/L	14.484 ppb	11:47:07
3	Na 589.592 Radial†	1195.4	1170.1	195.12 µg/L	195.12 ppb	11:46:47
3	Sr 421.552†	-155.3	301.9	0.8685 µg/L	0.8685 ppb	11:47:07
3	Sc 361.383	1299229.0	1299229.0	97.598 %		11:47:59
3	Y 371.029	703312.1	703312.1	97.083 %		11:47:59
3	Ag 328.068†	-1854.9	-9.7	-0.0415 µg/L	-0.0415 ppb	11:48:01
3	As 188.979†	-31.1	-1.9	-1.0268 µg/L	-1.0268 ppb	11:48:21
3	B 249.677†	824.4	-40.2	-0.5669 µg/L	-0.5669 ppb	11:48:01
3	Ba 233.527†	-168.1	68.6	0.6115 µg/L	0.6115 ppb	11:48:21
3	Be 313.107†	-3470.3	100.2	0.0063 µg/L	0.0063 ppb	11:48:01
3	Cd 226.502†	-158.0	18.2	0.1357 µg/L	0.1357 ppb	11:48:21
3	Co 228.616†	-90.5	-1.2	-0.0170 µg/L	-0.0170 ppb	11:48:21
3	Cr 267.716†	138.7	13.1	0.1698 µg/L	0.1698 ppb	11:48:21
3	Cu 324.752†	5697.4	60.7	0.2559 µg/L	0.2559 ppb	11:48:01
3	Mn 257.610†	477.3	337.1	0.5902 µg/L	0.5902 ppb	11:48:21
3	Mo 202.031†	-22.9	6.3	0.3264 µg/L	0.3264 ppb	11:48:21
3	Ni 231.604†	-165.8	27.9	0.4431 µg/L	0.4431 ppb	11:48:21
3	P 214.914†	-9.1	85.8	30.918 µg/L	30.918 ppb	11:48:21
3	Pb 220.353†	68.9	-3.1	-0.2920 µg/L	-0.2920 ppb	11:48:21
3	S 181.975 Axial†	268.5	172.4	192.43 µg/L	192.43 ppb	11:48:21
3	Sb 206.836†	57.7	14.9	2.8672 µg/L	2.8672 ppb	11:48:21
3	Se 196.026†	12.4	4.7	2.44 µg/L	2.44 ppb	11:48:21
3	SiO2†	4234.4	1318.9	145.97 µg/L	145.97 ppb	11:48:01
3	Si 251.611†	4512.9	4039.5	68.491 µg/L	68.491 ppb	11:48:01
3	Sn 189.927†	-4.5	22.9	2.9261 µg/L	2.9261 ppb	11:48:21
3	Ti 334.940†	-625.9	247.9	0.3637 µg/L	0.3637 ppb	11:48:01
3	Tl 190.801†	-84.2	-0.2	-0.0693 µg/L	-0.0693 ppb	11:48:21
3	U 367.007†	-409.4	-135.2	-16.743 µg/L	-16.743 ppb	11:48:01
3	V 292.402†	169.9	70.8	0.3123 µg/L	0.3123 ppb	11:48:01
3	Zn 213.857†	1279.1	1264.1	7.1690 µg/L	7.1690 ppb	11:48:21

Mean Data: 1203657595|1611117|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1307886.5	98.248	%	0.5636				0.57%
Sc RADIAL	70231.3	97.5	%	1.62				1.66%
Y 371.029	708328.6	97.775	%	0.6008				0.61%
Ag 328.068†	23.7	0.1279	µg/L	0.18654	0.1279	ppb	0.18654	145.86%
Al 396.153Radial†	49.4	18.063	µg/L	7.3500	18.063	ppb	7.3500	40.69%
As 188.979†	0.9	0.5059	µg/L	1.89693	0.5059	ppb	1.89693	374.93%
B 249.677†	13.6	0.2071	µg/L	0.89962	0.2071	ppb	0.89962	434.39%
Ba 233.527†	43.5	0.3877	µg/L	0.19380	0.3877	ppb	0.19380	49.98%

Be 313.107†	183.2	0.0364 µg/L	0.02606	0.0364 ppb	0.02606	71.64%
Ca 317.933Radial†	1976.9	220.07 µg/L	7.352	220.07 ppb	7.352	3.34%
Cd 226.502†	21.1	0.1581 µg/L	0.03072	0.1581 ppb	0.03072	19.43%
Co 228.616†	-0.7	-0.0096 µg/L	0.02308	-0.0096 ppb	0.02308	240.02%
Cr 267.716†	11.3	0.1433 µg/L	0.03302	0.1433 ppb	0.03302	23.04%
Cu 324.752†	26.4	0.1088 µg/L	0.45212	0.1088 ppb	0.45212	415.63%
Fe 238.204 Radial†	160.7	15.199 µg/L	0.7470	15.199 ppb	0.7470	4.91%
K 766.490 Radial†	-16.1	-8.4532 µg/L	61.36550	-8.4532 ppb	61.36550	725.94%
Mg 279.077 IEC†	39.8	21.482 µg/L	6.3981	21.482 ppb	6.3981	29.78%
Mn 257.610†	332.1	0.5812 µg/L	0.01646	0.5812 ppb	0.01646	2.83%
Mo 202.031†	6.8	0.3534 µg/L	0.17001	0.3534 ppb	0.17001	48.10%
Na 589.592 Radial†	1140.9	190.25 µg/L	12.084	190.25 ppb	12.084	6.35%
Ni 231.604†	24.7	0.3922 µg/L	0.16603	0.3922 ppb	0.16603	42.34%
P 214.914†	90.1	32.473 µg/L	3.1778	32.473 ppb	3.1778	9.79%
Pb 220.353†	-5.1	-0.5033 µg/L	2.29703	-0.5033 ppb	2.29703	456.42%
S 181.975 Axial†	172.7	192.74 µg/L	0.921	192.74 ppb	0.921	0.48%
Sb 206.836†	10.6	2.0457 µg/L	0.71345	2.0457 ppb	0.71345	34.88%
Se 196.026†	-2.2	-1.14 µg/L	3.149	-1.14 ppb	3.149	276.20%
SiO2†	1236.3	136.83 µg/L	7.978	136.83 ppb	7.978	5.83%
Si 251.611†	3930.3	66.640 µg/L	1.7170	66.640 ppb	1.7170	2.58%
Sn 189.927†	26.1	3.3419 µg/L	0.37019	3.3419 ppb	0.37019	11.08%
Sr 421.552†	278.2	0.7996 µg/L	0.05984	0.7996 ppb	0.05984	7.48%
Ti 334.940†	331.9	0.4803 µg/L	0.14851	0.4803 ppb	0.14851	30.92%
Tl 190.801†	2.4	0.7393 µg/L	1.75554	0.7393 ppb	1.75554	237.45%
U 367.007†	-91.0	-11.301 µg/L	9.4396	-11.301 ppb	9.4396	83.53%
V 292.402†	-6.9	-0.0338 µg/L	0.31891	-0.0338 ppb	0.31891	943.21%
Zn 213.857†	1270.6	7.2062 µg/L	0.03250	7.2062 ppb	0.03250	0.45%

Sequence No.: 2 **Autosampler Location: 302**
Sample ID: 1203657596|1611117|1 **Date Collected: 11/11/2016 11:48:28**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203657596|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	69930.0	69930.0	97.1	%			11:48:55
1	Al 396.153Radial†	13135.9	13430.2	4903.8	µg/L	4903.8	ppb	11:48:55
1	Ca 317.933Radial†	42971.8	43923.9	4889.6	µg/L	4889.6	ppb	11:48:55
1	Fe 238.204 Radial†	50363.3	52399.5	4956.7	µg/L	4956.7	ppb	11:48:55
1	K 766.490 Radial†	10278.8	9518.5	5003.4	µg/L	5003.4	ppb	11:48:55
1	Mg 279.077 IEC†	8777.5	9015.3	4862.1	µg/L	4862.1	ppb	11:48:55
1	Na 589.592 Radial†	28892.6	29723.7	4956.6	µg/L	4956.6	ppb	11:48:55
1	Sr 421.552†	163151.0	168527.8	488.78	µg/L	488.78	ppb	11:48:53
1	Sc 361.383	1299991.8	1299991.8	97.655	%			11:49:07
1	Y 371.029	696648.3	696648.3	96.163	%			11:49:07
1	Ag 328.068†	88818.8	92842.1	479.10	µg/L	479.10	ppb	11:49:07
1	As 188.979†	838.2	888.3	487.57	µg/L	487.57	ppb	11:49:27
1	B 249.677†	34092.0	34025.7	492.97	µg/L	492.97	ppb	11:49:07
1	Ba 233.527†	52925.8	54437.3	485.43	µg/L	485.43	ppb	11:49:07
1	Be 313.107†	1766361.0	1812426.7	482.52	µg/L	482.52	ppb	11:49:07
1	Cd 226.502†	61780.3	63443.6	479.47	µg/L	479.47	ppb	11:49:07
1	Co 228.616†	31386.3	32231.4	479.31	µg/L	479.31	ppb	11:49:27
1	Cr 267.716†	39918.6	40748.0	478.84	µg/L	478.84	ppb	11:49:07
1	Cu 324.752†	113681.7	110634.2	488.98	µg/L	488.98	ppb	11:49:07
1	Mn 257.610†	268427.1	274720.0	481.30	µg/L	481.30	ppb	11:49:07
1	Mo 202.031†	8919.2	9163.1	476.40	µg/L	476.40	ppb	11:49:27
1	Ni 231.604†	29148.1	30045.7	477.67	µg/L	477.67	ppb	11:49:27
1	P 214.914†	1292.2	1418.3	510.95	µg/L	510.95	ppb	11:49:27
1	Pb 220.353†	4743.6	4783.8	483.49	µg/L	483.49	ppb	11:49:27
1	S 181.975 Axial†	4477.5	4482.3	5002.5	µg/L	5002.5	ppb	11:49:27
1	Sb 206.836†	2527.6	2544.0	483.69	µg/L	483.69	ppb	11:49:27
1	Se 196.026†	898.5	912.0	480	µg/L	480	ppb	11:49:27
1	SiO2†	94324.4	93569.4	10356	µg/L	10356	ppb	11:49:07
1	Si 251.611†	278789.4	284898.6	4831.1	µg/L	4831.1	ppb	11:49:07
1	Sn 189.927†	3628.1	3742.7	478.55	µg/L	478.55	ppb	11:49:27
1	Ti 334.940†	329720.8	338526.6	480.86	µg/L	480.86	ppb	11:49:07
1	Tl 190.801†	1439.0	1559.6	479.14	µg/L	479.14	ppb	11:49:27
1	U 367.007†	3547.7	3917.1	454.53	µg/L	454.53	ppb	11:49:07
1	V 292.402†	104105.0	106501.2	478.54	µg/L	478.54	ppb	11:49:07
1	Zn 213.857†	83179.7	85130.3	481.69	µg/L	481.69	ppb	11:49:07
2	Sc RADIAL	70034.6	70034.6	97.2	%			11:48:59
2	Al 396.153Radial†	13182.7	13458.1	4914.0	µg/L	4914.0	ppb	11:48:59
2	Ca 317.933Radial†	43229.0	44122.3	4911.7	µg/L	4911.7	ppb	11:48:59
2	Fe 238.204 Radial†	50486.6	52448.8	4961.4	µg/L	4961.4	ppb	11:48:59
2	K 766.490 Radial†	10375.6	9602.2	5047.4	µg/L	5047.4	ppb	11:48:59
2	Mg 279.077 IEC†	8870.0	9097.0	4906.1	µg/L	4906.1	ppb	11:48:59
2	Na 589.592 Radial†	29119.7	29912.9	4988.1	µg/L	4988.1	ppb	11:48:59
2	Sr 421.552†	162101.8	167197.6	484.92	µg/L	484.92	ppb	11:48:57
2	Sc 361.383	1305810.7	1305810.7	98.092	%			11:49:30
2	Y 371.029	699631.6	699631.6	96.575	%			11:49:30
2	Ag 328.068†	89664.4	93298.9	481.46	µg/L	481.46	ppb	11:49:30
2	As 188.979†	839.5	885.8	486.24	µg/L	486.24	ppb	11:49:50
2	B 249.677†	34543.0	34329.9	497.35	µg/L	497.35	ppb	11:49:30
2	Ba 233.527†	53548.4	54830.5	488.93	µg/L	488.93	ppb	11:49:30
2	Be 313.107†	1779880.3	1818148.7	483.99	µg/L	483.99	ppb	11:49:30
2	Cd 226.502†	62594.8	63992.1	483.62	µg/L	483.62	ppb	11:49:30
2	Co 228.616†	31459.8	32163.1	478.30	µg/L	478.30	ppb	11:49:50
2	Cr 267.716†	40219.8	40873.0	480.31	µg/L	480.31	ppb	11:49:30
2	Cu 324.752†	114650.0	111102.6	491.05	µg/L	491.05	ppb	11:49:30
2	Mn 257.610†	269924.9	275022.0	481.83	µg/L	481.83	ppb	11:49:30
2	Mo 202.031†	8960.0	9163.9	476.44	µg/L	476.44	ppb	11:49:50
2	Ni 231.604†	29173.5	29938.6	475.97	µg/L	475.97	ppb	11:49:50
2	P 214.914†	1314.9	1435.6	517.19	µg/L	517.19	ppb	11:49:50
2	Pb 220.353†	4728.3	4746.5	479.73	µg/L	479.73	ppb	11:49:50

2	S 181.975 Axial†	4477.6	4462.0	4979.8 µg/L	4979.8 ppb		11:49:50
2	Sb 206.836†	2525.8	2530.7	481.08 µg/L	481.08 ppb		11:49:50
2	Se 196.026†	899.6	909.1	479 µg/L	479 ppb		11:49:50
2	SiO2†	95629.0	94468.9	10456 µg/L	10456 ppb		11:49:30
2	Si 251.611†	282780.1	287694.7	4878.5 µg/L	4878.5 ppb		11:49:30
2	Sn 189.927†	3627.7	3725.7	476.38 µg/L	476.38 ppb		11:49:50
2	Ti 334.940†	331710.2	339050.0	481.61 µg/L	481.61 ppb		11:49:30
2	Tl 190.801†	1424.2	1537.9	472.49 µg/L	472.49 ppb		11:49:50
2	U 367.007†	3525.9	3878.7	449.79 µg/L	449.79 ppb		11:49:30
2	V 292.402†	104757.2	106691.1	479.39 µg/L	479.39 ppb		11:49:30
2	Zn 213.857†	83715.1	85296.5	482.63 µg/L	482.63 ppb		11:49:30
3	Sc RADIAL	69272.5	69272.5	96.2 %			11:49:03
3	Al 396.153Radial†	13076.9	13497.2	4928.2 µg/L	4928.2 ppb		11:49:03
3	Ca 317.933Radial†	42605.7	43963.4	4894.0 µg/L	4894.0 ppb		11:49:03
3	Fe 238.204 Radial†	49923.4	52434.4	4960.0 µg/L	4960.0 ppb		11:49:03
3	K 766.490 Radial†	10076.1	9408.1	4945.4 µg/L	4945.4 ppb		11:49:03
3	Mg 279.077 IEC†	8710.2	9031.1	4870.6 µg/L	4870.6 ppb		11:49:03
3	Na 589.592 Radial†	28848.7	29960.5	4996.1 µg/L	4996.1 ppb		11:49:03
3	Sr 421.552†	161037.9	167925.5	487.03 µg/L	487.03 ppb		11:49:01
3	Sc 361.383	1290560.1	1290560.1	96.947 %			11:49:54
3	Y 371.029	690790.9	690790.9	95.354 %			11:49:54
3	Ag 328.068†	88161.2	92828.5	479.02 µg/L	479.02 ppb		11:49:54
3	As 188.979†	846.0	902.5	495.29 µg/L	495.29 ppb		11:50:14
3	B 249.677†	34010.2	34196.5	495.43 µg/L	495.43 ppb		11:49:54
3	Ba 233.527†	52494.7	54388.7	484.99 µg/L	484.99 ppb		11:49:54
3	Be 313.107†	1745685.0	1804318.5	480.32 µg/L	480.32 ppb		11:49:54
3	Cd 226.502†	60897.4	62995.3	476.08 µg/L	476.08 ppb		11:49:54
3	Co 228.616†	31491.0	32574.3	484.40 µg/L	484.40 ppb		11:50:14
3	Cr 267.716†	39440.5	40553.6	476.55 µg/L	476.55 ppb		11:49:54
3	Cu 324.752†	113183.2	110970.8	490.47 µg/L	490.47 ppb		11:49:54
3	Mn 257.610†	265643.4	273857.5	479.79 µg/L	479.79 ppb		11:49:54
3	Mo 202.031†	8957.5	9269.4	481.92 µg/L	481.92 ppb		11:50:14
3	Ni 231.604†	29247.5	30366.3	482.77 µg/L	482.77 ppb		11:50:14
3	P 214.914†	1297.6	1433.5	516.43 µg/L	516.43 ppb		11:50:14
3	Pb 220.353†	4767.4	4843.9	489.57 µg/L	489.57 ppb		11:50:14
3	S 181.975 Axial†	4488.6	4527.3	5052.7 µg/L	5052.7 ppb		11:50:14
3	Sb 206.836†	2531.3	2566.7	488.11 µg/L	488.11 ppb		11:50:14
3	Se 196.026†	894.3	914.4	482 µg/L	482 ppb		11:50:14
3	SiO2†	94356.6	94308.5	10438 µg/L	10438 ppb		11:49:54
3	Si 251.611†	279370.0	287583.8	4876.6 µg/L	4876.6 ppb		11:49:54
3	Sn 189.927†	3648.6	3791.0	484.72 µg/L	484.72 ppb		11:50:14
3	Ti 334.940†	327409.1	338609.6	480.98 µg/L	480.98 ppb		11:49:54
3	Tl 190.801†	1433.6	1564.8	480.73 µg/L	480.73 ppb		11:50:14
3	U 367.007†	3539.4	3935.1	456.74 µg/L	456.74 ppb		11:49:54
3	V 292.402†	103207.0	106354.0	477.88 µg/L	477.88 ppb		11:49:54
3	Zn 213.857†	82206.1	84748.5	479.53 µg/L	479.53 ppb		11:49:54

Mean Data: 1203657596|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1298787.5	97.565	%	0.5781				0.59%
Sc RADIAL	69745.7	96.8	%	0.57				0.59%
Y 371.029	695690.3	96.031	%	0.6208				0.65%
Ag 328.068†	92989.8	479.86	µg/L	1.384	479.86	ppb	1.384	0.29%
Al 396.153Radial†	13461.8	4915.3	µg/L	12.29	4915.3	ppb	12.29	0.25%
As 188.979†	892.2	489.70	µg/L	4.885	489.70	ppb	4.885	1.00%
B 249.677†	34184.0	495.25	µg/L	2.194	495.25	ppb	2.194	0.44%
Ba 233.527†	54552.2	486.45	µg/L	2.160	486.45	ppb	2.160	0.44%
Be 313.107†	1811631.3	482.28	µg/L	1.848	482.28	ppb	1.848	0.38%
Ca 317.933Radial†	44003.2	4898.5	µg/L	11.70	4898.5	ppb	11.70	0.24%
Cd 226.502†	63477.0	479.73	µg/L	3.777	479.73	ppb	3.777	0.79%
Co 228.616†	32322.9	480.67	µg/L	3.271	480.67	ppb	3.271	0.68%
Cr 267.716†	40724.9	478.57	µg/L	1.895	478.57	ppb	1.895	0.40%
Cu 324.752†	110902.5	490.17	µg/L	1.065	490.17	ppb	1.065	0.22%
Fe 238.204 Radial†	52427.5	4959.4	µg/L	2.40	4959.4	ppb	2.40	0.05%
K 766.490 Radial†	9509.6	4998.8	µg/L	51.15	4998.8	ppb	51.15	1.02%
Mg 279.077 IEC†	9047.8	4879.6	µg/L	23.35	4879.6	ppb	23.35	0.48%
Mn 257.610†	274533.2	480.97	µg/L	1.059	480.97	ppb	1.059	0.22%
Mo 202.031†	9198.8	478.25	µg/L	3.176	478.25	ppb	3.176	0.66%
Na 589.592 Radial†	29865.7	4980.2	µg/L	20.89	4980.2	ppb	20.89	0.42%

Ni 231.604†	30116.9	478.80 µg/L	3.539	478.80 ppb	3.539	0.74%
P 214.914†	1429.1	514.85 µg/L	3.406	514.85 ppb	3.406	0.66%
Pb 220.353†	4791.4	484.26 µg/L	4.966	484.26 ppb	4.966	1.03%
S 181.975 Axial†	4490.5	5011.7 µg/L	37.34	5011.7 ppb	37.34	0.75%
Sb 206.836†	2547.1	484.29 µg/L	3.551	484.29 ppb	3.551	0.73%
Se 196.026†	911.8	480 µg/L	1.4	480 ppb	1.4	0.29%
SiO2†	94115.6	10416 µg/L	53.1	10416 ppb	53.1	0.51%
Si 251.611†	286725.7	4862.1 µg/L	26.85	4862.1 ppb	26.85	0.55%
Sn 189.927†	3753.1	479.88 µg/L	4.328	479.88 ppb	4.328	0.90%
Sr 421.552†	167883.6	486.91 µg/L	1.933	486.91 ppb	1.933	0.40%
Ti 334.940†	338728.8	481.15 µg/L	0.401	481.15 ppb	0.401	0.08%
Tl 190.801†	1554.1	477.46 µg/L	4.371	477.46 ppb	4.371	0.92%
U 367.007†	3910.3	453.68 µg/L	3.552	453.68 ppb	3.552	0.78%
V 292.402†	106515.4	478.60 µg/L	0.759	478.60 ppb	0.759	0.16%
Zn 213.857†	85058.5	481.28 µg/L	1.594	481.28 ppb	1.594	0.33%

Sequence No.: 3 **Autosampler Location: 303**
Sample ID: 409254001|1611117|1 **Date Collected: 11/11/2016 11:50:21**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254001|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	69211.1	69211.1	96.1	%			11:50:48
1	Al 396.153Radial†	150035.1	156061.3	57096	µg/L	57096	ppb	11:50:48
1	Ca 317.933Radial†	6076993.1	6324853.0	704090	µg/L	704090	ppb	11:50:46
1	Fe 238.204 Radial†	1275928.7	1328559.6	125680	µg/L	125680	ppb	11:50:46
1	K 766.490 Radial†	22416.9	22262.2	11690	µg/L	11690	ppb	11:50:48
1	Mg 279.077 IEC†	133424.3	138846.9	74898	µg/L	74898	ppb	11:50:48
1	Na 589.592 Radial†	8033.5	8321.8	1387.7	µg/L	1387.7	ppb	11:50:48
1	Sr 421.552†	507046.3	528214.7	1508.2	µg/L	1508.2	ppb	11:50:46
1	Sc 361.383	1230039.4	1230039.4	92.401	%			11:51:01
1	Y 371.029	735391.1	735391.1	101.51	%			11:51:01
1	Ag 328.068†	-2675.2	-1004.3	-4.1743	µg/L	-4.1743	ppb	11:51:01
1	As 188.979†	97.1	135.0	89.651	µg/L	89.651	ppb	11:51:21
1	B 249.677†	-3003.3	-4135.2	32.720	µg/L	32.720	ppb	11:51:01
1	Ba 233.527†	185885.9	201414.9	1796.6	µg/L	1796.6	ppb	11:51:01
1	Be 313.107†	12362.4	17035.1	-39.260	µg/L	-39.260	ppb	11:51:01
1	Cd 226.502†	2320.6	2691.4	5.9733	µg/L	5.9733	ppb	11:51:21
1	Co 228.616†	4303.6	4749.1	71.114	µg/L	71.114	ppb	11:51:21
1	Cr 267.716†	8154.6	8696.2	103.47	µg/L	103.47	ppb	11:51:21
1	Cu 324.752†	44542.7	42429.2	196.81	µg/L	196.81	ppb	11:51:01
1	Mn 257.610†	2922108.0	3162285.5	5539.6	µg/L	5539.6	ppb	11:51:01
1	Mo 202.031†	48.6	82.3	8.1263	µg/L	8.1263	ppb	11:51:21
1	Ni 231.604†	9927.7	10941.9	173.96	µg/L	173.96	ppb	11:51:21
1	P 214.914†	14478.4	15764.2	5675.5	µg/L	5675.5	ppb	11:51:21
1	Pb 220.353†	183935.1	198989.2	20133	µg/L	20133	ppb	11:51:01
1	S 181.975 Axial†	2160.8	2235.8	2467.3	µg/L	2467.3	ppb	11:51:21
1	Sb 206.836†	230.6	205.2	26.250	µg/L	26.250	ppb	11:51:21
1	Se 196.026†	-77.9	-92.3	8.54	µg/L	8.54	ppb	11:51:21
1	SiO2†	626100.5	674574.5	74660	µg/L	74660	ppb	11:51:01
1	Si 251.611†	1890422.2	2045316.0	34694	µg/L	34694	ppb	11:51:01
1	Sn 189.927†	-39.6	-15.3	-1.7812	µg/L	-1.7812	ppb	11:51:21
1	Ti 334.940†	1085016.0	1175142.7	1678.8	µg/L	1678.8	ppb	11:51:01
1	Tl 190.801†	-137.4	-62.6	-17.089	µg/L	-17.089	ppb	11:51:21
1	U 367.007†	5155.1	5863.3	-23.734	µg/L	-23.734	ppb	11:51:01
1	V 292.402†	39904.5	43083.2	201.87	µg/L	201.87	ppb	11:51:01
1	Zn 213.857†	122856.7	132914.5	736.68	µg/L	736.68	ppb	11:51:01
2	Sc RADIAL	69384.5	69384.5	96.3	%			11:50:53
2	Al 396.153Radial†	151511.1	157203.3	57516	µg/L	57516	ppb	11:50:53
2	Ca 317.933Radial†	6232842.3	6470848.5	720340	µg/L	720340	ppb	11:50:50
2	Fe 238.204 Radial†	1308610.5	1359171.0	128570	µg/L	128570	ppb	11:50:50
2	K 766.490 Radial†	22565.3	22358.0	11740	µg/L	11740	ppb	11:50:53
2	Mg 279.077 IEC†	134632.1	139753.7	75388	µg/L	75388	ppb	11:50:53
2	Na 589.592 Radial†	7970.2	8235.2	1373.3	µg/L	1373.3	ppb	11:50:53
2	Sr 421.552†	518948.7	539252.8	1539.7	µg/L	1539.7	ppb	11:50:50
2	Sc 361.383	1242545.4	1242545.4	93.340	%			11:51:24
2	Y 371.029	743617.1	743617.1	102.65	%			11:51:24
2	Ag 328.068†	-2759.2	-1065.3	-4.4687	µg/L	-4.4687	ppb	11:51:24
2	As 188.979†	108.1	145.8	95.857	µg/L	95.857	ppb	11:51:44
2	B 249.677†	-2942.7	-4037.5	36.249	µg/L	36.249	ppb	11:51:24
2	Ba 233.527†	188078.9	201739.6	1799.5	µg/L	1799.5	ppb	11:51:24
2	Be 313.107†	12472.5	17018.4	-39.327	µg/L	-39.327	ppb	11:51:24
2	Cd 226.502†	2272.2	2614.3	5.0584	µg/L	5.0584	ppb	11:51:44
2	Co 228.616†	4282.6	4679.7	70.052	µg/L	70.052	ppb	11:51:44
2	Cr 267.716†	8100.4	8549.3	101.77	µg/L	101.77	ppb	11:51:44
2	Cu 324.752†	45487.2	42956.0	199.35	µg/L	199.35	ppb	11:51:24
2	Mn 257.610†	2961726.2	3172901.0	5558.1	µg/L	5558.1	ppb	11:51:24
2	Mo 202.031†	50.5	83.8	8.2815	µg/L	8.2815	ppb	11:51:44
2	Ni 231.604†	9876.7	10779.1	171.37	µg/L	171.37	ppb	11:51:44
2	P 214.914†	14389.7	15511.5	5584.3	µg/L	5584.3	ppb	11:51:44
2	Pb 220.353†	186699.9	199947.7	20230	µg/L	20230	ppb	11:51:24

2	S 181.975 Axial†	2168.3	2220.3	2449.3 µg/L	2449.3 ppb		11:51:44
2	Sb 206.836†	221.3	192.8	23.579 µg/L	23.579 ppb		11:51:44
2	Se 196.026†	-90.7	-105.2	3.13 µg/L	3.13 ppb		11:51:44
2	SiO2†	634178.2	676408.7	74863 µg/L	74863 ppb		11:51:24
2	Si 251.611†	1915841.3	2051957.0	34807 µg/L	34807 ppb		11:51:24
2	Sn 189.927†	-37.1	-12.3	-1.3895 µg/L	-1.3895 ppb		11:51:44
2	Ti 334.940†	1097869.0	1177094.1	1681.7 µg/L	1681.7 ppb		11:51:24
2	Tl 190.801†	-146.1	-70.5	-19.469 µg/L	-19.469 ppb		11:51:44
2	U 367.007†	5373.9	6041.5	-18.981 µg/L	-18.981 ppb		11:51:24
2	V 292.402†	40405.4	43185.1	202.53 µg/L	202.53 ppb		11:51:24
2	Zn 213.857†	124570.2	133412.1	739.17 µg/L	739.17 ppb		11:51:24
3	Sc RADIAL	67810.0	67810.0	94.1 %			11:50:57
3	Al 396.153Radial†	148777.9	157952.3	57790 µg/L	57790 ppb		11:50:57
3	Ca 317.933Radial†	6149398.8	6532458.8	727200 µg/L	727200 ppb		11:50:55
3	Fe 238.204 Radial†	1291837.0	1372898.6	129870 µg/L	129870 ppb		11:50:55
3	K 766.490 Radial†	22096.9	22404.3	11765 µg/L	11765 ppb		11:50:57
3	Mg 279.077 IEC†	131389.4	139554.5	75281 µg/L	75281 ppb		11:50:57
3	Na 589.592 Radial†	8050.8	8513.0	1419.6 µg/L	1419.6 ppb		11:50:57
3	Sr 421.552†	513746.4	546236.6	1559.7 µg/L	1559.7 ppb		11:50:55
3	Sc 361.383	1264158.7	1264158.7	94.964 %			11:51:47
3	Y 371.029	756096.6	756096.6	104.37 %			11:51:47
3	Ag 328.068†	-2869.9	-1131.3	-4.7958 µg/L	-4.7958 ppb		11:51:47
3	As 188.979†	103.9	139.4	92.529 µg/L	92.529 ppb		11:52:07
3	B 249.677†	-3017.8	-4062.7	36.838 µg/L	36.838 ppb		11:51:47
3	Ba 233.527†	191134.6	201512.3	1797.5 µg/L	1797.5 ppb		11:51:47
3	Be 313.107†	12721.6	17052.2	-39.266 µg/L	-39.266 ppb		11:51:47
3	Cd 226.502†	2268.8	2569.2	4.5681 µg/L	4.5681 ppb		11:52:07
3	Co 228.616†	4306.2	4626.1	69.238 µg/L	69.238 ppb		11:52:07
3	Cr 267.716†	8089.1	8389.1	99.906 µg/L	99.906 ppb		11:52:07
3	Cu 324.752†	46214.9	42889.1	199.14 µg/L	199.14 ppb		11:51:47
3	Mn 257.610†	3011180.2	3170728.4	5554.3 µg/L	5554.3 ppb		11:51:47
3	Mo 202.031†	65.9	99.1	9.1082 µg/L	9.1082 ppb		11:52:07
3	Ni 231.604†	9919.4	10643.2	169.21 µg/L	169.21 ppb		11:52:07
3	P 214.914†	14418.7	15278.5	5500.2 µg/L	5500.2 ppb		11:52:07
3	Pb 220.353†	189686.4	199672.8	20202 µg/L	20202 ppb		11:51:47
3	S 181.975 Axial†	2173.3	2185.9	2410.7 µg/L	2410.7 ppb		11:52:07
3	Sb 206.836†	228.4	196.2	24.132 µg/L	24.132 ppb		11:52:07
3	Se 196.026†	-86.0	-98.6	7.16 µg/L	7.16 ppb		11:52:07
3	SiO2†	646042.7	677286.3	74960 µg/L	74960 ppb		11:51:47
3	Si 251.611†	1949055.6	2051840.8	34805 µg/L	34805 ppb		11:51:47
3	Sn 189.927†	-42.4	-17.2	-2.0122 µg/L	-2.0122 ppb		11:52:07
3	Ti 334.940†	1117048.9	1177181.6	1681.9 µg/L	1681.9 ppb		11:51:47
3	Tl 190.801†	-142.3	-63.8	-17.394 µg/L	-17.394 ppb		11:52:07
3	U 367.007†	5526.5	6103.8	-18.978 µg/L	-18.978 ppb		11:51:47
3	V 292.402†	40967.8	43037.3	201.95 µg/L	201.95 ppb		11:51:47
3	Zn 213.857†	126779.0	133456.3	739.28 µg/L	739.28 ppb		11:51:47

Mean Data: 409254001|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1245581.2	93.568	%	1.2966				1.39%
Sc RADIAL	68801.9	95.5	%	1.20				1.25%
Y 371.029	745034.9	102.84	%	1.439				1.40%
Ag 328.068†	-1067.0	-4.4796	µg/L	0.31089	-4.4796	ppb	0.31089	6.94%
Al 396.153Radial†	157072.3	57467	µg/L	349.7	57467	ppb	349.7	0.61%
As 188.979†	140.1	92.679	µg/L	3.1057	92.679	ppb	3.1057	3.35%
B 249.677†	-4078.5	35.269	µg/L	2.2270	35.269	ppb	2.2270	6.31%
Ba 233.527†	201555.6	1797.8	µg/L	1.49	1797.8	ppb	1.49	0.08%
Be 313.107†	17035.2	-39.284	µg/L	0.0376	-39.284	ppb	0.0376	0.10%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	6442720.1	717210	µg/L	11869.3	717210	ppb	11869.3	1.65%
Concentration greater than upper limit for Ca 317.933Radial.								
Cd 226.502†	2625.0	5.1999	µg/L	0.71321	5.1999	ppb	0.71321	13.72%
Co 228.616†	4685.0	70.135	µg/L	0.9411	70.135	ppb	0.9411	1.34%
Cr 267.716†	8544.9	101.72	µg/L	1.783	101.72	ppb	1.783	1.75%
Cu 324.752†	42758.1	198.43	µg/L	1.406	198.43	ppb	1.406	0.71%
Fe 238.204 Radial†	1353543.1	128040	µg/L	2147.2	128040	ppb	2147.2	1.68%
K 766.490 Radial†	22341.5	11732	µg/L	38.0	11732	ppb	38.0	0.32%
Mg 279.077 IEC†	139385.0	75189	µg/L	257.5	75189	ppb	257.5	0.34%
Mn 257.610†	3168638.3	5550.7	µg/L	9.82	5550.7	ppb	9.82	0.18%

Mo 202.031†	88.4	8.5053 µg/L	0.52787	8.5053 ppb	0.52787	6.21%
Na 589.592 Radial†	8356.7	1393.5 µg/L	23.70	1393.5 ppb	23.70	1.70%
Ni 231.604†	10788.1	171.51 µg/L	2.378	171.51 ppb	2.378	1.39%
P 214.914†	15518.1	5586.7 µg/L	87.68	5586.7 ppb	87.68	1.57%
Pb 220.353†	199536.6	20188 µg/L	49.9	20188 ppb	49.9	0.25%
S 181.975 Axial†	2214.0	2442.4 µg/L	28.95	2442.4 ppb	28.95	1.19%
Sb 206.836†	198.1	24.654 µg/L	1.4098	24.654 ppb	1.4098	5.72%
Se 196.026†	-98.7	6.28 µg/L	2.813	6.28 ppb	2.813	44.81%
SiO2†	676089.8	74828 µg/L	153.1	74828 ppb	153.1	0.20%
Si 251.611†	2049704.6	34769 µg/L	64.7	34769 ppb	64.7	0.19%
Sn 189.927†	-14.9	-1.7276 µg/L	0.31477	-1.7276 ppb	0.31477	18.22%
Sr 421.552†	537901.3	1535.9 µg/L	25.96	1535.9 ppb	25.96	1.69%
Ti 334.940†	1176472.8	1680.8 µg/L	1.77	1680.8 ppb	1.77	0.11%
Tl 190.801†	-65.6	-17.984 µg/L	1.2955	-17.984 ppb	1.2955	7.20%
U 367.007†	6002.9	-20.564 µg/L	2.7448	-20.564 ppb	2.7448	13.35%
V 292.402†	43101.8	202.12 µg/L	0.358	202.12 ppb	0.358	0.18%
Zn 213.857†	133261.0	738.38 µg/L	1.470	738.38 ppb	1.470	0.20%

Sequence No.: 4 **Autosampler Location: 304**
Sample ID: 1203657597|1611117|1 **Date Collected: 11/11/2016 11:52:15**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203657597|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	68468.4	68468.4	95.0	%			11:52:42
1	Al 396.153Radial†	136905.7	143941.3	52700	µg/L	52700	ppb	11:52:42
1	Ca 317.933Radial†	7398549.8	7783911.7	866510	µg/L	866510	ppb	11:52:40
1	Fe 238.204 Radial†	1230721.4	1295400.1	122540	µg/L	122540	ppb	11:52:40
1	K 766.490 Radial†	21356.5	21399.7	11224	µg/L	11224	ppb	11:52:42
1	Mg 279.077 IEC†	130618.9	137401.5	74118	µg/L	74118	ppb	11:52:42
1	Na 589.592 Radial†	8696.0	9109.6	1519.1	µg/L	1519.1	ppb	11:52:42
1	Sr 421.552†	628576.2	661804.6	1890.2	µg/L	1890.2	ppb	11:52:40
1	Sc 361.383	1244528.3	1244528.3	93.489	%			11:52:55
1	Y 371.029	743556.5	743556.5	102.64	%			11:52:55
1	Ag 328.068†	-3330.3	-1671.4	-9.1690	µg/L	-9.1690	ppb	11:52:55
1	As 188.979†	107.2	144.6	94.448	µg/L	94.448	ppb	11:53:15
1	B 249.677†	-2936.6	-4026.0	31.989	µg/L	31.989	ppb	11:52:55
1	Ba 233.527†	205145.1	219673.4	1959.4	µg/L	1959.4	ppb	11:52:55
1	Be 313.107†	11469.0	15923.7	-43.566	µg/L	-43.566	ppb	11:52:55
1	Cd 226.502†	2116.5	2444.0	4.4601	µg/L	4.4601	ppb	11:53:15
1	Co 228.616†	3969.0	4336.9	65.222	µg/L	65.222	ppb	11:53:15
1	Cr 267.716†	7936.7	8360.4	99.468	µg/L	99.468	ppb	11:53:15
1	Cu 324.752†	42016.2	39165.6	182.20	µg/L	182.20	ppb	11:52:55
1	Mn 257.610†	2567003.0	2745631.5	4809.4	µg/L	4809.4	ppb	11:52:55
1	Mo 202.031†	31.7	63.7	7.0745	µg/L	7.0745	ppb	11:53:15
1	Ni 231.604†	8949.2	9770.2	155.33	µg/L	155.33	ppb	11:53:15
1	P 214.914†	13447.4	14479.0	5212.4	µg/L	5212.4	ppb	11:53:15
1	Pb 220.353†	26074.5	27816.8	2815.3	µg/L	2815.3	ppb	11:53:15
1	S 181.975 Axial†	2708.8	2794.8	3092.1	µg/L	3092.1	ppb	11:53:15
1	Sb 206.836†	296.9	273.2	39.673	µg/L	39.673	ppb	11:53:15
1	Se 196.026†	-70.1	-82.9	12.1	µg/L	12.1	ppb	11:53:15
1	SiO2†	616895.9	656840.2	72697	µg/L	72697	ppb	11:52:55
1	Si 251.611†	1862969.9	1992133.1	33792	µg/L	33792	ppb	11:52:55
1	Sn 189.927†	-12.3	14.3	1.9924	µg/L	1.9924	ppb	11:53:15
1	Ti 334.940†	1082744.5	1159042.2	1657.9	µg/L	1657.9	ppb	11:52:55
1	Tl 190.801†	-152.1	-76.6	-21.453	µg/L	-21.453	ppb	11:53:15
1	U 367.007†	5229.4	5877.8	-19.187	µg/L	-19.187	ppb	11:52:55
1	V 292.402†	38499.8	41077.8	192.67	µg/L	192.67	ppb	11:52:55
1	Zn 213.857†	117398.3	125528.1	695.17	µg/L	695.17	ppb	11:52:55
2	Sc RADIAL	67513.5	67513.5	93.7	%			11:52:46
2	Al 396.153Radial†	134723.2	143649.9	52595	µg/L	52595	ppb	11:52:46
2	Ca 317.933Radial†	7374490.2	7868343.6	875910	µg/L	875910	ppb	11:52:44
2	Fe 238.204 Radial†	1227086.2	1309836.7	123900	µg/L	123900	ppb	11:52:44
2	K 766.490 Radial†	21149.9	21497.1	11274	µg/L	11274	ppb	11:52:46
2	Mg 279.077 IEC†	127891.4	136435.1	73598	µg/L	73598	ppb	11:52:46
2	Na 589.592 Radial†	8573.1	9107.9	1518.8	µg/L	1518.8	ppb	11:52:46
2	Sr 421.552†	627845.7	670379.4	1914.7	µg/L	1914.7	ppb	11:52:44
2	Sc 361.383	1217361.3	1217361.3	91.448	%			11:53:18
2	Y 371.029	727460.1	727460.1	100.42	%			11:53:18
2	Ag 328.068†	-3137.0	-1539.6	-8.4861	µg/L	-8.4861	ppb	11:53:18
2	As 188.979†	107.9	147.9	96.435	µg/L	96.435	ppb	11:53:38
2	B 249.677†	-2711.9	-3850.4	35.516	µg/L	35.516	ppb	11:53:18
2	Ba 233.527†	200339.5	219315.2	1956.2	µg/L	1956.2	ppb	11:53:18
2	Be 313.107†	11176.3	15877.4	-43.501	µg/L	-43.501	ppb	11:53:18
2	Cd 226.502†	2137.2	2517.1	4.8572	µg/L	4.8572	ppb	11:53:38
2	Co 228.616†	3953.5	4414.7	66.357	µg/L	66.357	ppb	11:53:38
2	Cr 267.716†	8006.2	8625.9	102.62	µg/L	102.62	ppb	11:53:38
2	Cu 324.752†	41004.3	39061.9	181.82	µg/L	181.82	ppb	11:53:18
2	Mn 257.610†	2507062.0	2741360.8	4801.9	µg/L	4801.9	ppb	11:53:18
2	Mo 202.031†	18.4	49.8	6.3815	µg/L	6.3815	ppb	11:53:38
2	Ni 231.604†	9017.8	10058.8	159.92	µg/L	159.92	ppb	11:53:38
2	P 214.914†	13571.9	14936.2	5377.1	µg/L	5377.1	ppb	11:53:38
2	Pb 220.353†	26335.6	28724.7	2907.1	µg/L	2907.1	ppb	11:53:38

2	S 181.975 Axial†	2753.2	2907.9	3218.1 µg/L	3218.1 ppb		11:53:38
2	Sb 206.836†	290.5	273.4	39.499 µg/L	39.499 ppb		11:53:38
2	Se 196.026†	-84.5	-100.4	3.59 µg/L	3.59 ppb		11:53:38
2	SiO2†	602640.9	655977.8	72602 µg/L	72602 ppb		11:53:18
2	Si 251.611†	1820436.4	1990092.1	33758 µg/L	33758 ppb		11:53:18
2	Sn 189.927†	-28.7	-3.9	-0.3259 µg/L	-0.3259 ppb		11:53:38
2	Ti 334.940†	1058077.3	1157913.8	1656.4 µg/L	1656.4 ppb		11:53:18
2	Tl 190.801†	-133.4	-59.8	-16.264 µg/L	-16.264 ppb		11:53:38
2	U 367.007†	5094.6	5855.2	-30.213 µg/L	-30.213 ppb		11:53:18
2	V 292.402†	37581.4	40992.5	192.39 µg/L	192.39 ppb		11:53:18
2	Zn 213.857†	114484.4	125144.1	692.87 µg/L	692.87 ppb		11:53:18
3	Sc RADIAL	68037.3	68037.3	94.4 %			11:52:51
3	Al 396.153Radial†	135883.7	143771.9	52636 µg/L	52636 ppb		11:52:51
3	Ca 317.933Radial†	7255390.4	7681660.4	855130 µg/L	855130 ppb		11:52:49
3	Fe 238.204 Radial†	1206591.0	1278056.0	120900 µg/L	120900 ppb		11:52:49
3	K 766.490 Radial†	21207.2	21383.9	11216 µg/L	11216 ppb		11:52:51
3	Mg 279.077 IEC†	128838.1	136386.9	73571 µg/L	73571 ppb		11:52:51
3	Na 589.592 Radial†	8629.0	9096.6	1516.9 µg/L	1516.9 ppb		11:52:51
3	Sr 421.552†	619816.5	656720.4	1875.8 µg/L	1875.8 ppb		11:52:49
3	Sc 361.383	1238700.6	1238700.6	93.051 %			11:53:41
3	Y 371.029	739715.9	739715.9	102.11 %			11:53:41
3	Ag 328.068†	-3211.0	-1560.0	-8.5944 µg/L	-8.5944 ppb		11:53:41
3	As 188.979†	98.4	135.7	89.444 µg/L	89.444 ppb		11:54:01
3	B 249.677†	-2829.8	-3926.0	32.224 µg/L	32.224 ppb		11:53:41
3	Ba 233.527†	204546.1	220061.9	1962.8 µg/L	1962.8 ppb		11:53:41
3	Be 313.107†	11540.7	16058.5	-43.614 µg/L	-43.614 ppb		11:53:41
3	Cd 226.502†	2132.0	2471.3	4.8545 µg/L	4.8545 ppb		11:54:01
3	Co 228.616†	3960.1	4347.4	65.401 µg/L	65.401 ppb		11:54:01
3	Cr 267.716†	7961.8	8427.4	100.23 µg/L	100.23 ppb		11:54:01
3	Cu 324.752†	41842.7	39190.5	182.20 µg/L	182.20 ppb		11:53:41
3	Mn 257.610†	2557176.6	2747989.4	4813.5 µg/L	4813.5 ppb		11:53:41
3	Mo 202.031†	27.8	59.6	6.8186 µg/L	6.8186 ppb		11:54:01
3	Ni 231.604†	8983.1	9851.7	156.62 µg/L	156.62 ppb		11:54:01
3	P 214.914†	13506.2	14609.9	5259.7 µg/L	5259.7 ppb		11:54:01
3	Pb 220.353†	26129.9	28007.5	2834.6 µg/L	2834.6 ppb		11:54:01
3	S 181.975 Axial†	2752.4	2855.2	3159.9 µg/L	3159.9 ppb		11:54:01
3	Sb 206.836†	281.7	258.4	36.972 µg/L	36.972 ppb		11:54:01
3	Se 196.026†	-77.5	-91.3	6.98 µg/L	6.98 ppb		11:54:01
3	SiO2†	614151.9	656995.7	72714 µg/L	72714 ppb		11:53:41
3	Si 251.611†	1856595.2	1994657.5	33835 µg/L	33835 ppb		11:53:41
3	Sn 189.927†	-10.2	16.5	2.2773 µg/L	2.2773 ppb		11:54:01
3	Ti 334.940†	1078661.3	1160102.8	1659.3 µg/L	1659.3 ppb		11:53:41
3	Tl 190.801†	-143.8	-68.4	-18.967 µg/L	-18.967 ppb		11:54:01
3	U 367.007†	5212.4	5885.8	-8.2791 µg/L	-8.2791 ppb		11:53:41
3	V 292.402†	38254.5	41007.9	192.25 µg/L	192.25 ppb		11:53:41
3	Zn 213.857†	116799.4	125475.2	695.07 µg/L	695.07 ppb		11:53:41

Mean Data: 1203657597|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1233530.1	92.663	%	1.0744				1.16%
Sc RADIAL	68006.4	94.4	%	0.66				0.70%
Y 371.029	736910.8	101.72	%	1.160				1.14%
Ag 328.068†	-1590.3	-8.7499	µg/L	0.36704	-8.7499	ppb	0.36704	4.19%
Concentration less than lower limit for Ag 328.068.								
Al 396.153Radial†	143787.7	52644	µg/L	52.8	52644	ppb	52.8	0.10%
As 188.979†	142.7	93.442	µg/L	3.6023	93.442	ppb	3.6023	3.86%
B 249.677†	-3934.1	33.243	µg/L	1.9719	33.243	ppb	1.9719	5.93%
Ba 233.527†	219683.5	1959.4	µg/L	3.32	1959.4	ppb	3.32	0.17%
Be 313.107†	15953.2	-43.560	µg/L	0.0567	-43.560	ppb	0.0567	0.13%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	7777971.9	865850	µg/L	10406.6	865850	ppb	10406.6	1.20%
Concentration greater than upper limit for Ca 317.933Radial.								
Cd 226.502†	2477.4	4.7239	µg/L	0.22852	4.7239	ppb	0.22852	4.84%
Co 228.616†	4366.4	65.660	µg/L	0.6100	65.660	ppb	0.6100	0.93%
Cr 267.716†	8471.3	100.77	µg/L	1.645	100.77	ppb	1.645	1.63%
Cu 324.752†	39139.3	182.08	µg/L	0.219	182.08	ppb	0.219	0.12%
Fe 238.204 Radial†	1294430.9	122450	µg/L	1505.2	122450	ppb	1505.2	1.23%
K 766.490 Radial†	21426.9	11238	µg/L	32.0	11238	ppb	32.0	0.28%
Mg 279.077 IEC†	136741.2	73762	µg/L	308.6	73762	ppb	308.6	0.42%

Mn 257.610†	2744993.9	4808.2 µg/L	5.89	4808.2 ppb	5.89	0.12%
Mo 202.031†	57.7	6.7582 µg/L	0.35040	6.7582 ppb	0.35040	5.18%
Na 589.592 Radial†	9104.7	1518.3 µg/L	1.18	1518.3 ppb	1.18	0.08%
Ni 231.604†	9893.6	157.29 µg/L	2.366	157.29 ppb	2.366	1.50%
P 214.914†	14675.0	5283.1 µg/L	84.81	5283.1 ppb	84.81	1.61%
Pb 220.353†	28183.0	2852.3 µg/L	48.43	2852.3 ppb	48.43	1.70%
S 181.975 Axial†	2852.7	3156.7 µg/L	63.06	3156.7 ppb	63.06	2.00%
Sb 206.836†	268.3	38.715 µg/L	1.5115	38.715 ppb	1.5115	3.90%
Se 196.026†	-91.5	7.56 µg/L	4.287	7.56 ppb	4.287	56.71%
SiO2†	656604.6	72671 µg/L	60.7	72671 ppb	60.7	0.08%
Si 251.611†	1992294.2	33795 µg/L	38.6	33795 ppb	38.6	0.11%
Sn 189.927†	9.0	1.3146 µg/L	1.42787	1.3146 ppb	1.42787	108.62%
Sr 421.552†	662968.1	1893.6 µg/L	19.68	1893.6 ppb	19.68	1.04%
Ti 334.940†	1159019.6	1657.9 µg/L	1.43	1657.9 ppb	1.43	0.09%
Tl 190.801†	-68.3	-18.895 µg/L	2.5951	-18.895 ppb	2.5951	13.73%
U 367.007†	5873.0	-19.226 µg/L	10.9668	-19.226 ppb	10.9668	57.04%
V 292.402†	41026.1	192.44 µg/L	0.215	192.44 ppb	0.215	0.11%
Zn 213.857†	125382.4	694.37 µg/L	1.300	694.37 ppb	1.300	0.19%

Sequence No.: 5 **Autosampler Location: 305**
Sample ID: 1203657598|1611117|1 **Date Collected: 11/11/2016 11:54:09**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203657598|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	68165.7	68165.7	94.6	%			11:54:36
1	Al 396.153Radial†	256061.8	270505.7	98888	µg/L	98888	ppb	11:54:36
1	Ca 317.933Radial†	6557466.4	6929620.5	771410	µg/L	771410	ppb	11:54:34
1	Fe 238.204 Radial†	1562148.1	1651404.1	156220	µg/L	156220	ppb	11:54:34
1	K 766.490 Radial†	40943.3	42198.9	22173	µg/L	22173	ppb	11:54:36
1	Mg 279.077 IEC†	151338.1	159908.0	86263	µg/L	86263	ppb	11:54:36
1	Na 589.592 Radial†	39955.6	42185.5	7034.6	µg/L	7034.6	ppb	11:54:36
1	Sr 421.552†	706264.4	746842.9	2140.2	µg/L	2140.2	ppb	11:54:36
1	Sc 361.383	1242633.7	1242633.7	93.347	%			11:54:50
1	Y 371.029	743175.9	743175.9	102.59	%			11:54:50
1	Ag 328.068†	88692.4	96905.0	501.95	µg/L	501.95	ppb	11:54:50
1	As 188.979†	1007.5	1109.3	627.26	µg/L	627.26	ppb	11:55:10
1	B 249.677†	29925.6	31173.7	562.91	µg/L	562.91	ppb	11:54:50
1	Ba 233.527†	281131.7	301410.5	2688.3	µg/L	2688.3	ppb	11:54:50
1	Be 313.107†	1651543.5	1772915.7	417.90	µg/L	417.90	ppb	11:54:50
1	Cd 226.502†	58055.2	62373.2	454.05	µg/L	454.05	ppb	11:54:50
1	Co 228.616†	33540.2	36022.3	536.35	µg/L	536.35	ppb	11:54:50
1	Cr 267.716†	47875.4	51158.8	602.76	µg/L	602.76	ppb	11:54:50
1	Cu 324.752†	163812.0	169711.1	761.10	µg/L	761.10	ppb	11:54:50
1	Mn 257.610†	3085459.9	3305228.7	5789.7	µg/L	5789.7	ppb	11:54:50
1	Mo 202.031†	8317.0	8939.6	469.32	µg/L	469.32	ppb	11:55:10
1	Ni 231.604†	36837.8	39661.2	630.54	µg/L	630.54	ppb	11:54:50
1	P 214.914†	16569.1	17845.2	6424.0	µg/L	6424.0	ppb	11:55:10
1	Pb 220.353†	34283.6	36653.5	3710.6	µg/L	3710.6	ppb	11:54:50
1	S 181.975 Axial†	6551.5	6915.8	7684.2	µg/L	7684.2	ppb	11:55:10
1	Sb 206.836†	2459.9	2591.0	477.25	µg/L	477.25	ppb	11:55:10
1	Se 196.026†	741.0	785.8	482	µg/L	482	ppb	11:55:10
1	SiO2†	659809.3	703818.4	77897	µg/L	77897	ppb	11:54:50
1	Si 251.611†	1992532.8	2133969.0	36201	µg/L	36201	ppb	11:54:50
1	Sn 189.927†	3344.6	3610.5	461.94	µg/L	461.94	ppb	11:55:10
1	Ti 334.940†	1934101.1	2072846.3	2955.1	µg/L	2955.1	ppb	11:54:50
1	Tl 190.801†	1229.4	1403.1	433.66	µg/L	433.66	ppb	11:55:10
1	U 367.007†	10042.0	11041.9	441.44	µg/L	441.44	ppb	11:54:50
1	V 292.402†	157221.4	168324.2	766.19	µg/L	766.19	ppb	11:54:50
1	Zn 213.857†	189378.5	202830.2	1128.9	µg/L	1128.9	ppb	11:54:50
2	Sc RADIAL	68926.7	68926.7	95.7	%			11:54:41
2	Al 396.153Radial†	259094.7	270687.7	98950	µg/L	98950	ppb	11:54:41
2	Ca 317.933Radial†	6437932.3	6728176.0	748980	µg/L	748980	ppb	11:54:39
2	Fe 238.204 Radial†	1534641.4	1604428.1	151770	µg/L	151770	ppb	11:54:39
2	K 766.490 Radial†	41406.2	42204.9	22176	µg/L	22176	ppb	11:54:41
2	Mg 279.077 IEC†	152801.0	159671.1	86134	µg/L	86134	ppb	11:54:41
2	Na 589.592 Radial†	40363.2	42145.3	7027.9	µg/L	7027.9	ppb	11:54:41
2	Sr 421.552†	714800.0	747522.8	2142.9	µg/L	2142.9	ppb	11:54:41
2	Sc 361.383	1261894.4	1261894.4	94.793	%			11:55:13
2	Y 371.029	754435.2	754435.2	104.14	%			11:55:13
2	Ag 328.068†	89736.8	96556.5	500.09	µg/L	500.09	ppb	11:55:13
2	As 188.979†	1000.1	1085.0	613.55	µg/L	613.55	ppb	11:55:33
2	B 249.677†	30538.8	31331.3	561.92	µg/L	561.92	ppb	11:55:13
2	Ba 233.527†	285975.2	301923.3	2692.9	µg/L	2692.9	ppb	11:55:13
2	Be 313.107†	1675398.0	1771075.5	417.28	µg/L	417.28	ppb	11:55:13
2	Cd 226.502†	59125.7	62553.2	455.92	µg/L	455.92	ppb	11:55:13
2	Co 228.616†	34009.7	35969.2	535.62	µg/L	535.62	ppb	11:55:13
2	Cr 267.716†	48730.7	51278.2	604.10	µg/L	604.10	ppb	11:55:13
2	Cu 324.752†	166102.5	169448.8	759.65	µg/L	759.65	ppb	11:55:13
2	Mn 257.610†	3131182.2	3303011.1	5785.8	µg/L	5785.8	ppb	11:55:13
2	Mo 202.031†	8375.3	8865.0	465.34	µg/L	465.34	ppb	11:55:33
2	Ni 231.604†	37252.8	39496.7	627.92	µg/L	627.92	ppb	11:55:13
2	P 214.914†	16597.3	17604.0	6337.2	µg/L	6337.2	ppb	11:55:33
2	Pb 220.353†	34705.8	36538.4	3699.0	µg/L	3699.0	ppb	11:55:13

2	S 181.975 Axial†	6550.7	6807.8	7564.6 µg/L	7564.6 ppb		11:55:33
2	Sb 206.836†	2473.2	2564.8	472.63 µg/L	472.63 ppb		11:55:33
2	Se 196.026†	736.8	769.2	471 µg/L	471 ppb		11:55:33
2	SiO2†	669683.2	703445.9	77855 µg/L	77855 ppb		11:55:13
2	Si 251.611†	2022688.4	2133200.6	36188 µg/L	36188 ppb		11:55:13
2	Sn 189.927†	3349.8	3561.2	455.65 µg/L	455.65 ppb		11:55:33
2	Ti 334.940†	1959920.7	2068459.0	2948.6 µg/L	2948.6 ppb		11:55:13
2	Tl 190.801†	1228.9	1382.5	427.24 µg/L	427.24 ppb		11:55:33
2	U 367.007†	10078.3	10916.1	452.09 µg/L	452.09 ppb		11:55:13
2	V 292.402†	159602.0	168264.8	765.62 µg/L	765.62 ppb		11:55:13
2	Zn 213.857†	192311.4	202827.6	1129.4 µg/L	1129.4 ppb		11:55:13
3	Sc RADIAL	70349.3	70349.3	97.7 %			11:54:45
3	Al 396.153Radial†	263335.9	269554.9	98537 µg/L	98537 ppb		11:54:45
3	Ca 317.933Radial†	6604963.2	6763152.7	752880 µg/L	752880 ppb		11:54:43
3	Fe 238.204 Radial†	1574462.5	1612770.9	152560 µg/L	152560 ppb		11:54:43
3	K 766.490 Radial†	42108.2	42048.7	22094 µg/L	22094 ppb		11:54:45
3	Mg 279.077 IEC†	155276.2	158976.3	85760 µg/L	85760 ppb		11:54:45
3	Na 589.592 Radial†	40961.3	41904.7	6987.8 µg/L	6987.8 ppb		11:54:45
3	Sr 421.552†	726682.3	744583.2	2134.3 µg/L	2134.3 ppb		11:54:45
3	Sc 361.383	1233285.0	1233285.0	92.644 %			11:55:36
3	Y 371.029	737216.3	737216.3	101.76 %			11:55:36
3	Ag 328.068†	87591.8	96437.1	499.50 µg/L	499.50 ppb		11:55:36
3	As 188.979†	1003.7	1113.4	629.04 µg/L	629.04 ppb		11:55:56
3	B 249.677†	29627.1	31094.6	559.09 µg/L	559.09 ppb		11:55:36
3	Ba 233.527†	278638.6	301002.5	2684.7 µg/L	2684.7 ppb		11:55:36
3	Be 313.107†	1629157.9	1762164.3	415.05 µg/L	415.05 ppb		11:55:36
3	Cd 226.502†	57379.4	62115.2	452.52 µg/L	452.52 ppb		11:55:36
3	Co 228.616†	33147.4	35870.7	534.14 µg/L	534.14 ppb		11:55:36
3	Cr 267.716†	47638.2	51291.6	604.29 µg/L	604.29 ppb		11:55:36
3	Cu 324.752†	161477.4	168521.4	755.59 µg/L	755.59 ppb		11:55:36
3	Mn 257.610†	3051115.1	3293212.9	5768.6 µg/L	5768.6 ppb		11:55:36
3	Mo 202.031†	8345.3	9037.6	474.32 µg/L	474.32 ppb		11:55:56
3	Ni 231.604†	36358.1	39442.6	627.06 µg/L	627.06 ppb		11:55:36
3	P 214.914†	16577.5	17988.7	6475.9 µg/L	6475.9 ppb		11:55:56
3	Pb 220.353†	33864.1	36479.1	3693.0 µg/L	3693.0 ppb		11:55:36
3	S 181.975 Axial†	6536.0	6952.2	7725.7 µg/L	7725.7 ppb		11:55:56
3	Sb 206.836†	2479.4	2632.0	485.52 µg/L	485.52 ppb		11:55:56
3	Se 196.026†	735.8	786.2	481 µg/L	481 ppb		11:55:56
3	SiO2†	652832.1	701645.4	77656 µg/L	77656 ppb		11:55:36
3	Si 251.611†	1972151.1	2128149.8	36102 µg/L	36102 ppb		11:55:36
3	Sn 189.927†	3365.1	3659.8	468.25 µg/L	468.25 ppb		11:55:56
3	Ti 334.940†	1911457.2	2064110.7	2942.5 µg/L	2942.5 ppb		11:55:36
3	Tl 190.801†	1215.6	1398.1	432.07 µg/L	432.07 ppb		11:55:56
3	U 367.007†	9715.3	10770.8	429.59 µg/L	429.59 ppb		11:55:36
3	V 292.402†	155967.2	168247.3	765.59 µg/L	765.59 ppb		11:55:36
3	Zn 213.857†	187097.6	201906.1	1124.1 µg/L	1124.1 ppb		11:55:36

Mean Data: 1203657598|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1245937.7	93.595	%	1.0959				1.17%
Sc RADIAL	69147.3	96.0	%	1.54				1.60%
Y 371.029	744942.5	102.83	%	1.207				1.17%
Ag 328.068†	96632.8	500.51	µg/L	1.280	500.51	ppb	1.280	0.26%
Al 396.153Radial†	270249.4	98792	µg/L	222.5	98792	ppb	222.5	0.23%
As 188.979†	1102.5	623.28	µg/L	8.479	623.28	ppb	8.479	1.36%
B 249.677†	31199.9	561.31	µg/L	1.982	561.31	ppb	1.982	0.35%
Ba 233.527†	301445.4	2688.6	µg/L	4.11	2688.6	ppb	4.11	0.15%
Be 313.107†	1768718.5	416.75	µg/L	1.502	416.75	ppb	1.502	0.36%
Ca 317.933Radial†	6806983.1	757760	µg/L	11982.2	757760	ppb	11982.2	1.58%
Concentration greater than upper limit for Ca 317.933Radial.								
Cd 226.502†	62347.2	454.17	µg/L	1.705	454.17	ppb	1.705	0.38%
Co 228.616†	35954.1	535.37	µg/L	1.127	535.37	ppb	1.127	0.21%
Cr 267.716†	51242.9	603.71	µg/L	0.833	603.71	ppb	0.833	0.14%
Cu 324.752†	169227.1	758.78	µg/L	2.859	758.78	ppb	2.859	0.38%
Fe 238.204 Radial†	1622867.7	153520	µg/L	2370.8	153520	ppb	2370.8	1.54%
K 766.490 Radial†	42150.8	22148	µg/L	46.5	22148	ppb	46.5	0.21%
Mg 279.077 IEC†	159518.5	86052	µg/L	261.5	86052	ppb	261.5	0.30%
Mn 257.610†	3300484.3	5781.4	µg/L	11.20	5781.4	ppb	11.20	0.19%
Mo 202.031†	8947.4	469.66	µg/L	4.502	469.66	ppb	4.502	0.96%

Na 589.592 Radial†	42078.5	7016.8 µg/L	25.32	7016.8 ppb	25.32	0.36%
Ni 231.604†	39533.5	628.51 µg/L	1.810	628.51 ppb	1.810	0.29%
P 214.914†	17812.6	6412.4 µg/L	70.05	6412.4 ppb	70.05	1.09%
Pb 220.353†	36557.0	3700.9 µg/L	8.96	3700.9 ppb	8.96	0.24%
S 181.975 Axial†	6891.9	7658.2 µg/L	83.62	7658.2 ppb	83.62	1.09%
Sb 206.836†	2595.9	478.47 µg/L	6.528	478.47 ppb	6.528	1.36%
Se 196.026†	780.4	478 µg/L	5.8	478 ppb	5.8	1.22%
SiO2†	702969.9	77803 µg/L	128.6	77803 ppb	128.6	0.17%
Si 251.611†	2131773.1	36164 µg/L	53.7	36164 ppb	53.7	0.15%
Sn 189.927†	3610.5	461.94 µg/L	6.301	461.94 ppb	6.301	1.36%
Sr 421.552†	746316.3	2139.1 µg/L	4.43	2139.1 ppb	4.43	0.21%
Ti 334.940†	2068472.0	2948.8 µg/L	6.32	2948.8 ppb	6.32	0.21%
Tl 190.801†	1394.6	430.99 µg/L	3.346	430.99 ppb	3.346	0.78%
U 367.007†	10909.6	441.04 µg/L	11.256	441.04 ppb	11.256	2.55%
V 292.402†	168278.8	765.80 µg/L	0.337	765.80 ppb	0.337	0.04%
Zn 213.857†	202521.3	1127.5 µg/L	2.93	1127.5 ppb	2.93	0.26%

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Analysis Begun

Start Time: 11/11/2016 11:56:02 **Plasma On Time: 11/7/2016 06:01:25**
Logged In Analyst: lab **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N No Serial #Autosampler Model: AS-93plus

Sample Information File: C:\pe\optima4\Sample Information\111116.sif
Batch ID:
Results Data Set: 111116
Results Library: C:\pe\optima4\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 306**
Sample ID: 1203668749|1611117|1 **Date Collected: 11/11/2016 11:56:03**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203668749|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	67733.2	67733.2	94.0	%			11:56:31
1	Al 396.153Radial†	159300.3	169322.6	61939	µg/L	61939	ppb	11:56:31
1	Ca 317.933Radial†	6006418.7	6387800.6	711090	µg/L	711090	ppb	11:56:28
1	Fe 238.204 Radial†	1317134.9	1401360.6	132560	µg/L	132560	ppb	11:56:31
1	K 766.490 Radial†	31416.5	32342.9	16990	µg/L	16990	ppb	11:56:31
1	Mg 279.077 IEC†	138519.3	147295.8	79456	µg/L	79456	ppb	11:56:31
1	Na 589.592 Radial†	36978.5	39288.8	6551.6	µg/L	6551.6	ppb	11:56:31
1	Sr 421.552†	666717.9	709548.8	2034.1	µg/L	2034.1	ppb	11:56:31
1	Sc 361.383	1227880.0	1227880.0	92.238	%			11:56:44
1	Y 371.029	732649.3	732649.3	101.13	%			11:56:44
1	Ag 328.068†	85833.2	94946.7	491.05	µg/L	491.05	ppb	11:56:44
1	As 188.979†	956.8	1067.3	601.26	µg/L	601.26	ppb	11:57:04
1	B 249.677†	30090.8	31738.0	553.68	µg/L	553.68	ppb	11:56:44
1	Ba 233.527†	231758.0	251500.9	2243.2	µg/L	2243.2	ppb	11:56:44
1	Be 313.107†	1617536.3	1757305.4	424.54	µg/L	424.54	ppb	11:56:44
1	Cd 226.502†	57139.7	62127.9	454.91	µg/L	454.91	ppb	11:56:44
1	Co 228.616†	32550.6	35381.3	526.60	µg/L	526.60	ppb	11:56:44
1	Cr 267.716†	44733.9	48369.2	569.68	µg/L	569.68	ppb	11:56:44
1	Cu 324.752†	160208.9	167913.3	751.47	µg/L	751.47	ppb	11:56:44
1	Mn 257.610†	3118571.6	3380842.6	5922.4	µg/L	5922.4	ppb	11:56:44
1	Mo 202.031†	8805.9	9576.7	501.79	µg/L	501.79	ppb	11:57:04
1	Ni 231.604†	36062.0	39294.3	624.71	µg/L	624.71	ppb	11:56:44
1	P 214.914†	15557.9	16962.1	6106.9	µg/L	6106.9	ppb	11:57:04
1	Pb 220.353†	185456.0	200988.1	20334	µg/L	20334	ppb	11:56:44
1	S 181.975 Axial†	6521.2	6967.3	7747.5	µg/L	7747.5	ppb	11:57:04
1	Sb 206.836†	2633.9	2811.3	521.91	µg/L	521.91	ppb	11:57:04
1	Se 196.026†	795.7	854.6	508	µg/L	508	ppb	11:57:04
1	SiO2†	706061.0	762455.2	84386	µg/L	84386	ppb	11:56:44
1	Si 251.611†	2129153.3	2307733.8	39144	µg/L	39144	ppb	11:56:44
1	Sn 189.927†	3411.6	3726.2	476.62	µg/L	476.62	ppb	11:57:04
1	Ti 334.940†	1384365.7	1501747.3	2142.7	µg/L	2142.7	ppb	11:56:44
1	Tl 190.801†	1341.4	1540.3	475.39	µg/L	475.39	ppb	11:57:04
1	U 367.007†	8954.7	9992.4	446.21	µg/L	446.21	ppb	11:56:44
1	V 292.402†	138074.4	149589.8	680.56	µg/L	680.56	ppb	11:56:44
1	Zn 213.857†	197329.6	213888.1	1194.5	µg/L	1194.5	ppb	11:56:44
2	Sc RADIAL	68820.3	68820.3	95.5	%			11:56:35
2	Al 396.153Radial†	161250.6	168687.9	61710	µg/L	61710	ppb	11:56:35
2	Ca 317.933Radial†	6280667.9	6573962.7	731820	µg/L	731820	ppb	11:56:33
2	Fe 238.204 Radial†	1333025.8	1395866.4	132040	µg/L	132040	ppb	11:56:35
2	K 766.490 Radial†	31810.1	32227.0	16927	µg/L	16927	ppb	11:56:35
2	Mg 279.077 IEC†	140176.1	146702.9	79136	µg/L	79136	ppb	11:56:35
2	Na 589.592 Radial†	37486.8	39199.7	6536.7	µg/L	6536.7	ppb	11:56:35
2	Sr 421.552†	674589.9	706587.8	2024.8	µg/L	2024.8	ppb	11:56:35
2	Sc 361.383	1241007.5	1241007.5	93.224	%			11:57:07
2	Y 371.029	739896.8	739896.8	102.13	%			11:57:07
2	Ag 328.068†	86624.1	94810.8	490.14	µg/L	490.14	ppb	11:57:07
2	As 188.979†	974.9	1075.7	605.74	µg/L	605.74	ppb	11:57:27

2	B 249.677†	30627.6	31968.7	556.61 µg/L	556.61 ppb	11:57:07
2	Ba 233.527†	234515.1	251800.5	2245.9 µg/L	2245.9 ppb	11:57:07
2	Be 313.107†	1634454.4	1756902.8	424.37 µg/L	424.37 ppb	11:57:07
2	Cd 226.502†	57337.3	61684.6	451.61 µg/L	451.61 ppb	11:57:07
2	Co 228.616†	32926.2	35410.8	527.04 µg/L	527.04 ppb	11:57:07
2	Cr 267.716†	45211.0	48368.0	569.66 µg/L	569.66 ppb	11:57:07
2	Cu 324.752†	162204.6	168216.7	752.77 µg/L	752.77 ppb	11:57:07
2	Mn 257.610†	3151855.2	3380780.7	5922.3 µg/L	5922.3 ppb	11:57:07
2	Mo 202.031†	8813.4	9483.7	496.94 µg/L	496.94 ppb	11:57:27
2	Ni 231.604†	36330.6	39168.9	622.71 µg/L	622.71 ppb	11:57:07
2	P 214.914†	15509.1	16731.4	6023.8 µg/L	6023.8 ppb	11:57:27
2	Pb 220.353†	187279.0	200816.8	20317 µg/L	20317 ppb	11:57:07
2	S 181.975 Axial†	6520.2	6891.4	7662.9 µg/L	7662.9 ppb	11:57:27
2	Sb 206.836†	2632.0	2779.0	515.73 µg/L	515.73 ppb	11:57:27
2	Se 196.026†	775.6	824.0	492 µg/L	492 ppb	11:57:27
2	SiO2†	714775.8	763706.1	84525 µg/L	84525 ppb	11:57:07
2	Si 251.611†	2155223.0	2311280.6	39204 µg/L	39204 ppb	11:57:07
2	Sn 189.927†	3417.1	3692.9	472.36 µg/L	472.36 ppb	11:57:27
2	Ti 334.940†	1400276.9	1502938.6	2144.6 µg/L	2144.6 ppb	11:57:07
2	Tl 190.801†	1322.1	1504.2	464.31 µg/L	464.31 ppb	11:57:27
2	U 367.007†	9042.9	9984.4	446.22 µg/L	446.22 ppb	11:57:07
2	V 292.402†	139599.4	149642.1	680.76 µg/L	680.76 ppb	11:57:07
2	Zn 213.857†	199433.0	213881.4	1194.6 µg/L	1194.6 ppb	11:57:07
3	Sc RADIAL	68215.8	68215.8	94.7 %		11:56:39
3	Al 396.153Radial†	160412.7	169298.9	61932 µg/L	61932 ppb	11:56:39
3	Ca 317.933Radial†	6171481.3	6516923.8	725470 µg/L	725470 ppb	11:56:37
3	Fe 238.204 Radial†	1320464.8	1394968.0	131960 µg/L	131960 ppb	11:56:39
3	K 766.490 Radial†	31437.3	32128.5	16876 µg/L	16876 ppb	11:56:39
3	Mg 279.077 IEC†	138407.6	146135.8	78830 µg/L	78830 ppb	11:56:39
3	Na 589.592 Radial†	37097.4	39136.1	6526.1 µg/L	6526.1 ppb	11:56:39
3	Sr 421.552†	670720.4	708759.7	2031.3 µg/L	2031.3 ppb	11:56:39
3	Sc 361.383	1252064.2	1252064.2	94.055 %		11:57:30
3	Y 371.029	746106.7	746106.7	102.99 %		11:57:30
3	Ag 328.068†	87881.6	95327.2	492.85 µg/L	492.85 ppb	11:57:30
3	As 188.979†	975.1	1066.7	600.87 µg/L	600.87 ppb	11:57:50
3	B 249.677†	31030.0	32106.4	558.53 µg/L	558.53 ppb	11:57:30
3	Ba 233.527†	237691.4	252956.1	2256.2 µg/L	2256.2 ppb	11:57:30
3	Be 313.107†	1656228.8	1764571.1	426.21 µg/L	426.21 ppb	11:57:30
3	Cd 226.502†	58421.4	62294.1	456.23 µg/L	456.23 ppb	11:57:30
3	Co 228.616†	33436.8	35641.8	530.49 µg/L	530.49 ppb	11:57:30
3	Cr 267.716†	45686.8	48445.6	570.57 µg/L	570.57 ppb	11:57:30
3	Cu 324.752†	164553.3	169177.5	757.00 µg/L	757.00 ppb	11:57:30
3	Mn 257.610†	3195388.6	3397209.6	5951.1 µg/L	5951.1 ppb	11:57:30
3	Mo 202.031†	8772.6	9356.8	490.34 µg/L	490.34 ppb	11:57:50
3	Ni 231.604†	36699.7	39217.2	623.48 µg/L	623.48 ppb	11:57:30
3	P 214.914†	15564.8	16643.7	5992.1 µg/L	5992.1 ppb	11:57:50
3	Pb 220.353†	189894.6	201823.7	20419 µg/L	20419 ppb	11:57:30
3	S 181.975 Axial†	6511.7	6820.6	7583.8 µg/L	7583.8 ppb	11:57:50
3	Sb 206.836†	2647.0	2770.0	513.99 µg/L	513.99 ppb	11:57:50
3	Se 196.026†	791.6	833.7	497 µg/L	497 ppb	11:57:50
3	SiO2†	725189.9	768007.6	85001 µg/L	85001 ppb	11:57:30
3	Si 251.611†	2185037.3	2322563.9	39396 µg/L	39396 ppb	11:57:30
3	Sn 189.927†	3418.7	3662.3	468.45 µg/L	468.45 ppb	11:57:50
3	Ti 334.940†	1419196.8	1509790.2	2154.3 µg/L	2154.3 ppb	11:57:30
3	Tl 190.801†	1323.6	1493.3	460.94 µg/L	460.94 ppb	11:57:50
3	U 367.007†	9121.7	9982.5	447.01 µg/L	447.01 ppb	11:57:30
3	V 292.402†	141633.0	150482.0	684.52 µg/L	684.52 ppb	11:57:30
3	Zn 213.857†	202448.8	215198.6	1202.1 µg/L	1202.1 ppb	11:57:30

Mean Data: 1203668749|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1240317.3	93.173	%	0.9095				0.98%
Sc RADIAL	68256.4	94.8	%	0.76				0.80%
Y 371.029	739550.9	102.08	%	0.930				0.91%
Ag 328.068†	95028.3	491.35	µg/L	1.381	491.35	ppb	1.381	0.28%
Al 396.153Radial†	169103.1	61860	µg/L	130.0	61860	ppb	130.0	0.21%
As 188.979†	1069.9	602.62	µg/L	2.708	602.62	ppb	2.708	0.45%
B 249.677†	31937.7	556.27	µg/L	2.445	556.27	ppb	2.445	0.44%
Ba 233.527†	252085.8	2248.4	µg/L	6.85	2248.4	ppb	6.85	0.30%

Be 313.107†	1759593.1	425.04 µg/L	1.014	425.04 ppb	1.014	0.24%
Ca 317.933Radial†	6492895.7	722790 µg/L	10617.6	722790 ppb	10617.6	1.47%
Concentration greater than upper limit for Ca 317.933Radial.						
Cd 226.502†	62035.6	454.25 µg/L	2.380	454.25 ppb	2.380	0.52%
Co 228.616†	35477.9	528.04 µg/L	2.130	528.04 ppb	2.130	0.40%
Cr 267.716†	48394.3	569.97 µg/L	0.521	569.97 ppb	0.521	0.09%
Cu 324.752†	168435.9	753.75 µg/L	2.892	753.75 ppb	2.892	0.38%
Fe 238.204 Radial†	1397398.4	132190 µg/L	327.4	132190 ppb	327.4	0.25%
K 766.490 Radial†	32232.8	16931 µg/L	57.1	16931 ppb	57.1	0.34%
Mg 279.077 IEC†	146711.5	79141 µg/L	312.8	79141 ppb	312.8	0.40%
Mn 257.610†	3386277.6	5932.0 µg/L	16.60	5932.0 ppb	16.60	0.28%
Mo 202.031†	9472.4	496.36 µg/L	5.746	496.36 ppb	5.746	1.16%
Na 589.592 Radial†	39208.2	6538.2 µg/L	12.79	6538.2 ppb	12.79	0.20%
Ni 231.604†	39226.8	623.63 µg/L	1.006	623.63 ppb	1.006	0.16%
P 214.914†	16779.1	6040.9 µg/L	59.28	6040.9 ppb	59.28	0.98%
Pb 220.353†	201209.5	20357 µg/L	54.5	20357 ppb	54.5	0.27%
S 181.975 Axial†	6893.1	7664.8 µg/L	81.86	7664.8 ppb	81.86	1.07%
Sb 206.836†	2786.8	517.21 µg/L	4.163	517.21 ppb	4.163	0.80%
Se 196.026†	837.4	499 µg/L	8.3	499 ppb	8.3	1.67%
SiO2†	764723.0	84637 µg/L	322.4	84637 ppb	322.4	0.38%
Si 251.611†	2313859.4	39248 µg/L	131.3	39248 ppb	131.3	0.33%
Sn 189.927†	3693.8	472.48 µg/L	4.090	472.48 ppb	4.090	0.87%
Sr 421.552†	708298.8	2030.0 µg/L	4.78	2030.0 ppb	4.78	0.24%
Ti 334.940†	1504825.3	2147.2 µg/L	6.22	2147.2 ppb	6.22	0.29%
Tl 190.801†	1512.6	466.88 µg/L	7.562	466.88 ppb	7.562	1.62%
U 367.007†	9986.4	446.48 µg/L	0.459	446.48 ppb	0.459	0.10%
V 292.402†	149904.6	681.94 µg/L	2.230	681.94 ppb	2.230	0.33%
Zn 213.857†	214322.7	1197.0 µg/L	4.34	1197.0 ppb	4.34	0.36%

Sequence No.: 2 **Autosampler Location: 307**
Sample ID: 1203657599|1611117|5 **Date Collected: 11/11/2016 11:57:58**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203657599|1611117|5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71908.0	71908.0	99.8	%			11:58:25
1	Al 396.153Radial†	30714.0	30667.8	11220	µg/L	11220	ppb	11:58:25
1	Ca 317.933Radial†	1260562.1	1262494.6	140540	µg/L	140540	ppb	11:58:23
1	Fe 238.204 Radial†	272278.9	273288.5	25852	µg/L	25852	ppb	11:58:25
1	K 766.490 Radial†	5096.9	4035.9	2119.4	µg/L	2119.4	ppb	11:58:25
1	Mg 279.077 IEC†	27896.9	27920.4	15061	µg/L	15061	ppb	11:58:25
1	Na 589.592 Radial†	1491.6	1454.5	242.55	µg/L	242.55	ppb	11:58:25
1	Sr 421.552†	104818.1	105466.4	301.14	µg/L	301.14	ppb	11:58:25
1	Sc 361.383	1322642.2	1322642.2	99.357	%			11:58:37
1	Y 371.029	728100.8	728100.8	100.50	%			11:58:37
1	Ag 328.068†	-1915.5	-37.0	0.0404	µg/L	0.0404	ppb	11:58:37
1	As 188.979†	-4.7	25.2	17.047	µg/L	17.047	ppb	11:58:57
1	B 249.677†	-35.5	-920.6	5.7241	µg/L	5.7241	ppb	11:58:37
1	Ba 233.527†	39266.1	39761.1	354.66	µg/L	354.66	ppb	11:58:37
1	Be 313.107†	101.3	3757.9	-7.6327	µg/L	-7.6327	ppb	11:58:37
1	Cd 226.502†	343.5	525.7	1.0175	µg/L	1.0175	ppb	11:58:57
1	Co 228.616†	839.2	936.1	14.005	µg/L	14.005	ppb	11:58:57
1	Cr 267.716†	1820.4	1703.1	20.259	µg/L	20.259	ppb	11:58:57
1	Cu 324.752†	12498.6	6802.6	32.001	µg/L	32.001	ppb	11:58:37
1	Mn 257.610†	632950.4	636895.8	1115.7	µg/L	1115.7	ppb	11:58:37
1	Mo 202.031†	4.4	34.2	2.5642	µg/L	2.5642	ppb	11:58:57
1	Ni 231.604†	1956.4	2166.7	34.447	µg/L	34.447	ppb	11:58:57
1	P 214.914†	2823.0	2936.3	1057.0	µg/L	1057.0	ppb	11:58:57
1	Pb 220.353†	39503.0	39685.0	4015.1	µg/L	4015.1	ppb	11:58:37
1	S 181.975 Axial†	501.3	401.8	442.69	µg/L	442.69	ppb	11:58:57
1	Sb 206.836†	89.8	46.1	6.1505	µg/L	6.1505	ppb	11:58:57
1	Se 196.026†	-10.7	-18.8	1.89	µg/L	1.89	ppb	11:58:57
1	SiO2†	131938.2	129772.5	14363	µg/L	14363	ppb	11:58:37
1	Si 251.611†	393202.5	395163.4	6703.3	µg/L	6703.3	ppb	11:58:37
1	Sn 189.927†	-42.5	-15.3	-1.9223	µg/L	-1.9223	ppb	11:58:57
1	Ti 334.940†	224999.9	227345.7	324.81	µg/L	324.81	ppb	11:58:37
1	Tl 190.801†	-87.6	-2.2	-0.2231	µg/L	-0.2231	ppb	11:58:57
1	U 367.007†	1085.7	1376.9	16.510	µg/L	16.510	ppb	11:58:37
1	V 292.402†	8383.2	8334.2	39.165	µg/L	39.165	ppb	11:58:37
1	Zn 213.857†	26449.1	26573.8	147.21	µg/L	147.21	ppb	11:58:37
2	Sc RADIAL	71288.5	71288.5	99.0	%			11:58:29
2	Al 396.153Radial†	30118.1	30333.0	11099	µg/L	11099	ppb	11:58:29
2	Ca 317.933Radial†	1276316.3	1289389.4	143540	µg/L	143540	ppb	11:58:27
2	Fe 238.204 Radial†	268797.9	272141.5	25743	µg/L	25743	ppb	11:58:29
2	K 766.490 Radial†	5132.3	4116.0	2161.3	µg/L	2161.3	ppb	11:58:29
2	Mg 279.077 IEC†	27423.1	27684.5	14934	µg/L	14934	ppb	11:58:29
2	Na 589.592 Radial†	1537.8	1514.3	252.51	µg/L	252.51	ppb	11:58:29
2	Sr 421.552†	103378.3	104924.0	299.46	µg/L	299.46	ppb	11:58:29
2	Sc 361.383	1288728.1	1288728.1	96.809	%			11:58:59
2	Y 371.029	710335.2	710335.2	98.052	%			11:58:59
2	Ag 328.068†	-2031.9	-208.0	-0.8646	µg/L	-0.8646	ppb	11:58:59
2	As 188.979†	2.3	32.4	20.915	µg/L	20.915	ppb	11:59:19
2	B 249.677†	-25.5	-911.2	5.7799	µg/L	5.7799	ppb	11:58:59
2	Ba 233.527†	38371.2	39876.6	355.69	µg/L	355.69	ppb	11:58:59
2	Be 313.107†	70.6	3728.9	-7.6716	µg/L	-7.6716	ppb	11:58:59
2	Cd 226.502†	325.8	516.6	0.9608	µg/L	0.9608	ppb	11:59:19
2	Co 228.616†	835.5	954.6	14.282	µg/L	14.282	ppb	11:59:19
2	Cr 267.716†	1813.7	1744.4	20.758	µg/L	20.758	ppb	11:59:19
2	Cu 324.752†	12375.0	7006.0	32.878	µg/L	32.878	ppb	11:58:59
2	Mn 257.610†	622038.8	642389.0	1125.3	µg/L	1125.3	ppb	11:58:59
2	Mo 202.031†	4.6	34.4	2.5740	µg/L	2.5740	ppb	11:59:19
2	Ni 231.604†	1948.4	2210.3	35.140	µg/L	35.140	ppb	11:59:19
2	P 214.914†	2808.8	2996.5	1078.7	µg/L	1078.7	ppb	11:59:19
2	Pb 220.353†	38541.0	39737.6	4020.4	µg/L	4020.4	ppb	11:58:59

2	S 181.975 Axial†	514.4	428.7	472.71 µg/L	472.71 ppb	11:59:19
2	Sb 206.836†	88.9	47.6	6.4343 µg/L	6.4343 ppb	11:59:19
2	Se 196.026†	-9.1	-17.4	2.54 µg/L	2.54 ppb	11:59:19
2	SiO2†	129384.4	130629.1	14458 µg/L	14458 ppb	11:58:59
2	Si 251.611†	385585.4	397709.7	6746.4 µg/L	6746.4 ppb	11:58:59
2	Sn 189.927†	-42.1	-16.0	-2.0081 µg/L	-2.0081 ppb	11:59:19
2	Ti 334.940†	221455.7	229644.1	328.13 µg/L	328.13 ppb	11:58:59
2	Tl 190.801†	-83.6	-0.3	0.3549 µg/L	0.3549 ppb	11:59:19
2	U 367.007†	934.4	1249.4	1.1442 µg/L	1.1442 ppb	11:58:59
2	V 292.402†	8391.8	8565.1	40.188 µg/L	40.188 ppb	11:58:59
2	Zn 213.857†	25966.0	26775.3	148.37 µg/L	148.37 ppb	11:58:59
3	Sc RADIAL	70470.5	70470.5	97.8 %		11:58:33
3	Al 396.153Radial†	29737.8	30297.5	11086 µg/L	11086 ppb	11:58:33
3	Ca 317.933Radial†	1255156.7	1282729.9	142790 µg/L	142790 ppb	11:58:31
3	Fe 238.204 Radial†	265371.9	271792.2	25710 µg/L	25710 ppb	11:58:33
3	K 766.490 Radial†	5047.1	4089.1	2147.2 µg/L	2147.2 ppb	11:58:33
3	Mg 279.077 IEC†	27155.3	27732.4	14960 µg/L	14960 ppb	11:58:33
3	Na 589.592 Radial†	1420.5	1412.3	235.51 µg/L	235.51 ppb	11:58:33
3	Sr 421.552†	102504.3	105243.2	300.41 µg/L	300.41 ppb	11:58:33
3	Sc 361.383	1314585.8	1314585.8	98.752 %		11:59:22
3	Y 371.029	724843.1	724843.1	100.05 %		11:59:22
3	Ag 328.068†	-2075.2	-210.6	-0.8758 µg/L	-0.8758 ppb	11:59:22
3	As 188.979†	-5.8	24.0	16.383 µg/L	16.383 ppb	11:59:42
3	B 249.677†	104.0	-779.6	7.6483 µg/L	7.6483 ppb	11:59:22
3	Ba 233.527†	39334.5	40072.5	357.44 µg/L	357.44 ppb	11:59:22
3	Be 313.107†	159.4	3817.4	-7.6889 µg/L	-7.6889 ppb	11:59:22
3	Cd 226.502†	324.9	509.0	0.9070 µg/L	0.9070 ppb	11:59:42
3	Co 228.616†	862.5	964.9	14.438 µg/L	14.438 ppb	11:59:42
3	Cr 267.716†	1808.7	1702.6	20.261 µg/L	20.261 ppb	11:59:42
3	Cu 324.752†	12763.2	7147.7	33.505 µg/L	33.505 ppb	11:59:22
3	Mn 257.610†	636682.9	644579.6	1129.2 µg/L	1129.2 ppb	11:59:22
3	Mo 202.031†	3.3	33.1	2.5047 µg/L	2.5047 ppb	11:59:42
3	Ni 231.604†	1950.6	2173.0	34.546 µg/L	34.546 ppb	11:59:42
3	P 214.914†	2824.9	2955.7	1064.0 µg/L	1064.0 ppb	11:59:42
3	Pb 220.353†	39715.6	40143.9	4061.5 µg/L	4061.5 ppb	11:59:22
3	S 181.975 Axial†	504.9	408.6	450.27 µg/L	450.27 ppb	11:59:42
3	Sb 206.836†	84.6	41.4	5.2537 µg/L	5.2537 ppb	11:59:42
3	Se 196.026†	-14.5	-22.7	-0.242 µg/L	-0.242 ppb	11:59:42
3	SiO2†	132363.1	131016.6	14501 µg/L	14501 ppb	11:59:22
3	Si 251.611†	394212.6	398611.7	6761.7 µg/L	6761.7 ppb	11:59:22
3	Sn 189.927†	-35.0	-7.9	-0.9790 µg/L	-0.9790 ppb	11:59:42
3	Ti 334.940†	226108.0	229855.6	328.42 µg/L	328.42 ppb	11:59:22
3	Tl 190.801†	-104.8	-20.1	-5.7287 µg/L	-5.7287 ppb	11:59:42
3	U 367.007†	988.5	1285.2	5.8015 µg/L	5.8015 ppb	11:59:22
3	V 292.402†	8508.1	8512.4	39.950 µg/L	39.950 ppb	11:59:22
3	Zn 213.857†	26632.6	26922.7	149.21 µg/L	149.21 ppb	11:59:22

Mean Data: 1203657599|1611117|5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1308652.0	98.306	%	1.3310				1.35%
Sc RADIAL	71222.3	98.9	%	1.00				1.01%
Y 371.029	721093.1	99.537	%	1.3055				1.31%
Ag 328.068†	-151.9	-0.5667	µg/L	0.52576	-0.5667	ppb	0.52576	92.78%
Al 396.153Radial†	30432.8	11135	µg/L	74.3	11135	ppb	74.3	0.67%
As 188.979†	27.2	18.115	µg/L	2.4474	18.115	ppb	2.4474	13.51%
B 249.677†	-870.5	6.3841	µg/L	1.09517	6.3841	ppb	1.09517	17.15%
Ba 233.527†	39903.4	355.93	µg/L	1.403	355.93	ppb	1.403	0.39%
Be 313.107†	3768.0	-7.6644	µg/L	0.02876	-7.6644	ppb	0.02876	0.38%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1278204.6	142290	µg/L	1559.2	142290	ppb	1559.2	1.10%
Cd 226.502†	517.1	0.9618	µg/L	0.05522	0.9618	ppb	0.05522	5.74%
Co 228.616†	951.9	14.242	µg/L	0.2189	14.242	ppb	0.2189	1.54%
Cr 267.716†	1716.7	20.426	µg/L	0.2873	20.426	ppb	0.2873	1.41%
Cu 324.752†	6985.4	32.795	µg/L	0.7552	32.795	ppb	0.7552	2.30%
Fe 238.204 Radial†	272407.4	25768	µg/L	74.1	25768	ppb	74.1	0.29%
K 766.490 Radial†	4080.3	2142.6	µg/L	21.29	2142.6	ppb	21.29	0.99%
Mg 279.077 IEC†	27779.1	14985	µg/L	67.2	14985	ppb	67.2	0.45%
Mn 257.610†	641288.2	1123.4	µg/L	6.94	1123.4	ppb	6.94	0.62%
Mo 202.031†	33.9	2.5476	µg/L	0.03749	2.5476	ppb	0.03749	1.47%

Na 589.592 Radial†	1460.4	243.52 µg/L	8.542	243.52 ppb	8.542	3.51%
Ni 231.604†	2183.3	34.711 µg/L	0.3746	34.711 ppb	0.3746	1.08%
P 214.914†	2962.8	1066.6 µg/L	11.06	1066.6 ppb	11.06	1.04%
Pb 220.353†	39855.5	4032.3 µg/L	25.41	4032.3 ppb	25.41	0.63%
S 181.975 Axial†	413.0	455.22 µg/L	15.609	455.22 ppb	15.609	3.43%
Sb 206.836†	45.0	5.9462 µg/L	0.61623	5.9462 ppb	0.61623	10.36%
Se 196.026†	-19.7	1.40 µg/L	1.456	1.40 ppb	1.456	104.34%
SiO2†	130472.7	14440 µg/L	70.5	14440 ppb	70.5	0.49%
Si 251.611†	397161.6	6737.1 µg/L	30.31	6737.1 ppb	30.31	0.45%
Sn 189.927†	-13.1	-1.6365 µg/L	0.57099	-1.6365 ppb	0.57099	34.89%
Sr 421.552†	105211.2	300.34 µg/L	0.841	300.34 ppb	0.841	0.28%
Ti 334.940†	228948.5	327.12 µg/L	2.001	327.12 ppb	2.001	0.61%
Tl 190.801†	-7.5	-1.8656 µg/L	3.35802	-1.8656 ppb	3.35802	179.99%
U 367.007†	1303.8	7.8186 µg/L	7.87902	7.8186 ppb	7.87902	100.77%
V 292.402†	8470.5	39.768 µg/L	0.5351	39.768 ppb	0.5351	1.35%
Zn 213.857†	26757.3	148.26 µg/L	1.003	148.26 ppb	1.003	0.68%

Sequence No.: 3 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/11/2016 11:59:50**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	72225.0	72225.0	100	%			12:00:19
1	Al 396.153Radial†	13786.2	13648.8	4983.6	µg/L	4983.6	ppb	12:00:19
1	Ca 317.933Radial†	45770.6	45308.9	5043.8	µg/L	5043.8	ppb	12:00:19
1	Fe 238.204 Radial†	52776.1	53157.4	5028.4	µg/L	5028.4	ppb	12:00:19
1	K 766.490 Radial†	10564.7	9467.1	4976.5	µg/L	4976.5	ppb	12:00:19
1	Mg 279.077 IEC†	9144.5	9094.0	4904.6	µg/L	4904.6	ppb	12:00:19
1	Na 589.592 Radial†	58362.2	58171.2	9700.3	µg/L	9700.3	ppb	12:00:17
1	Sr 421.552†	172086.0	172099.2	499.14	µg/L	499.14	ppb	12:00:17
1	Sc 361.383	1343185.7	1343185.7	100.90	%			12:00:31
1	Y 371.029	717833.4	717833.4	99.087	%			12:00:31
1	Ag 328.068†	93939.6	94992.5	490.19	µg/L	490.19	ppb	12:00:33
1	As 188.979†	882.8	904.9	496.68	µg/L	496.68	ppb	12:00:53
1	B 249.677†	35290.3	34090.6	493.96	µg/L	493.96	ppb	12:00:33
1	Ba 233.527†	55197.9	54946.3	489.96	µg/L	489.96	ppb	12:00:33
1	Be 313.107†	1803620.9	1791188.1	476.62	µg/L	476.62	ppb	12:00:31
1	Cd 226.502†	64542.9	64147.2	484.79	µg/L	484.79	ppb	12:00:33
1	Co 228.616†	33217.1	33012.3	490.91	µg/L	490.91	ppb	12:00:33
1	Cr 267.716†	42123.4	41618.7	489.07	µg/L	489.07	ppb	12:00:33
1	Cu 324.752†	117906.0	111077.4	490.95	µg/L	490.95	ppb	12:00:33
1	Mn 257.610†	282891.7	280216.3	490.93	µg/L	490.93	ppb	12:00:33
1	Mo 202.031†	9552.7	9497.2	493.77	µg/L	493.77	ppb	12:00:53
1	Ni 231.604†	30846.6	30769.2	489.17	µg/L	489.17	ppb	12:00:33
1	P 214.914†	6745.3	6780.2	2443.6	µg/L	2443.6	ppb	12:00:53
1	Pb 220.353†	4986.6	4868.4	492.05	µg/L	492.05	ppb	12:00:53
1	S 181.975 Axial†	968.2	856.9	955.40	µg/L	955.40	ppb	12:00:53
1	Sb 206.836†	2619.2	2551.5	484.97	µg/L	484.97	ppb	12:00:53
1	Se 196.026†	951.4	934.9	492	µg/L	492	ppb	12:00:53
1	SiO2†	52703.2	49213.3	5446.8	µg/L	5446.8	ppb	12:00:33
1	Si 251.611†	152498.0	150553.2	2553.3	µg/L	2553.3	ppb	12:00:33
1	Sn 189.927†	3856.9	3850.0	492.27	µg/L	492.27	ppb	12:00:53
1	Ti 334.940†	347068.0	344861.3	489.87	µg/L	489.87	ppb	12:00:31
1	Tl 190.801†	1520.8	1593.3	489.51	µg/L	489.51	ppb	12:00:53
1	U 367.007†	3708.8	3959.9	459.40	µg/L	459.40	ppb	12:00:33
1	V 292.402†	110390.4	109302.3	491.12	µg/L	491.12	ppb	12:00:33
1	Zn 213.857†	87179.2	86355.1	488.63	µg/L	488.63	ppb	12:00:33
2	Sc RADIAL	71618.6	71618.6	99.4	%			12:00:23
2	Al 396.153Radial†	13885.9	13865.5	5062.7	µg/L	5062.7	ppb	12:00:23
2	Ca 317.933Radial†	45945.3	45871.1	5106.4	µg/L	5106.4	ppb	12:00:23
2	Fe 238.204 Radial†	53217.6	54047.3	5112.6	µg/L	5112.6	ppb	12:00:23
2	K 766.490 Radial†	10443.9	9434.8	4959.5	µg/L	4959.5	ppb	12:00:23
2	Mg 279.077 IEC†	9244.4	9271.7	5000.4	µg/L	5000.4	ppb	12:00:23
2	Na 589.592 Radial†	57863.3	58162.3	9698.8	µg/L	9698.8	ppb	12:00:21
2	Sr 421.552†	170245.9	171701.6	497.98	µg/L	497.98	ppb	12:00:21
2	Sc 361.383	1369663.9	1369663.9	102.89	%			12:00:56
2	Y 371.029	731779.9	731779.9	101.01	%			12:00:56
2	Ag 328.068†	93668.2	92928.9	479.55	µg/L	479.55	ppb	12:00:58
2	As 188.979†	888.5	893.5	490.43	µg/L	490.43	ppb	12:01:18
2	B 249.677†	35352.3	33474.7	485.16	µg/L	485.16	ppb	12:00:58
2	Ba 233.527†	55060.0	53754.7	479.34	µg/L	479.34	ppb	12:00:58
2	Be 313.107†	1844149.4	1796022.2	478.20	µg/L	478.20	ppb	12:00:56
2	Cd 226.502†	64391.2	62763.2	474.31	µg/L	474.31	ppb	12:00:58
2	Co 228.616†	33000.6	32165.5	478.32	µg/L	478.32	ppb	12:00:58
2	Cr 267.716†	41928.8	40622.4	477.36	µg/L	477.36	ppb	12:00:58
2	Cu 324.752†	117331.5	108259.9	478.52	µg/L	478.52	ppb	12:00:58
2	Mn 257.610†	282123.4	274049.5	480.12	µg/L	480.12	ppb	12:00:58
2	Mo 202.031†	9519.9	9282.4	482.60	µg/L	482.60	ppb	12:01:18
2	Ni 231.604†	30680.6	30016.9	477.21	µg/L	477.21	ppb	12:00:58
2	P 214.914†	6748.7	6654.3	2398.2	µg/L	2398.2	ppb	12:01:18
2	Pb 220.353†	4995.5	4781.5	483.27	µg/L	483.27	ppb	12:01:18

2	S 181.975 Axial†	972.5	842.5	939.30 µg/L	939.30 ppb	12:01:18
2	Sb 206.836†	2617.9	2500.1	475.21 µg/L	475.21 ppb	12:01:18
2	Se 196.026†	962.0	927.0	488 µg/L	488 ppb	12:01:18
2	SiO2†	52794.3	48292.0	5344.8 µg/L	5344.8 ppb	12:00:58
2	Si 251.611†	151908.7	147058.7	2494.0 µg/L	2494.0 ppb	12:00:58
2	Sn 189.927†	3856.6	3775.8	482.78 µg/L	482.78 ppb	12:01:18
2	Ti 334.940†	354535.5	345469.5	490.74 µg/L	490.74 ppb	12:00:56
2	Tl 190.801†	1537.0	1579.9	485.38 µg/L	485.38 ppb	12:01:18
2	U 367.007†	3753.5	3932.3	455.54 µg/L	455.54 ppb	12:00:58
2	V 292.402†	109842.0	106654.4	479.24 µg/L	479.24 ppb	12:00:58
2	Zn 213.857†	86876.4	84390.4	477.48 µg/L	477.48 ppb	12:00:58
3	Sc RADIAL	73985.0	73985.0	103 %		12:00:28
3	Al 396.153Radial†	14137.1	13663.4	4988.9 µg/L	4988.9 ppb	12:00:28
3	Ca 317.933Radial†	47151.9	45567.8	5072.6 µg/L	5072.6 ppb	12:00:28
3	Fe 238.204 Radial†	54326.6	53415.0	5052.8 µg/L	5052.8 ppb	12:00:28
3	K 766.490 Radial†	10921.6	9564.0	5027.4 µg/L	5027.4 ppb	12:00:28
3	Mg 279.077 IEC†	9542.8	9264.9	4996.7 µg/L	4996.7 ppb	12:00:28
3	Na 589.592 Radial†	58148.6	56578.5	9434.7 µg/L	9434.7 ppb	12:00:25
3	Sr 421.552†	170871.3	166833.4	483.86 µg/L	483.86 ppb	12:00:25
3	Sc 361.383	1354458.3	1354458.3	101.75 %		12:01:20
3	Y 371.029	722809.4	722809.4	99.774 %		12:01:20
3	Ag 328.068†	95255.9	95511.3	492.87 µg/L	492.87 ppb	12:01:22
3	As 188.979†	893.3	907.9	498.35 µg/L	498.35 ppb	12:01:42
3	B 249.677†	36073.0	34568.8	500.85 µg/L	500.85 ppb	12:01:22
3	Ba 233.527†	56273.0	55547.6	495.33 µg/L	495.33 ppb	12:01:22
3	Be 313.107†	1842320.4	1814346.4	482.80 µg/L	482.80 ppb	12:01:20
3	Cd 226.502†	66120.8	65165.6	492.49 µg/L	492.49 ppb	12:01:22
3	Co 228.616†	33813.3	33324.3	495.55 µg/L	495.55 ppb	12:01:22
3	Cr 267.716†	42799.7	41935.9	492.81 µg/L	492.81 ppb	12:01:22
3	Cu 324.752†	119510.7	111682.0	493.62 µg/L	493.62 ppb	12:01:22
3	Mn 257.610†	288214.8	283114.6	496.01 µg/L	496.01 ppb	12:01:22
3	Mo 202.031†	9535.4	9401.4	488.79 µg/L	488.79 ppb	12:01:42
3	Ni 231.604†	31321.6	30981.6	492.55 µg/L	492.55 ppb	12:01:22
3	P 214.914†	6748.5	6727.7	2424.7 µg/L	2424.7 ppb	12:01:42
3	Pb 220.353†	4993.9	4834.5	488.62 µg/L	488.62 ppb	12:01:42
3	S 181.975 Axial†	982.3	862.7	961.87 µg/L	961.87 ppb	12:01:42
3	Sb 206.836†	2607.9	2518.9	478.61 µg/L	478.61 ppb	12:01:42
3	Se 196.026†	958.3	933.9	492 µg/L	492 ppb	12:01:42
3	SiO2†	53790.3	49847.1	5516.9 µg/L	5516.9 ppb	12:01:22
3	Si 251.611†	155327.4	152076.2	2579.1 µg/L	2579.1 ppb	12:01:22
3	Sn 189.927†	3844.8	3806.2	486.68 µg/L	486.68 ppb	12:01:42
3	Ti 334.940†	353722.9	348539.2	495.09 µg/L	495.09 ppb	12:01:20
3	Tl 190.801†	1521.0	1581.0	485.72 µg/L	485.72 ppb	12:01:42
3	U 367.007†	3712.5	3933.0	455.96 µg/L	455.96 ppb	12:01:22
3	V 292.402†	111995.8	109969.7	494.11 µg/L	494.11 ppb	12:01:22
3	Zn 213.857†	88861.0	87288.8	493.92 µg/L	493.92 ppb	12:01:22

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1355769.3	101.85	%	0.998				0.98%
Sc RADIAL	72609.5	101	%	1.7				1.69%
Y 371.029	724140.9	99.958	%	0.9756				0.98%
Ag 328.068†	94477.6	487.54	µg/L	7.047	487.54	ppb	7.047	1.45%
QC value within limits for Ag 328.068 Recovery = 97.51%								
Al 396.153Radial†	13725.9	5011.8	µg/L	44.22	5011.8	ppb	44.22	0.88%
QC value within limits for Al 396.153Radial Recovery = 100.24%								
As 188.979†	902.1	495.15	µg/L	4.177	495.15	ppb	4.177	0.84%
QC value within limits for As 188.979 Recovery = 99.03%								
B 249.677†	34044.7	493.32	µg/L	7.864	493.32	ppb	7.864	1.59%
QC value within limits for B 249.677 Recovery = 98.66%								
Ba 233.527†	54749.5	488.21	µg/L	8.136	488.21	ppb	8.136	1.67%
QC value within limits for Ba 233.527 Recovery = 97.64%								
Be 313.107†	1800518.9	479.20	µg/L	3.212	479.20	ppb	3.212	0.67%
QC value within limits for Be 313.107 Recovery = 95.84%								
Ca 317.933Radial†	45582.6	5074.3	µg/L	31.33	5074.3	ppb	31.33	0.62%
QC value within limits for Ca 317.933Radial Recovery = 101.49%								
Cd 226.502†	64025.3	483.86	µg/L	9.128	483.86	ppb	9.128	1.89%
QC value within limits for Cd 226.502 Recovery = 96.77%								
Co 228.616†	32834.0	488.26	µg/L	8.918	488.26	ppb	8.918	1.83%

QC value within limits for Co 228.616 Recovery = 97.65%
Cr 267.716† 41392.3 486.41 µg/L 8.059 486.41 ppb 8.059 1.66%
QC value within limits for Cr 267.716 Recovery = 97.28%
Cu 324.752† 110339.8 487.69 µg/L 8.057 487.69 ppb 8.057 1.65%
QC value within limits for Cu 324.752 Recovery = 97.54%
Fe 238.204 Radial† 53539.9 5064.6 µg/L 43.31 5064.6 ppb 43.31 0.86%
QC value within limits for Fe 238.204 Radial Recovery = 101.29%
K 766.490 Radial† 9488.6 4987.8 µg/L 35.32 4987.8 ppb 35.32 0.71%
QC value within limits for K 766.490 Radial Recovery = 99.76%
Mg 279.077 IEC† 9210.2 4967.2 µg/L 54.29 4967.2 ppb 54.29 1.09%
QC value within limits for Mg 279.077 IEC Recovery = 99.34%
Mn 257.610† 279126.8 489.02 µg/L 8.115 489.02 ppb 8.115 1.66%
QC value within limits for Mn 257.610 Recovery = 97.80%
Mo 202.031† 9393.7 488.39 µg/L 5.593 488.39 ppb 5.593 1.15%
QC value within limits for Mo 202.031 Recovery = 97.68%
Na 589.592 Radial† 57637.4 9611.3 µg/L 152.91 9611.3 ppb 152.91 1.59%
QC value within limits for Na 589.592 Radial Recovery = 96.11%
Ni 231.604† 30589.2 486.31 µg/L 8.059 486.31 ppb 8.059 1.66%
QC value within limits for Ni 231.604 Recovery = 97.26%
P 214.914† 6720.8 2422.2 µg/L 22.80 2422.2 ppb 22.80 0.94%
QC value within limits for P 214.914 Recovery = 96.89%
Pb 220.353† 4828.1 487.98 µg/L 4.424 487.98 ppb 4.424 0.91%
QC value within limits for Pb 220.353 Recovery = 97.60%
S 181.975 Axial† 854.0 952.19 µg/L 11.618 952.19 ppb 11.618 1.22%
QC value within limits for S 181.975 Axial Recovery = 95.22%
Sb 206.836† 2523.5 479.60 µg/L 4.957 479.60 ppb 4.957 1.03%
QC value within limits for Sb 206.836 Recovery = 95.92%
Se 196.026† 931.9 491 µg/L 2.2 491 ppb 2.2 0.46%
QC value within limits for Se 196.026 Recovery = 98.18%
SiO2† 49117.5 5436.2 µg/L 86.54 5436.2 ppb 86.54 1.59%
QC value within limits for SiO2 Recovery = 101.66%
Si 251.611† 149896.1 2542.1 µg/L 43.61 2542.1 ppb 43.61 1.72%
QC value within limits for Si 251.611 Recovery = 101.68%
Sn 189.927† 3810.7 487.24 µg/L 4.767 487.24 ppb 4.767 0.98%
QC value within limits for Sn 189.927 Recovery = 97.45%
Sr 421.552† 170211.4 493.66 µg/L 8.507 493.66 ppb 8.507 1.72%
QC value within limits for Sr 421.552 Recovery = 98.73%
Ti 334.940† 346290.0 491.90 µg/L 2.802 491.90 ppb 2.802 0.57%
QC value within limits for Ti 334.940 Recovery = 98.38%
Tl 190.801† 1584.7 486.87 µg/L 2.291 486.87 ppb 2.291 0.47%
QC value within limits for Tl 190.801 Recovery = 97.37%
U 367.007† 3941.8 456.97 µg/L 2.120 456.97 ppb 2.120 0.46%
QC value within limits for U 367.007 Recovery = 91.39%
V 292.402† 108642.1 488.16 µg/L 7.869 488.16 ppb 7.869 1.61%
QC value within limits for V 292.402 Recovery = 97.63%
Zn 213.857† 86011.4 486.68 µg/L 8.390 486.68 ppb 8.390 1.72%
QC value within limits for Zn 213.857 Recovery = 97.34%
All analyte(s) passed QC.

Sequence No.: 4 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 12:01:50**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70985.8	70985.8	98.5	%			12:02:15
1	Al 396.153Radial†	135.8	36.2	13.211	µg/L	13.211	ppb	12:02:35
1	Ca 317.933Radial†	886.1	556.1	61.900	µg/L	61.900	ppb	12:02:35
1	Fe 238.204 Radial†	-357.3	155.5	14.705	µg/L	14.705	ppb	12:02:35
1	K 766.490 Radial†	1027.3	-27.7	-14.562	µg/L	-14.562	ppb	12:02:15
1	Mg 279.077 IEC†	51.4	25.3	13.653	µg/L	13.653	ppb	12:02:35
1	Na 589.592 Radial†	79.8	41.2	6.8753	µg/L	6.8753	ppb	12:02:15
1	Sr 421.552†	-362.2	91.4	0.2632	µg/L	0.2632	ppb	12:02:35
1	Sc 361.383	1313026.1	1313026.1	98.634	%			12:03:22
1	Y 371.029	711992.1	711992.1	98.281	%			12:03:22
1	Ag 328.068†	-1670.2	197.6	1.0237	µg/L	1.0237	ppb	12:03:24
1	As 188.979†	-25.4	4.2	2.2568	µg/L	2.2568	ppb	12:03:44
1	B 249.677†	937.0	65.1	0.9472	µg/L	0.9472	ppb	12:03:24
1	Ba 233.527†	-213.4	24.4	0.2179	µg/L	0.2179	ppb	12:03:44
1	Be 313.107†	-3029.3	584.6	0.1517	µg/L	0.1517	ppb	12:03:24
1	Cd 226.502†	-142.6	35.4	0.2661	µg/L	0.2661	ppb	12:03:44
1	Co 228.616†	-70.8	19.8	0.2937	µg/L	0.2937	ppb	12:03:44
1	Cr 267.716†	118.0	-9.4	-0.1041	µg/L	-0.1041	ppb	12:03:44
1	Cu 324.752†	5463.5	-237.8	-1.0535	µg/L	-1.0535	ppb	12:03:24
1	Mn 257.610†	352.1	205.0	0.3589	µg/L	0.3589	ppb	12:03:44
1	Mo 202.031†	-25.3	4.0	0.2106	µg/L	0.2106	ppb	12:03:44
1	Ni 231.604†	-201.1	-6.2	-0.0985	µg/L	-0.0985	ppb	12:03:44
1	P 214.914†	-83.8	10.2	3.6664	µg/L	3.6664	ppb	12:03:44
1	Pb 220.353†	91.9	19.4	1.9743	µg/L	1.9743	ppb	12:03:44
1	S 181.975 Axial†	91.4	-10.0	-11.192	µg/L	-11.192	ppb	12:03:44
1	Sb 206.836†	74.2	30.9	5.9688	µg/L	5.9688	ppb	12:03:44
1	Se 196.026†	5.1	-2.9	-1.50	µg/L	-1.50	ppb	12:03:44
1	SiO2†	3244.8	269.9	29.873	µg/L	29.873	ppb	12:03:24
1	Si 251.611†	1417.2	852.4	14.454	µg/L	14.454	ppb	12:03:24
1	Sn 189.927†	-23.8	3.4	0.4340	µg/L	0.4340	ppb	12:03:44
1	Ti 334.940†	-444.6	438.5	0.6276	µg/L	0.6276	ppb	12:03:24
1	Tl 190.801†	-77.4	7.6	2.3216	µg/L	2.3216	ppb	12:03:44
1	U 367.007†	-333.4	-53.8	-6.7085	µg/L	-6.7085	ppb	12:03:24
1	V 292.402†	63.0	-39.4	-0.1783	µg/L	-0.1783	ppb	12:03:24
1	Zn 213.857†	53.4	7.6	0.0421	µg/L	0.0421	ppb	12:03:44
2	Sc RADIAL	72506.3	72506.3	101	%			12:02:37
2	Al 396.153Radial†	114.5	12.1	4.4223	µg/L	4.4223	ppb	12:02:57
2	Ca 317.933Radial†	681.0	333.4	37.113	µg/L	37.113	ppb	12:02:57
2	Fe 238.204 Radial†	-382.5	138.0	13.056	µg/L	13.056	ppb	12:02:57
2	K 766.490 Radial†	957.8	-118.6	-62.317	µg/L	-62.317	ppb	12:02:37
2	Mg 279.077 IEC†	45.0	17.9	9.6500	µg/L	9.6500	ppb	12:02:57
2	Na 589.592 Radial†	140.0	99.3	16.567	µg/L	16.567	ppb	12:02:37
2	Sr 421.552†	-415.0	46.7	0.1342	µg/L	0.1342	ppb	12:02:57
2	Sc 361.383	1312510.7	1312510.7	98.596	%			12:03:47
2	Y 371.029	710567.5	710567.5	98.084	%			12:03:47
2	Ag 328.068†	-1776.4	89.1	0.4689	µg/L	0.4689	ppb	12:03:49
2	As 188.979†	-28.4	1.1	0.6097	µg/L	0.6097	ppb	12:04:09
2	B 249.677†	862.9	-9.7	-0.1297	µg/L	-0.1297	ppb	12:03:49
2	Ba 233.527†	-250.0	-12.8	-0.1140	µg/L	-0.1140	ppb	12:04:09
2	Be 313.107†	-3296.4	312.5	0.0827	µg/L	0.0827	ppb	12:03:49
2	Cd 226.502†	-140.9	37.1	0.2793	µg/L	0.2793	ppb	12:04:09
2	Co 228.616†	-89.2	1.0	0.0150	µg/L	0.0150	ppb	12:04:09
2	Cr 267.716†	119.8	-7.5	-0.0742	µg/L	-0.0742	ppb	12:04:09
2	Cu 324.752†	5543.3	-154.6	-0.6932	µg/L	-0.6932	ppb	12:03:49
2	Mn 257.610†	345.7	198.7	0.3479	µg/L	0.3479	ppb	12:04:09
2	Mo 202.031†	-21.4	8.0	0.4158	µg/L	0.4158	ppb	12:04:09
2	Ni 231.604†	-179.0	16.2	0.2579	µg/L	0.2579	ppb	12:04:09
2	P 214.914†	-77.4	16.6	5.9866	µg/L	5.9866	ppb	12:04:09
2	Pb 220.353†	86.1	13.6	1.3907	µg/L	1.3907	ppb	12:04:09

2	S 181.975 Axial†	90.9	-10.5	-11.737 µg/L	-11.737 ppb	12:04:09
2	Sb 206.836†	62.6	19.2	3.7147 µg/L	3.7147 ppb	12:04:09
2	Se 196.026†	5.0	-2.9	-1.53 µg/L	-1.53 ppb	12:04:09
2	SiO2†	3201.5	227.3	25.155 µg/L	25.155 ppb	12:03:49
2	Si 251.611†	1429.8	865.7	14.680 µg/L	14.680 ppb	12:03:49
2	Sn 189.927†	-16.8	10.4	1.3327 µg/L	1.3327 ppb	12:04:09
2	Ti 334.940†	-352.1	532.2	0.7647 µg/L	0.7647 ppb	12:03:49
2	Tl 190.801†	-74.4	10.6	3.2574 µg/L	3.2574 ppb	12:04:09
2	U 367.007†	-399.4	-120.9	-14.949 µg/L	-14.949 ppb	12:03:49
2	V 292.402†	169.7	68.8	0.3037 µg/L	0.3037 ppb	12:03:49
2	Zn 213.857†	43.3	-2.5	-0.0156 µg/L	-0.0156 ppb	12:04:09
3	Sc RADIAL	70418.8	70418.8	97.8 %		12:02:59
3	Al 396.153Radial†	130.9	32.2	11.768 µg/L	11.768 ppb	12:03:19
3	Ca 317.933Radial†	651.9	323.7	36.030 µg/L	36.030 ppb	12:03:19
3	Fe 238.204 Radial†	-386.4	122.8	11.613 µg/L	11.613 ppb	12:03:19
3	K 766.490 Radial†	1022.1	-24.6	-12.926 µg/L	-12.926 ppb	12:02:59
3	Mg 279.077 IEC†	20.5	-5.8	-3.1304 µg/L	-3.1304 ppb	12:03:19
3	Na 589.592 Radial†	69.2	31.0	5.1744 µg/L	5.1744 ppb	12:02:59
3	Sr 421.552†	-421.2	28.1	0.0804 µg/L	0.0804 ppb	12:03:19
3	Sc 361.383	1333600.6	1333600.6	100.18 %		12:04:11
3	Y 371.029	722298.8	722298.8	99.704 %		12:04:11
3	Ag 328.068†	-1825.8	68.3	0.3581 µg/L	0.3581 ppb	12:04:13
3	As 188.979†	-29.5	0.5	0.2754 µg/L	0.2754 ppb	12:04:33
3	B 249.677†	767.0	-119.3	-1.7070 µg/L	-1.7070 ppb	12:04:13
3	Ba 233.527†	-222.7	18.5	0.1650 µg/L	0.1650 ppb	12:04:33
3	Be 313.107†	-3168.0	493.6	0.1272 µg/L	0.1272 ppb	12:04:13
3	Cd 226.502†	-144.2	36.1	0.2717 µg/L	0.2717 ppb	12:04:33
3	Co 228.616†	-61.2	30.4	0.4517 µg/L	0.4517 ppb	12:04:33
3	Cr 267.716†	144.5	15.2	0.1877 µg/L	0.1877 ppb	12:04:33
3	Cu 324.752†	5538.8	-248.0	-1.1013 µg/L	-1.1013 ppb	12:04:13
3	Mn 257.610†	328.1	175.5	0.3077 µg/L	0.3077 ppb	12:04:33
3	Mo 202.031†	-14.1	15.7	0.8150 µg/L	0.8150 ppb	12:04:33
3	Ni 231.604†	-148.8	49.2	0.7823 µg/L	0.7823 ppb	12:04:33
3	P 214.914†	-77.6	17.6	6.3593 µg/L	6.3593 ppb	12:04:33
3	Pb 220.353†	101.9	28.0	2.8468 µg/L	2.8468 ppb	12:04:33
3	S 181.975 Axial†	93.8	-9.1	-10.114 µg/L	-10.114 ppb	12:04:33
3	Sb 206.836†	78.3	33.8	6.5359 µg/L	6.5359 ppb	12:04:33
3	Se 196.026†	9.5	1.5	0.776 µg/L	0.776 ppb	12:04:33
3	SiO2†	3241.0	215.4	23.845 µg/L	23.845 ppb	12:04:13
3	Si 251.611†	1532.4	945.1	16.026 µg/L	16.026 ppb	12:04:13
3	Sn 189.927†	-31.9	-4.4	-0.5620 µg/L	-0.5620 ppb	12:04:33
3	Ti 334.940†	-503.8	386.3	0.5545 µg/L	0.5545 ppb	12:04:13
3	Tl 190.801†	-74.0	12.1	3.7293 µg/L	3.7293 ppb	12:04:33
3	U 367.007†	-361.2	-76.3	-9.4556 µg/L	-9.4556 ppb	12:04:13
3	V 292.402†	289.9	186.1	0.8314 µg/L	0.8314 ppb	12:04:13
3	Zn 213.857†	18.2	-28.3	-0.1607 µg/L	-0.1607 ppb	12:04:33

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1319712.5	99.137	%	0.9037				0.91%
Sc RADIAL	71303.6	99.0	%	1.50				1.51%
Y 371.029	714952.8	98.690	%	0.8836				0.90%
Ag 328.068†	118.3	0.6169	µg/L	0.35661	0.6169	ppb	0.35661	57.81%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	26.8	9.8003	µg/L	4.71306	9.8003	ppb	4.71306	48.09%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	1.9	1.0473	µg/L	1.06069	1.0473	ppb	1.06069	101.28%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-21.3	-0.2965	µg/L	1.33495	-0.2965	ppb	1.33495	450.23%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	10.0	0.0896	µg/L	0.17834	0.0896	ppb	0.17834	199.01%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	463.6	0.1205	µg/L	0.03499	0.1205	ppb	0.03499	29.04%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	404.4	45.014	µg/L	14.6333	45.014	ppb	14.6333	32.51%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	36.2	0.2724	µg/L	0.00661	0.2724	ppb	0.00661	2.43%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	17.1	0.2534	µg/L	0.22112	0.2534	ppb	0.22112	87.25%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -0.5      0.0031 µg/L       0.16057      0.0031 ppb        0.16057 >999.9%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -213.5     -0.9493 µg/L       0.22307     -0.9493 ppb        0.22307  23.50%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†      138.7      13.125 µg/L        1.5472      13.125 ppb         1.5472  11.79%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       -57.0     -29.935 µg/L       28.0558     -29.935 ppb        28.0558  93.72%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†          12.5      6.7241 µg/L       8.76582      6.7241 ppb        8.76582 130.36%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†             193.1      0.3382 µg/L       0.02692      0.3382 ppb        0.02692   7.96%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              9.2      0.4805 µg/L       0.30737      0.4805 ppb        0.30737  63.97%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       57.2      9.5389 µg/L       6.14566      9.5389 ppb        6.14566  64.43%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              19.7      0.3139 µg/L       0.44306      0.3139 ppb        0.44306 141.15%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               14.8      5.3374 µg/L       1.45912      5.3374 ppb        1.45912  27.34%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              20.3      2.0706 µg/L       0.73280      2.0706 ppb        0.73280  35.39%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -9.9     -11.014 µg/L        0.8258     -11.014 ppb         0.8258   7.50%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†              28.0      5.4065 µg/L       1.49231      5.4065 ppb        1.49231  27.60%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†              -1.4      -0.751 µg/L        1.3229      -0.751 ppb         1.3229 176.15%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   237.5      26.291 µg/L        3.1705      26.291 ppb         3.1705  12.06%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             887.7      15.053 µg/L        0.8503      15.053 ppb         0.8503   5.65%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†              3.1      0.4016 µg/L       0.94776      0.4016 ppb        0.94776 236.01%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              55.4      0.1593 µg/L       0.09391      0.1593 ppb        0.09391  58.97%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             452.3      0.6489 µg/L       0.10671      0.6489 ppb        0.10671  16.44%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              10.1      3.1028 µg/L       0.71646      3.1028 ppb        0.71646  23.09%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              -83.7     -10.371 µg/L        4.1958     -10.371 ppb         4.1958  40.46%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               71.8      0.3190 µg/L       0.50505      0.3190 ppb        0.50505 158.35%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -7.8     -0.0447 µg/L       0.10448     -0.0447 ppb        0.10448 233.51%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 5 **Autosampler Location: 308**
Sample ID: 409254002|1611117|1 **Date Collected: 11/11/2016 12:04:40**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254002|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70240.4	70240.4	97.5	%			12:05:09
1	Al 396.153Radial†	142928.0	146483.9	53506	µg/L	53506	ppb	12:05:09
1	Ca 317.933Radial†	1460074.9	1497095.6	166660	µg/L	166660	ppb	12:05:07
1	Fe 238.204 Radial†	1273865.1	1306981.9	123630	µg/L	123630	ppb	12:05:07
1	K 766.490 Radial†	24074.0	23619.8	12444	µg/L	12444	ppb	12:05:09
1	Mg 279.077 IEC†	107594.1	110320.7	59518	µg/L	59518	ppb	12:05:09
1	Na 589.592 Radial†	9066.7	9259.0	1544.0	µg/L	1544.0	ppb	12:05:09
1	Sr 421.552†	181191.8	186287.6	534.72	µg/L	534.72	ppb	12:05:09
1	Sc 361.383	1293853.6	1293853.6	97.194	%			12:05:22
1	Y 371.029	774425.7	774425.7	106.90	%			12:05:22
1	Ag 328.068†	-2366.5	-544.0	2.6292	µg/L	2.6292	ppb	12:05:22
1	As 188.979†	206.9	242.8	147.89	µg/L	147.89	ppb	12:05:42
1	B 249.677†	-2553.5	-3512.1	40.184	µg/L	40.184	ppb	12:05:22
1	Ba 233.527†	232637.9	239594.4	2137.0	µg/L	2137.0	ppb	12:05:22
1	Be 313.107†	13758.4	17811.5	-47.434	µg/L	-47.434	ppb	12:05:22
1	Cd 226.502†	2131.6	2373.1	3.7986	µg/L	3.7986	ppb	12:05:42
1	Co 228.616†	3987.7	4194.4	63.299	µg/L	63.299	ppb	12:05:42
1	Cr 267.716†	7668.4	7760.7	92.553	µg/L	92.553	ppb	12:05:42
1	Cu 324.752†	29966.2	25054.3	119.78	µg/L	119.78	ppb	12:05:22
1	Mn 257.610†	2517600.2	2590125.6	4537.3	µg/L	4537.3	ppb	12:05:22
1	Mo 202.031†	-44.3	-15.8	2.8152	µg/L	2.8152	ppb	12:05:42
1	Ni 231.604†	9568.7	10042.7	159.66	µg/L	159.66	ppb	12:05:42
1	P 214.914†	13598.2	14085.8	5070.6	µg/L	5070.6	ppb	12:05:42
1	Pb 220.353†	1055.9	1012.6	103.80	µg/L	103.80	ppb	12:05:42
1	S 181.975 Axial†	1623.9	1568.0	1722.4	µg/L	1722.4	ppb	12:05:42
1	Sb 206.836†	78.1	36.1	-6.1308	µg/L	-6.1308	ppb	12:05:42
1	Se 196.026†	-88.9	-99.5	3.86	µg/L	3.86	ppb	12:05:42
1	SiO2†	566757.2	580098.5	64204	µg/L	64204	ppb	12:05:22
1	Si 251.611†	1710061.6	1758842.8	29837	µg/L	29837	ppb	12:05:22
1	Sn 189.927†	-44.1	-17.9	-2.1170	µg/L	-2.1170	ppb	12:05:42
1	Ti 334.940†	1273227.0	1310871.5	1865.0	µg/L	1865.0	ppb	12:05:22
1	Tl 190.801†	-149.5	-67.8	-18.723	µg/L	-18.723	ppb	12:05:42
1	U 367.007†	5118.0	5550.0	-3.9246	µg/L	-3.9246	ppb	12:05:22
1	V 292.402†	40090.8	41144.8	193.02	µg/L	193.02	ppb	12:05:22
1	Zn 213.857†	73228.5	75295.9	410.84	µg/L	410.84	ppb	12:05:22
2	Sc RADIAL	70200.1	70200.1	97.4	%			12:05:14
2	Al 396.153Radial†	142520.5	146149.8	53384	µg/L	53384	ppb	12:05:14
2	Ca 317.933Radial†	1463189.3	1501150.8	167110	µg/L	167110	ppb	12:05:12
2	Fe 238.204 Radial†	1277467.7	1311428.5	124050	µg/L	124050	ppb	12:05:12
2	K 766.490 Radial†	24143.0	23704.8	12489	µg/L	12489	ppb	12:05:14
2	Mg 279.077 IEC†	106765.5	109533.7	59094	µg/L	59094	ppb	12:05:14
2	Na 589.592 Radial†	8858.8	9051.0	1509.3	µg/L	1509.3	ppb	12:05:14
2	Sr 421.552†	180725.7	185915.9	533.63	µg/L	533.63	ppb	12:05:14
2	Sc 361.383	1274886.4	1274886.4	95.769	%			12:05:45
2	Y 371.029	764187.8	764187.8	105.49	%			12:05:45
2	Ag 328.068†	-2534.1	-755.3	1.5614	µg/L	1.5614	ppb	12:05:45
2	As 188.979†	216.6	256.1	155.16	µg/L	155.16	ppb	12:06:05
2	B 249.677†	-2630.9	-3632.0	38.767	µg/L	38.767	ppb	12:05:45
2	Ba 233.527†	229716.2	240104.6	2141.5	µg/L	2141.5	ppb	12:05:45
2	Be 313.107†	13626.5	17884.3	-47.527	µg/L	-47.527	ppb	12:05:45
2	Cd 226.502†	2129.2	2403.3	3.9789	µg/L	3.9789	ppb	12:06:05
2	Co 228.616†	3998.6	4266.8	64.374	µg/L	64.374	ppb	12:06:05
2	Cr 267.716†	7750.3	7963.7	94.953	µg/L	94.953	ppb	12:06:05
2	Cu 324.752†	29593.8	25124.2	120.10	µg/L	120.10	ppb	12:05:45
2	Mn 257.610†	2486416.6	2596101.7	4547.8	µg/L	4547.8	ppb	12:05:45
2	Mo 202.031†	-41.9	-14.0	2.9154	µg/L	2.9154	ppb	12:06:05
2	Ni 231.604†	9570.0	10190.5	162.01	µg/L	162.01	ppb	12:06:05
2	P 214.914†	13556.7	14250.6	5130.0	µg/L	5130.0	ppb	12:06:05
2	Pb 220.353†	1004.2	974.8	99.977	µg/L	99.977	ppb	12:06:05

2	S 181.975 Axial†	1636.7	1606.4	1765.1 µg/L	1765.1 ppb		12:06:05
2	Sb 206.836†	70.0	28.8	-7.6164 µg/L	-7.6164 ppb		12:06:05
2	Se 196.026†	-76.2	-87.6	10.3 µg/L	10.3 ppb		12:06:05
2	SiO2†	559981.8	581699.1	64381 µg/L	64381 ppb		12:05:45
2	Si 251.611†	1688368.2	1762367.1	29897 µg/L	29897 ppb		12:05:45
2	Sn 189.927†	-43.9	-18.3	-2.1718 µg/L	-2.1718 ppb		12:06:05
2	Ti 334.940†	1260316.8	1316880.4	1873.6 µg/L	1873.6 ppb		12:05:45
2	Tl 190.801†	-168.9	-90.4	-25.644 µg/L	-25.644 ppb		12:06:05
2	U 367.007†	5021.6	5527.6	-8.9989 µg/L	-8.9989 ppb		12:05:45
2	V 292.402†	39433.2	41071.8	192.72 µg/L	192.72 ppb		12:05:45
2	Zn 213.857†	72285.6	75432.3	411.59 µg/L	411.59 ppb		12:05:45
3	Sc RADIAL	68485.0	68485.0	95.1 %			12:05:18
3	Al 396.153Radial†	140641.1	147835.6	54000 µg/L	54000 ppb		12:05:18
3	Ca 317.933Radial†	1457595.4	1532869.3	170640 µg/L	170640 ppb		12:05:16
3	Fe 238.204 Radial†	1274303.7	1340930.1	126850 µg/L	126850 ppb		12:05:16
3	K 766.490 Radial†	23719.0	23879.3	12581 µg/L	12581 ppb		12:05:18
3	Mg 279.077 IEC†	104878.3	110292.4	59504 µg/L	59504 ppb		12:05:18
3	Na 589.592 Radial†	8965.8	9391.2	1566.0 µg/L	1566.0 ppb		12:05:18
3	Sr 421.552†	178066.0	187762.8	538.87 µg/L	538.87 ppb		12:05:18
3	Sc 361.383	1279920.9	1279920.9	96.148 %			12:06:08
3	Y 371.029	766687.8	766687.8	105.83 %			12:06:08
3	Ag 328.068†	-2653.0	-868.5	1.1140 µg/L	1.1140 ppb		12:06:08
3	As 188.979†	214.2	252.7	153.66 µg/L	153.66 ppb		12:06:28
3	B 249.677†	-2532.9	-3519.3	42.436 µg/L	42.436 ppb		12:06:08
3	Ba 233.527†	229849.9	239300.1	2134.4 µg/L	2134.4 ppb		12:06:08
3	Be 313.107†	13615.2	17816.6	-47.371 µg/L	-47.371 ppb		12:06:08
3	Cd 226.502†	2141.4	2407.2	3.6890 µg/L	3.6890 ppb		12:06:28
3	Co 228.616†	3981.6	4232.7	63.825 µg/L	63.825 ppb		12:06:28
3	Cr 267.716†	7690.5	7869.6	93.900 µg/L	93.900 ppb		12:06:28
3	Cu 324.752†	29796.6	25213.6	120.68 µg/L	120.68 ppb		12:06:08
3	Mn 257.610†	2491425.4	2591098.9	4539.0 µg/L	4539.0 ppb		12:06:08
3	Mo 202.031†	-44.9	-17.0	2.8316 µg/L	2.8316 ppb		12:06:28
3	Ni 231.604†	9505.2	10083.8	160.31 µg/L	160.31 ppb		12:06:28
3	P 214.914†	13500.0	14136.0	5088.6 µg/L	5088.6 ppb		12:06:28
3	Pb 220.353†	1015.4	982.4	100.78 µg/L	100.78 ppb		12:06:28
3	S 181.975 Axial†	1622.4	1584.8	1740.3 µg/L	1740.3 ppb		12:06:28
3	Sb 206.836†	70.9	29.5	-7.7483 µg/L	-7.7483 ppb		12:06:28
3	Se 196.026†	-81.2	-92.5	9.00 µg/L	9.00 ppb		12:06:28
3	SiO2†	560784.7	580234.2	64219 µg/L	64219 ppb		12:06:08
3	Si 251.611†	1690881.1	1758046.2	29824 µg/L	29824 ppb		12:06:08
3	Sn 189.927†	-56.0	-30.8	-3.7630 µg/L	-3.7630 ppb		12:06:28
3	Ti 334.940†	1262120.4	1313579.8	1868.9 µg/L	1868.9 ppb		12:06:08
3	Tl 190.801†	-165.0	-85.5	-24.111 µg/L	-24.111 ppb		12:06:28
3	U 367.007†	4993.1	5477.4	-30.658 µg/L	-30.658 ppb		12:06:08
3	V 292.402†	39712.1	41200.0	193.48 µg/L	193.48 ppb		12:06:08
3	Zn 213.857†	72454.3	75310.9	410.58 µg/L	410.58 ppb		12:06:08

Mean Data: 409254002|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1282887.0	96.370	%	0.7381				0.77%
Sc RADIAL	69641.8	96.7	%	1.39				1.44%
Y 371.029	768433.8	106.07	%	0.737				0.69%
Ag 328.068†	-722.6	1.7682	µg/L	0.77845	1.7682	ppb	0.77845	44.02%
Al 396.153Radial†	146823.1	53630	µg/L	326.2	53630	ppb	326.2	0.61%
As 188.979†	250.5	152.24	µg/L	3.841	152.24	ppb	3.841	2.52%
B 249.677†	-3554.5	40.462	µg/L	1.8502	40.462	ppb	1.8502	4.57%
Ba 233.527†	239666.4	2137.6	µg/L	3.62	2137.6	ppb	3.62	0.17%
Be 313.107†	17837.5	-47.444	µg/L	0.0783	-47.444	ppb	0.0783	0.17%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1510371.9	168140	µg/L	2180.6	168140	ppb	2180.6	1.30%
Cd 226.502†	2394.6	3.8222	µg/L	0.14638	3.8222	ppb	0.14638	3.83%
Co 228.616†	4231.3	63.833	µg/L	0.5379	63.833	ppb	0.5379	0.84%
Cr 267.716†	7864.7	93.802	µg/L	1.2028	93.802	ppb	1.2028	1.28%
Cu 324.752†	25130.7	120.19	µg/L	0.456	120.19	ppb	0.456	0.38%
Fe 238.204 Radial†	1319780.1	124850	µg/L	1745.4	124850	ppb	1745.4	1.40%
K 766.490 Radial†	23734.7	12505	µg/L	70.0	12505	ppb	70.0	0.56%
Mg 279.077 IEC†	110048.9	59372	µg/L	240.9	59372	ppb	240.9	0.41%
Mn 257.610†	2592442.1	4541.4	µg/L	5.63	4541.4	ppb	5.63	0.12%
Mo 202.031†	-15.6	2.8541	µg/L	0.05378	2.8541	ppb	0.05378	1.88%

Na 589.592 Radial†	9233.7	1539.8	µg/L	28.60	1539.8	ppb	28.60	1.86%
Ni 231.604†	10105.7	160.66	µg/L	1.213	160.66	ppb	1.213	0.76%
P 214.914†	14157.5	5096.4	µg/L	30.45	5096.4	ppb	30.45	0.60%
Pb 220.353†	989.9	101.52	µg/L	2.018	101.52	ppb	2.018	1.99%
S 181.975 Axial†	1586.4	1742.6	µg/L	21.43	1742.6	ppb	21.43	1.23%
Sb 206.836†	31.5	-7.1652	µg/L	0.89821	-7.1652	ppb	0.89821	12.54%
Se 196.026†	-93.2	7.72	µg/L	3.410	7.72	ppb	3.410	44.16%
SiO2†	580677.3	64268	µg/L	98.2	64268	ppb	98.2	0.15%
Si 251.611†	1759752.0	29852	µg/L	38.9	29852	ppb	38.9	0.13%
Sn 189.927†	-22.3	-2.6839	µg/L	0.93488	-2.6839	ppb	0.93488	34.83%
Sr 421.552†	186655.4	535.74	µg/L	2.762	535.74	ppb	2.762	0.52%
Ti 334.940†	1313777.2	1869.2	µg/L	4.28	1869.2	ppb	4.28	0.23%
Tl 190.801†	-81.2	-22.826	µg/L	3.6350	-22.826	ppb	3.6350	15.92%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	5518.3	-14.527	µg/L	14.1980	-14.527	ppb	14.1980	97.74%
V 292.402†	41138.8	193.07	µg/L	0.381	193.07	ppb	0.381	0.20%
Zn 213.857†	75346.4	411.00	µg/L	0.524	411.00	ppb	0.524	0.13%

Sequence No.: 6 **Autosampler Location: 309**
Sample ID: 409254003|1611117|1 **Date Collected: 11/11/2016 12:06:35**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254003|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	69940.1	69940.1	97.1	%			12:07:02
1	Al 396.153Radial†	147550.2	151874.1	55474	µg/L	55474	ppb	12:07:02
1	Ca 317.933Radial†	1489844.0	1534187.4	170790	µg/L	170790	ppb	12:07:00
1	Fe 238.204 Radial†	1320963.3	1361102.6	128750	µg/L	128750	ppb	12:07:00
1	K 766.490 Radial†	24548.6	24214.7	12758	µg/L	12758	ppb	12:07:02
1	Mg 279.077 IEC†	113156.9	116524.2	62864	µg/L	62864	ppb	12:07:02
1	Na 589.592 Radial†	9057.7	9289.7	1549.1	µg/L	1549.1	ppb	12:07:02
1	Sr 421.552†	181760.7	187671.5	538.60	µg/L	538.60	ppb	12:07:02
1	Sc 361.383	1282900.0	1282900.0	96.371	%			12:07:14
1	Y 371.029	777963.2	777963.2	107.39	%			12:07:14
1	Ag 328.068†	-2360.2	-558.2	2.7997	µg/L	2.7997	ppb	12:07:14
1	As 188.979†	165.9	202.1	126.46	µg/L	126.46	ppb	12:07:35
1	B 249.677†	-2721.1	-3708.4	41.115	µg/L	41.115	ppb	12:07:14
1	Ba 233.527†	228197.4	237030.4	2114.2	µg/L	2114.2	ppb	12:07:14
1	Be 313.107†	15437.7	19674.9	-46.350	µg/L	-46.350	ppb	12:07:14
1	Cd 226.502†	2258.4	2523.4	4.3495	µg/L	4.3495	ppb	12:07:35
1	Co 228.616†	4118.9	4365.5	65.751	µg/L	65.751	ppb	12:07:35
1	Cr 267.716†	8258.0	8439.9	100.58	µg/L	100.58	ppb	12:07:35
1	Cu 324.752†	37376.8	33007.3	155.27	µg/L	155.27	ppb	12:07:14
1	Mn 257.610†	2122690.6	2202462.9	3857.8	µg/L	3857.8	ppb	12:07:14
1	Mo 202.031†	-45.7	-17.6	2.8808	µg/L	2.8808	ppb	12:07:35
1	Ni 231.604†	10032.7	10608.2	168.65	µg/L	168.65	ppb	12:07:35
1	P 214.914†	14072.5	14697.5	5290.8	µg/L	5290.8	ppb	12:07:35
1	Pb 220.353†	942.3	904.1	92.837	µg/L	92.837	ppb	12:07:35
1	S 181.975 Axial†	1642.6	1601.8	1758.9	µg/L	1758.9	ppb	12:07:35
1	Sb 206.836†	59.8	17.7	-10.289	µg/L	-10.289	ppb	12:07:35
1	Se 196.026†	-73.8	-84.6	14.0	µg/L	14.0	ppb	12:07:35
1	SiO2†	559499.0	577545.7	63921	µg/L	63921	ppb	12:07:14
1	Si 251.611†	1688316.8	1751301.4	29710	µg/L	29710	ppb	12:07:14
1	Sn 189.927†	-55.0	-29.6	-3.6056	µg/L	-3.6056	ppb	12:07:35
1	Ti 334.940†	1404024.0	1457778.1	2073.9	µg/L	2073.9	ppb	12:07:14
1	Tl 190.801†	-179.5	-100.2	-28.594	µg/L	-28.594	ppb	12:07:35
1	U 367.007†	5358.9	5844.8	4.1617	µg/L	4.1617	ppb	12:07:14
1	V 292.402†	42206.9	43692.7	204.80	µg/L	204.80	ppb	12:07:14
1	Zn 213.857†	76683.5	79524.4	434.08	µg/L	434.08	ppb	12:07:14
2	Sc RADIAL	70772.2	70772.2	98.2	%			12:07:06
2	Al 396.153Radial†	149313.4	151882.0	55477	µg/L	55477	ppb	12:07:06
2	Ca 317.933Radial†	1498981.1	1525445.4	169810	µg/L	169810	ppb	12:07:04
2	Fe 238.204 Radial†	1327918.4	1352184.7	127910	µg/L	127910	ppb	12:07:04
2	K 766.490 Radial†	24673.6	24044.6	12668	µg/L	12668	ppb	12:07:06
2	Mg 279.077 IEC†	114540.1	116561.7	62884	µg/L	62884	ppb	12:07:06
2	Na 589.592 Radial†	9232.1	9357.5	1560.4	µg/L	1560.4	ppb	12:07:06
2	Sr 421.552†	184219.4	187973.0	539.51	µg/L	539.51	ppb	12:07:06
2	Sc 361.383	1305858.7	1305858.7	98.096	%			12:07:37
2	Y 371.029	790703.6	790703.6	109.15	%			12:07:37
2	Ag 328.068†	-2482.1	-639.4	2.3453	µg/L	2.3453	ppb	12:07:37
2	As 188.979†	158.7	191.7	120.68	µg/L	120.68	ppb	12:07:58
2	B 249.677†	-2690.4	-3627.5	41.660	µg/L	41.660	ppb	12:07:37
2	Ba 233.527†	232145.7	236892.2	2112.9	µg/L	2112.9	ppb	12:07:37
2	Be 313.107†	15587.9	19546.3	-46.359	µg/L	-46.359	ppb	12:07:37
2	Cd 226.502†	2277.4	2501.6	4.2812	µg/L	4.2812	ppb	12:07:58
2	Co 228.616†	4139.1	4311.0	64.950	µg/L	64.950	ppb	12:07:58
2	Cr 267.716†	8293.9	8325.9	99.235	µg/L	99.235	ppb	12:07:58
2	Cu 324.752†	38056.0	33017.7	155.26	µg/L	155.26	ppb	12:07:37
2	Mn 257.610†	2157382.3	2199103.2	3851.9	µg/L	3851.9	ppb	12:07:37
2	Mo 202.031†	-58.4	-29.8	2.2306	µg/L	2.2306	ppb	12:07:58
2	Ni 231.604†	10071.8	10465.0	166.37	µg/L	166.37	ppb	12:07:58
2	P 214.914†	14094.4	14463.1	5206.4	µg/L	5206.4	ppb	12:07:58
2	Pb 220.353†	962.6	907.5	93.200	µg/L	93.200	ppb	12:07:58

2	S 181.975 Axial†	1666.6	1596.3	1753.0 µg/L	1753.0 ppb		12:07:58
2	Sb 206.836†	82.6	39.9	-5.8958 µg/L	-5.8958 ppb		12:07:58
2	Se 196.026†	-79.5	-89.0	11.3 µg/L	11.3 ppb		12:07:58
2	SiO2†	569023.9	577048.3	63866 µg/L	63866 ppb		12:07:37
2	Si 251.611†	1716029.0	1748751.0	29666 µg/L	29666 ppb		12:07:37
2	Sn 189.927†	-54.2	-27.8	-3.3741 µg/L	-3.3741 ppb		12:07:58
2	Ti 334.940†	1425136.5	1453686.3	2068.0 µg/L	2068.0 ppb		12:07:37
2	Tl 190.801†	-189.1	-106.7	-30.594 µg/L	-30.594 ppb		12:07:58
2	U 367.007†	5373.1	5761.6	-1.4125 µg/L	-1.4125 ppb		12:07:37
2	V 292.402†	42724.6	43450.5	203.66 µg/L	203.66 ppb		12:07:37
2	Zn 213.857†	78157.2	79627.7	434.75 µg/L	434.75 ppb		12:07:37
3	Sc RADIAL	71784.7	71784.7	99.6 %			12:07:10
3	Al 396.153Radial†	150968.4	151399.2	55301 µg/L	55301 ppb		12:07:10
3	Ca 317.933Radial†	1530492.4	1535547.1	170940 µg/L	170940 ppb		12:07:08
3	Fe 238.204 Radial†	1354650.6	1359946.5	128640 µg/L	128640 ppb		12:07:08
3	K 766.490 Radial†	25176.9	24195.5	12748 µg/L	12748 ppb		12:07:10
3	Mg 279.077 IEC†	116238.8	116621.9	62917 µg/L	62917 ppb		12:07:10
3	Na 589.592 Radial†	9159.6	9152.2	1526.2 µg/L	1526.2 ppb		12:07:10
3	Sr 421.552†	186285.2	187401.3	537.81 µg/L	537.81 ppb		12:07:10
3	Sc 361.383	1292931.9	1292931.9	97.125 %			12:08:00
3	Y 371.029	782998.1	782998.1	108.08 %			12:08:00
3	Ag 328.068†	-2527.9	-711.9	2.0104 µg/L	2.0104 ppb		12:08:00
3	As 188.979†	150.3	184.7	117.00 µg/L	117.00 ppb		12:08:21
3	B 249.677†	-2670.6	-3634.5	42.097 µg/L	42.097 ppb		12:08:00
3	Ba 233.527†	229988.2	237036.9	2114.2 µg/L	2114.2 ppb		12:08:00
3	Be 313.107†	15377.1	19488.2	-46.410 µg/L	-46.410 ppb		12:08:00
3	Cd 226.502†	2253.4	2500.1	4.1859 µg/L	4.1859 ppb		12:08:21
3	Co 228.616†	4166.7	4381.5	65.990 µg/L	65.990 ppb		12:08:21
3	Cr 267.716†	8336.2	8454.0	100.76 µg/L	100.76 ppb		12:08:21
3	Cu 324.752†	37338.5	32666.9	153.75 µg/L	153.75 ppb		12:08:00
3	Mn 257.610†	2138703.0	2201859.2	3856.7 µg/L	3856.7 ppb		12:08:00
3	Mo 202.031†	-75.3	-47.8	1.3104 µg/L	1.3104 ppb		12:08:21
3	Ni 231.604†	10114.1	10611.3	168.70 µg/L	168.70 ppb		12:08:21
3	P 214.914†	14179.1	14693.9	5289.6 µg/L	5289.6 ppb		12:08:21
3	Pb 220.353†	949.8	904.2	92.862 µg/L	92.862 ppb		12:08:21
3	S 181.975 Axial†	1687.6	1634.8	1795.8 µg/L	1795.8 ppb		12:08:21
3	Sb 206.836†	68.4	26.1	-8.6626 µg/L	-8.6626 ppb		12:08:21
3	Se 196.026†	-78.9	-89.3	11.5 µg/L	11.5 ppb		12:08:21
3	SiO2†	564402.6	578089.8	63981 µg/L	63981 ppb		12:08:00
3	Si 251.611†	1703013.8	1752840.6	29736 µg/L	29736 ppb		12:08:00
3	Sn 189.927†	-66.5	-41.0	-5.0599 µg/L	-5.0599 ppb		12:08:21
3	Ti 334.940†	1412649.4	1455354.7	2070.4 µg/L	2070.4 ppb		12:08:00
3	Tl 190.801†	-186.2	-105.6	-30.255 µg/L	-30.255 ppb		12:08:21
3	U 367.007†	5246.3	5685.8	-14.823 µg/L	-14.823 ppb		12:08:00
3	V 292.402†	42367.9	43518.7	204.01 µg/L	204.01 ppb		12:08:00
3	Zn 213.857†	77162.2	79399.8	433.38 µg/L	433.38 ppb		12:08:00

Mean Data: 409254003|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1293896.9	97.197	%	0.8646				0.89%
Sc RADIAL	70832.3	98.3	%	1.28				1.30%
Y 371.029	783888.3	108.21	%	0.886				0.82%
Ag 328.068†	-636.5	2.3851	µg/L	0.39617	2.3851	ppb	0.39617	16.61%
Al 396.153Radial†	151718.4	55417	µg/L	100.9	55417	ppb	100.9	0.18%
As 188.979†	192.8	121.38	µg/L	4.768	121.38	ppb	4.768	3.93%
B 249.677†	-3656.8	41.624	µg/L	0.4922	41.624	ppb	0.4922	1.18%
Ba 233.527†	236986.5	2113.8	µg/L	0.73	2113.8	ppb	0.73	0.03%
Be 313.107†	19569.8	-46.373	µg/L	0.0321	-46.373	ppb	0.0321	0.07%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1531726.6	170510	µg/L	610.3	170510	ppb	610.3	0.36%
Cd 226.502†	2508.4	4.2722	µg/L	0.08216	4.2722	ppb	0.08216	1.92%
Co 228.616†	4352.7	65.564	µg/L	0.5448	65.564	ppb	0.5448	0.83%
Cr 267.716†	8406.6	100.19	µg/L	0.835	100.19	ppb	0.835	0.83%
Cu 324.752†	32897.3	154.76	µg/L	0.875	154.76	ppb	0.875	0.57%
Fe 238.204 Radial†	1357744.6	128440	µg/L	458.7	128440	ppb	458.7	0.36%
K 766.490 Radial†	24151.6	12725	µg/L	49.1	12725	ppb	49.1	0.39%
Mg 279.077 IEC†	116569.3	62889	µg/L	26.6	62889	ppb	26.6	0.04%
Mn 257.610†	2201141.8	3855.5	µg/L	3.14	3855.5	ppb	3.14	0.08%
Mo 202.031†	-31.7	2.1406	µg/L	0.78904	2.1406	ppb	0.78904	36.86%

Na 589.592 Radial†	9266.4	1545.2	µg/L	17.44	1545.2	ppb	17.44	1.13%
Ni 231.604†	10561.5	167.91	µg/L	1.329	167.91	ppb	1.329	0.79%
P 214.914†	14618.2	5262.3	µg/L	48.39	5262.3	ppb	48.39	0.92%
Pb 220.353†	905.3	92.966	µg/L	0.2031	92.966	ppb	0.2031	0.22%
S 181.975 Axial†	1611.0	1769.2	µg/L	23.23	1769.2	ppb	23.23	1.31%
Sb 206.836†	27.9	-8.2825	µg/L	2.22120	-8.2825	ppb	2.22120	26.82%
Se 196.026†	-87.6	12.3	µg/L	1.51	12.3	ppb	1.51	12.33%
SiO2†	577561.3	63923	µg/L	57.7	63923	ppb	57.7	0.09%
Si 251.611†	1750964.3	29704	µg/L	35.1	29704	ppb	35.1	0.12%
Sn 189.927†	-32.8	-4.0132	µg/L	0.91383	-4.0132	ppb	0.91383	22.77%
Sr 421.552†	187681.9	538.64	µg/L	0.849	538.64	ppb	0.849	0.16%
Ti 334.940†	1455606.4	2070.8	µg/L	2.93	2070.8	ppb	2.93	0.14%
Tl 190.801†	-104.2	-29.814	µg/L	1.0706	-29.814	ppb	1.0706	3.59%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	5764.1	-4.0247	µg/L	9.75831	-4.0247	ppb	9.75831	242.46%
V 292.402†	43554.0	204.16	µg/L	0.588	204.16	ppb	0.588	0.29%
Zn 213.857†	79517.3	434.07	µg/L	0.686	434.07	ppb	0.686	0.16%

Sequence No.: 7 **Autosampler Location: 310**
Sample ID: 409254004|1611117|1 **Date Collected: 11/11/2016 12:08:28**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254004|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71442.2	71442.2	99.2	%			12:08:55
1	Al 396.153Radial†	51189.9	51515.1	18815	µg/L	18815	ppb	12:08:55
1	Ca 317.933Radial†	436065.7	439358.1	48910	µg/L	48910	ppb	12:08:55
1	Fe 238.204 Radial†	703778.4	710164.1	67178	µg/L	67178	ppb	12:08:53
1	K 766.490 Radial†	8134.0	7131.6	3768.0	µg/L	3768.0	ppb	12:08:55
1	Mg 279.077 IEC†	31105.2	31337.7	16917	µg/L	16917	ppb	12:08:55
1	Na 589.592 Radial†	6155.5	6167.1	1028.4	µg/L	1028.4	ppb	12:08:55
1	Sr 421.552†	56018.0	56944.1	163.52	µg/L	163.52	ppb	12:08:55
1	Sc 361.383	1279396.2	1279396.2	96.108	%			12:09:07
1	Y 371.029	745596.0	745596.0	102.92	%			12:09:07
1	Ag 328.068†	-2088.3	-282.1	1.8425	µg/L	1.8425	ppb	12:09:07
1	As 188.979†	50.1	82.0	53.177	µg/L	53.177	ppb	12:09:27
1	B 249.677†	-1873.4	-2834.1	8.5202	µg/L	8.5202	ppb	12:09:07
1	Ba 233.527†	122315.4	127509.3	1137.3	µg/L	1137.3	ppb	12:09:07
1	Be 313.107†	3019.4	6797.6	-25.968	µg/L	-25.968	ppb	12:09:07
1	Cd 226.502†	1001.4	1221.9	1.5531	µg/L	1.5531	ppb	12:09:27
1	Co 228.616†	2511.6	2704.8	40.691	µg/L	40.691	ppb	12:09:27
1	Cr 267.716†	3626.1	3643.9	43.628	µg/L	43.628	ppb	12:09:27
1	Cu 324.752†	8724.4	3300.8	19.377	µg/L	19.377	ppb	12:09:07
1	Mn 257.610†	944039.2	982115.3	1720.7	µg/L	1720.7	ppb	12:09:07
1	Mo 202.031†	-42.5	-14.5	1.0600	µg/L	1.0600	ppb	12:09:27
1	Ni 231.604†	5356.1	5770.7	91.743	µg/L	91.743	ppb	12:09:27
1	P 214.914†	7912.5	8328.0	2998.2	µg/L	2998.2	ppb	12:09:27
1	Pb 220.353†	512.4	459.5	46.848	µg/L	46.848	ppb	12:09:27
1	S 181.975 Axial†	644.5	567.9	618.94	µg/L	618.94	ppb	12:09:27
1	Sb 206.836†	67.5	25.9	-2.2560	µg/L	-2.2560	ppb	12:09:27
1	Se 196.026†	-43.5	-53.3	2.75	µg/L	2.75	ppb	12:09:27
1	SiO2†	327477.4	337718.6	37378	µg/L	37378	ppb	12:09:07
1	Si 251.611†	982263.9	1021455.3	17327	µg/L	17327	ppb	12:09:07
1	Sn 189.927†	-49.6	-24.1	-3.0200	µg/L	-3.0200	ppb	12:09:27
1	Ti 334.940†	562434.4	586098.9	833.50	µg/L	833.50	ppb	12:09:07
1	Tl 190.801†	-127.3	-46.4	-13.104	µg/L	-13.104	ppb	12:09:27
1	U 367.007†	2714.5	3108.7	12.978	µg/L	12.978	ppb	12:09:07
1	V 292.402†	16557.7	17124.9	81.429	µg/L	81.429	ppb	12:09:07
1	Zn 213.857†	32880.8	34165.8	185.76	µg/L	185.76	ppb	12:09:07
2	Sc RADIAL	72276.2	72276.2	100	%			12:08:59
2	Al 396.153Radial†	51701.2	51429.0	18784	µg/L	18784	ppb	12:08:59
2	Ca 317.933Radial†	440709.1	438912.8	48860	µg/L	48860	ppb	12:08:59
2	Fe 238.204 Radial†	733641.1	731740.1	69219	µg/L	69219	ppb	12:08:57
2	K 766.490 Radial†	8334.6	7236.9	3824.1	µg/L	3824.1	ppb	12:08:59
2	Mg 279.077 IEC†	31583.9	31453.0	16980	µg/L	16980	ppb	12:08:59
2	Na 589.592 Radial†	6341.2	6280.5	1047.3	µg/L	1047.3	ppb	12:08:59
2	Sr 421.552†	56575.2	56847.7	163.25	µg/L	163.25	ppb	12:08:59
2	Sc 361.383	1299420.0	1299420.0	97.612	%			12:09:29
2	Y 371.029	753679.8	753679.8	104.04	%			12:09:29
2	Ag 328.068†	-2054.3	-213.7	2.3333	µg/L	2.3333	ppb	12:09:29
2	As 188.979†	59.1	90.5	58.042	µg/L	58.042	ppb	12:09:49
2	B 249.677†	-1946.7	-2879.2	9.3686	µg/L	9.3686	ppb	12:09:29
2	Ba 233.527†	123164.0	126417.4	1127.6	µg/L	1127.6	ppb	12:09:29
2	Be 313.107†	3478.0	7219.0	-25.625	µg/L	-25.625	ppb	12:09:29
2	Cd 226.502†	1001.8	1206.3	1.2013	µg/L	1.2013	ppb	12:09:49
2	Co 228.616†	2493.9	2646.4	39.787	µg/L	39.787	ppb	12:09:49
2	Cr 267.716†	3626.5	3586.2	43.014	µg/L	43.014	ppb	12:09:49
2	Cu 324.752†	8684.5	3120.0	18.686	µg/L	18.686	ppb	12:09:29
2	Mn 257.610†	948326.0	971370.4	1701.8	µg/L	1701.8	ppb	12:09:29
2	Mo 202.031†	-51.9	-23.5	0.6429	µg/L	0.6429	ppb	12:09:49
2	Ni 231.604†	5343.4	5671.8	90.171	µg/L	90.171	ppb	12:09:49
2	P 214.914†	7903.3	8191.7	2949.0	µg/L	2949.0	ppb	12:09:49
2	Pb 220.353†	531.1	470.4	47.989	µg/L	47.989	ppb	12:09:49

2	S 181.975 Axial†	648.3	561.4	611.23 µg/L	611.23 ppb	12:09:49
2	Sb 206.836†	68.0	25.4	-2.5581 µg/L	-2.5581 ppb	12:09:49
2	Se 196.026†	-42.2	-51.2	4.76 µg/L	4.76 ppb	12:09:49
2	SiO2†	329472.2	334511.4	37023 µg/L	37023 ppb	12:09:29
2	Si 251.611†	987920.7	1011501.1	17159 µg/L	17159 ppb	12:09:29
2	Sn 189.927†	-43.5	-17.1	-2.1215 µg/L	-2.1215 ppb	12:09:49
2	Ti 334.940†	565847.8	580577.9	825.66 µg/L	825.66 ppb	12:09:29
2	Tl 190.801†	-116.3	-33.0	-8.9739 µg/L	-8.9739 ppb	12:09:49
2	U 367.007†	2506.0	2851.5	-29.754 µg/L	-29.754 ppb	12:09:29
2	V 292.402†	17003.5	17316.1	82.410 µg/L	82.410 ppb	12:09:29
2	Zn 213.857†	33018.9	33780.1	183.35 µg/L	183.35 ppb	12:09:29
3	Sc RADIAL	70764.2	70764.2	98.2 %		12:09:03
3	Al 396.153Radial†	51200.6	52020.5	19000 µg/L	19000 ppb	12:09:03
3	Ca 317.933Radial†	433850.8	441316.4	49128 µg/L	49128 ppb	12:09:03
3	Fe 238.204 Radial†	715163.1	728553.2	68918 µg/L	68918 ppb	12:09:01
3	K 766.490 Radial†	8093.7	7169.1	3788.4 µg/L	3788.4 ppb	12:09:03
3	Mg 279.077 IEC†	30968.4	31498.9	17005 µg/L	17005 ppb	12:09:03
3	Na 589.592 Radial†	6198.3	6270.1	1045.6 µg/L	1045.6 ppb	12:09:03
3	Sr 421.552†	55932.5	57398.3	164.83 µg/L	164.83 ppb	12:09:03
3	Sc 361.383	1325992.1	1325992.1	99.608 %		12:09:52
3	Y 371.029	769038.4	769038.4	106.16 %		12:09:52
3	Ag 328.068†	-2226.2	-344.1	1.6357 µg/L	1.6357 ppb	12:09:52
3	As 188.979†	55.7	85.9	55.490 µg/L	55.490 ppb	12:10:12
3	B 249.677†	-1875.0	-2767.3	10.757 µg/L	10.757 ppb	12:09:52
3	Ba 233.527†	126175.9	126912.6	1132.0 µg/L	1132.0 ppb	12:09:52
3	Be 313.107†	3486.0	7155.6	-25.748 µg/L	-25.748 ppb	12:09:52
3	Cd 226.502†	1007.7	1191.6	1.1247 µg/L	1.1247 ppb	12:10:12
3	Co 228.616†	2477.0	2578.2	38.783 µg/L	38.783 ppb	12:10:12
3	Cr 267.716†	3639.6	3524.9	42.280 µg/L	42.280 ppb	12:10:12
3	Cu 324.752†	8909.4	3167.6	18.883 µg/L	18.883 ppb	12:09:52
3	Mn 257.610†	972324.9	975994.9	1709.9 µg/L	1709.9 ppb	12:09:52
3	Mo 202.031†	-27.3	2.4	1.9787 µg/L	1.9787 ppb	12:10:12
3	Ni 231.604†	5343.3	5562.0	88.426 µg/L	88.426 ppb	12:10:12
3	P 214.914†	7917.4	8043.6	2895.6 µg/L	2895.6 ppb	12:10:12
3	Pb 220.353†	534.3	462.7	47.210 µg/L	47.210 ppb	12:10:12
3	S 181.975 Axial†	656.3	556.2	605.45 µg/L	605.45 ppb	12:10:12
3	Sb 206.836†	60.1	16.1	-4.3135 µg/L	-4.3135 ppb	12:10:12
3	Se 196.026†	-57.0	-65.3	-2.74 µg/L	-2.74 ppb	12:10:12
3	SiO2†	337602.3	335909.5	37178 µg/L	37178 ppb	12:09:52
3	Si 251.611†	1012428.1	1015823.3	17232 µg/L	17232 ppb	12:09:52
3	Sn 189.927†	-48.1	-20.8	-2.5966 µg/L	-2.5966 ppb	12:10:12
3	Ti 334.940†	580208.3	583378.3	829.64 µg/L	829.64 ppb	12:09:52
3	Tl 190.801†	-124.5	-38.9	-10.785 µg/L	-10.785 ppb	12:10:12
3	U 367.007†	2623.0	2917.5	-20.014 µg/L	-20.014 ppb	12:09:52
3	V 292.402†	17487.1	17452.5	83.003 µg/L	83.003 ppb	12:09:52
3	Zn 213.857†	33804.5	33890.9	184.01 µg/L	184.01 ppb	12:09:52

Mean Data: 409254004|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1301602.8	97.776	%	1.7559				1.80%
Sc RADIAL	71494.2	99.2	%	1.05				1.06%
Y 371.029	756104.7	104.37	%	1.644				1.57%
Ag 328.068†	-280.0	1.9372	µg/L	0.35829	1.9372	ppb	0.35829	18.50%
Al 396.153Radial†	51654.9	18866	µg/L	116.7	18866	ppb	116.7	0.62%
As 188.979†	86.2	55.569	µg/L	2.4334	55.569	ppb	2.4334	4.38%
B 249.677†	-2826.9	9.5488	µg/L	1.12946	9.5488	ppb	1.12946	11.83%
Ba 233.527†	126946.4	1132.3	µg/L	4.87	1132.3	ppb	4.87	0.43%
Be 313.107†	7057.4	-25.780	µg/L	0.1737	-25.780	ppb	0.1737	0.67%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	439862.4	48966	µg/L	142.3	48966	ppb	142.3	0.29%
Cd 226.502†	1206.6	1.2930	µg/L	0.22848	1.2930	ppb	0.22848	17.67%
Co 228.616†	2643.2	39.754	µg/L	0.9543	39.754	ppb	0.9543	2.40%
Cr 267.716†	3585.0	42.974	µg/L	0.6747	42.974	ppb	0.6747	1.57%
Cu 324.752†	3196.1	18.982	µg/L	0.3564	18.982	ppb	0.3564	1.88%
Fe 238.204 Radial†	723485.8	68438	µg/L	1101.7	68438	ppb	1101.7	1.61%
K 766.490 Radial†	7179.2	3793.5	µg/L	28.39	3793.5	ppb	28.39	0.75%
Mg 279.077 IEC†	31429.9	16967	µg/L	45.1	16967	ppb	45.1	0.27%
Mn 257.610†	976493.5	1710.8	µg/L	9.45	1710.8	ppb	9.45	0.55%
Mo 202.031†	-11.9	1.2272	µg/L	0.68342	1.2272	ppb	0.68342	55.69%

Na 589.592 Radial†	6239.2	1040.4 µg/L	10.46	1040.4 ppb	10.46	1.01%
Ni 231.604†	5668.2	90.113 µg/L	1.6594	90.113 ppb	1.6594	1.84%
P 214.914†	8187.8	2947.6 µg/L	51.31	2947.6 ppb	51.31	1.74%
Pb 220.353†	464.2	47.349 µg/L	0.5832	47.349 ppb	0.5832	1.23%
S 181.975 Axial†	561.9	611.87 µg/L	6.765	611.87 ppb	6.765	1.11%
Sb 206.836†	22.5	-3.0425 µg/L	1.11097	-3.0425 ppb	1.11097	36.51%
Se 196.026†	-56.6	1.59 µg/L	3.884	1.59 ppb	3.884	244.49%
SiO2†	336046.5	37193 µg/L	178.0	37193 ppb	178.0	0.48%
Si 251.611†	1016259.9	17239 µg/L	84.5	17239 ppb	84.5	0.49%
Sn 189.927†	-20.6	-2.5794 µg/L	0.44947	-2.5794 ppb	0.44947	17.43%
Sr 421.552†	57063.3	163.87 µg/L	0.848	163.87 ppb	0.848	0.52%
Ti 334.940†	583351.7	829.60 µg/L	3.916	829.60 ppb	3.916	0.47%
Tl 190.801†	-39.4	-10.954 µg/L	2.0700	-10.954 ppb	2.0700	18.90%
U 367.007†	2959.2	-12.263 µg/L	22.3958	-12.263 ppb	22.3958	182.62%
V 292.402†	17297.8	82.281 µg/L	0.7946	82.281 ppb	0.7946	0.97%
Zn 213.857†	33945.6	184.38 µg/L	1.245	184.38 ppb	1.245	0.68%

Sequence No.: 8 **Autosampler Location: 311**
Sample ID: 409254005|1611117|1 **Date Collected: 11/11/2016 12:10:20**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254005|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70784.3	70784.3	98.3	%			12:10:47
1	Al 396.153Radial†	95812.5	97407.6	35584	µg/L	35584	ppb	12:10:47
1	Ca 317.933Radial†	1182064.7	1202654.6	133880	µg/L	133880	ppb	12:10:45
1	Fe 238.204 Radial†	1057178.7	1076418.2	101820	µg/L	101820	ppb	12:10:45
1	K 766.490 Radial†	14500.0	13686.6	7218.7	µg/L	7218.7	ppb	12:10:47
1	Mg 279.077 IEC†	97449.7	99148.6	53488	µg/L	53488	ppb	12:10:47
1	Na 589.592 Radial†	8806.3	8922.5	1487.9	µg/L	1487.9	ppb	12:10:47
1	Sr 421.552†	118071.1	120621.0	345.34	µg/L	345.34	ppb	12:10:47
1	Sc 361.383	1293536.9	1293536.9	97.170	%			12:11:00
1	Y 371.029	757694.3	757694.3	104.59	%			12:11:00
1	Ag 328.068†	-2671.9	-858.8	0.0757	µg/L	0.0757	ppb	12:11:00
1	As 188.979†	98.4	131.2	84.406	µg/L	84.406	ppb	12:11:20
1	B 249.677†	-2365.6	-3319.4	26.956	µg/L	26.956	ppb	12:11:00
1	Ba 233.527†	213130.1	219577.1	1958.4	µg/L	1958.4	ppb	12:11:00
1	Be 313.107†	8487.7	12390.8	-44.567	µg/L	-44.567	ppb	12:11:00
1	Cd 226.502†	1601.9	1828.6	2.1760	µg/L	2.1760	ppb	12:11:20
1	Co 228.616†	2785.3	2957.9	44.989	µg/L	44.989	ppb	12:11:20
1	Cr 267.716†	6070.8	6118.5	72.992	µg/L	72.992	ppb	12:11:20
1	Cu 324.752†	15341.8	10011.7	51.825	µg/L	51.825	ppb	12:11:00
1	Mn 257.610†	1893804.5	1948799.4	3413.6	µg/L	3413.6	ppb	12:11:00
1	Mo 202.031†	-55.8	-27.7	1.6021	µg/L	1.6021	ppb	12:11:20
1	Ni 231.604†	5776.0	6141.9	97.644	µg/L	97.644	ppb	12:11:20
1	P 214.914†	13622.4	14114.1	5082.0	µg/L	5082.0	ppb	12:11:20
1	Pb 220.353†	628.1	572.6	58.591	µg/L	58.591	ppb	12:11:20
1	S 181.975 Axial†	1099.0	1028.3	1124.9	µg/L	1124.9	ppb	12:11:20
1	Sb 206.836†	52.2	9.4	-9.1171	µg/L	-9.1171	ppb	12:11:20
1	Se 196.026†	-68.1	-78.1	5.41	µg/L	5.41	ppb	12:11:20
1	SiO2†	527803.2	540152.8	59783	µg/L	59783	ppb	12:11:00
1	Si 251.611†	1591887.5	1637658.2	27779	µg/L	27779	ppb	12:11:00
1	Sn 189.927†	-53.3	-27.4	-3.3849	µg/L	-3.3849	ppb	12:11:20
1	Ti 334.940†	1047985.6	1079391.8	1535.6	µg/L	1535.6	ppb	12:11:00
1	Tl 190.801†	-139.0	-57.0	-15.763	µg/L	-15.763	ppb	12:11:20
1	U 367.007†	4139.4	4544.2	-6.2191	µg/L	-6.2191	ppb	12:11:00
1	V 292.402†	29481.3	30236.4	142.61	µg/L	142.61	ppb	12:11:00
1	Zn 213.857†	50119.4	51532.3	278.73	µg/L	278.73	ppb	12:11:00
2	Sc RADIAL	70364.6	70364.6	97.7	%			12:10:51
2	Al 396.153Radial†	95428.5	97596.2	35653	µg/L	35653	ppb	12:10:51
2	Ca 317.933Radial†	1201996.1	1230236.8	136950	µg/L	136950	ppb	12:10:49
2	Fe 238.204 Radial†	1075675.8	1101773.9	104220	µg/L	104220	ppb	12:10:49
2	K 766.490 Radial†	14426.6	13699.5	7226.1	µg/L	7226.1	ppb	12:10:51
2	Mg 279.077 IEC†	97004.0	99283.9	53562	µg/L	53562	ppb	12:10:51
2	Na 589.592 Radial†	8735.7	8903.6	1484.7	µg/L	1484.7	ppb	12:10:51
2	Sr 421.552†	117696.2	120954.1	346.20	µg/L	346.20	ppb	12:10:51
2	Sc 361.383	1276677.5	1276677.5	95.904	%			12:11:22
2	Y 371.029	747971.0	747971.0	103.25	%			12:11:22
2	Ag 328.068†	-2441.1	-654.5	1.2443	µg/L	1.2443	ppb	12:11:22
2	As 188.979†	101.3	135.6	87.088	µg/L	87.088	ppb	12:11:43
2	B 249.677†	-2226.7	-3206.7	30.336	µg/L	30.336	ppb	12:11:22
2	Ba 233.527†	209802.6	219004.0	1953.3	µg/L	1953.3	ppb	12:11:22
2	Be 313.107†	8433.6	12449.7	-44.425	µg/L	-44.425	ppb	12:11:22
2	Cd 226.502†	1600.3	1848.7	2.0534	µg/L	2.0534	ppb	12:11:43
2	Co 228.616†	2814.8	3026.6	45.974	µg/L	45.974	ppb	12:11:43
2	Cr 267.716†	6097.2	6228.6	74.329	µg/L	74.329	ppb	12:11:43
2	Cu 324.752†	14818.0	9674.0	50.489	µg/L	50.489	ppb	12:11:22
2	Mn 257.610†	1862349.4	1941738.1	3401.2	µg/L	3401.2	ppb	12:11:22
2	Mo 202.031†	-53.0	-25.5	1.7771	µg/L	1.7771	ppb	12:11:43
2	Ni 231.604†	5845.3	6292.6	100.04	µg/L	100.04	ppb	12:11:43
2	P 214.914†	13674.8	14353.9	5168.3	µg/L	5168.3	ppb	12:11:43
2	Pb 220.353†	599.7	551.6	56.465	µg/L	56.465	ppb	12:11:43

2	S 181.975 Axial†	1116.4	1061.4	1161.4 µg/L	1161.4 ppb		12:11:43
2	Sb 206.836†	52.8	10.7	-9.1395 µg/L	-9.1395 ppb		12:11:43
2	Se 196.026†	-66.6	-77.5	6.81 µg/L	6.81 ppb		12:11:43
2	SiO2†	519130.9	538283.1	59576 µg/L	59576 ppb		12:11:22
2	Si 251.611†	1565058.4	1631317.4	27672 µg/L	27672 ppb		12:11:22
2	Sn 189.927†	-57.9	-32.9	-4.0926 µg/L	-4.0926 ppb		12:11:43
2	Ti 334.940†	1031783.4	1076740.0	1531.9 µg/L	1531.9 ppb		12:11:22
2	Tl 190.801†	-147.6	-67.8	-19.065 µg/L	-19.065 ppb		12:11:43
2	U 367.007†	4088.3	4547.1	-19.166 µg/L	-19.166 ppb		12:11:22
2	V 292.402†	28984.0	30118.6	142.24 µg/L	142.24 ppb		12:11:22
2	Zn 213.857†	49257.5	51314.8	277.24 µg/L	277.24 ppb		12:11:22
3	Sc RADIAL	69697.0	69697.0	96.8 %			12:10:55
3	Al 396.153Radial†	94330.1	97396.6	35580 µg/L	35580 ppb		12:10:55
3	Ca 317.933Radial†	1176720.7	1215899.0	135350 µg/L	135350 ppb		12:10:53
3	Fe 238.204 Radial†	1053829.8	1089741.9	103080 µg/L	103080 ppb		12:10:53
3	K 766.490 Radial†	14296.6	13706.6	7229.5 µg/L	7229.5 ppb		12:10:55
3	Mg 279.077 IEC†	94986.6	98150.0	52950 µg/L	52950 ppb		12:10:55
3	Na 589.592 Radial†	8636.6	8886.9	1481.9 µg/L	1481.9 ppb		12:10:55
3	Sr 421.552†	116229.4	120592.1	345.20 µg/L	345.20 ppb		12:10:55
3	Sc 361.383	1284745.5	1284745.5	96.510 %			12:11:45
3	Y 371.029	751947.2	751947.2	103.80 %			12:11:45
3	Ag 328.068†	-2287.5	-479.4	2.0889 µg/L	2.0889 ppb		12:11:45
3	As 188.979†	91.2	124.5	80.907 µg/L	80.907 ppb		12:12:06
3	B 249.677†	-2371.2	-3341.8	27.558 µg/L	27.558 ppb		12:11:45
3	Ba 233.527†	210472.6	218324.4	1947.2 µg/L	1947.2 ppb		12:11:45
3	Be 313.107†	8388.5	12347.8	-44.300 µg/L	-44.300 ppb		12:11:45
3	Cd 226.502†	1617.8	1856.3	2.2415 µg/L	2.2415 ppb		12:12:06
3	Co 228.616†	2766.2	2957.8	44.959 µg/L	44.959 ppb		12:12:06
3	Cr 267.716†	6063.1	6153.4	73.418 µg/L	73.418 ppb		12:12:06
3	Cu 324.752†	15143.6	9914.4	51.478 µg/L	51.478 ppb		12:11:45
3	Mn 257.610†	1870120.9	1937596.0	3393.9 µg/L	3393.9 ppb		12:11:45
3	Mo 202.031†	-39.2	-10.9	2.5015 µg/L	2.5015 ppb		12:12:06
3	Ni 231.604†	5800.3	6207.8	98.693 µg/L	98.693 ppb		12:12:06
3	P 214.914†	13588.3	14174.7	5103.8 µg/L	5103.8 ppb		12:12:06
3	Pb 220.353†	590.4	538.0	55.082 µg/L	55.082 ppb		12:12:06
3	S 181.975 Axial†	1111.6	1049.1	1147.9 µg/L	1147.9 ppb		12:12:06
3	Sb 206.836†	69.1	27.3	-5.8045 µg/L	-5.8045 ppb		12:12:06
3	Se 196.026†	-74.5	-85.2	2.25 µg/L	2.25 ppb		12:12:06
3	SiO2†	521355.4	537188.8	59455 µg/L	59455 ppb		12:11:45
3	Si 251.611†	1572249.7	1628520.7	27625 µg/L	27625 ppb		12:11:45
3	Sn 189.927†	-54.7	-29.2	-3.6161 µg/L	-3.6161 ppb		12:12:06
3	Ti 334.940†	1036827.8	1075210.7	1529.7 µg/L	1529.7 ppb		12:11:45
3	Tl 190.801†	-143.1	-62.3	-17.371 µg/L	-17.371 ppb		12:12:06
3	U 367.007†	4199.2	4635.2	-1.9985 µg/L	-1.9985 ppb		12:11:45
3	V 292.402†	29244.2	30198.4	142.53 µg/L	142.53 ppb		12:11:45
3	Zn 213.857†	49468.4	51210.8	276.80 µg/L	276.80 ppb		12:11:45

Mean Data: 409254005|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1284986.6	96.528	%	0.6334				0.66%
Sc RADIAL	70282.0	97.6	%	0.76				0.78%
Y 371.029	752537.5	103.88	%	0.675				0.65%
Ag 328.068†	-664.2	1.1363	µg/L	1.01093	1.1363	ppb	1.01093	88.97%
Al 396.153Radial†	97466.8	35606	µg/L	41.2	35606	ppb	41.2	0.12%
As 188.979†	130.4	84.134	µg/L	3.0995	84.134	ppb	3.0995	3.68%
B 249.677†	-3289.3	28.283	µg/L	1.8029	28.283	ppb	1.8029	6.37%
Ba 233.527†	218968.5	1953.0	µg/L	5.59	1953.0	ppb	5.59	0.29%
Be 313.107†	12396.1	-44.431	µg/L	0.1336	-44.431	ppb	0.1336	0.30%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1216263.5	135390	µg/L	1535.6	135390	ppb	1535.6	1.13%
Cd 226.502†	1844.5	2.1570	µg/L	0.09548	2.1570	ppb	0.09548	4.43%
Co 228.616†	2980.8	45.308	µg/L	0.5774	45.308	ppb	0.5774	1.27%
Cr 267.716†	6166.8	73.580	µg/L	0.6829	73.580	ppb	0.6829	0.93%
Cu 324.752†	9866.7	51.264	µg/L	0.6933	51.264	ppb	0.6933	1.35%
Fe 238.204 Radial†	1089311.3	103040	µg/L	1199.8	103040	ppb	1199.8	1.16%
K 766.490 Radial†	13697.5	7224.8	µg/L	5.55	7224.8	ppb	5.55	0.08%
Mg 279.077 IEC†	98860.9	53333	µg/L	333.9	53333	ppb	333.9	0.63%
Mn 257.610†	1942711.2	3402.9	µg/L	9.92	3402.9	ppb	9.92	0.29%
Mo 202.031†	-21.4	1.9603	µg/L	0.47683	1.9603	ppb	0.47683	24.32%

Na 589.592 Radial†	8904.3	1484.8	µg/L	2.98	1484.8	ppb	2.98	0.20%
Ni 231.604†	6214.1	98.793	µg/L	1.2015	98.793	ppb	1.2015	1.22%
P 214.914†	14214.2	5118.0	µg/L	44.88	5118.0	ppb	44.88	0.88%
Pb 220.353†	554.1	56.713	µg/L	1.7675	56.713	ppb	1.7675	3.12%
S 181.975 Axial†	1046.3	1144.7	µg/L	18.41	1144.7	ppb	18.41	1.61%
Sb 206.836†	15.8	-8.0204	µg/L	1.91901	-8.0204	ppb	1.91901	23.93%
Se 196.026†	-80.3	4.82	µg/L	2.334	4.82	ppb	2.334	48.41%
SiO2†	538541.6	59604	µg/L	165.9	59604	ppb	165.9	0.28%
Si 251.611†	1632498.7	27692	µg/L	79.3	27692	ppb	79.3	0.29%
Sn 189.927†	-29.8	-3.6978	µg/L	0.36088	-3.6978	ppb	0.36088	9.76%
Sr 421.552†	120722.4	345.58	µg/L	0.540	345.58	ppb	0.540	0.16%
Ti 334.940†	1077114.2	1532.4	µg/L	3.00	1532.4	ppb	3.00	0.20%
Tl 190.801†	-62.4	-17.400	µg/L	1.6512	-17.400	ppb	1.6512	9.49%
U 367.007†	4575.5	-9.1278	µg/L	8.94554	-9.1278	ppb	8.94554	98.00%
V 292.402†	30184.5	142.46	µg/L	0.192	142.46	ppb	0.192	0.13%
Zn 213.857†	51352.6	277.59	µg/L	1.013	277.59	ppb	1.013	0.37%

Sequence No.: 9 **Autosampler Location:** 312
Sample ID: 409254006|1611117|1 **Date Collected:** 11/11/2016 12:12:14
Analyst: TXT1 **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254006|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	68765.4	68765.4	95.5	%			12:12:41
1	Al 396.153Radial†	129203.3	135250.3	49406	µg/L	49406	ppb	12:12:41
1	Ca 317.933Radial†	1497453.4	1568372.7	174590	µg/L	174590	ppb	12:12:39
1	Fe 238.204 Radial†	1225968.8	1284829.7	121540	µg/L	121540	ppb	12:12:39
1	K 766.490 Radial†	20228.1	20120.5	10604	µg/L	10604	ppb	12:12:41
1	Mg 279.077 IEC†	111830.8	117125.9	63186	µg/L	63186	ppb	12:12:41
1	Na 589.592 Radial†	11105.2	11593.9	1933.3	µg/L	1933.3	ppb	12:12:41
1	Sr 421.552†	167716.3	176156.8	505.06	µg/L	505.06	ppb	12:12:41
1	Sc 361.383	1280646.4	1280646.4	96.202	%			12:12:53
1	Y 371.029	767226.4	767226.4	105.91	%			12:12:53
1	Ag 328.068†	-2535.5	-744.8	1.4127	µg/L	1.4127	ppb	12:12:53
1	As 188.979†	152.2	188.1	117.87	µg/L	117.87	ppb	12:13:14
1	B 249.677†	-2636.2	-3625.2	37.020	µg/L	37.020	ppb	12:12:53
1	Ba 233.527†	235757.1	245305.1	2187.9	µg/L	2187.9	ppb	12:12:53
1	Be 313.107†	13030.0	17200.3	-48.858	µg/L	-48.858	ppb	12:12:53
1	Cd 226.502†	1973.7	2231.6	2.9680	µg/L	2.9680	ppb	12:13:14
1	Co 228.616†	3874.4	4118.9	62.263	µg/L	62.263	ppb	12:13:14
1	Cr 267.716†	7293.2	7452.1	88.880	µg/L	88.880	ppb	12:13:14
1	Cu 324.752†	26380.1	21644.7	104.63	µg/L	104.63	ppb	12:12:53
1	Mn 257.610†	2185424.4	2271549.4	3978.9	µg/L	3978.9	ppb	12:12:53
1	Mo 202.031†	-72.9	-46.1	1.2296	µg/L	1.2296	ppb	12:13:14
1	Ni 231.604†	8796.4	9341.4	148.51	µg/L	148.51	ppb	12:13:14
1	P 214.914†	13416.8	14041.5	5054.8	µg/L	5054.8	ppb	12:13:14
1	Pb 220.353†	855.9	816.0	83.684	µg/L	83.684	ppb	12:13:14
1	S 181.975 Axial†	1438.2	1392.3	1526.7	µg/L	1526.7	ppb	12:13:14
1	Sb 206.836†	79.8	38.7	-5.4528	µg/L	-5.4528	ppb	12:13:14
1	Se 196.026†	-77.5	-88.6	8.70	µg/L	8.70	ppb	12:13:14
1	SiO2†	566359.5	585698.7	64823	µg/L	64823	ppb	12:12:53
1	Si 251.611†	1708659.3	1775529.9	30119	µg/L	30119	ppb	12:12:53
1	Sn 189.927†	-61.1	-36.1	-4.4520	µg/L	-4.4520	ppb	12:13:14
1	Ti 334.940†	1332234.3	1385717.9	1971.5	µg/L	1971.5	ppb	12:12:53
1	Tl 190.801†	-174.2	-95.1	-27.135	µg/L	-27.135	ppb	12:13:14
1	U 367.007†	4941.5	5420.8	-9.1216	µg/L	-9.1216	ppb	12:12:53
1	V 292.402†	38637.4	40059.4	188.00	µg/L	188.00	ppb	12:12:53
1	Zn 213.857†	68343.4	70995.0	386.50	µg/L	386.50	ppb	12:12:53
2	Sc RADIAL	69233.5	69233.5	96.1	%			12:12:45
2	Al 396.153Radial†	129512.6	134656.9	49189	µg/L	49189	ppb	12:12:45
2	Ca 317.933Radial†	1485328.8	1545149.9	172010	µg/L	172010	ppb	12:12:43
2	Fe 238.204 Radial†	1216574.9	1266371.2	119790	µg/L	119790	ppb	12:12:43
2	K 766.490 Radial†	20347.5	20101.5	10593	µg/L	10593	ppb	12:12:45
2	Mg 279.077 IEC†	112420.4	116947.2	63090	µg/L	63090	ppb	12:12:45
2	Na 589.592 Radial†	11198.7	11612.5	1936.4	µg/L	1936.4	ppb	12:12:45
2	Sr 421.552†	168474.8	175758.1	503.99	µg/L	503.99	ppb	12:12:45
2	Sc 361.383	1308339.1	1308339.1	98.282	%			12:13:16
2	Y 371.029	783331.7	783331.7	108.13	%			12:13:16
2	Ag 328.068†	-2589.4	-743.8	1.3367	µg/L	1.3367	ppb	12:13:16
2	As 188.979†	148.6	181.2	113.88	µg/L	113.88	ppb	12:13:37
2	B 249.677†	-2716.0	-3648.3	35.406	µg/L	35.406	ppb	12:13:16
2	Ba 233.527†	240020.5	244455.9	2180.3	µg/L	2180.3	ppb	12:13:16
2	Be 313.107†	13358.9	17248.3	-48.659	µg/L	-48.659	ppb	12:13:16
2	Cd 226.502†	2018.2	2233.5	3.1821	µg/L	3.1821	ppb	12:13:37
2	Co 228.616†	3879.8	4039.2	61.091	µg/L	61.091	ppb	12:13:37
2	Cr 267.716†	7339.7	7339.0	87.518	µg/L	87.518	ppb	12:13:37
2	Cu 324.752†	26841.0	21533.2	104.03	µg/L	104.03	ppb	12:13:16
2	Mn 257.610†	2223141.0	2261841.8	3961.9	µg/L	3961.9	ppb	12:13:16
2	Mo 202.031†	-73.3	-44.9	1.2502	µg/L	1.2502	ppb	12:13:37
2	Ni 231.604†	8796.5	9148.0	145.44	µg/L	145.44	ppb	12:13:37
2	P 214.914†	13436.8	13766.8	4955.8	µg/L	4955.8	ppb	12:13:37
2	Pb 220.353†	833.5	774.3	79.460	µg/L	79.460	ppb	12:13:37

2	S 181.975 Axial†	1424.9	1347.1	1476.6 µg/L	1476.6 ppb		12:13:37
2	Sb 206.836†	55.2	11.9	-10.428 µg/L	-10.428 ppb		12:13:37
2	Se 196.026†	-81.5	-90.9	6.68 µg/L	6.68 ppb		12:13:37
2	SiO2†	577344.6	584414.8	64681 µg/L	64681 ppb		12:13:16
2	Si 251.611†	1741065.7	1770908.9	30041 µg/L	30041 ppb		12:13:16
2	Sn 189.927†	-58.9	-32.5	-3.9960 µg/L	-3.9960 ppb		12:13:37
2	Ti 334.940†	1357354.5	1381965.5	1966.1 µg/L	1966.1 ppb		12:13:16
2	Tl 190.801†	-184.7	-101.9	-29.265 µg/L	-29.265 ppb		12:13:37
2	U 367.007†	5059.9	5432.6	2.0471 µg/L	2.0471 ppb		12:13:16
2	V 292.402†	39480.1	40066.7	187.92 µg/L	187.92 ppb		12:13:16
2	Zn 213.857†	69562.3	70731.5	385.20 µg/L	385.20 ppb		12:13:16
3	Sc RADIAL	70858.2	70858.2	98.4 %			12:12:49
3	Al 396.153Radial†	132269.2	134369.5	49084 µg/L	49084 ppb		12:12:49
3	Ca 317.933Radial†	1501966.3	1526627.6	169940 µg/L	169940 ppb		12:12:47
3	Fe 238.204 Radial†	1229390.4	1250375.1	118280 µg/L	118280 ppb		12:12:47
3	K 766.490 Radial†	20573.2	19845.5	10458 µg/L	10458 ppb		12:12:49
3	Mg 279.077 IEC†	115223.9	117115.4	63180 µg/L	63180 ppb		12:12:49
3	Na 589.592 Radial†	11417.1	11567.4	1928.9 µg/L	1928.9 ppb		12:12:49
3	Sr 421.552†	171946.7	175268.3	502.64 µg/L	502.64 ppb		12:12:49
3	Sc 361.383	1280952.8	1280952.8	96.225 %			12:13:39
3	Y 371.029	766937.2	766937.2	105.87 %			12:13:39
3	Ag 328.068†	-2605.5	-816.9	0.9002 µg/L	0.9002 ppb		12:13:39
3	As 188.979†	158.3	194.5	120.95 µg/L	120.95 ppb		12:13:59
3	B 249.677†	-2506.4	-3489.6	36.578 µg/L	36.578 ppb		12:13:39
3	Ba 233.527†	234724.9	244173.8	2177.8 µg/L	2177.8 ppb		12:13:39
3	Be 313.107†	13075.6	17244.4	-48.605 µg/L	-48.605 ppb		12:13:39
3	Cd 226.502†	2018.4	2277.6	3.6890 µg/L	3.6890 ppb		12:13:59
3	Co 228.616†	3886.6	4130.6	62.465 µg/L	62.465 ppb		12:13:59
3	Cr 267.716†	7314.0	7472.0	89.072 µg/L	89.072 ppb		12:13:59
3	Cu 324.752†	26182.9	21433.2	103.48 µg/L	103.48 ppb		12:13:39
3	Mn 257.610†	2174648.8	2259807.7	3958.3 µg/L	3958.3 ppb		12:13:39
3	Mo 202.031†	-59.8	-32.4	1.8616 µg/L	1.8616 ppb		12:13:59
3	Ni 231.604†	8843.5	9388.2	149.25 µg/L	149.25 ppb		12:13:59
3	P 214.914†	13470.5	14094.0	5073.9 µg/L	5073.9 ppb		12:13:59
3	Pb 220.353†	852.0	811.7	83.261 µg/L	83.261 ppb		12:13:59
3	S 181.975 Axial†	1446.0	1400.0	1536.1 µg/L	1536.1 ppb		12:13:59
3	Sb 206.836†	73.4	32.0	-6.4087 µg/L	-6.4087 ppb		12:13:59
3	Se 196.026†	-80.7	-91.8	5.51 µg/L	5.51 ppb		12:13:59
3	SiO2†	564380.8	583501.6	64580 µg/L	64580 ppb		12:13:39
3	Si 251.611†	1701160.7	1767312.3	29980 µg/L	29980 ppb		12:13:39
3	Sn 189.927†	-60.5	-35.4	-4.3659 µg/L	-4.3659 ppb		12:13:59
3	Ti 334.940†	1327444.5	1380409.1	1963.9 µg/L	1963.9 ppb		12:13:39
3	Tl 190.801†	-174.6	-95.4	-27.292 µg/L	-27.292 ppb		12:13:59
3	U 367.007†	4792.1	5264.4	-10.242 µg/L	-10.242 ppb		12:13:39
3	V 292.402†	38634.9	40047.2	187.73 µg/L	187.73 ppb		12:13:39
3	Zn 213.857†	68084.4	70708.8	385.23 µg/L	385.23 ppb		12:13:39

Mean Data: 409254006|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1289979.4	96.903	%	1.1945				1.23%
Sc RADIAL	69619.0	96.6	%	1.52				1.58%
Y 371.029	772498.4	106.63	%	1.295				1.21%
Ag 328.068†	-768.5	1.2165	µg/L	0.27653	1.2165	ppb	0.27653	22.73%
Al 396.153Radial†	134758.9	49226	µg/L	164.4	49226	ppb	164.4	0.33%
As 188.979†	187.9	117.57	µg/L	3.542	117.57	ppb	3.542	3.01%
B 249.677†	-3587.7	36.335	µg/L	0.8338	36.335	ppb	0.8338	2.29%
Ba 233.527†	244645.0	2182.0	µg/L	5.26	2182.0	ppb	5.26	0.24%
Be 313.107†	17231.0	-48.707	µg/L	0.1335	-48.707	ppb	0.1335	0.27%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1546716.8	172180	µg/L	2328.4	172180	ppb	2328.4	1.35%
Cd 226.502†	2247.6	3.2797	µg/L	0.37026	3.2797	ppb	0.37026	11.29%
Co 228.616†	4096.2	61.940	µg/L	0.7421	61.940	ppb	0.7421	1.20%
Cr 267.716†	7421.0	88.490	µg/L	0.8475	88.490	ppb	0.8475	0.96%
Cu 324.752†	21537.0	104.04	µg/L	0.578	104.04	ppb	0.578	0.56%
Fe 238.204 Radial†	1267192.0	119870	µg/L	1631.0	119870	ppb	1631.0	1.36%
K 766.490 Radial†	20022.5	10552	µg/L	81.1	10552	ppb	81.1	0.77%
Mg 279.077 IEC†	117062.8	63152	µg/L	54.1	63152	ppb	54.1	0.09%
Mn 257.610†	2264399.6	3966.3	µg/L	11.00	3966.3	ppb	11.00	0.28%
Mo 202.031†	-41.1	1.4472	µg/L	0.35910	1.4472	ppb	0.35910	24.81%

Na 589.592 Radial†	11591.3	1932.9	µg/L	3.79	1932.9	ppb	3.79	0.20%
Ni 231.604†	9292.5	147.73	µg/L	2.025	147.73	ppb	2.025	1.37%
P 214.914†	13967.4	5028.2	µg/L	63.36	5028.2	ppb	63.36	1.26%
Pb 220.353†	800.7	82.135	µg/L	2.3266	82.135	ppb	2.3266	2.83%
S 181.975 Axial†	1379.8	1513.1	µg/L	31.95	1513.1	ppb	31.95	2.11%
Sb 206.836†	27.5	-7.4298	µg/L	2.64004	-7.4298	ppb	2.64004	35.53%
Se 196.026†	-90.5	6.96	µg/L	1.615	6.96	ppb	1.615	23.20%
SiO2†	584538.3	64695	µg/L	122.2	64695	ppb	122.2	0.19%
Si 251.611†	1771250.4	30047	µg/L	70.1	30047	ppb	70.1	0.23%
Sn 189.927†	-34.6	-4.2713	µg/L	0.24226	-4.2713	ppb	0.24226	5.67%
Sr 421.552†	175727.7	503.90	µg/L	1.211	503.90	ppb	1.211	0.24%
Ti 334.940†	1382697.5	1967.2	µg/L	3.90	1967.2	ppb	3.90	0.20%
Tl 190.801†	-97.5	-27.897	µg/L	1.1872	-27.897	ppb	1.1872	4.26%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	5372.6	-5.7723	µg/L	6.79493	-5.7723	ppb	6.79493	117.72%
V 292.402†	40057.8	187.88	µg/L	0.143	187.88	ppb	0.143	0.08%
Zn 213.857†	70811.8	385.64	µg/L	0.743	385.64	ppb	0.743	0.19%

Sequence No.: 10 **Autosampler Location:** 313
Sample ID: 409254007|1611117|1 **Date Collected:** 11/11/2016 12:14:08
Analyst: TXT1 **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254007|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70755.4	70755.4	98.2	%			12:14:35
1	Al 396.153Radial†	163206.1	166062.6	60652	µg/L	60652	ppb	12:14:35
1	Ca 317.933Radial†	1396408.5	1421376.3	158230	µg/L	158230	ppb	12:14:33
1	Fe 238.204 Radial†	1349356.1	1374332.2	130010	µg/L	130010	ppb	12:14:33
1	K 766.490 Radial†	27956.8	27393.3	14430	µg/L	14430	ppb	12:14:35
1	Mg 279.077 IEC†	110131.8	112101.2	60480	µg/L	60480	ppb	12:14:35
1	Na 589.592 Radial†	10687.3	10841.2	1807.8	µg/L	1807.8	ppb	12:14:35
1	Sr 421.552†	206383.1	210583.0	605.50	µg/L	605.50	ppb	12:14:35
1	Sc 361.383	1294857.8	1294857.8	97.270	%			12:14:47
1	Y 371.029	798667.7	798667.7	110.25	%			12:14:47
1	Ag 328.068†	-2540.1	-720.5	2.1397	µg/L	2.1397	ppb	12:14:47
1	As 188.979†	173.6	208.5	130.12	µg/L	130.12	ppb	12:15:08
1	B 249.677†	-2680.5	-3640.6	43.008	µg/L	43.008	ppb	12:14:47
1	Ba 233.527†	230391.8	237099.6	2114.8	µg/L	2114.8	ppb	12:14:47
1	Be 313.107†	17042.3	21176.6	-45.955	µg/L	-45.955	ppb	12:14:47
1	Cd 226.502†	2292.8	2537.2	4.3106	µg/L	4.3106	ppb	12:15:08
1	Co 228.616†	4550.7	4770.0	71.745	µg/L	71.745	ppb	12:15:08
1	Cr 267.716†	8755.8	8872.6	105.70	µg/L	105.70	ppb	12:15:08
1	Cu 324.752†	43010.1	38440.5	179.30	µg/L	179.30	ppb	12:14:47
1	Mn 257.610†	1875097.2	1927578.8	3376.1	µg/L	3376.1	ppb	12:14:47
1	Mo 202.031†	-36.3	-7.6	3.4078	µg/L	3.4078	ppb	12:15:08
1	Ni 231.604†	9919.0	10395.1	165.26	µg/L	165.26	ppb	12:15:08
1	P 214.914†	15328.1	15853.5	5707.4	µg/L	5707.4	ppb	12:15:08
1	Pb 220.353†	1026.9	982.0	101.00	µg/L	101.00	ppb	12:15:08
1	S 181.975 Axial†	1572.7	1514.2	1660.7	µg/L	1660.7	ppb	12:15:08
1	Sb 206.836†	84.4	42.4	-5.5996	µg/L	-5.5996	ppb	12:15:08
1	Se 196.026†	-92.5	-103.1	4.75	µg/L	4.75	ppb	12:15:08
1	SiO2†	590014.5	603556.4	66800	µg/L	66800	ppb	12:14:47
1	Si 251.611†	1778431.1	1827766.8	31006	µg/L	31006	ppb	12:14:47
1	Sn 189.927†	-64.2	-38.5	-4.7270	µg/L	-4.7270	ppb	12:15:08
1	Ti 334.940†	1535884.2	1579885.5	2247.3	µg/L	2247.3	ppb	12:14:47
1	Tl 190.801†	-204.7	-124.4	-36.012	µg/L	-36.012	ppb	12:15:08
1	U 367.007†	5427.2	5863.8	0.7926	µg/L	0.7926	ppb	12:14:47
1	V 292.402†	44498.8	45644.6	213.64	µg/L	213.64	ppb	12:14:47
1	Zn 213.857†	82180.2	84440.4	461.93	µg/L	461.93	ppb	12:14:47
2	Sc RADIAL	71745.4	71745.4	99.6	%			12:14:39
2	Al 396.153Radial†	165609.4	166182.7	60696	µg/L	60696	ppb	12:14:39
2	Ca 317.933Radial†	1451432.9	1457005.6	162190	µg/L	162190	ppb	12:14:37
2	Fe 238.204 Radial†	1401197.6	1407426.8	133140	µg/L	133140	ppb	12:14:37
2	K 766.490 Radial†	28386.4	27431.8	14451	µg/L	14451	ppb	12:14:39
2	Mg 279.077 IEC†	111497.9	111925.6	60387	µg/L	60387	ppb	12:14:39
2	Na 589.592 Radial†	10856.3	10860.7	1811.1	µg/L	1811.1	ppb	12:14:39
2	Sr 421.552†	209379.1	210691.5	605.68	µg/L	605.68	ppb	12:14:39
2	Sc 361.383	1292860.4	1292860.4	97.120	%			12:15:10
2	Y 371.029	796856.3	796856.3	110.00	%			12:15:10
2	Ag 328.068†	-2693.3	-882.3	1.4486	µg/L	1.4486	ppb	12:15:10
2	As 188.979†	181.2	216.5	134.89	µg/L	134.89	ppb	12:15:31
2	B 249.677†	-2673.8	-3638.0	45.342	µg/L	45.342	ppb	12:15:10
2	Ba 233.527†	229643.6	236695.2	2111.2	µg/L	2111.2	ppb	12:15:10
2	Be 313.107†	16843.6	20999.1	-45.911	µg/L	-45.911	ppb	12:15:10
2	Cd 226.502†	2280.6	2528.2	3.8842	µg/L	3.8842	ppb	12:15:31
2	Co 228.616†	4538.7	4764.8	71.625	µg/L	71.625	ppb	12:15:31
2	Cr 267.716†	8726.0	8855.8	105.56	µg/L	105.56	ppb	12:15:31
2	Cu 324.752†	43185.3	38689.2	180.60	µg/L	180.60	ppb	12:15:10
2	Mn 257.610†	1869562.5	1924858.2	3371.4	µg/L	3371.4	ppb	12:15:10
2	Mo 202.031†	-41.4	-12.9	3.2057	µg/L	3.2057	ppb	12:15:31
2	Ni 231.604†	9837.6	10327.1	164.18	µg/L	164.18	ppb	12:15:31
2	P 214.914†	15241.0	15788.1	5683.7	µg/L	5683.7	ppb	12:15:31
2	Pb 220.353†	1030.8	987.7	101.57	µg/L	101.57	ppb	12:15:31

2	S 181.975 Axial†	1564.0	1507.7	1652.8 µg/L	1652.8 ppb		12:15:31
2	Sb 206.836†	77.5	35.5	-7.2703 µg/L	-7.2703 ppb		12:15:31
2	Se 196.026†	-95.7	-106.5	4.43 µg/L	4.43 ppb		12:15:31
2	SiO2†	588273.5	602700.8	66705 µg/L	66705 ppb		12:15:10
2	Si 251.611†	1775261.8	1827328.3	30999 µg/L	30999 ppb		12:15:10
2	Sn 189.927†	-53.5	-27.6	-3.3330 µg/L	-3.3330 ppb		12:15:31
2	Ti 334.940†	1532644.4	1578989.0	2246.0 µg/L	2246.0 ppb		12:15:10
2	Tl 190.801†	-202.0	-121.9	-35.189 µg/L	-35.189 ppb		12:15:31
2	U 367.007†	5500.2	5947.5	-6.2670 µg/L	-6.2670 ppb		12:15:10
2	V 292.402†	44385.9	45599.0	213.65 µg/L	213.65 ppb		12:15:10
2	Zn 213.857†	81799.1	84178.6	460.11 µg/L	460.11 ppb		12:15:10
3	Sc RADIAL	70752.8	70752.8	98.2 %			12:14:43
3	Al 396.153Radial†	163796.9	166670.2	60875 µg/L	60875 ppb		12:14:43
3	Ca 317.933Radial†	1445001.8	1470903.5	163740 µg/L	163740 ppb		12:14:41
3	Fe 238.204 Radial†	1396058.5	1421932.5	134510 µg/L	134510 ppb		12:14:41
3	K 766.490 Radial†	27917.2	27354.0	14410 µg/L	14410 ppb		12:14:43
3	Mg 279.077 IEC†	109401.5	111361.7	60083 µg/L	60083 ppb		12:14:43
3	Na 589.592 Radial†	10772.7	10928.6	1822.4 µg/L	1822.4 ppb		12:14:43
3	Sr 421.552†	207493.7	211721.3	608.62 µg/L	608.62 ppb		12:14:43
3	Sc 361.383	1312060.4	1312060.4	98.562 %			12:15:33
3	Y 371.029	808154.9	808154.9	111.55 %			12:15:33
3	Ag 328.068†	-2561.0	-707.5	2.4261 µg/L	2.4261 ppb		12:15:33
3	As 188.979†	180.3	212.9	133.07 µg/L	133.07 ppb		12:15:54
3	B 249.677†	-2597.1	-3519.8	48.049 µg/L	48.049 ppb		12:15:33
3	Ba 233.527†	234029.0	237684.4	2120.0 µg/L	2120.0 ppb		12:15:33
3	Be 313.107†	17380.1	21289.5	-46.054 µg/L	-46.054 ppb		12:15:33
3	Cd 226.502†	2280.3	2493.6	3.4647 µg/L	3.4647 ppb		12:15:54
3	Co 228.616†	4581.3	4739.6	71.245 µg/L	71.245 ppb		12:15:54
3	Cr 267.716†	8736.4	8734.9	104.17 µg/L	104.17 ppb		12:15:54
3	Cu 324.752†	43799.0	38661.2	180.55 µg/L	180.55 ppb		12:15:33
3	Mn 257.610†	1904840.7	1932481.7	3384.7 µg/L	3384.7 ppb		12:15:33
3	Mo 202.031†	-64.6	-35.8	2.0445 µg/L	2.0445 ppb		12:15:54
3	Ni 231.604†	9877.3	10219.1	162.46 µg/L	162.46 ppb		12:15:54
3	P 214.914†	15321.9	15640.6	5630.5 µg/L	5630.5 ppb		12:15:54
3	Pb 220.353†	1035.4	976.8	100.49 µg/L	100.49 ppb		12:15:54
3	S 181.975 Axial†	1549.8	1469.7	1610.1 µg/L	1610.1 ppb		12:15:54
3	Sb 206.836†	79.0	35.9	-7.3148 µg/L	-7.3148 ppb		12:15:54
3	Se 196.026†	-84.3	-93.6	11.8 µg/L	11.8 ppb		12:15:54
3	SiO2†	599512.9	605240.4	66986 µg/L	66986 ppb		12:15:33
3	Si 251.611†	1808002.9	1833798.4	31109 µg/L	31109 ppb		12:15:33
3	Sn 189.927†	-50.4	-23.6	-2.8253 µg/L	-2.8253 ppb		12:15:54
3	Ti 334.940†	1560460.1	1584117.5	2253.3 µg/L	2253.3 ppb		12:15:33
3	Tl 190.801†	-206.4	-123.3	-35.591 µg/L	-35.591 ppb		12:15:54
3	U 367.007†	5468.5	5832.6	-28.010 µg/L	-28.010 ppb		12:15:33
3	V 292.402†	45528.3	46089.3	215.93 µg/L	215.93 ppb		12:15:33
3	Zn 213.857†	83711.7	84886.6	463.99 µg/L	463.99 ppb		12:15:33

Mean Data: 409254007|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1299926.2	97.650	%	0.7930				0.81%
Sc RADIAL	71084.5	98.7	%	0.79				0.81%
Y 371.029	801226.3	110.60	%	0.838				0.76%
Ag 328.068†	-770.1	2.0048	µg/L	0.50252	2.0048	ppb	0.50252	25.07%
Al 396.153Radial†	166305.2	60741	µg/L	117.9	60741	ppb	117.9	0.19%
As 188.979†	212.6	132.69	µg/L	2.408	132.69	ppb	2.408	1.81%
B 249.677†	-3599.5	45.466	µg/L	2.5226	45.466	ppb	2.5226	5.55%
Ba 233.527†	237159.7	2115.3	µg/L	4.44	2115.3	ppb	4.44	0.21%
Be 313.107†	21155.1	-45.974	µg/L	0.0731	-45.974	ppb	0.0731	0.16%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1449761.8	161390	µg/L	2843.8	161390	ppb	2843.8	1.76%
Cd 226.502†	2519.7	3.8865	µg/L	0.42293	3.8865	ppb	0.42293	10.88%
Co 228.616†	4758.2	71.538	µg/L	0.2612	71.538	ppb	0.2612	0.37%
Cr 267.716†	8821.1	105.14	µg/L	0.845	105.14	ppb	0.845	0.80%
Cu 324.752†	38597.0	180.15	µg/L	0.738	180.15	ppb	0.738	0.41%
Fe 238.204 Radial†	1401230.5	132550	µg/L	2307.9	132550	ppb	2307.9	1.74%
K 766.490 Radial†	27393.0	14430	µg/L	20.3	14430	ppb	20.3	0.14%
Mg 279.077 IEC†	111796.2	60317	µg/L	207.7	60317	ppb	207.7	0.34%
Mn 257.610†	1928306.2	3377.4	µg/L	6.78	3377.4	ppb	6.78	0.20%
Mo 202.031†	-18.8	2.8860	µg/L	0.73569	2.8860	ppb	0.73569	25.49%

Na 589.592 Radial†	10876.8	1813.8	µg/L	7.64	1813.8	ppb	7.64	0.42%
Ni 231.604†	10313.8	163.97	µg/L	1.411	163.97	ppb	1.411	0.86%
P 214.914†	15760.7	5673.9	µg/L	39.42	5673.9	ppb	39.42	0.69%
Pb 220.353†	982.1	101.02	µg/L	0.540	101.02	ppb	0.540	0.53%
S 181.975 Axial†	1497.2	1641.2	µg/L	27.25	1641.2	ppb	27.25	1.66%
Sb 206.836†	37.9	-6.7282	µg/L	0.97770	-6.7282	ppb	0.97770	14.53%
Se 196.026†	-101.1	7.00	µg/L	4.174	7.00	ppb	4.174	59.63%
SiO2†	603832.5	66830	µg/L	143.0	66830	ppb	143.0	0.21%
Si 251.611†	1829631.2	31038	µg/L	61.5	31038	ppb	61.5	0.20%
Sn 189.927†	-29.9	-3.6284	µg/L	0.98464	-3.6284	ppb	0.98464	27.14%
Sr 421.552†	210998.6	606.60	µg/L	1.748	606.60	ppb	1.748	0.29%
Ti 334.940†	1580997.3	2248.9	µg/L	3.92	2248.9	ppb	3.92	0.17%
Tl 190.801†	-123.2	-35.598	µg/L	0.4118	-35.598	ppb	0.4118	1.16%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	5881.3	-11.161	µg/L	15.0120	-11.161	ppb	15.0120	134.50%
V 292.402†	45777.6	214.41	µg/L	1.319	214.41	ppb	1.319	0.62%
Zn 213.857†	84501.9	462.01	µg/L	1.944	462.01	ppb	1.944	0.42%

Sequence No.: 11 **Autosampler Location: 314**
Sample ID: 409254008|1611117|1 **Date Collected: 11/11/2016 12:16:02**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254008|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70760.6	70760.6	98.2	%			12:16:29
1	Al 396.153Radial†	49227.8	50014.7	18268	µg/L	18268	ppb	12:16:29
1	Ca 317.933Radial†	471105.1	479265.3	53352	µg/L	53352	ppb	12:16:29
1	Fe 238.204 Radial†	680945.7	693754.6	65626	µg/L	65626	ppb	12:16:27
1	K 766.490 Radial†	7666.6	6734.7	3558.6	µg/L	3558.6	ppb	12:16:29
1	Mg 279.077 IEC†	37322.8	37969.7	20492	µg/L	20492	ppb	12:16:29
1	Na 589.592 Radial†	7387.9	7481.5	1247.6	µg/L	1247.6	ppb	12:16:29
1	Sr 421.552†	58617.1	60134.1	172.63	µg/L	172.63	ppb	12:16:29
1	Sc 361.383	1298125.6	1298125.6	97.515	%			12:16:41
1	Y 371.029	751138.5	751138.5	103.68	%			12:16:41
1	Ag 328.068†	-2149.0	-312.9	1.5808	µg/L	1.5808	ppb	12:16:41
1	As 188.979†	53.3	84.6	54.381	µg/L	54.381	ppb	12:17:01
1	B 249.677†	-1903.8	-2837.2	7.3376	µg/L	7.3376	ppb	12:16:41
1	Ba 233.527†	232163.2	238319.9	2125.3	µg/L	2125.3	ppb	12:16:41
1	Be 313.107†	3306.8	7046.9	-50.214	µg/L	-50.214	ppb	12:16:41
1	Cd 226.502†	908.4	1111.5	0.8955	µg/L	0.8955	ppb	12:17:01
1	Co 228.616†	2111.2	2256.5	35.210	µg/L	35.210	ppb	12:17:01
1	Cr 267.716†	3397.4	3355.0	40.222	µg/L	40.222	ppb	12:17:01
1	Cu 324.752†	7518.7	1933.4	13.256	µg/L	13.256	ppb	12:16:41
1	Mn 257.610†	876796.9	898987.3	1574.8	µg/L	1574.8	ppb	12:16:41
1	Mo 202.031†	-53.1	-24.7	0.5277	µg/L	0.5277	ppb	12:17:01
1	Ni 231.604†	4810.2	5130.5	81.565	µg/L	81.565	ppb	12:17:01
1	P 214.914†	7950.4	8248.1	2969.5	µg/L	2969.5	ppb	12:17:01
1	Pb 220.353†	492.6	431.4	44.002	µg/L	44.002	ppb	12:17:01
1	S 181.975 Axial†	823.7	742.0	813.58	µg/L	813.58	ppb	12:17:01
1	Sb 206.836†	59.6	16.8	-3.8145	µg/L	-3.8145	ppb	12:17:01
1	Se 196.026†	-49.6	-58.8	-0.893	µg/L	-0.893	ppb	12:17:01
1	SiO2†	290822.0	295213.0	32673	µg/L	32673	ppb	12:16:41
1	Si 251.611†	872876.5	894534.6	15175	µg/L	15175	ppb	12:16:41
1	Sn 189.927†	-59.6	-33.6	-4.2358	µg/L	-4.2358	ppb	12:17:01
1	Ti 334.940†	659644.3	677342.5	963.27	µg/L	963.27	ppb	12:16:41
1	Tl 190.801†	-142.4	-59.9	-17.297	µg/L	-17.297	ppb	12:17:01
1	U 367.007†	2399.8	2745.2	-23.698	µg/L	-23.698	ppb	12:16:41
1	V 292.402†	18184.3	18544.3	87.664	µg/L	87.664	ppb	12:16:41
1	Zn 213.857†	31377.2	32130.2	174.21	µg/L	174.21	ppb	12:16:41
2	Sc RADIAL	69710.8	69710.8	96.8	%			12:16:33
2	Al 396.153Radial†	48336.0	49847.9	18207	µg/L	18207	ppb	12:16:33
2	Ca 317.933Radial†	461913.9	476990.1	53099	µg/L	53099	ppb	12:16:33
2	Fe 238.204 Radial†	680583.5	703820.5	66578	µg/L	66578	ppb	12:16:31
2	K 766.490 Radial†	7547.7	6729.5	3556.2	µg/L	3556.2	ppb	12:16:33
2	Mg 279.077 IEC†	36699.7	37898.0	20454	µg/L	20454	ppb	12:16:33
2	Na 589.592 Radial†	7448.4	7657.3	1276.9	µg/L	1276.9	ppb	12:16:33
2	Sr 421.552†	57796.5	60184.9	172.78	µg/L	172.78	ppb	12:16:33
2	Sc 361.383	1270129.3	1270129.3	95.412	%			12:17:03
2	Y 371.029	734594.9	734594.9	101.40	%			12:17:03
2	Ag 328.068†	-1970.1	-174.0	2.3504	µg/L	2.3504	ppb	12:17:03
2	As 188.979†	43.7	75.7	49.661	µg/L	49.661	ppb	12:17:23
2	B 249.677†	-1797.7	-2769.0	9.0163	µg/L	9.0163	ppb	12:17:03
2	Ba 233.527†	226850.0	237999.0	2122.5	µg/L	2122.5	ppb	12:17:03
2	Be 313.107†	3318.8	7134.3	-50.117	µg/L	-50.117	ppb	12:17:03
2	Cd 226.502†	913.0	1136.9	0.9784	µg/L	0.9784	ppb	12:17:23
2	Co 228.616†	2131.9	2325.9	36.227	µg/L	36.227	ppb	12:17:23
2	Cr 267.716†	3410.4	3445.3	41.295	µg/L	41.295	ppb	12:17:23
2	Cu 324.752†	7492.5	2075.9	13.952	µg/L	13.952	ppb	12:17:03
2	Mn 257.610†	857420.4	898497.9	1574.0	µg/L	1574.0	ppb	12:17:03
2	Mo 202.031†	-41.9	-14.2	1.0993	µg/L	1.0993	ppb	12:17:23
2	Ni 231.604†	4809.5	5238.5	83.282	µg/L	83.282	ppb	12:17:23
2	P 214.914†	7974.7	8453.2	3043.4	µg/L	3043.4	ppb	12:17:23
2	Pb 220.353†	481.5	430.9	43.934	µg/L	43.934	ppb	12:17:23

2	S 181.975 Axial†	834.6	772.1	846.94 µg/L	846.94 ppb		12:17:23
2	Sb 206.836†	63.6	22.3	-2.8649 µg/L	-2.8649 ppb		12:17:23
2	Se 196.026†	-46.4	-56.6	0.723 µg/L	0.723 ppb		12:17:23
2	SiO2†	284728.6	295400.2	32694 µg/L	32694 ppb		12:17:03
2	Si 251.611†	853251.0	893695.6	15161 µg/L	15161 ppb		12:17:03
2	Sn 189.927†	-47.5	-22.3	-2.7904 µg/L	-2.7904 ppb		12:17:23
2	Ti 334.940†	646257.0	678221.9	964.51 µg/L	964.51 ppb		12:17:03
2	Tl 190.801†	-124.0	-43.9	-12.353 µg/L	-12.353 ppb		12:17:23
2	U 367.007†	2415.5	2815.8	-20.157 µg/L	-20.157 ppb		12:17:03
2	V 292.402†	17911.9	18669.9	88.295 µg/L	88.295 ppb		12:17:03
2	Zn 213.857†	30658.3	32086.0	173.86 µg/L	173.86 ppb		12:17:03
3	Sc RADIAL	69869.7	69869.7	97.0 %			12:16:37
3	Al 396.153Radial†	48578.5	49984.3	18257 µg/L	18257 ppb		12:16:37
3	Ca 317.933Radial†	462893.9	476914.8	53090 µg/L	53090 ppb		12:16:37
3	Fe 238.204 Radial†	666175.6	687365.8	65022 µg/L	65022 ppb		12:16:35
3	K 766.490 Radial†	7541.9	6705.7	3543.1 µg/L	3543.1 ppb		12:16:37
3	Mg 279.077 IEC†	36528.9	37635.6	20312 µg/L	20312 ppb		12:16:37
3	Na 589.592 Radial†	7318.2	7505.6	1251.6 µg/L	1251.6 ppb		12:16:37
3	Sr 421.552†	58073.7	60334.8	173.22 µg/L	173.22 ppb		12:16:37
3	Sc 361.383	1286187.7	1286187.7	96.618 %			12:17:26
3	Y 371.029	743338.3	743338.3	102.61 %			12:17:26
3	Ag 328.068†	-2167.4	-352.5	1.3399 µg/L	1.3399 ppb		12:17:26
3	As 188.979†	53.4	85.2	54.611 µg/L	54.611 ppb		12:17:46
3	B 249.677†	-1858.9	-2808.8	7.3023 µg/L	7.3023 ppb		12:17:26
3	Ba 233.527†	229909.4	238197.0	2124.2 µg/L	2124.2 ppb		12:17:26
3	Be 313.107†	3246.0	7015.5	-50.194 µg/L	-50.194 ppb		12:17:26
3	Cd 226.502†	942.3	1155.3	1.2957 µg/L	1.2957 ppb		12:17:46
3	Co 228.616†	2112.9	2278.4	35.542 µg/L	35.542 ppb		12:17:46
3	Cr 267.716†	3366.2	3355.0	40.208 µg/L	40.208 ppb		12:17:46
3	Cu 324.752†	7295.2	1773.6	12.515 µg/L	12.515 ppb		12:17:26
3	Mn 257.610†	869790.1	900080.8	1576.8 µg/L	1576.8 ppb		12:17:26
3	Mo 202.031†	-40.6	-12.3	1.1559 µg/L	1.1559 ppb		12:17:46
3	Ni 231.604†	4764.6	5129.1	81.542 µg/L	81.542 ppb		12:17:46
3	P 214.914†	7906.6	8278.4	2980.5 µg/L	2980.5 ppb		12:17:46
3	Pb 220.353†	467.7	410.4	41.863 µg/L	41.863 ppb		12:17:46
3	S 181.975 Axial†	821.6	747.6	820.02 µg/L	820.02 ppb		12:17:46
3	Sb 206.836†	61.1	18.9	-3.3359 µg/L	-3.3359 ppb		12:17:46
3	Se 196.026†	-32.2	-41.3	8.03 µg/L	8.03 ppb		12:17:46
3	SiO2†	288716.3	295801.5	32738 µg/L	32738 ppb		12:17:26
3	Si 251.611†	865400.4	895104.9	15185 µg/L	15185 ppb		12:17:26
3	Sn 189.927†	-43.9	-17.9	-2.2357 µg/L	-2.2357 ppb		12:17:46
3	Ti 334.940†	655217.1	679038.9	965.68 µg/L	965.68 ppb		12:17:26
3	Tl 190.801†	-132.7	-51.3	-14.648 µg/L	-14.648 ppb		12:17:46
3	U 367.007†	2426.5	2795.6	-14.180 µg/L	-14.180 ppb		12:17:26
3	V 292.402†	18026.1	18553.7	87.668 µg/L	87.668 ppb		12:17:26
3	Zn 213.857†	31164.1	32208.3	174.73 µg/L	174.73 ppb		12:17:26

Mean Data: 409254008|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1284814.2	96.515	%	1.0553				1.09%
Sc RADIAL	70113.7	97.3	%	0.79				0.81%
Y 371.029	743023.9	102.56	%	1.142				1.11%
Ag 328.068†	-279.8	1.7570	µg/L	0.52778	1.7570	ppb	0.52778	30.04%
Al 396.153Radial†	49948.9	18244	µg/L	32.4	18244	ppb	32.4	0.18%
As 188.979†	81.9	52.884	µg/L	2.7939	52.884	ppb	2.7939	5.28%
B 249.677†	-2805.0	7.8854	µg/L	0.97956	7.8854	ppb	0.97956	12.42%
Ba 233.527†	238172.0	2124.0	µg/L	1.44	2124.0	ppb	1.44	0.07%
Be 313.107†	7065.6	-50.175	µg/L	0.0513	-50.175	ppb	0.0513	0.10%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	477723.4	53180	µg/L	148.7	53180	ppb	148.7	0.28%
Cd 226.502†	1134.6	1.0565	µg/L	0.21121	1.0565	ppb	0.21121	19.99%
Co 228.616†	2286.9	35.660	µg/L	0.5181	35.660	ppb	0.5181	1.45%
Cr 267.716†	3385.1	40.575	µg/L	0.6234	40.575	ppb	0.6234	1.54%
Cu 324.752†	1927.6	13.241	µg/L	0.7186	13.241	ppb	0.7186	5.43%
Fe 238.204 Radial†	694980.3	65742	µg/L	784.7	65742	ppb	784.7	1.19%
K 766.490 Radial†	6723.3	3552.6	µg/L	8.32	3552.6	ppb	8.32	0.23%
Mg 279.077 IEC†	37834.4	20419	µg/L	95.0	20419	ppb	95.0	0.47%
Mn 257.610†	899188.7	1575.2	µg/L	1.42	1575.2	ppb	1.42	0.09%
Mo 202.031†	-17.1	0.9276	µg/L	0.34748	0.9276	ppb	0.34748	37.46%

Na 589.592 Radial†	7548.1	1258.7 µg/L	15.89	1258.7 ppb	15.89	1.26%
Ni 231.604†	5166.0	82.130 µg/L	0.9980	82.130 ppb	0.9980	1.22%
P 214.914†	8326.6	2997.8 µg/L	39.88	2997.8 ppb	39.88	1.33%
Pb 220.353†	424.2	43.266 µg/L	1.2155	43.266 ppb	1.2155	2.81%
S 181.975 Axial†	753.9	826.85 µg/L	17.698	826.85 ppb	17.698	2.14%
Sb 206.836†	19.3	-3.3384 µg/L	0.47482	-3.3384 ppb	0.47482	14.22%
Se 196.026†	-52.3	2.62 µg/L	4.755	2.62 ppb	4.755	181.46%
SiO2†	295471.6	32702 µg/L	33.3	32702 ppb	33.3	0.10%
Si 251.611†	894445.0	15174 µg/L	11.9	15174 ppb	11.9	0.08%
Sn 189.927†	-24.6	-3.0873 µg/L	1.03259	-3.0873 ppb	1.03259	33.45%
Sr 421.552†	60217.9	172.87 µg/L	0.306	172.87 ppb	0.306	0.18%
Ti 334.940†	678201.1	964.49 µg/L	1.203	964.49 ppb	1.203	0.12%
Tl 190.801†	-51.7	-14.766 µg/L	2.4743	-14.766 ppb	2.4743	16.76%
U 367.007†	2785.5	-19.345 µg/L	4.8102	-19.345 ppb	4.8102	24.87%
V 292.402†	18589.3	87.876 µg/L	0.3632	87.876 ppb	0.3632	0.41%
Zn 213.857†	32141.5	174.27 µg/L	0.437	174.27 ppb	0.437	0.25%

Sequence No.: 12 **Autosampler Location: 315**
Sample ID: 409254009|1611117|1 **Date Collected: 11/11/2016 12:17:54**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254009|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70939.2	70939.2	98.5	%			12:18:21
1	Al 396.153Radial†	93622.9	94971.1	34693	µg/L	34693	ppb	12:18:21
1	Ca 317.933Radial†	1122948.3	1139995.9	126900	µg/L	126900	ppb	12:18:19
1	Fe 238.204 Radial†	1005063.9	1021147.1	96596	µg/L	96596	ppb	12:18:19
1	K 766.490 Radial†	13816.7	12960.5	6835.8	µg/L	6835.8	ppb	12:18:21
1	Mg 279.077 IEC†	87176.1	88499.4	47745	µg/L	47745	ppb	12:18:21
1	Na 589.592 Radial†	9649.9	9759.5	1627.5	µg/L	1627.5	ppb	12:18:21
1	Sr 421.552†	109859.3	112019.7	320.62	µg/L	320.62	ppb	12:18:21
1	Sc 361.383	1296321.4	1296321.4	97.380	%			12:18:33
1	Y 371.029	755395.4	755395.4	104.27	%			12:18:33
1	Ag 328.068†	-2419.3	-593.6	1.2188	µg/L	1.2188	ppb	12:18:35
1	As 188.979†	90.6	123.0	79.218	µg/L	79.218	ppb	12:18:55
1	B 249.677†	-2358.2	-3306.5	23.305	µg/L	23.305	ppb	12:18:35
1	Ba 233.527†	174845.0	179790.7	1603.6	µg/L	1603.6	ppb	12:18:35
1	Be 313.107†	8106.0	11980.0	-35.969	µg/L	-35.969	ppb	12:18:35
1	Cd 226.502†	1475.3	1695.0	1.7638	µg/L	1.7638	ppb	12:18:55
1	Co 228.616†	2947.6	3118.4	47.021	µg/L	47.021	ppb	12:18:55
1	Cr 267.716†	5413.8	5430.5	64.872	µg/L	64.872	ppb	12:18:35
1	Cu 324.752†	14296.6	8904.5	46.500	µg/L	46.500	ppb	12:18:35
1	Mn 257.610†	1538347.9	1579591.4	2766.7	µg/L	2766.7	ppb	12:18:33
1	Mo 202.031†	-76.2	-48.6	0.3316	µg/L	0.3316	ppb	12:18:55
1	Ni 231.604†	6437.3	6808.3	108.24	µg/L	108.24	ppb	12:18:55
1	P 214.914†	11201.0	11597.5	4175.2	µg/L	4175.2	ppb	12:18:35
1	Pb 220.353†	625.9	569.0	58.281	µg/L	58.281	ppb	12:18:55
1	S 181.975 Axial†	988.7	912.6	996.98	µg/L	996.98	ppb	12:18:55
1	Sb 206.836†	68.9	26.5	-5.1773	µg/L	-5.1773	ppb	12:18:55
1	Se 196.026†	-62.1	-71.8	6.27	µg/L	6.27	ppb	12:18:55
1	SiO2†	485476.5	495520.5	54843	µg/L	54843	ppb	12:18:33
1	Si 251.611†	1465786.0	1504644.5	25523	µg/L	25523	ppb	12:18:33
1	Sn 189.927†	-41.5	-15.1	-1.8228	µg/L	-1.8228	ppb	12:18:55
1	Ti 334.940†	1004867.5	1032796.8	1469.3	µg/L	1469.3	ppb	12:18:33
1	Tl 190.801†	-170.3	-88.9	-25.657	µg/L	-25.657	ppb	12:18:55
1	U 367.007†	3856.1	4244.1	-14.105	µg/L	-14.105	ppb	12:18:35
1	V 292.402†	28425.6	29087.2	137.08	µg/L	137.08	ppb	12:18:35
1	Zn 213.857†	51072.3	52400.2	284.51	µg/L	284.51	ppb	12:18:35
2	Sc RADIAL	70523.3	70523.3	97.9	%			12:18:25
2	Al 396.153Radial†	92755.6	94646.0	34574	µg/L	34574	ppb	12:18:25
2	Ca 317.933Radial†	1107914.7	1131365.8	125940	µg/L	125940	ppb	12:18:23
2	Fe 238.204 Radial†	991889.0	1013709.6	95892	µg/L	95892	ppb	12:18:23
2	K 766.490 Radial†	13875.8	13103.6	6910.8	µg/L	6910.8	ppb	12:18:25
2	Mg 279.077 IEC†	86124.3	87947.1	47447	µg/L	47447	ppb	12:18:25
2	Na 589.592 Radial†	9527.2	9692.0	1616.2	µg/L	1616.2	ppb	12:18:25
2	Sr 421.552†	108905.7	111703.6	319.74	µg/L	319.74	ppb	12:18:25
2	Sc 361.383	1316853.8	1316853.8	98.922	%			12:18:58
2	Y 371.029	767503.5	767503.5	105.94	%			12:18:58
2	Ag 328.068†	-2405.4	-540.7	1.4608	µg/L	1.4608	ppb	12:19:00
2	As 188.979†	65.0	95.6	64.260	µg/L	64.260	ppb	12:19:20
2	B 249.677†	-2363.6	-3274.3	23.253	µg/L	23.253	ppb	12:19:00
2	Ba 233.527†	177118.3	179289.2	1599.1	µg/L	1599.1	ppb	12:19:00
2	Be 313.107†	8397.8	12145.2	-35.815	µg/L	-35.815	ppb	12:19:00
2	Cd 226.502†	1505.5	1701.9	1.8968	µg/L	1.8968	ppb	12:19:20
2	Co 228.616†	2979.9	3103.9	46.809	µg/L	46.809	ppb	12:19:20
2	Cr 267.716†	5396.4	5326.2	63.638	µg/L	63.638	ppb	12:19:00
2	Cu 324.752†	14240.4	8618.7	45.187	µg/L	45.187	ppb	12:19:00
2	Mn 257.610†	1560933.8	1577792.1	2763.5	µg/L	2763.5	ppb	12:18:58
2	Mo 202.031†	-61.4	-32.3	1.1557	µg/L	1.1557	ppb	12:19:20
2	Ni 231.604†	6373.8	6641.0	105.58	µg/L	105.58	ppb	12:19:20
2	P 214.914†	11440.3	11660.1	4197.7	µg/L	4197.7	ppb	12:19:00
2	Pb 220.353†	610.0	543.0	55.644	µg/L	55.644	ppb	12:19:20

2	S 181.975 Axial†	978.9	886.8	968.35 µg/L	968.35 ppb		12:19:20
2	Sb 206.836†	61.8	18.1	-6.6943 µg/L	-6.6943 ppb		12:19:20
2	Se 196.026†	-58.4	-67.1	8.44 µg/L	8.44 ppb		12:19:20
2	SiO2†	493888.0	496250.4	54924 µg/L	54924 ppb		12:18:58
2	Si 251.611†	1489098.4	1504741.4	25525 µg/L	25525 ppb		12:18:58
2	Sn 189.927†	-45.5	-18.5	-2.2514 µg/L	-2.2514 ppb		12:19:20
2	Ti 334.940†	1020802.2	1032815.7	1469.4 µg/L	1469.4 ppb		12:18:58
2	Tl 190.801†	-152.7	-68.3	-19.361 µg/L	-19.361 ppb		12:19:20
2	U 367.007†	3882.4	4209.0	-14.519 µg/L	-14.519 ppb		12:19:00
2	V 292.402†	29093.1	29306.8	138.01 µg/L	138.01 ppb		12:19:00
2	Zn 213.857†	51758.0	52275.5	283.89 µg/L	283.89 ppb		12:19:00
3	Sc RADIAL	72914.4	72914.4	101 %			12:18:29
3	Al 396.153Radial†	95490.2	94240.5	34426 µg/L	34426 ppb		12:18:29
3	Ca 317.933Radial†	1127037.0	1113144.8	123920 µg/L	123920 ppb		12:18:27
3	Fe 238.204 Radial†	1007554.1	995959.6	94213 µg/L	94213 ppb		12:18:27
3	K 766.490 Radial†	14249.1	13007.5	6859.9 µg/L	6859.9 ppb		12:18:29
3	Mg 279.077 IEC†	89240.1	88140.4	47550 µg/L	47550 ppb		12:18:29
3	Na 589.592 Radial†	9957.8	9798.3	1633.9 µg/L	1633.9 ppb		12:18:29
3	Sr 421.552†	112231.2	111341.0	318.76 µg/L	318.76 ppb		12:18:29
3	Sc 361.383	1288460.5	1288460.5	96.789 %			12:19:22
3	Y 371.029	750360.5	750360.5	103.58 %			12:19:22
3	Ag 328.068†	-2518.6	-711.3	0.4992 µg/L	0.4992 ppb		12:19:24
3	As 188.979†	78.0	110.5	72.157 µg/L	72.157 ppb		12:19:44
3	B 249.677†	-2283.3	-3243.9	22.458 µg/L	22.458 ppb		12:19:24
3	Ba 233.527†	176784.0	182889.5	1631.2 µg/L	1631.2 ppb		12:19:24
3	Be 313.107†	8669.5	12613.0	-36.477 µg/L	-36.477 ppb		12:19:24
3	Cd 226.502†	1484.9	1714.2	2.1821 µg/L	2.1821 ppb		12:19:44
3	Co 228.616†	2973.8	3164.0	47.760 µg/L	47.760 ppb		12:19:44
3	Cr 267.716†	5468.3	5520.7	65.894 µg/L	65.894 ppb		12:19:24
3	Cu 324.752†	14292.8	8990.1	46.721 µg/L	46.721 ppb		12:19:24
3	Mn 257.610†	1526132.2	1576608.6	2761.5 µg/L	2761.5 ppb		12:19:22
3	Mo 202.031†	-67.2	-39.7	0.7310 µg/L	0.7310 ppb		12:19:44
3	Ni 231.604†	6410.6	6821.0	108.44 µg/L	108.44 ppb		12:19:44
3	P 214.914†	11396.7	11869.9	4273.5 µg/L	4273.5 ppb		12:19:24
3	Pb 220.353†	653.8	601.7	61.582 µg/L	61.582 ppb		12:19:44
3	S 181.975 Axial†	988.1	918.2	1003.7 µg/L	1003.7 ppb		12:19:44
3	Sb 206.836†	70.3	28.3	-4.5937 µg/L	-4.5937 ppb		12:19:44
3	Se 196.026†	-63.8	-74.0	4.06 µg/L	4.06 ppb		12:19:44
3	SiO2†	481915.5	494883.0	54772 µg/L	54772 ppb		12:19:22
3	Si 251.611†	1454672.8	1502346.1	25484 µg/L	25484 ppb		12:19:22
3	Sn 189.927†	-48.6	-22.7	-2.7928 µg/L	-2.7928 ppb		12:19:44
3	Ti 334.940†	997152.1	1031121.2	1466.9 µg/L	1466.9 ppb		12:19:22
3	Tl 190.801†	-150.1	-69.1	-19.616 µg/L	-19.616 ppb		12:19:44
3	U 367.007†	3804.9	4215.4	-4.4240 µg/L	-4.4240 ppb		12:19:24
3	V 292.402†	28703.8	29552.6	139.01 µg/L	139.01 ppb		12:19:24
3	Zn 213.857†	51711.3	53380.3	290.33 µg/L	290.33 ppb		12:19:24

Mean Data: 409254009|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1300545.2	97.697	%	1.1013				1.13%
Sc RADIAL	71459.0	99.2	%	1.77				1.79%
Y 371.029	757753.2	104.60	%	1.216				1.16%
Ag 328.068†	-615.2	1.0596	µg/L	0.50019	1.0596	ppb	0.50019	47.21%
Al 396.153Radial†	94619.2	34564	µg/L	133.9	34564	ppb	133.9	0.39%
As 188.979†	109.7	71.878	µg/L	7.4832	71.878	ppb	7.4832	10.41%
B 249.677†	-3274.9	23.006	µg/L	0.4747	23.006	ppb	0.4747	2.06%
Ba 233.527†	180656.5	1611.3	µg/L	17.38	1611.3	ppb	17.38	1.08%
Be 313.107†	12246.1	-36.087	µg/L	0.3463	-36.087	ppb	0.3463	0.96%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1128168.8	125590	µg/L	1526.0	125590	ppb	1526.0	1.22%
Cd 226.502†	1703.7	1.9476	µg/L	0.21373	1.9476	ppb	0.21373	10.97%
Co 228.616†	3128.8	47.197	µg/L	0.4992	47.197	ppb	0.4992	1.06%
Cr 267.716†	5425.8	64.801	µg/L	1.1296	64.801	ppb	1.1296	1.74%
Cu 324.752†	8837.7	46.136	µg/L	0.8292	46.136	ppb	0.8292	1.80%
Fe 238.204 Radial†	1010272.1	95567	µg/L	1224.1	95567	ppb	1224.1	1.28%
K 766.490 Radial†	13023.9	6868.8	µg/L	38.32	6868.8	ppb	38.32	0.56%
Mg 279.077 IEC†	88195.6	47581	µg/L	151.3	47581	ppb	151.3	0.32%
Mn 257.610†	1577997.4	2763.9	µg/L	2.63	2763.9	ppb	2.63	0.10%
Mo 202.031†	-40.2	0.7395	µg/L	0.41212	0.7395	ppb	0.41212	55.73%

Na 589.592 Radial†	9750.0	1625.9 µg/L	8.97	1625.9 ppb	8.97	0.55%
Ni 231.604†	6756.8	107.42 µg/L	1.597	107.42 ppb	1.597	1.49%
P 214.914†	11709.2	4215.5 µg/L	51.49	4215.5 ppb	51.49	1.22%
Pb 220.353†	571.2	58.502 µg/L	2.9749	58.502 ppb	2.9749	5.09%
S 181.975 Axial†	905.9	989.67 µg/L	18.767	989.67 ppb	18.767	1.90%
Sb 206.836†	24.3	-5.4884 µg/L	1.08431	-5.4884 ppb	1.08431	19.76%
Se 196.026†	-71.0	6.26 µg/L	2.187	6.26 ppb	2.187	34.94%
SiO2†	495551.3	54846 µg/L	75.7	54846 ppb	75.7	0.14%
Si 251.611†	1503910.7	25511 µg/L	23.1	25511 ppb	23.1	0.09%
Sn 189.927†	-18.8	-2.2890 µg/L	0.48607	-2.2890 ppb	0.48607	21.24%
Sr 421.552†	111688.1	319.71 µg/L	0.933	319.71 ppb	0.933	0.29%
Ti 334.940†	1032244.6	1468.5 µg/L	1.40	1468.5 ppb	1.40	0.10%
Tl 190.801†	-75.4	-21.545 µg/L	3.5638	-21.545 ppb	3.5638	16.54%
Concentration less than lower limit for Tl 190.801.						
U 367.007†	4222.8	-11.016 µg/L	5.7127	-11.016 ppb	5.7127	51.86%
V 292.402†	29315.5	138.03 µg/L	0.964	138.03 ppb	0.964	0.70%
Zn 213.857†	52685.3	286.24 µg/L	3.555	286.24 ppb	3.555	1.24%

Sequence No.: 13 **Autosampler Location: 316**
Sample ID: 409254010|1611117|1 **Date Collected: 11/11/2016 12:19:52**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254010|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71074.5	71074.5	98.7	%			12:20:19
1	Al 396.153Radial†	53740.9	54367.6	19858	µg/L	19858	ppb	12:20:19
1	Ca 317.933Radial†	521754.3	528483.1	58831	µg/L	58831	ppb	12:20:19
1	Fe 238.204 Radial†	677634.0	687336.9	65019	µg/L	65019	ppb	12:20:17
1	K 766.490 Radial†	8123.7	7163.6	3783.3	µg/L	3783.3	ppb	12:20:19
1	Mg 279.077 IEC†	39135.5	39639.1	21392	µg/L	21392	ppb	12:20:19
1	Na 589.592 Radial†	8134.5	8205.0	1368.2	µg/L	1368.2	ppb	12:20:19
1	Sr 421.552†	65517.7	66864.8	191.96	µg/L	191.96	ppb	12:20:19
1	Sc 361.383	1288708.4	1288708.4	96.808	%			12:20:31
1	Y 371.029	742739.3	742739.3	102.53	%			12:20:31
1	Ag 328.068†	-2239.2	-422.2	0.9165	µg/L	0.9165	ppb	12:20:31
1	As 188.979†	48.2	79.8	51.750	µg/L	51.750	ppb	12:20:51
1	B 249.677†	-1766.9	-2710.0	8.7211	µg/L	8.7211	ppb	12:20:31
1	Ba 233.527†	127789.0	132243.6	1179.5	µg/L	1179.5	ppb	12:20:31
1	Be 313.107†	3284.2	7048.4	-26.942	µg/L	-26.942	ppb	12:20:31
1	Cd 226.502†	955.3	1166.8	1.3833	µg/L	1.3833	ppb	12:20:51
1	Co 228.616†	2268.8	2435.2	36.761	µg/L	36.761	ppb	12:20:51
1	Cr 267.716†	4198.0	4207.4	50.202	µg/L	50.202	ppb	12:20:51
1	Cu 324.752†	8234.2	2728.8	16.765	µg/L	16.765	ppb	12:20:31
1	Mn 257.610†	982448.4	1014693.1	1777.6	µg/L	1777.6	ppb	12:20:31
1	Mo 202.031†	0.7	30.4	3.3889	µg/L	3.3889	ppb	12:20:51
1	Ni 231.604†	4915.8	5275.6	83.873	µg/L	83.873	ppb	12:20:51
1	P 214.914†	7719.5	8069.1	2905.0	µg/L	2905.0	ppb	12:20:51
1	Pb 220.353†	460.0	401.5	41.004	µg/L	41.004	ppb	12:20:51
1	S 181.975 Axial†	651.0	569.7	621.40	µg/L	621.40	ppb	12:20:51
1	Sb 206.836†	54.1	11.6	-4.8731	µg/L	-4.8731	ppb	12:20:51
1	Se 196.026†	-36.0	-45.2	5.96	µg/L	5.96	ppb	12:20:51
1	SiO2†	339265.2	347432.9	38453	µg/L	38453	ppb	12:20:31
1	Si 251.611†	1017613.8	1050585.6	17821	µg/L	17821	ppb	12:20:31
1	Sn 189.927†	-35.1	-8.7	-1.0545	µg/L	-1.0545	ppb	12:20:51
1	Ti 334.940†	627320.5	648896.0	922.88	µg/L	922.88	ppb	12:20:31
1	Tl 190.801†	-137.3	-55.8	-16.040	µg/L	-16.040	ppb	12:20:51
1	U 367.007†	2637.9	3009.1	11.596	µg/L	11.596	ppb	12:20:31
1	V 292.402†	17620.4	18098.1	85.653	µg/L	85.653	ppb	12:20:31
1	Zn 213.857†	33026.6	34069.1	185.23	µg/L	185.23	ppb	12:20:31
2	Sc RADIAL	70585.9	70585.9	98.0	%			12:20:23
2	Al 396.153Radial†	53256.0	54249.8	19815	µg/L	19815	ppb	12:20:23
2	Ca 317.933Radial†	517248.3	527544.7	58726	µg/L	58726	ppb	12:20:23
2	Fe 238.204 Radial†	693734.5	708522.5	67023	µg/L	67023	ppb	12:20:21
2	K 766.490 Radial†	8108.1	7204.6	3805.6	µg/L	3805.6	ppb	12:20:23
2	Mg 279.077 IEC†	38998.4	39773.8	21465	µg/L	21465	ppb	12:20:23
2	Na 589.592 Radial†	7974.9	8099.2	1350.6	µg/L	1350.6	ppb	12:20:23
2	Sr 421.552†	65119.2	66917.7	192.12	µg/L	192.12	ppb	12:20:23
2	Sc 361.383	1277906.0	1277906.0	95.996	%			12:20:53
2	Y 371.029	735734.3	735734.3	101.56	%			12:20:53
2	Ag 328.068†	-2113.6	-310.9	1.6207	µg/L	1.6207	ppb	12:20:53
2	As 188.979†	41.9	73.6	48.627	µg/L	48.627	ppb	12:21:13
2	B 249.677†	-1738.8	-2696.2	10.389	µg/L	10.389	ppb	12:20:53
2	Ba 233.527†	126779.9	132308.3	1180.1	µg/L	1180.1	ppb	12:20:53
2	Be 313.107†	3314.6	7108.8	-26.947	µg/L	-26.947	ppb	12:20:53
2	Cd 226.502†	944.8	1164.2	1.1339	µg/L	1.1339	ppb	12:21:13
2	Co 228.616†	2288.3	2475.3	37.334	µg/L	37.334	ppb	12:21:13
2	Cr 267.716†	4184.4	4230.0	50.522	µg/L	50.522	ppb	12:21:13
2	Cu 324.752†	8039.2	2597.6	16.298	µg/L	16.298	ppb	12:20:53
2	Mn 257.610†	973578.9	1014032.5	1776.4	µg/L	1776.4	ppb	12:20:53
2	Mo 202.031†	3.0	32.9	3.5646	µg/L	3.5646	ppb	12:21:13
2	Ni 231.604†	4879.7	5280.9	83.957	µg/L	83.957	ppb	12:21:13
2	P 214.914†	7741.1	8159.0	2937.3	µg/L	2937.3	ppb	12:21:13
2	Pb 220.353†	473.4	419.5	42.845	µg/L	42.845	ppb	12:21:13

2	S 181.975 Axial†	660.1	584.9	637.92 µg/L	637.92 ppb		12:21:13
2	Sb 206.836†	69.9	28.5	-1.8192 µg/L	-1.8192 ppb		12:21:13
2	Se 196.026†	-37.2	-46.8	6.06 µg/L	6.06 ppb		12:21:13
2	SiO2†	336472.4	347486.1	38459 µg/L	38459 ppb		12:20:53
2	Si 251.611†	1009870.3	1051405.0	17835 µg/L	17835 ppb		12:20:53
2	Sn 189.927†	-37.5	-11.6	-1.4172 µg/L	-1.4172 ppb		12:21:13
2	Ti 334.940†	622630.4	649488.0	923.74 µg/L	923.74 ppb		12:20:53
2	Tl 190.801†	-121.3	-40.3	-11.244 µg/L	-11.244 ppb		12:21:13
2	U 367.007†	2453.3	2839.9	-20.114 µg/L	-20.114 ppb		12:20:53
2	V 292.402†	17558.1	18187.0	86.178 µg/L	86.178 ppb		12:20:53
2	Zn 213.857†	32744.0	34063.1	184.98 µg/L	184.98 ppb		12:20:53
3	Sc RADIAL	69478.6	69478.6	96.4 %			12:20:27
3	Al 396.153Radial†	52586.7	54422.1	19878 µg/L	19878 ppb		12:20:27
3	Ca 317.933Radial†	507556.3	525909.3	58544 µg/L	58544 ppb		12:20:27
3	Fe 238.204 Radial†	680363.8	705943.5	66779 µg/L	66779 ppb		12:20:25
3	K 766.490 Radial†	7893.4	7114.0	3757.9 µg/L	3757.9 ppb		12:20:27
3	Mg 279.077 IEC†	38204.5	39585.0	21363 µg/L	21363 ppb		12:20:27
3	Na 589.592 Radial†	7912.9	8164.7	1361.5 µg/L	1361.5 ppb		12:20:27
3	Sr 421.552†	64147.7	66969.6	192.28 µg/L	192.28 ppb		12:20:27
3	Sc 361.383	1306537.9	1306537.9	98.147 %			12:21:16
3	Y 371.029	752072.9	752072.9	103.81 %			12:21:16
3	Ag 328.068†	-2116.1	-265.2	1.8342 µg/L	1.8342 ppb		12:21:16
3	As 188.979†	45.5	76.3	50.083 µg/L	50.083 ppb		12:21:36
3	B 249.677†	-1878.9	-2799.2	8.7293 µg/L	8.7293 ppb		12:21:16
3	Ba 233.527†	129463.5	132148.4	1178.7 µg/L	1178.7 ppb		12:21:16
3	Be 313.107†	3388.9	7108.8	-26.906 µg/L	-26.906 ppb		12:21:16
3	Cd 226.502†	950.5	1148.4	1.0426 µg/L	1.0426 ppb		12:21:36
3	Co 228.616†	2273.0	2407.5	36.327 µg/L	36.327 ppb		12:21:36
3	Cr 267.716†	4189.4	4139.5	49.438 µg/L	49.438 ppb		12:21:36
3	Cu 324.752†	8264.7	2643.8	16.499 µg/L	16.499 ppb		12:21:16
3	Mn 257.610†	995420.5	1014061.3	1776.5 µg/L	1776.5 ppb		12:21:16
3	Mo 202.031†	-6.8	22.8	3.0346 µg/L	3.0346 ppb		12:21:36
3	Ni 231.604†	4865.0	5154.6	81.948 µg/L	81.948 ppb		12:21:36
3	P 214.914†	7696.7	7937.1	2857.3 µg/L	2857.3 ppb		12:21:36
3	Pb 220.353†	469.7	404.9	41.357 µg/L	41.357 ppb		12:21:36
3	S 181.975 Axial†	635.5	544.8	593.18 µg/L	593.18 ppb		12:21:36
3	Sb 206.836†	61.5	18.4	-3.7307 µg/L	-3.7307 ppb		12:21:36
3	Se 196.026†	-40.5	-49.3	4.65 µg/L	4.65 ppb		12:21:36
3	SiO2†	344099.0	347575.6	38469 µg/L	38469 ppb		12:21:16
3	Si 251.611†	1031824.7	1050720.2	17823 µg/L	17823 ppb		12:21:16
3	Sn 189.927†	-42.7	-16.0	-1.9814 µg/L	-1.9814 ppb		12:21:36
3	Ti 334.940†	635716.3	648607.3	922.47 µg/L	922.47 ppb		12:21:16
3	Tl 190.801†	-129.4	-45.8	-12.943 µg/L	-12.943 ppb		12:21:36
3	U 367.007†	2643.1	2977.2	-1.8798 µg/L	-1.8798 ppb		12:21:16
3	V 292.402†	18041.5	18278.7	86.577 µg/L	86.577 ppb		12:21:16
3	Zn 213.857†	33328.9	33911.6	184.15 µg/L	184.15 ppb		12:21:16

Mean Data: 409254010|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1291050.8	96.984	%	1.0862				1.12%
Sc RADIAL	70379.7	97.7	%	1.14				1.16%
Y 371.029	743515.5	102.63	%	1.131				1.10%
Ag 328.068†	-332.8	1.4571	µg/L	0.48023	1.4571	ppb	0.48023	32.96%
Al 396.153Radial†	54346.5	19850	µg/L	32.1	19850	ppb	32.1	0.16%
As 188.979†	76.6	50.153	µg/L	1.5628	50.153	ppb	1.5628	3.12%
B 249.677†	-2735.1	9.2799	µg/L	0.96073	9.2799	ppb	0.96073	10.35%
Ba 233.527†	132233.5	1179.4	µg/L	0.72	1179.4	ppb	0.72	0.06%
Be 313.107†	7088.7	-26.932	µg/L	0.0224	-26.932	ppb	0.0224	0.08%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	527312.4	58701	µg/L	145.0	58701	ppb	145.0	0.25%
Cd 226.502†	1159.8	1.1866	µg/L	0.17634	1.1866	ppb	0.17634	14.86%
Co 228.616†	2439.3	36.807	µg/L	0.5048	36.807	ppb	0.5048	1.37%
Cr 267.716†	4192.3	50.054	µg/L	0.5567	50.054	ppb	0.5567	1.11%
Cu 324.752†	2656.7	16.521	µg/L	0.2343	16.521	ppb	0.2343	1.42%
Fe 238.204 Radial†	700601.0	66274	µg/L	1093.4	66274	ppb	1093.4	1.65%
K 766.490 Radial†	7160.7	3782.3	µg/L	23.88	3782.3	ppb	23.88	0.63%
Mg 279.077 IEC†	39666.0	21407	µg/L	52.5	21407	ppb	52.5	0.25%
Mn 257.610†	1014262.3	1776.8	µg/L	0.65	1776.8	ppb	0.65	0.04%
Mo 202.031†	28.7	3.3294	µg/L	0.26995	3.3294	ppb	0.26995	8.11%

Na 589.592 Radial†	8156.3	1360.1	µg/L	8.91	1360.1	ppb	8.91	0.65%
Ni 231.604†	5237.0	83.259	µg/L	1.1363	83.259	ppb	1.1363	1.36%
P 214.914†	8055.1	2899.9	µg/L	40.24	2899.9	ppb	40.24	1.39%
Pb 220.353†	408.6	41.736	µg/L	0.9768	41.736	ppb	0.9768	2.34%
S 181.975 Axial†	566.5	617.50	µg/L	22.622	617.50	ppb	22.622	3.66%
Sb 206.836†	19.5	-3.4743	µg/L	1.54300	-3.4743	ppb	1.54300	44.41%
Se 196.026†	-47.1	5.56	µg/L	0.783	5.56	ppb	0.783	14.10%
SiO2†	347498.2	38460	µg/L	8.0	38460	ppb	8.0	0.02%
Si 251.611†	1050903.6	17826	µg/L	7.5	17826	ppb	7.5	0.04%
Sn 189.927†	-12.1	-1.4844	µg/L	0.46705	-1.4844	ppb	0.46705	31.46%
Sr 421.552†	66917.4	192.12	µg/L	0.157	192.12	ppb	0.157	0.08%
Ti 334.940†	648997.1	923.03	µg/L	0.644	923.03	ppb	0.644	0.07%
Tl 190.801†	-47.3	-13.409	µg/L	2.4314	-13.409	ppb	2.4314	18.13%
U 367.007†	2942.1	-3.4659	µg/L	15.91402	-3.4659	ppb	15.91402	459.16%
V 292.402†	18188.0	86.136	µg/L	0.4635	86.136	ppb	0.4635	0.54%
Zn 213.857†	34014.6	184.79	µg/L	0.566	184.79	ppb	0.566	0.31%

Sequence No.: 14 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/11/2016 12:21:43**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	73346.6	73346.6	102	%			12:22:12
1	Al 396.153Radial†	14098.5	13745.2	5018.8	µg/L	5018.8	ppb	12:22:12
1	Ca 317.933Radial†	45861.1	44699.6	4976.0	µg/L	4976.0	ppb	12:22:12
1	Fe 238.204 Radial†	53687.7	53247.8	5037.0	µg/L	5037.0	ppb	12:22:12
1	K 766.490 Radial†	10729.6	9467.9	4976.9	µg/L	4976.9	ppb	12:22:12
1	Mg 279.077 IEC†	9332.6	9139.3	4929.0	µg/L	4929.0	ppb	12:22:12
1	Na 589.592 Radial†	59046.2	57952.9	9663.9	µg/L	9663.9	ppb	12:22:10
1	Sr 421.552†	172788.2	170164.1	493.52	µg/L	493.52	ppb	12:22:10
1	Sc 361.383	1362629.3	1362629.3	102.36	%			12:22:24
1	Y 371.029	730645.1	730645.1	100.86	%			12:22:24
1	Ag 328.068†	96050.8	95726.5	493.98	µg/L	493.98	ppb	12:22:26
1	As 188.979†	885.5	895.1	491.39	µg/L	491.39	ppb	12:22:46
1	B 249.677†	36121.6	34403.7	498.46	µg/L	498.46	ppb	12:22:26
1	Ba 233.527†	56661.4	55595.4	495.75	µg/L	495.75	ppb	12:22:26
1	Be 313.107†	1828872.6	1790350.9	476.25	µg/L	476.25	ppb	12:22:24
1	Cd 226.502†	65941.8	64601.1	488.22	µg/L	488.22	ppb	12:22:26
1	Co 228.616†	33947.1	33255.8	494.54	µg/L	494.54	ppb	12:22:26
1	Cr 267.716†	43083.1	41960.5	493.08	µg/L	493.08	ppb	12:22:26
1	Cu 324.752†	120567.8	112010.4	495.07	µg/L	495.07	ppb	12:22:26
1	Mn 257.610†	289342.3	282517.5	494.97	µg/L	494.97	ppb	12:22:26
1	Mo 202.031†	9495.9	9306.6	483.86	µg/L	483.86	ppb	12:22:46
1	Ni 231.604†	31547.3	31017.4	493.12	µg/L	493.12	ppb	12:22:26
1	P 214.914†	6687.7	6628.5	2388.9	µg/L	2388.9	ppb	12:22:46
1	Pb 220.353†	4948.8	4760.9	481.17	µg/L	481.17	ppb	12:22:46
1	S 181.975 Axial†	970.9	845.8	942.98	µg/L	942.98	ppb	12:22:46
1	Sb 206.836†	2625.4	2520.5	478.93	µg/L	478.93	ppb	12:22:46
1	Se 196.026†	957.4	927.3	489	µg/L	489	ppb	12:22:46
1	SiO2†	53498.3	49244.7	5450.3	µg/L	5450.3	ppb	12:22:26
1	Si 251.611†	155131.0	150968.9	2560.3	µg/L	2560.3	ppb	12:22:26
1	Sn 189.927†	3815.9	3755.4	480.18	µg/L	480.18	ppb	12:22:46
1	Ti 334.940†	353566.6	346301.9	491.91	µg/L	491.91	ppb	12:22:26
1	Tl 190.801†	1524.3	1575.2	483.95	µg/L	483.95	ppb	12:22:46
1	U 367.007†	3849.3	4044.8	469.80	µg/L	469.80	ppb	12:22:26
1	V 292.402†	112654.2	109952.9	494.04	µg/L	494.04	ppb	12:22:26
1	Zn 213.857†	89171.3	87068.3	492.67	µg/L	492.67	ppb	12:22:26
2	Sc RADIAL	70934.2	70934.2	98.5	%			12:22:16
2	Al 396.153Radial†	13913.8	14028.6	5122.3	µg/L	5122.3	ppb	12:22:16
2	Ca 317.933Radial†	44822.1	45176.3	5029.0	µg/L	5029.0	ppb	12:22:16
2	Fe 238.204 Radial†	52489.4	53824.1	5091.5	µg/L	5091.5	ppb	12:22:16
2	K 766.490 Radial†	10702.0	9798.3	5150.5	µg/L	5150.5	ppb	12:22:16
2	Mg 279.077 IEC†	9070.9	9185.2	4953.7	µg/L	4953.7	ppb	12:22:16
2	Na 589.592 Radial†	58379.2	59247.7	9879.8	µg/L	9879.8	ppb	12:22:14
2	Sr 421.552†	169910.7	173013.3	501.79	µg/L	501.79	ppb	12:22:14
2	Sc 361.383	1343666.8	1343666.8	100.94	%			12:22:48
2	Y 371.029	718048.8	718048.8	99.117	%			12:22:48
2	Ag 328.068†	94780.0	95791.7	494.32	µg/L	494.32	ppb	12:22:50
2	As 188.979†	877.9	899.7	493.94	µg/L	493.94	ppb	12:23:10
2	B 249.677†	35656.6	34441.0	499.04	µg/L	499.04	ppb	12:22:50
2	Ba 233.527†	55891.5	55613.9	495.92	µg/L	495.92	ppb	12:22:50
2	Be 313.107†	1801143.9	1788094.2	475.63	µg/L	475.63	ppb	12:22:48
2	Cd 226.502†	65222.4	64797.5	489.70	µg/L	489.70	ppb	12:22:50
2	Co 228.616†	33509.4	33290.2	495.05	µg/L	495.05	ppb	12:22:50
2	Cr 267.716†	42698.4	42173.4	495.59	µg/L	495.59	ppb	12:22:50
2	Cu 324.752†	119328.6	112444.9	497.00	µg/L	497.00	ppb	12:22:50
2	Mn 257.610†	286051.4	283246.3	496.24	µg/L	496.24	ppb	12:22:50
2	Mo 202.031†	9524.2	9465.6	492.12	µg/L	492.12	ppb	12:23:10
2	Ni 231.604†	31188.4	31096.8	494.38	µg/L	494.38	ppb	12:22:50
2	P 214.914†	6720.4	6753.1	2433.8	µg/L	2433.8	ppb	12:23:10
2	Pb 220.353†	4985.1	4865.2	491.72	µg/L	491.72	ppb	12:23:10

2	S 181.975 Axial†	969.6	857.9	956.49 µg/L	956.49 ppb	12:23:10
2	Sb 206.836†	2629.5	2560.8	486.67 µg/L	486.67 ppb	12:23:10
2	Se 196.026†	958.1	941.2	496 µg/L	496 ppb	12:23:10
2	SiO2†	52958.1	49447.1	5472.7 µg/L	5472.7 ppb	12:22:50
2	Si 251.611†	153263.9	151257.9	2565.2 µg/L	2565.2 ppb	12:22:50
2	Sn 189.927†	3834.0	3825.9	489.20 µg/L	489.20 ppb	12:23:10
2	Ti 334.940†	349507.0	347154.6	493.12 µg/L	493.12 ppb	12:22:50
2	Tl 190.801†	1534.5	1606.3	493.51 µg/L	493.51 ppb	12:23:10
2	U 367.007†	3791.3	4040.3	468.95 µg/L	468.95 ppb	12:22:50
2	V 292.402†	111451.5	110314.5	495.67 µg/L	495.67 ppb	12:22:50
2	Zn 213.857†	88221.4	87356.6	494.30 µg/L	494.30 ppb	12:22:50
3	Sc RADIAL	71079.8	71079.8	98.7 %		12:22:20
3	Al 396.153Radial†	13855.6	13940.7	5090.1 µg/L	5090.1 ppb	12:22:20
3	Ca 317.933Radial†	44720.4	44980.0	5007.2 µg/L	5007.2 ppb	12:22:20
3	Fe 238.204 Radial†	52395.7	53620.0	5072.2 µg/L	5072.2 ppb	12:22:20
3	K 766.490 Radial†	10706.3	9780.4	5141.1 µg/L	5141.1 ppb	12:22:20
3	Mg 279.077 IEC†	9053.1	9148.3	4933.8 µg/L	4933.8 ppb	12:22:20
3	Na 589.592 Radial†	57282.8	58015.2	9674.3 µg/L	9674.3 ppb	12:22:18
3	Sr 421.552†	167602.5	170320.6	493.98 µg/L	493.98 ppb	12:22:18
3	Sc 361.383	1334593.1	1334593.1	100.25 %		12:23:12
3	Y 371.029	712442.4	712442.4	98.343 %		12:23:12
3	Ag 328.068†	93723.8	95376.6	492.18 µg/L	492.18 ppb	12:23:15
3	As 188.979†	886.0	913.7	501.49 µg/L	501.49 ppb	12:23:35
3	B 249.677†	35316.0	34341.5	497.60 µg/L	497.60 ppb	12:23:15
3	Ba 233.527†	55196.1	55296.7	493.09 µg/L	493.09 ppb	12:23:15
3	Be 313.107†	1787587.0	1786703.8	475.32 µg/L	475.32 ppb	12:23:12
3	Cd 226.502†	64426.9	64443.4	487.02 µg/L	487.02 ppb	12:23:15
3	Co 228.616†	33165.4	33172.7	493.30 µg/L	493.30 ppb	12:23:15
3	Cr 267.716†	42000.5	41764.9	490.79 µg/L	490.79 ppb	12:23:15
3	Cu 324.752†	117644.3	111568.7	493.12 µg/L	493.12 ppb	12:23:15
3	Mn 257.610†	282618.3	281748.7	493.62 µg/L	493.62 ppb	12:23:15
3	Mo 202.031†	9600.9	9606.3	499.43 µg/L	499.43 ppb	12:23:35
3	Ni 231.604†	30740.8	30860.5	490.62 µg/L	490.62 ppb	12:23:15
3	P 214.914†	6762.1	6840.0	2465.2 µg/L	2465.2 ppb	12:23:35
3	Pb 220.353†	4977.6	4891.2	494.36 µg/L	494.36 ppb	12:23:35
3	S 181.975 Axial†	992.2	887.0	988.96 µg/L	988.96 ppb	12:23:35
3	Sb 206.836†	2641.5	2590.5	492.47 µg/L	492.47 ppb	12:23:35
3	Se 196.026†	974.2	963.7	508 µg/L	508 ppb	12:23:35
3	SiO2†	52496.3	49343.2	5461.2 µg/L	5461.2 ppb	12:23:15
3	Si 251.611†	151541.1	150571.8	2553.6 µg/L	2553.6 ppb	12:23:15
3	Sn 189.927†	3882.5	3900.2	498.68 µg/L	498.68 ppb	12:23:35
3	Ti 334.940†	345405.2	345417.4	490.65 µg/L	490.65 ppb	12:23:15
3	Tl 190.801†	1544.9	1627.0	499.86 µg/L	499.86 ppb	12:23:35
3	U 367.007†	3702.3	3977.1	461.28 µg/L	461.28 ppb	12:23:15
3	V 292.402†	109981.0	109598.4	492.45 µg/L	492.45 ppb	12:23:15
3	Zn 213.857†	86888.7	86621.6	490.13 µg/L	490.13 ppb	12:23:15

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1346963.1	101.18	%	1.075				1.06%
Sc RADIAL	71786.9	99.7	%	1.88				1.88%
Y 371.029	720378.8	99.439	%	1.2868				1.29%
Ag 328.068†	95631.6	493.49	µg/L	1.149	493.49	ppb	1.149	0.23%
QC value within limits for Ag 328.068 Recovery = 98.70%								
Al 396.153Radial†	13904.8	5077.1	µg/L	52.95	5077.1	ppb	52.95	1.04%
QC value within limits for Al 396.153Radial Recovery = 101.54%								
As 188.979†	902.8	495.61	µg/L	5.249	495.61	ppb	5.249	1.06%
QC value within limits for As 188.979 Recovery = 99.12%								
B 249.677†	34395.4	498.37	µg/L	0.727	498.37	ppb	0.727	0.15%
QC value within limits for B 249.677 Recovery = 99.67%								
Ba 233.527†	55502.0	494.92	µg/L	1.588	494.92	ppb	1.588	0.32%
QC value within limits for Ba 233.527 Recovery = 98.98%								
Be 313.107†	1788383.0	475.73	µg/L	0.474	475.73	ppb	0.474	0.10%
QC value within limits for Be 313.107 Recovery = 95.15%								
Ca 317.933Radial†	44952.0	5004.1	µg/L	26.67	5004.1	ppb	26.67	0.53%
QC value within limits for Ca 317.933Radial Recovery = 100.08%								
Cd 226.502†	64614.0	488.32	µg/L	1.341	488.32	ppb	1.341	0.27%
QC value within limits for Cd 226.502 Recovery = 97.66%								
Co 228.616†	33239.6	494.29	µg/L	0.898	494.29	ppb	0.898	0.18%

QC value within limits for Co 228.616 Recovery = 98.86%

Cr 267.716†	41966.2	493.15 µg/L	2.399	493.15 ppb	2.399	0.49%

QC value within limits for Cr 267.716 Recovery = 98.63%

Cu 324.752†	112008.0	495.06 µg/L	1.937	495.06 ppb	1.937	0.39%

QC value within limits for Cu 324.752 Recovery = 99.01%

Fe 238.204 Radial†	53564.0	5066.9 µg/L	27.64	5066.9 ppb	27.64	0.55%

QC value within limits for Fe 238.204 Radial Recovery = 101.34%

K 766.490 Radial†	9682.2	5089.5 µg/L	97.65	5089.5 ppb	97.65	1.92%

QC value within limits for K 766.490 Radial Recovery = 101.79%

Mg 279.077 IEC†	9157.6	4938.8 µg/L	13.13	4938.8 ppb	13.13	0.27%

QC value within limits for Mg 279.077 IEC Recovery = 98.78%

Mn 257.610†	282504.2	494.94 µg/L	1.312	494.94 ppb	1.312	0.27%

QC value within limits for Mn 257.610 Recovery = 98.99%

Mo 202.031†	9459.5	491.81 µg/L	7.792	491.81 ppb	7.792	1.58%

QC value within limits for Mo 202.031 Recovery = 98.36%

Na 589.592 Radial†	58405.3	9739.4 µg/L	121.77	9739.4 ppb	121.77	1.25%

QC value within limits for Na 589.592 Radial Recovery = 97.39%

Ni 231.604†	30991.6	492.71 µg/L	1.912	492.71 ppb	1.912	0.39%

QC value within limits for Ni 231.604 Recovery = 98.54%

P 214.914†	6740.6	2429.3 µg/L	38.32	2429.3 ppb	38.32	1.58%

QC value within limits for P 214.914 Recovery = 97.17%

Pb 220.353†	4839.1	489.08 µg/L	6.981	489.08 ppb	6.981	1.43%

QC value within limits for Pb 220.353 Recovery = 97.82%

S 181.975 Axial†	863.6	962.81 µg/L	23.633	962.81 ppb	23.633	2.45%

QC value within limits for S 181.975 Axial Recovery = 96.28%

Sb 206.836†	2557.3	486.02 µg/L	6.797	486.02 ppb	6.797	1.40%

QC value within limits for Sb 206.836 Recovery = 97.20%

Se 196.026†	944.1	497 µg/L	9.6	497 ppb	9.6	1.93%

QC value within limits for Se 196.026 Recovery = 99.46%

SiO2†	49345.0	5461.4 µg/L	11.20	5461.4 ppb	11.20	0.21%

QC value within limits for SiO2 Recovery = 102.13%

Si 251.611†	150932.9	2559.7 µg/L	5.84	2559.7 ppb	5.84	0.23%

QC value within limits for Si 251.611 Recovery = 102.39%

Sn 189.927†	3827.2	489.35 µg/L	9.254	489.35 ppb	9.254	1.89%

QC value within limits for Sn 189.927 Recovery = 97.87%

Sr 421.552†	171166.0	496.43 µg/L	4.646	496.43 ppb	4.646	0.94%

QC value within limits for Sr 421.552 Recovery = 99.29%

Ti 334.940†	346291.3	491.89 µg/L	1.232	491.89 ppb	1.232	0.25%

QC value within limits for Ti 334.940 Recovery = 98.38%

Tl 190.801†	1602.9	492.44 µg/L	8.006	492.44 ppb	8.006	1.63%

QC value within limits for Tl 190.801 Recovery = 98.49%

U 367.007†	4020.7	466.68 µg/L	4.693	466.68 ppb	4.693	1.01%

QC value within limits for U 367.007 Recovery = 93.34%

V 292.402†	109955.3	494.06 µg/L	1.610	494.06 ppb	1.610	0.33%

QC value within limits for V 292.402 Recovery = 98.81%

Zn 213.857†	87015.5	492.37 µg/L	2.098	492.37 ppb	2.098	0.43%

QC value within limits for Zn 213.857 Recovery = 98.47%

All analyte(s) passed QC.

Sequence No.: 15 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 12:23:42**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	69720.4	69720.4	96.8	%			12:24:07
1	Al 396.153Radial†	128.2	30.8	11.252	µg/L	11.252	ppb	12:24:27
1	Ca 317.933Radial†	425.5	96.5	10.743	µg/L	10.743	ppb	12:24:27
1	Fe 238.204 Radial†	-413.8	90.5	8.5656	µg/L	8.5656	ppb	12:24:27
1	K 766.490 Radial†	1022.4	-13.9	-7.2824	µg/L	-7.2824	ppb	12:24:07
1	Mg 279.077 IEC†	39.7	14.3	7.6876	µg/L	7.6876	ppb	12:24:27
1	Na 589.592 Radial†	139.3	104.2	17.373	µg/L	17.373	ppb	12:24:07
1	Sr 421.552†	-431.1	13.6	0.0390	µg/L	0.0390	ppb	12:24:27
1	Sc 361.383	1315284.4	1315284.4	98.804	%			12:25:14
1	Y 371.029	713302.8	713302.8	98.462	%			12:25:14
1	Ag 328.068†	-1857.6	10.8	0.0650	µg/L	0.0650	ppb	12:25:16
1	As 188.979†	-32.1	-2.6	-1.3915	µg/L	-1.3915	ppb	12:25:36
1	B 249.677†	822.6	-52.3	-0.7459	µg/L	-0.7459	ppb	12:25:16
1	Ba 233.527†	-208.9	29.3	0.2617	µg/L	0.2617	ppb	12:25:36
1	Be 313.107†	-3187.8	429.6	0.1050	µg/L	0.1050	ppb	12:25:16
1	Cd 226.502†	-145.3	32.9	0.2480	µg/L	0.2480	ppb	12:25:36
1	Co 228.616†	-89.2	1.3	0.0190	µg/L	0.0190	ppb	12:25:36
1	Cr 267.716†	119.6	-7.9	-0.0787	µg/L	-0.0787	ppb	12:25:36
1	Cu 324.752†	5538.9	-171.0	-0.7665	µg/L	-0.7665	ppb	12:25:16
1	Mn 257.610†	296.8	148.5	0.2599	µg/L	0.2599	ppb	12:25:36
1	Mo 202.031†	-27.4	2.0	0.1051	µg/L	0.1051	ppb	12:25:36
1	Ni 231.604†	-191.6	3.8	0.0607	µg/L	0.0607	ppb	12:25:36
1	P 214.914†	-92.0	2.0	0.7271	µg/L	0.7271	ppb	12:25:36
1	Pb 220.353†	107.1	34.7	3.5258	µg/L	3.5258	ppb	12:25:36
1	S 181.975 Axial†	94.5	-7.0	-7.8507	µg/L	-7.8507	ppb	12:25:36
1	Sb 206.836†	66.3	22.8	4.4059	µg/L	4.4059	ppb	12:25:36
1	Se 196.026†	3.9	-4.1	-2.14	µg/L	-2.14	ppb	12:25:36
1	SiO2†	3218.2	237.4	26.276	µg/L	26.276	ppb	12:25:16
1	Si 251.611†	1043.6	471.8	8.0008	µg/L	8.0008	ppb	12:25:16
1	Sn 189.927†	-21.6	5.7	0.7257	µg/L	0.7257	ppb	12:25:36
1	Ti 334.940†	-678.3	202.7	0.2966	µg/L	0.2966	ppb	12:25:16
1	Tl 190.801†	-71.7	13.5	4.1510	µg/L	4.1510	ppb	12:25:36
1	U 367.007†	-407.8	-128.5	-15.859	µg/L	-15.859	ppb	12:25:16
1	V 292.402†	41.7	-61.1	-0.2792	µg/L	-0.2792	ppb	12:25:16
1	Zn 213.857†	42.3	-3.7	-0.0217	µg/L	-0.0217	ppb	12:25:36
2	Sc RADIAL	71902.8	71902.8	99.8	%			12:24:29
2	Al 396.153Radial†	97.5	-4.0	-1.4602	µg/L	-1.4602	ppb	12:24:49
2	Ca 317.933Radial†	388.0	45.5	5.0670	µg/L	5.0670	ppb	12:24:49
2	Fe 238.204 Radial†	-398.3	119.0	11.254	µg/L	11.254	ppb	12:24:49
2	K 766.490 Radial†	953.2	-115.2	-60.555	µg/L	-60.555	ppb	12:24:29
2	Mg 279.077 IEC†	23.2	-3.6	-1.9140	µg/L	-1.9140	ppb	12:24:49
2	Na 589.592 Radial†	156.3	116.8	19.482	µg/L	19.482	ppb	12:24:29
2	Sr 421.552†	-431.1	27.1	0.0786	µg/L	0.0786	ppb	12:24:49
2	Sc 361.383	1311387.3	1311387.3	98.511	%			12:25:38
2	Y 371.029	710777.1	710777.1	98.113	%			12:25:38
2	Ag 328.068†	-1688.7	176.6	0.9110	µg/L	0.9110	ppb	12:25:41
2	As 188.979†	-30.5	-1.0	-0.5556	µg/L	-0.5556	ppb	12:26:01
2	B 249.677†	791.0	-81.9	-1.1692	µg/L	-1.1692	ppb	12:25:41
2	Ba 233.527†	-207.7	30.0	0.2672	µg/L	0.2672	ppb	12:26:01
2	Be 313.107†	-3120.0	488.8	0.1275	µg/L	0.1275	ppb	12:25:41
2	Cd 226.502†	-165.4	12.2	0.0908	µg/L	0.0908	ppb	12:26:01
2	Co 228.616†	-89.2	1.0	0.0143	µg/L	0.0143	ppb	12:26:01
2	Cr 267.716†	119.5	-7.7	-0.0921	µg/L	-0.0921	ppb	12:26:01
2	Cu 324.752†	5564.3	-128.5	-0.5648	µg/L	-0.5648	ppb	12:25:41
2	Mn 257.610†	281.5	133.8	0.2346	µg/L	0.2346	ppb	12:26:01
2	Mo 202.031†	-21.7	7.8	0.4033	µg/L	0.4033	ppb	12:26:01
2	Ni 231.604†	-194.4	0.4	0.0063	µg/L	0.0063	ppb	12:26:01
2	P 214.914†	-84.8	9.0	3.2605	µg/L	3.2605	ppb	12:26:01
2	Pb 220.353†	60.8	-12.0	-1.2186	µg/L	-1.2186	ppb	12:26:01

2	S 181.975 Axial†	94.9	-6.4	-7.1239 µg/L	-7.1239 ppb	12:26:01
2	Sb 206.836†	61.5	18.1	3.4972 µg/L	3.4972 ppb	12:26:01
2	Se 196.026†	2.5	-5.5	-2.86 µg/L	-2.86 ppb	12:26:01
2	SiO2†	3138.1	165.8	18.347 µg/L	18.347 ppb	12:25:41
2	Si 251.611†	1210.0	643.8	10.918 µg/L	10.918 ppb	12:25:41
2	Sn 189.927†	-23.6	3.5	0.4522 µg/L	0.4522 ppb	12:26:01
2	Ti 334.940†	-600.5	279.7	0.3966 µg/L	0.3966 ppb	12:25:41
2	Tl 190.801†	-82.6	2.2	0.6712 µg/L	0.6712 ppb	12:26:01
2	U 367.007†	-263.4	16.9	2.0146 µg/L	2.0146 ppb	12:25:41
2	V 292.402†	90.7	-11.2	-0.0490 µg/L	-0.0490 ppb	12:25:41
2	Zn 213.857†	30.8	-15.2	-0.0870 µg/L	-0.0870 ppb	12:26:01
3	Sc RADIAL	72708.8	72708.8	101 %		12:24:51
3	Al 396.153Radial†	122.5	19.7	7.1889 µg/L	7.1889 ppb	12:25:11
3	Ca 317.933Radial†	401.3	54.4	6.0531 µg/L	6.0531 ppb	12:25:11
3	Fe 238.204 Radial†	-380.3	141.3	13.362 µg/L	13.362 ppb	12:25:11
3	K 766.490 Radial†	961.1	-118.0	-61.982 µg/L	-61.982 ppb	12:24:51
3	Mg 279.077 IEC†	47.4	20.2	10.877 µg/L	10.877 ppb	12:25:11
3	Na 589.592 Radial†	62.3	22.0	3.6679 µg/L	3.6679 ppb	12:24:51
3	Sr 421.552†	-432.9	30.1	0.0872 µg/L	0.0872 ppb	12:25:11
3	Sc 361.383	1337082.5	1337082.5	100.44 %		12:26:03
3	Y 371.029	723731.4	723731.4	99.901 %		12:26:03
3	Ag 328.068†	-1740.9	157.5	0.8143 µg/L	0.8143 ppb	12:26:05
3	As 188.979†	-24.2	5.8	3.1780 µg/L	3.1780 ppb	12:26:25
3	B 249.677†	942.9	53.9	0.7855 µg/L	0.7855 ppb	12:26:05
3	Ba 233.527†	-213.0	28.8	0.2565 µg/L	0.2565 ppb	12:26:25
3	Be 313.107†	-2896.9	771.8	0.2038 µg/L	0.2038 ppb	12:26:05
3	Cd 226.502†	-148.9	31.8	0.2390 µg/L	0.2390 ppb	12:26:25
3	Co 228.616†	-90.5	1.4	0.0212 µg/L	0.0212 ppb	12:26:25
3	Cr 267.716†	160.6	30.8	0.3638 µg/L	0.3638 ppb	12:26:25
3	Cu 324.752†	5420.6	-380.1	-1.6774 µg/L	-1.6774 ppb	12:26:05
3	Mn 257.610†	306.3	153.0	0.2677 µg/L	0.2677 ppb	12:26:25
3	Mo 202.031†	-22.5	7.3	0.3821 µg/L	0.3821 ppb	12:26:25
3	Ni 231.604†	-167.2	31.2	0.4964 µg/L	0.4964 ppb	12:26:25
3	P 214.914†	-72.7	22.7	8.1652 µg/L	8.1652 ppb	12:26:25
3	Pb 220.353†	105.3	31.1	3.1495 µg/L	3.1495 ppb	12:26:25
3	S 181.975 Axial†	99.6	-3.6	-3.9736 µg/L	-3.9736 ppb	12:26:25
3	Sb 206.836†	62.3	17.7	3.4147 µg/L	3.4147 ppb	12:26:25
3	Se 196.026†	1.9	-6.2	-3.23 µg/L	-3.23 ppb	12:26:25
3	SiO2†	3149.7	116.1	12.847 µg/L	12.847 ppb	12:26:05
3	Si 251.611†	1193.5	603.8	10.240 µg/L	10.240 ppb	12:26:05
3	Sn 189.927†	-13.9	13.7	1.7486 µg/L	1.7486 ppb	12:26:25
3	Ti 334.940†	-332.0	558.7	0.7946 µg/L	0.7946 ppb	12:26:05
3	Tl 190.801†	-84.2	2.2	0.6867 µg/L	0.6867 ppb	12:26:25
3	U 367.007†	-293.6	-8.1	-1.0753 µg/L	-1.0753 ppb	12:26:05
3	V 292.402†	261.2	156.7	0.7033 µg/L	0.7033 ppb	12:26:05
3	Zn 213.857†	26.2	-20.4	-0.1158 µg/L	-0.1158 ppb	12:26:25

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	Sample RSD
Sc 361.383	1321251.4	99.252	%	1.0403				1.05%
Sc RADIAL	71444.0	99.2	%	2.15				2.16%
Y 371.029	715937.1	98.825	%	0.9479				0.96%
Ag 328.068†	115.0	0.5967	µg/L	0.46305	0.5967	ppb	0.46305	77.60%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	15.5	5.6602	µg/L	6.49248	5.6602	ppb	6.49248	114.70%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	0.8	0.4103	µg/L	2.43308	0.4103	ppb	2.43308	592.98%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-26.7	-0.3765	µg/L	1.02836	-0.3765	ppb	1.02836	273.12%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	29.4	0.2618	µg/L	0.00536	0.2618	ppb	0.00536	2.05%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	563.4	0.1454	µg/L	0.05179	0.1454	ppb	0.05179	35.61%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	65.5	7.2876	µg/L	3.03245	7.2876	ppb	3.03245	41.61%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	25.6	0.1926	µg/L	0.08832	0.1926	ppb	0.08832	45.85%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	1.2	0.0182	µg/L	0.00350	0.0182	ppb	0.00350	19.24%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†                5.1      0.0644 µg/L       0.25945      0.0644 ppb        0.25945 403.11%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -226.6     -1.0029 µg/L       0.59275     -1.0029 ppb        0.59275  59.10%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†       116.9      11.061 µg/L        2.4039      11.061 ppb         2.4039  21.73%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        -82.4     -43.273 µg/L       31.1773     -43.273 ppb        31.1773  72.05%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           10.3      5.5503 µg/L       6.65800      5.5503 ppb        6.65800 119.96%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              145.1      0.2541 µg/L       0.01731      0.2541 ppb        0.01731   6.81%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               5.7       0.2968 µg/L       0.16637      0.2968 ppb        0.16637  56.05%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        81.0      13.508 µg/L        8.5865      13.508 ppb         8.5865  63.57%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               11.8      0.1878 µg/L       0.26864      0.1878 ppb        0.26864 143.07%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                11.2      4.0509 µg/L       3.78152      4.0509 ppb        3.78152  93.35%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               17.9      1.8189 µg/L       2.63732      1.8189 ppb        2.63732 144.99%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -5.7     -6.3160 µg/L       2.06093     -6.3160 ppb        2.06093  32.63%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               19.5      3.7726 µg/L       0.54999      3.7726 ppb        0.54999  14.58%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -5.2       -2.74 µg/L         0.554       -2.74 ppb          0.554  20.19%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    173.1      19.157 µg/L        6.7510      19.157 ppb         6.7510  35.24%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              573.2      9.7193 µg/L       1.52640      9.7193 ppb        1.52640  15.70%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               7.6       0.9755 µg/L       0.68333      0.9755 ppb        0.68333  70.05%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               23.6      0.0683 µg/L       0.02571      0.0683 ppb        0.02571  37.66%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              347.0      0.4959 µg/L       0.26349      0.4959 ppb        0.26349  53.13%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               6.0       1.8363 µg/L       2.00460      1.8363 ppb        2.00460 109.16%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -39.9     -4.9733 µg/L       9.55321     -4.9733 ppb        9.55321 192.09%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                28.1      0.1250 µg/L       0.51383      0.1250 ppb        0.51383 410.91%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -13.1     -0.0748 µg/L       0.04821     -0.0748 ppb        0.04821  64.41%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 16 **Autosampler Location: 317**
Sample ID: 409254011|1611117|1 **Date Collected: 11/11/2016 12:26:32**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254011|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	66048.6	66048.6	91.7	%			12:27:03
1	Al 396.153Radial†	75208.4	81926.6	30222	µg/L	30222	ppb	12:27:03
1	Ca 317.933Radial†	14752056.5	16089423.7	1791100	µg/L	1791100	ppb	12:26:59
1	Fe 238.204 Radial†	1017194.4	1109951.2	105000	µg/L	105000	ppb	12:27:01
1	K 766.490 Radial†	14632.7	14889.3	7725.5	µg/L	7725.5	ppb	12:27:03
1	Mg 279.077 IEC†	81823.6	89216.5	48134	µg/L	48134	ppb	12:27:03
1	Na 589.592 Radial†	21826.0	23765.5	3963.0	µg/L	3963.0	ppb	12:27:03
1	Sr 421.552†	1338857.2	1460723.2	4176.2	µg/L	4176.2	ppb	12:27:01
1	Sc 361.383	1150897.5	1150897.5	86.455	%			12:27:20
1	Y 371.029	654786.1	654786.1	90.384	%			12:27:20
1	Ag 328.068†	-3504.6	-2162.8	-20.490	µg/L	-20.490	ppb	12:27:20
1	As 188.979†	23.5	57.1	44.608	µg/L	44.608	ppb	12:27:40
1	B 249.677†	-1777.2	-2940.5	34.732	µg/L	34.732	ppb	12:27:20
1	Ba 233.527†	86109.6	99840.8	890.76	µg/L	890.76	ppb	12:27:20
1	Be 313.107†	4133.8	8437.4	-19.347	µg/L	-19.347	ppb	12:27:20
1	Cd 226.502†	1637.6	2074.2	3.6708	µg/L	3.6708	ppb	12:27:40
1	Co 228.616†	2121.4	2545.3	37.568	µg/L	37.568	ppb	12:27:40
1	Cr 267.716†	5934.4	6735.1	80.223	µg/L	80.223	ppb	12:27:40
1	Cu 324.752†	44635.0	45850.8	210.21	µg/L	210.21	ppb	12:27:20
1	Mn 257.610†	1450447.1	1677531.1	2938.3	µg/L	2938.3	ppb	12:27:20
1	Mo 202.031†	-1.8	27.7	4.5031	µg/L	4.5031	ppb	12:27:40
1	Ni 231.604†	6664.5	7906.3	125.70	µg/L	125.70	ppb	12:27:40
1	P 214.914†	8315.4	9713.2	3495.5	µg/L	3495.5	ppb	12:27:40
1	Pb 220.353†	9124.2	10479.9	1060.5	µg/L	1060.5	ppb	12:27:40
1	S 181.975 Axial†	44799.4	51715.2	57707	µg/L	57707	ppb	12:27:20
1	Sb 206.836†	180.9	165.0	20.346	µg/L	20.346	ppb	12:27:40
1	Se 196.026†	-70.3	-89.4	1.21	µg/L	1.21	ppb	12:27:40
1	SiO2†	462752.0	532229.8	58906	µg/L	58906	ppb	12:27:20
1	Si 251.611†	1394834.8	1612773.8	27358	µg/L	27358	ppb	12:27:20
1	Sn 189.927†	-39.6	-18.3	-2.2506	µg/L	-2.2506	ppb	12:27:40
1	Ti 334.940†	640414.0	741634.5	1076.1	µg/L	1076.1	ppb	12:27:20
1	Tl 190.801†	-93.4	-22.0	-4.9670	µg/L	-4.9670	ppb	12:27:40
1	U 367.007†	4523.8	5516.8	-49.557	µg/L	-49.557	ppb	12:27:20
1	V 292.402†	19404.7	22341.4	107.50	µg/L	107.50	ppb	12:27:20
1	Zn 213.857†	88264.7	102046.3	565.08	µg/L	565.08	ppb	12:27:20
2	Sc RADIAL	64425.2	64425.2	89.4	%			12:27:10
2	Al 396.153Radial†	73321.4	81883.6	30217	µg/L	30217	ppb	12:27:10
2	Ca 317.933Radial†	14883384.3	16641706.3	1852600	µg/L	1852600	ppb	12:27:06
2	Fe 238.204 Radial†	997703.3	1116112.9	105580	µg/L	105580	ppb	12:27:08
2	K 766.490 Radial†	14373.7	15001.9	7780.2	µg/L	7780.2	ppb	12:27:10
2	Mg 279.077 IEC†	79454.1	88815.8	47918	µg/L	47918	ppb	12:27:10
2	Na 589.592 Radial†	21412.9	23903.3	3986.0	µg/L	3986.0	ppb	12:27:10
2	Sr 421.552†	1322146.1	1478833.8	4226.6	µg/L	4226.6	ppb	12:27:08
2	Sc 361.383	1171338.9	1171338.9	87.991	%			12:27:43
2	Y 371.029	666449.5	666449.5	91.994	%			12:27:43
2	Ag 328.068†	-3524.0	-2114.1	-20.712	µg/L	-20.712	ppb	12:27:43
2	As 188.979†	29.4	63.3	48.037	µg/L	48.037	ppb	12:28:03
2	B 249.677†	-1877.2	-3018.2	34.041	µg/L	34.041	ppb	12:27:43
2	Ba 233.527†	87961.7	100207.6	894.03	µg/L	894.03	ppb	12:27:43
2	Be 313.107†	4192.4	8420.5	-19.438	µg/L	-19.438	ppb	12:27:43
2	Cd 226.502†	1660.8	2067.5	3.5537	µg/L	3.5537	ppb	12:28:03
2	Co 228.616†	2138.1	2521.4	37.210	µg/L	37.210	ppb	12:28:03
2	Cr 267.716†	5864.8	6536.2	77.911	µg/L	77.911	ppb	12:28:03
2	Cu 324.752†	45230.1	45626.2	209.24	µg/L	209.24	ppb	12:27:43
2	Mn 257.610†	1478891.6	1680580.0	2943.7	µg/L	2943.7	ppb	12:27:43
2	Mo 202.031†	-17.6	9.7	3.5791	µg/L	3.5791	ppb	12:28:03
2	Ni 231.604†	6613.4	7713.7	122.63	µg/L	122.63	ppb	12:28:03
2	P 214.914†	8238.4	9457.9	3403.5	µg/L	3403.5	ppb	12:28:03
2	Pb 220.353†	9135.4	10308.5	1043.2	µg/L	1043.2	ppb	12:28:03

2	S 181.975 Axial†	45684.1	51816.4	57820 µg/L	57820 ppb		12:27:43
2	Sb 206.836†	194.0	176.2	22.486 µg/L	22.486 ppb		12:28:03
2	Se 196.026†	-57.5	-73.3	9.85 µg/L	9.85 ppb		12:28:03
2	SiO2†	471754.8	533120.5	59004 µg/L	59004 ppb		12:27:43
2	Si 251.611†	1421036.1	1614395.8	27385 µg/L	27385 ppb		12:27:43
2	Sn 189.927†	-49.3	-28.6	-3.5582 µg/L	-3.5582 ppb		12:28:03
2	Ti 334.940†	651823.8	741674.5	1077.0 µg/L	1077.0 ppb		12:27:43
2	Tl 190.801†	-88.5	-14.5	-2.6516 µg/L	-2.6516 ppb		12:28:03
2	U 367.007†	4477.4	5372.7	-75.862 µg/L	-75.862 ppb		12:27:43
2	V 292.402†	19862.2	22469.7	108.10 µg/L	108.10 ppb		12:27:43
2	Zn 213.857†	90257.7	102529.7	567.77 µg/L	567.77 ppb		12:27:43
3	Sc RADIAL	65839.3	65839.3	91.4 %			12:27:17
3	Al 396.153Radial†	75255.1	82238.4	30337 µg/L	30337 ppb		12:27:17
3	Ca 317.933Radial†	14775710.4	16166451.6	1799700 µg/L	1799700 ppb		12:27:12
3	Fe 238.204 Radial†	1020978.3	1117618.1	105720 µg/L	105720 ppb		12:27:15
3	K 766.490 Radial†	14750.9	15069.5	7819.7 µg/L	7819.7 ppb		12:27:17
3	Mg 279.077 IEC†	81869.4	89550.3	48314 µg/L	48314 ppb		12:27:17
3	Na 589.592 Radial†	21877.6	23897.6	3985.0 µg/L	3985.0 ppb		12:27:17
3	Sr 421.552†	1347890.9	1475249.4	4218.0 µg/L	4218.0 ppb		12:27:15
3	Sc 361.383	1171129.6	1171129.6	87.975 %			12:28:05
3	Y 371.029	665111.8	665111.8	91.810 %			12:28:05
3	Ag 328.068†	-3532.5	-2124.5	-20.314 µg/L	-20.314 ppb		12:28:05
3	As 188.979†	19.7	52.4	42.100 µg/L	42.100 ppb		12:28:25
3	B 249.677†	-1883.5	-3025.9	34.036 µg/L	34.036 ppb		12:28:05
3	Ba 233.527†	87253.0	99419.8	887.01 µg/L	887.01 ppb		12:28:05
3	Be 313.107†	4234.2	8468.9	-19.251 µg/L	-19.251 ppb		12:28:05
3	Cd 226.502†	1663.2	2070.5	3.5602 µg/L	3.5602 ppb		12:28:25
3	Co 228.616†	2107.8	2487.4	36.695 µg/L	36.695 ppb		12:28:25
3	Cr 267.716†	5875.5	6549.6	78.066 µg/L	78.066 ppb		12:28:25
3	Cu 324.752†	44953.8	45321.3	207.91 µg/L	207.91 ppb		12:28:05
3	Mn 257.610†	1467362.8	1667775.7	2921.2 µg/L	2921.2 ppb		12:28:05
3	Mo 202.031†	-6.8	22.0	4.2288 µg/L	4.2288 ppb		12:28:25
3	Ni 231.604†	6621.5	7724.3	122.80 µg/L	122.80 ppb		12:28:25
3	P 214.914†	8202.0	9418.2	3389.2 µg/L	3389.2 ppb		12:28:25
3	Pb 220.353†	9106.2	10277.1	1040.0 µg/L	1040.0 ppb		12:28:25
3	S 181.975 Axial†	45233.4	51313.4	57258 µg/L	57258 ppb		12:28:05
3	Sb 206.836†	184.2	165.1	20.339 µg/L	20.339 ppb		12:28:25
3	Se 196.026†	-32.4	-44.9	24.8 µg/L	24.8 ppb		12:28:25
3	SiO2†	468867.3	529934.2	58652 µg/L	58652 ppb		12:28:05
3	Si 251.611†	1411891.4	1604289.8	27214 µg/L	27214 ppb		12:28:05
3	Sn 189.927†	-38.2	-15.9	-1.9379 µg/L	-1.9379 ppb		12:28:25
3	Ti 334.940†	647573.9	736976.1	1069.6 µg/L	1069.6 ppb		12:28:05
3	Tl 190.801†	-84.7	-10.2	-1.3368 µg/L	-1.3368 ppb		12:28:25
3	U 367.007†	4500.2	5399.5	-68.685 µg/L	-68.685 ppb		12:28:05
3	V 292.402†	19633.2	22213.4	106.96 µg/L	106.96 ppb		12:28:05
3	Zn 213.857†	89348.1	101514.0	561.97 µg/L	561.97 ppb		12:28:05

Mean Data: 409254011|1611117|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1164455.4	87.474	%	0.8821				1.01%
Sc RADIAL	65437.7	90.8	%	1.23				1.35%
Y 371.029	662115.8	91.396	%	0.8811				0.96%
Ag 328.068†	-2133.8	-20.506	µg/L	0.1995	-20.506	ppb	0.1995	0.97%
Concentration less than lower limit for Ag 328.068.								
Al 396.153Radial†	82016.2	30258	µg/L	68.1	30258	ppb	68.1	0.22%
As 188.979†	57.6	44.915	µg/L	2.9802	44.915	ppb	2.9802	6.64%
B 249.677†	-2994.9	34.269	µg/L	0.4003	34.269	ppb	0.4003	1.17%
Ba 233.527†	99822.7	890.60	µg/L	3.514	890.60	ppb	3.514	0.39%
Be 313.107†	8442.2	-19.345	µg/L	0.0936	-19.345	ppb	0.0936	0.48%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	16299193.8	1814400	µg/L	33297.5	1814400	ppb	33297.5	1.84%
Concentration greater than upper limit for Ca 317.933Radial.								
Cd 226.502†	2070.7	3.5949	µg/L	0.06583	3.5949	ppb	0.06583	1.83%
Co 228.616†	2518.0	37.157	µg/L	0.4387	37.157	ppb	0.4387	1.18%
Cr 267.716†	6607.0	78.733	µg/L	1.2922	78.733	ppb	1.2922	1.64%
Cu 324.752†	45599.5	209.12	µg/L	1.154	209.12	ppb	1.154	0.55%
Fe 238.204 Radial†	1114560.7	105430	µg/L	384.3	105430	ppb	384.3	0.36%
K 766.490 Radial†	14986.9	7775.1	µg/L	47.33	7775.1	ppb	47.33	0.61%
Mg 279.077 IEC†	89194.2	48122	µg/L	198.3	48122	ppb	198.3	0.41%

Mn 257.610†	1675295.6	2934.4 µg/L	11.73	2934.4 ppb	11.73	0.40%
Mo 202.031†	19.8	4.1036 µg/L	0.47452	4.1036 ppb	0.47452	11.56%
Na 589.592 Radial†	23855.4	3978.0 µg/L	13.00	3978.0 ppb	13.00	0.33%
Ni 231.604†	7781.4	123.71 µg/L	1.722	123.71 ppb	1.722	1.39%
P 214.914†	9529.7	3429.4 µg/L	57.73	3429.4 ppb	57.73	1.68%
Pb 220.353†	10355.2	1047.9 µg/L	11.03	1047.9 ppb	11.03	1.05%
S 181.975 Axial†	51615.0	57595 µg/L	297.1	57595 ppb	297.1	0.52%
Concentration greater than upper limit for S 181.975 Axial.						
Sb 206.836†	168.8	21.057 µg/L	1.2374	21.057 ppb	1.2374	5.88%
Se 196.026†	-69.2	12.0 µg/L	11.96	12.0 ppb	11.96	99.90%
SiO2†	531761.5	58854 µg/L	182.0	58854 ppb	182.0	0.31%
Si 251.611†	1610486.5	27319 µg/L	92.0	27319 ppb	92.0	0.34%
Sn 189.927†	-20.9	-2.5822 µg/L	0.85954	-2.5822 ppb	0.85954	33.29%
Sr 421.552†	1471602.2	4206.9 µg/L	26.98	4206.9 ppb	26.98	0.64%
Ti 334.940†	740095.0	1074.2 µg/L	4.02	1074.2 ppb	4.02	0.37%
Tl 190.801†	-15.6	-2.9852 µg/L	1.83796	-2.9852 ppb	1.83796	61.57%
U 367.007†	5429.7	-64.701 µg/L	13.5976	-64.701 ppb	13.5976	21.02%
Concentration less than lower limit for U 367.007.						
V 292.402†	22341.5	107.52 µg/L	0.569	107.52 ppb	0.569	0.53%
Zn 213.857†	102030.0	564.94 µg/L	2.900	564.94 ppb	2.900	0.51%

Sequence No.: 17 **Autosampler Location: 318**
Sample ID: 409254012|1611117|1 **Date Collected: 11/11/2016 12:28:34**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254012|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70966.8	70966.8	98.5	%			12:29:01
1	Al 396.153Radial†	183320.2	185985.2	67926	µg/L	67926	ppb	12:29:01
1	Ca 317.933Radial†	1441643.2	1463057.2	162870	µg/L	162870	ppb	12:29:01
1	Fe 238.204 Radial†	1591022.7	1615552.4	152820	µg/L	152820	ppb	12:28:59
1	K 766.490 Radial†	25238.4	24549.1	12943	µg/L	12943	ppb	12:29:01
1	Mg 279.077 IEC†	155339.4	157657.0	85048	µg/L	85048	ppb	12:29:01
1	Na 589.592 Radial†	41860.7	42452.7	7079.2	µg/L	7079.2	ppb	12:29:01
1	Sr 421.552†	130413.2	132840.4	379.79	µg/L	379.79	ppb	12:29:01
1	Sc 361.383	1296636.1	1296636.1	97.403	%			12:29:14
1	Y 371.029	778333.6	778333.6	107.44	%			12:29:16
1	Ag 328.068†	-2694.3	-875.3	2.5715	µg/L	2.5715	ppb	12:29:16
1	As 188.979†	114.1	147.1	99.615	µg/L	99.615	ppb	12:29:36
1	B 249.677†	-4282.4	-5281.4	36.150	µg/L	36.150	ppb	12:29:16
1	Ba 233.527†	243458.0	250189.3	2231.6	µg/L	2231.6	ppb	12:29:16
1	Be 313.107†	17140.0	21252.8	-48.764	µg/L	-48.764	ppb	12:29:16
1	Cd 226.502†	2838.3	3094.0	5.9108	µg/L	5.9108	ppb	12:29:36
1	Co 228.616†	5549.9	5789.4	86.746	µg/L	86.746	ppb	12:29:36
1	Cr 267.716†	9215.7	9332.4	111.28	µg/L	111.28	ppb	12:29:36
1	Cu 324.752†	46373.3	41832.7	196.14	µg/L	196.14	ppb	12:29:16
1	Mn 257.610†	4021758.5	4128825.9	7233.2	µg/L	7233.2	ppb	12:29:14
1	Mo 202.031†	10.3	40.3	6.7130	µg/L	6.7130	ppb	12:29:36
1	Ni 231.604†	12203.6	12726.7	202.33	µg/L	202.33	ppb	12:29:36
1	P 214.914†	16242.3	16770.4	6036.7	µg/L	6036.7	ppb	12:29:36
1	Pb 220.353†	2644.6	2641.4	268.88	µg/L	268.88	ppb	12:29:36
1	S 181.975 Axial†	1197.0	1126.3	1222.6	µg/L	1222.6	ppb	12:29:36
1	Sb 206.836†	102.2	60.6	-4.3903	µg/L	-4.3903	ppb	12:29:36
1	Se 196.026†	-115.3	-126.4	2.95	µg/L	2.95	ppb	12:29:36
1	SiO2†	566055.5	578126.7	63985	µg/L	63985	ppb	12:29:16
1	Si 251.611†	1728576.0	1774075.0	30099	µg/L	30099	ppb	12:29:14
1	Sn 189.927†	-49.7	-23.5	-2.7914	µg/L	-2.7914	ppb	12:29:36
1	Ti 334.940†	1485821.0	1526322.0	2171.1	µg/L	2171.1	ppb	12:29:14
1	Tl 190.801†	-166.3	-84.7	-23.416	µg/L	-23.416	ppb	12:29:36
1	U 367.007†	6330.8	6783.7	-10.472	µg/L	-10.472	ppb	12:29:16
1	V 292.402†	51083.0	52341.5	245.23	µg/L	245.23	ppb	12:29:16
1	Zn 213.857†	112533.2	115486.8	634.39	µg/L	634.39	ppb	12:29:16
2	Sc RADIAL	70356.5	70356.5	97.7	%			12:29:05
2	Al 396.153Radial†	182408.4	186665.9	68174	µg/L	68174	ppb	12:29:05
2	Ca 317.933Radial†	1424858.0	1458566.2	162370	µg/L	162370	ppb	12:29:05
2	Fe 238.204 Radial†	1601666.3	1640461.2	155180	µg/L	155180	ppb	12:29:03
2	K 766.490 Radial†	24848.2	24371.8	12851	µg/L	12851	ppb	12:29:05
2	Mg 279.077 IEC†	152918.7	156546.3	84450	µg/L	84450	ppb	12:29:05
2	Na 589.592 Radial†	41571.2	42524.9	7091.2	µg/L	7091.2	ppb	12:29:05
2	Sr 421.552†	130034.2	133600.8	382.01	µg/L	382.01	ppb	12:29:05
2	Sc 361.383	1278142.1	1278142.1	96.014	%			12:29:39
2	Y 371.029	782219.6	782219.6	107.97	%			12:29:41
2	Ag 328.068†	-2624.0	-842.1	2.8712	µg/L	2.8712	ppb	12:29:41
2	As 188.979†	114.8	149.5	101.26	µg/L	101.26	ppb	12:30:01
2	B 249.677†	-4032.6	-5084.9	40.704	µg/L	40.704	ppb	12:29:41
2	Ba 233.527†	244002.6	254373.1	2268.9	µg/L	2268.9	ppb	12:29:41
2	Be 313.107†	16908.7	21266.6	-49.669	µg/L	-49.669	ppb	12:29:41
2	Cd 226.502†	2851.5	3149.9	6.0640	µg/L	6.0640	ppb	12:30:01
2	Co 228.616†	5520.0	5840.7	87.523	µg/L	87.523	ppb	12:30:01
2	Cr 267.716†	9223.3	9477.2	113.01	µg/L	113.01	ppb	12:30:01
2	Cu 324.752†	46480.9	42633.7	199.83	µg/L	199.83	ppb	12:29:41
2	Mn 257.610†	3976043.3	4140956.9	7254.4	µg/L	7254.4	ppb	12:29:39
2	Mo 202.031†	0.2	29.9	6.2245	µg/L	6.2245	ppb	12:30:01
2	Ni 231.604†	12249.1	12955.3	205.97	µg/L	205.97	ppb	12:30:01
2	P 214.914†	16312.8	17085.1	6150.1	µg/L	6150.1	ppb	12:30:01
2	Pb 220.353†	2649.3	2685.6	273.34	µg/L	273.34	ppb	12:30:01

2	S 181.975 Axial†	1205.8	1153.2	1252.1 µg/L	1252.1 ppb		12:30:01
2	Sb 206.836†	109.1	69.3	-2.9825 µg/L	-2.9825 ppb		12:30:01
2	Se 196.026†	-114.6	-127.4	3.51 µg/L	3.51 ppb		12:30:01
2	SiO2†	567327.6	587860.4	65063 µg/L	65063 ppb		12:29:41
2	Si 251.611†	1708377.9	1778716.8	30178 µg/L	30178 ppb		12:29:39
2	Sn 189.927†	-57.9	-32.8	-3.9744 µg/L	-3.9744 ppb		12:30:01
2	Ti 334.940†	1470884.6	1532837.7	2180.4 µg/L	2180.4 ppb		12:29:39
2	Tl 190.801†	-161.3	-81.9	-22.517 µg/L	-22.517 ppb		12:30:01
2	U 367.007†	6431.6	6982.8	1.2558 µg/L	1.2558 ppb		12:29:41
2	V 292.402†	51417.8	53449.0	250.36 µg/L	250.36 ppb		12:29:41
2	Zn 213.857†	112930.2	117572.0	645.99 µg/L	645.99 ppb		12:29:41
3	Sc RADIAL	68825.5	68825.5	95.5 %			12:29:10
3	Al 396.153Radial†	178375.1	186599.0	68150 µg/L	68150 ppb		12:29:10
3	Ca 317.933Radial†	1385204.1	1449514.7	161360 µg/L	161360 ppb		12:29:10
3	Fe 238.204 Radial†	1590628.1	1665388.0	157540 µg/L	157540 ppb		12:29:08
3	K 766.490 Radial†	24453.3	24524.4	12932 µg/L	12932 ppb		12:29:10
3	Mg 279.077 IEC†	148497.8	155402.0	83834 µg/L	83834 ppb		12:29:10
3	Na 589.592 Radial†	40540.7	42393.2	7069.3 µg/L	7069.3 ppb		12:29:10
3	Sr 421.552†	126799.5	133176.8	380.82 µg/L	380.82 ppb		12:29:10
3	Sc 361.383	1271262.6	1271262.6	95.497 %			12:30:03
3	Y 371.029	770022.8	770022.8	106.29 %			12:30:06
3	Ag 328.068†	-2571.3	-801.7	3.2381 µg/L	3.2381 ppb		12:30:06
3	As 188.979†	112.4	147.6	100.50 µg/L	100.50 ppb		12:30:26
3	B 249.677†	-4087.1	-5164.7	41.286 µg/L	41.286 ppb		12:30:06
3	Ba 233.527†	240638.1	252225.3	2249.8 µg/L	2249.8 ppb		12:30:06
3	Be 313.107†	17183.8	21650.0	-49.101 µg/L	-49.101 ppb		12:30:06
3	Cd 226.502†	2849.5	3163.9	5.8998 µg/L	5.8998 ppb		12:30:26
3	Co 228.616†	5609.9	5965.9	89.331 µg/L	89.331 ppb		12:30:26
3	Cr 267.716†	9279.2	9587.7	114.38 µg/L	114.38 ppb		12:30:26
3	Cu 324.752†	46055.9	42450.6	199.15 µg/L	199.15 ppb		12:30:06
3	Mn 257.610†	3932872.2	4118160.2	7214.5 µg/L	7214.5 ppb		12:30:03
3	Mo 202.031†	-2.0	27.7	6.1571 µg/L	6.1571 ppb		12:30:26
3	Ni 231.604†	12294.4	13071.8	207.82 µg/L	207.82 ppb		12:30:26
3	P 214.914†	16427.9	17297.5	6226.5 µg/L	6226.5 ppb		12:30:26
3	Pb 220.353†	2656.6	2708.2	275.66 µg/L	275.66 ppb		12:30:26
3	S 181.975 Axial†	1214.5	1169.1	1269.3 µg/L	1269.3 ppb		12:30:26
3	Sb 206.836†	90.3	50.3	-6.9206 µg/L	-6.9206 ppb		12:30:26
3	Se 196.026†	-107.2	-120.3	8.31 µg/L	8.31 ppb		12:30:26
3	SiO2†	560555.3	583966.5	64632 µg/L	64632 ppb		12:30:06
3	Si 251.611†	1689102.7	1768161.6	29999 µg/L	29999 ppb		12:30:03
3	Sn 189.927†	-44.4	-19.0	-2.2102 µg/L	-2.2102 ppb		12:30:26
3	Ti 334.940†	1458262.6	1527910.8	2173.4 µg/L	2173.4 ppb		12:30:03
3	Tl 190.801†	-182.9	-105.5	-29.730 µg/L	-29.730 ppb		12:30:26
3	U 367.007†	6232.8	6810.9	-32.621 µg/L	-32.621 ppb		12:30:06
3	V 292.402†	50932.4	53230.5	249.53 µg/L	249.53 ppb		12:30:06
3	Zn 213.857†	111135.0	116328.6	638.71 µg/L	638.71 ppb		12:30:06

Mean Data: 409254012|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1282013.6	96.305	%	0.9858				1.02%
Sc RADIAL	70049.6	97.2	%	1.53				1.57%
Y 371.029	776858.7	107.23	%	0.860				0.80%
Ag 328.068†	-839.7	2.8936	µg/L	0.33386	2.8936	ppb	0.33386	11.54%
Al 396.153Radial†	186416.7	68083	µg/L	136.9	68083	ppb	136.9	0.20%
As 188.979†	148.1	100.46	µg/L	0.822	100.46	ppb	0.822	0.82%
B 249.677†	-5177.0	39.380	µg/L	2.8124	39.380	ppb	2.8124	7.14%
Ba 233.527†	252262.6	2250.1	µg/L	18.66	2250.1	ppb	18.66	0.83%
Be 313.107†	21389.8	-49.178	µg/L	0.4573	-49.178	ppb	0.4573	0.93%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1457046.0	162200	µg/L	767.9	162200	ppb	767.9	0.47%
Cd 226.502†	3136.0	5.9582	µg/L	0.09176	5.9582	ppb	0.09176	1.54%
Co 228.616†	5865.3	87.867	µg/L	1.3265	87.867	ppb	1.3265	1.51%
Cr 267.716†	9465.8	112.89	µg/L	1.549	112.89	ppb	1.549	1.37%
Cu 324.752†	42305.7	198.37	µg/L	1.967	198.37	ppb	1.967	0.99%
Fe 238.204 Radial†	1640467.2	155180	µg/L	2357.1	155180	ppb	2357.1	1.52%
K 766.490 Radial†	24481.8	12909	µg/L	50.4	12909	ppb	50.4	0.39%
Mg 279.077 IEC†	156535.1	84444	µg/L	607.1	84444	ppb	607.1	0.72%
Mn 257.610†	4129314.4	7234.0	µg/L	19.98	7234.0	ppb	19.98	0.28%
Mo 202.031†	32.6	6.3649	µg/L	0.30337	6.3649	ppb	0.30337	4.77%

Na 589.592 Radial†	42456.9	7079.9	µg/L	11.00	7079.9	ppb	11.00	0.16%
Ni 231.604†	12917.9	205.37	µg/L	2.791	205.37	ppb	2.791	1.36%
P 214.914†	17051.0	6137.8	µg/L	95.48	6137.8	ppb	95.48	1.56%
Pb 220.353†	2678.4	272.63	µg/L	3.446	272.63	ppb	3.446	1.26%
S 181.975 Axial†	1149.5	1248.0	µg/L	23.64	1248.0	ppb	23.64	1.89%
Sb 206.836†	60.1	-4.7645	µg/L	1.99554	-4.7645	ppb	1.99554	41.88%
Se 196.026†	-124.7	4.92	µg/L	2.944	4.92	ppb	2.944	59.81%
SiO2†	583317.8	64560	µg/L	542.2	64560	ppb	542.2	0.84%
Si 251.611†	1773651.2	30092	µg/L	89.5	30092	ppb	89.5	0.30%
Sn 189.927†	-25.1	-2.9920	µg/L	0.89905	-2.9920	ppb	0.89905	30.05%
Sr 421.552†	133206.0	380.87	µg/L	1.113	380.87	ppb	1.113	0.29%
Ti 334.940†	1529023.5	2174.9	µg/L	4.82	2174.9	ppb	4.82	0.22%
Tl 190.801†	-90.7	-25.221	µg/L	3.9308	-25.221	ppb	3.9308	15.59%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	6859.2	-13.946	µg/L	17.2038	-13.946	ppb	17.2038	123.36%
V 292.402†	53007.0	248.37	µg/L	2.755	248.37	ppb	2.755	1.11%
Zn 213.857†	116462.5	639.70	µg/L	5.864	639.70	ppb	5.864	0.92%

Sequence No.: 18 **Autosampler Location: 319**
Sample ID: 409254013|1611117|1 **Date Collected: 11/11/2016 12:30:34**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254013|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	69756.9	69756.9	96.8	%			12:31:01
1	Al 396.153Radial†	177083.5	182772.2	66752	µg/L	66752	ppb	12:31:01
1	Ca 317.933Radial†	1383739.4	1428642.4	159040	µg/L	159040	ppb	12:30:59
1	Fe 238.204 Radial†	1394646.1	1440767.0	136290	µg/L	136290	ppb	12:30:59
1	K 766.490 Radial†	27163.3	26981.3	14216	µg/L	14216	ppb	12:31:01
1	Mg 279.077 IEC†	87268.2	90094.9	48618	µg/L	48618	ppb	12:31:01
1	Na 589.592 Radial†	7922.0	8141.3	1357.6	µg/L	1357.6	ppb	12:31:01
1	Sr 421.552†	187402.0	193988.9	557.33	µg/L	557.33	ppb	12:31:01
1	Sc 361.383	1291477.0	1291477.0	97.016	%			12:31:13
1	Y 371.029	769179.0	769179.0	106.17	%			12:31:13
1	Ag 328.068†	-2649.5	-840.2	1.8675	µg/L	1.8675	ppb	12:31:13
1	As 188.979†	95.8	128.7	87.510	µg/L	87.510	ppb	12:31:34
1	B 249.677†	-1995.4	-2941.6	57.670	µg/L	57.670	ppb	12:31:13
1	Ba 233.527†	166895.7	172270.4	1536.7	µg/L	1536.7	ppb	12:31:13
1	Be 313.107†	15873.3	20017.4	-32.046	µg/L	-32.046	ppb	12:31:13
1	Cd 226.502†	2377.1	2630.2	4.2945	µg/L	4.2945	ppb	12:31:34
1	Co 228.616†	4043.8	4259.7	63.411	µg/L	63.411	ppb	12:31:34
1	Cr 267.716†	8360.3	8488.4	101.34	µg/L	101.34	ppb	12:31:34
1	Cu 324.752†	39675.9	35119.5	164.91	µg/L	164.91	ppb	12:31:13
1	Mn 257.610†	2539378.6	2617340.7	4585.4	µg/L	4585.4	ppb	12:31:13
1	Mo 202.031†	-44.6	-16.2	2.9871	µg/L	2.9871	ppb	12:31:34
1	Ni 231.604†	9168.3	9648.0	153.39	µg/L	153.39	ppb	12:31:34
1	P 214.914†	19771.6	20474.9	7372.9	µg/L	7372.9	ppb	12:31:34
1	Pb 220.353†	1008.1	965.4	99.714	µg/L	99.714	ppb	12:31:34
1	S 181.975 Axial†	3429.3	3432.2	3800.3	µg/L	3800.3	ppb	12:31:34
1	Sb 206.836†	88.0	46.4	-5.2824	µg/L	-5.2824	ppb	12:31:34
1	Se 196.026†	-80.6	-91.1	13.8	µg/L	13.8	ppb	12:31:34
1	SiO2†	614349.8	630228.1	69752	µg/L	69752	ppb	12:31:13
1	Si 251.611†	1851132.1	1907490.5	32359	µg/L	32359	ppb	12:31:13
1	Sn 189.927†	-30.8	-4.2	-0.3307	µg/L	-0.3307	ppb	12:31:34
1	Ti 334.940†	903843.6	932536.1	1327.1	µg/L	1327.1	ppb	12:31:13
1	Tl 190.801†	-131.5	-49.5	-12.885	µg/L	-12.885	ppb	12:31:34
1	U 367.007†	5626.9	6084.2	-6.3257	µg/L	-6.3257	ppb	12:31:13
1	V 292.402†	44050.1	45301.8	212.53	µg/L	212.53	ppb	12:31:13
1	Zn 213.857†	106570.1	109801.8	605.74	µg/L	605.74	ppb	12:31:13
2	Sc RADIAL	72677.5	72677.5	101	%			12:31:05
2	Al 396.153Radial†	183463.2	181746.9	66377	µg/L	66377	ppb	12:31:05
2	Ca 317.933Radial†	1423504.2	1410633.0	157030	µg/L	157030	ppb	12:31:03
2	Fe 238.204 Radial†	1435005.7	1422894.5	134600	µg/L	134600	ppb	12:31:03
2	K 766.490 Radial†	28196.1	26877.7	14161	µg/L	14161	ppb	12:31:05
2	Mg 279.077 IEC†	90611.6	89787.3	48451	µg/L	48451	ppb	12:31:05
2	Na 589.592 Radial†	8178.7	8066.9	1345.2	µg/L	1345.2	ppb	12:31:05
2	Sr 421.552†	194790.7	193535.4	556.08	µg/L	556.08	ppb	12:31:05
2	Sc 361.383	1294965.9	1294965.9	97.278	%			12:31:36
2	Y 371.029	769448.0	769448.0	106.21	%			12:31:36
2	Ag 328.068†	-2582.8	-764.2	2.1767	µg/L	2.1767	ppb	12:31:36
2	As 188.979†	92.2	124.8	85.154	µg/L	85.154	ppb	12:31:57
2	B 249.677†	-1994.0	-2934.7	56.531	µg/L	56.531	ppb	12:31:36
2	Ba 233.527†	167256.5	172177.7	1535.9	µg/L	1535.9	ppb	12:31:36
2	Be 313.107†	15874.8	19974.9	-32.036	µg/L	-32.036	ppb	12:31:36
2	Cd 226.502†	2362.9	2609.0	4.3278	µg/L	4.3278	ppb	12:31:57
2	Co 228.616†	4028.8	4233.1	63.035	µg/L	63.035	ppb	12:31:57
2	Cr 267.716†	8310.2	8413.8	100.43	µg/L	100.43	ppb	12:31:57
2	Cu 324.752†	39762.3	35098.1	164.70	µg/L	164.70	ppb	12:31:36
2	Mn 257.610†	2544499.2	2615552.5	4582.3	µg/L	4582.3	ppb	12:31:36
2	Mo 202.031†	-51.4	-23.1	2.5871	µg/L	2.5871	ppb	12:31:57
2	Ni 231.604†	9100.1	9552.5	151.87	µg/L	151.87	ppb	12:31:57
2	P 214.914†	19681.7	20327.6	7319.9	µg/L	7319.9	ppb	12:31:57
2	Pb 220.353†	1013.9	968.6	100.02	µg/L	100.02	ppb	12:31:57

2	S 181.975 Axial†	3389.4	3381.6	3744.2	µg/L	3744.2	ppb 12:31:57
2	Sb 206.836†	78.2	36.0	-7.0996	µg/L	-7.0996	ppb 12:31:57
2	Se 196.026†	-93.4	-104.0	6.29	µg/L	6.29	ppb 12:31:57
2	SiO2†	615791.6	630004.1	69727	µg/L	69727	ppb 12:31:36
2	Si 251.611†	1856304.8	1907667.1	32361	µg/L	32361	ppb 12:31:36
2	Sn 189.927†	-23.3	3.5	0.6622	µg/L	0.6622	ppb 12:31:57
2	Ti 334.940†	907322.4	933602.2	1328.6	µg/L	1328.6	ppb 12:31:36
2	Tl 190.801†	-140.5	-58.4	-15.642	µg/L	-15.642	ppb 12:31:57
2	U 367.007†	5653.3	6095.7	4.4649	µg/L	4.4649	ppb 12:31:36
2	V 292.402†	44196.1	45329.6	212.54	µg/L	212.54	ppb 12:31:36
2	Zn 213.857†	106902.5	109847.6	606.19	µg/L	606.19	ppb 12:31:36
3	Sc RADIAL	70965.1	70965.1	98.5	%		12:31:09
3	Al 396.153Radial†	180204.7	182827.2	66773	µg/L	66773	ppb 12:31:09
3	Ca 317.933Radial†	1440444.0	1461876.3	162740	µg/L	162740	ppb 12:31:07
3	Fe 238.204 Radial†	1453898.7	1476395.7	139660	µg/L	139660	ppb 12:31:07
3	K 766.490 Radial†	27569.5	26916.0	14182	µg/L	14182	ppb 12:31:09
3	Mg 279.077 IEC†	88386.1	89695.4	48403	µg/L	48403	ppb 12:31:09
3	Na 589.592 Radial†	7938.0	8018.2	1337.1	µg/L	1337.1	ppb 12:31:09
3	Sr 421.552†	190585.2	193925.3	557.02	µg/L	557.02	ppb 12:31:09
3	Sc 361.383	1312808.5	1312808.5	98.618	%		12:31:59
3	Y 371.029	780548.9	780548.9	107.74	%		12:31:59
3	Ag 328.068†	-2622.1	-768.0	2.4102	µg/L	2.4102	ppb 12:31:59
3	As 188.979†	88.0	119.2	82.731	µg/L	82.731	ppb 12:32:20
3	B 249.677†	-2007.5	-2920.5	60.447	µg/L	60.447	ppb 12:31:59
3	Ba 233.527†	170163.2	172788.4	1541.4	µg/L	1541.4	ppb 12:31:59
3	Be 313.107†	16561.8	20449.8	-32.044	µg/L	-32.044	ppb 12:31:59
3	Cd 226.502†	2366.2	2579.4	3.5242	µg/L	3.5242	ppb 12:32:20
3	Co 228.616†	4029.8	4177.8	62.158	µg/L	62.158	ppb 12:32:20
3	Cr 267.716†	8265.6	8252.4	98.635	µg/L	98.635	ppb 12:32:20
3	Cu 324.752†	40276.4	35063.9	164.87	µg/L	164.87	ppb 12:31:59
3	Mn 257.610†	2585589.5	2621668.1	4593.0	µg/L	4593.0	ppb 12:31:59
3	Mo 202.031†	-44.5	-15.4	3.1091	µg/L	3.1091	ppb 12:32:20
3	Ni 231.604†	9078.7	9403.6	149.50	µg/L	149.50	ppb 12:32:20
3	P 214.914†	19668.3	20039.0	7215.6	µg/L	7215.6	ppb 12:32:20
3	Pb 220.353†	1037.0	977.9	100.99	µg/L	100.99	ppb 12:32:20
3	S 181.975 Axial†	3405.3	3350.3	3708.2	µg/L	3708.2	ppb 12:32:20
3	Sb 206.836†	82.7	39.6	-6.9108	µg/L	-6.9108	ppb 12:32:20
3	Se 196.026†	-94.8	-104.1	8.54	µg/L	8.54	ppb 12:32:20
3	SiO2†	625857.0	631607.1	69905	µg/L	69905	ppb 12:31:59
3	Si 251.611†	1885648.5	1911486.7	32427	µg/L	32427	ppb 12:31:59
3	Sn 189.927†	-35.3	-8.3	-0.8527	µg/L	-0.8527	ppb 12:32:20
3	Ti 334.940†	920922.1	934715.8	1330.2	µg/L	1330.2	ppb 12:31:59
3	Tl 190.801†	-142.0	-57.9	-15.413	µg/L	-15.413	ppb 12:32:20
3	U 367.007†	5659.5	6023.0	-32.500	µg/L	-32.500	ppb 12:31:59
3	V 292.402†	44846.7	45371.8	213.06	µg/L	213.06	ppb 12:31:59
3	Zn 213.857†	108421.7	109894.4	605.92	µg/L	605.92	ppb 12:31:59

Mean Data: 409254013|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1299750.5	97.637	%	0.8596				0.88%
Sc RADIAL	71133.1	98.7	%	2.04				2.06%
Y 371.029	773058.7	106.71	%	0.896				0.84%
Ag 328.068†	-790.8	2.1515	µg/L	0.27223	2.1515	ppb	0.27223	12.65%
Al 396.153Radial†	182448.8	66634	µg/L	222.5	66634	ppb	222.5	0.33%
As 188.979†	124.2	85.132	µg/L	2.3895	85.132	ppb	2.3895	2.81%
B 249.677†	-2932.3	58.216	µg/L	2.0143	58.216	ppb	2.0143	3.46%
Ba 233.527†	172412.2	1538.0	µg/L	2.95	1538.0	ppb	2.95	0.19%
Be 313.107†	20147.4	-32.042	µg/L	0.0049	-32.042	ppb	0.0049	0.02%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1433717.3	159600	µg/L	2893.9	159600	ppb	2893.9	1.81%
Cd 226.502†	2606.2	4.0488	µg/L	0.45469	4.0488	ppb	0.45469	11.23%
Co 228.616†	4223.5	62.868	µg/L	0.6429	62.868	ppb	0.6429	1.02%
Cr 267.716†	8384.9	100.14	µg/L	1.377	100.14	ppb	1.377	1.38%
Cu 324.752†	35093.8	164.83	µg/L	0.108	164.83	ppb	0.108	0.07%
Fe 238.204 Radial†	1446685.7	136850	µg/L	2576.5	136850	ppb	2576.5	1.88%
K 766.490 Radial†	26925.0	14186	µg/L	27.7	14186	ppb	27.7	0.19%
Mg 279.077 IEC†	89859.2	48491	µg/L	112.5	48491	ppb	112.5	0.23%
Mn 257.610†	2618187.1	4586.9	µg/L	5.51	4586.9	ppb	5.51	0.12%
Mo 202.031†	-18.2	2.8945	µg/L	0.27306	2.8945	ppb	0.27306	9.43%

Na 589.592 Radial†	8075.5	1346.6 µg/L	10.33	1346.6 ppb	10.33	0.77%
Ni 231.604†	9534.7	151.58 µg/L	1.958	151.58 ppb	1.958	1.29%
P 214.914†	20280.5	7302.8 µg/L	80.03	7302.8 ppb	80.03	1.10%
Pb 220.353†	970.6	100.24 µg/L	0.666	100.24 ppb	0.666	0.66%
S 181.975 Axial†	3388.0	3750.9 µg/L	46.43	3750.9 ppb	46.43	1.24%
Sb 206.836†	40.7	-6.4310 µg/L	0.99914	-6.4310 ppb	0.99914	15.54%
Se 196.026†	-99.7	9.54 µg/L	3.857	9.54 ppb	3.857	40.42%
SiO2†	630613.1	69794 µg/L	96.1	69794 ppb	96.1	0.14%
Si 251.611†	1908881.4	32382 µg/L	38.6	32382 ppb	38.6	0.12%
Sn 189.927†	-3.0	-0.1737 µg/L	0.76955	-0.1737 ppb	0.76955	442.99%
Sr 421.552†	193816.5	556.81 µg/L	0.649	556.81 ppb	0.649	0.12%
Ti 334.940†	933618.0	1328.6 µg/L	1.58	1328.6 ppb	1.58	0.12%
Tl 190.801†	-55.3	-14.647 µg/L	1.5300	-14.647 ppb	1.5300	10.45%
U 367.007†	6067.6	-11.454 µg/L	19.0084	-11.454 ppb	19.0084	165.96%
V 292.402†	45334.4	212.71 µg/L	0.304	212.71 ppb	0.304	0.14%
Zn 213.857†	109847.9	605.95 µg/L	0.227	605.95 ppb	0.227	0.04%

Sequence No.: 19 **Autosampler Location: 320**
Sample ID: 409254014|1611117|1 **Date Collected: 11/11/2016 12:32:28**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254014|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	72080.9	72080.9	100	%			12:32:55
1	Al 396.153Radial†	181575.2	181365.1	66241	µg/L	66241	ppb	12:32:55
1	Ca 317.933Radial†	1560463.2	1559188.1	173570	µg/L	173570	ppb	12:32:53
1	Fe 238.204 Radial†	1304931.6	1304670.3	123420	µg/L	123420	ppb	12:32:53
1	K 766.490 Radial†	27930.3	26843.4	14137	µg/L	14137	ppb	12:32:55
1	Mg 279.077 IEC†	105088.9	104999.4	56649	µg/L	56649	ppb	12:32:55
1	Na 589.592 Radial†	7952.4	7907.9	1318.7	µg/L	1318.7	ppb	12:32:55
1	Sr 421.552†	204355.1	204692.1	587.88	µg/L	587.88	ppb	12:32:55
1	Sc 361.383	1312166.8	1312166.8	98.570	%			12:33:08
1	Y 371.029	777047.0	777047.0	107.26	%			12:33:08
1	Ag 328.068†	-2703.9	-852.3	0.9564	µg/L	0.9564	ppb	12:33:08
1	As 188.979†	46.5	77.1	57.899	µg/L	57.899	ppb	12:33:28
1	B 249.677†	-933.4	-1831.8	64.188	µg/L	64.188	ppb	12:33:08
1	Ba 233.527†	174148.3	176915.7	1578.1	µg/L	1578.1	ppb	12:33:08
1	Be 313.107†	15927.1	19814.1	-33.137	µg/L	-33.137	ppb	12:33:08
1	Cd 226.502†	2298.1	2511.5	4.8707	µg/L	4.8707	ppb	12:33:28
1	Co 228.616†	3822.3	3969.3	59.302	µg/L	59.302	ppb	12:33:28
1	Cr 267.716†	8475.1	8469.1	100.88	µg/L	100.88	ppb	12:33:28
1	Cu 324.752†	39022.3	33811.6	158.38	µg/L	158.38	ppb	12:33:08
1	Mn 257.610†	2642060.2	2680240.3	4695.4	µg/L	4695.4	ppb	12:33:08
1	Mo 202.031†	-58.4	-29.5	2.0678	µg/L	2.0678	ppb	12:33:28
1	Ni 231.604†	8873.4	9199.9	146.26	µg/L	146.26	ppb	12:33:28
1	P 214.914†	18971.2	19341.6	6965.0	µg/L	6965.0	ppb	12:33:28
1	Pb 220.353†	1016.9	958.0	98.917	µg/L	98.917	ppb	12:33:28
1	S 181.975 Axial†	4617.5	4581.8	5086.5	µg/L	5086.5	ppb	12:33:28
1	Sb 206.836†	64.3	21.0	-8.8528	µg/L	-8.8528	ppb	12:33:28
1	Se 196.026†	-73.4	-82.5	12.4	µg/L	12.4	ppb	12:33:28
1	SiO2†	644720.7	651054.8	72057	µg/L	72057	ppb	12:33:08
1	Si 251.611†	1943289.0	1970898.5	33432	µg/L	33432	ppb	12:33:08
1	Sn 189.927†	-35.3	-8.4	-0.8602	µg/L	-0.8602	ppb	12:33:28
1	Ti 334.940†	899772.8	913716.3	1300.6	µg/L	1300.6	ppb	12:33:08
1	Tl 190.801†	-141.2	-57.2	-15.459	µg/L	-15.459	ppb	12:33:28
1	U 367.007†	5340.8	5702.5	15.419	µg/L	15.419	ppb	12:33:08
1	V 292.402†	45208.3	45760.8	213.71	µg/L	213.71	ppb	12:33:08
1	Zn 213.857†	119343.7	121028.7	670.43	µg/L	670.43	ppb	12:33:08
2	Sc RADIAL	70790.5	70790.5	98.3	%			12:32:59
2	Al 396.153Radial†	178876.5	181926.5	66447	µg/L	66447	ppb	12:32:59
2	Ca 317.933Radial†	1599121.9	1626954.7	181110	µg/L	181110	ppb	12:32:57
2	Fe 238.204 Radial†	1337904.3	1361995.8	128840	µg/L	128840	ppb	12:32:57
2	K 766.490 Radial†	27302.4	26713.3	14070	µg/L	14070	ppb	12:32:59
2	Mg 279.077 IEC†	102749.7	104533.3	56400	µg/L	56400	ppb	12:32:59
2	Na 589.592 Radial†	7855.6	7954.2	1326.4	µg/L	1326.4	ppb	12:32:59
2	Sr 421.552†	201394.6	205402.1	589.68	µg/L	589.68	ppb	12:32:59
2	Sc 361.383	1274640.2	1274640.2	95.751	%			12:33:30
2	Y 371.029	754418.3	754418.3	104.14	%			12:33:30
2	Ag 328.068†	-2478.2	-697.3	2.0164	µg/L	2.0164	ppb	12:33:30
2	As 188.979†	54.4	86.8	63.852	µg/L	63.852	ppb	12:33:51
2	B 249.677†	-1054.0	-1985.6	65.953	µg/L	65.953	ppb	12:33:30
2	Ba 233.527†	168350.5	176062.1	1570.5	µg/L	1570.5	ppb	12:33:30
2	Be 313.107†	15227.6	19559.2	-33.023	µg/L	-33.023	ppb	12:33:30
2	Cd 226.502†	2294.0	2575.8	4.7360	µg/L	4.7360	ppb	12:33:51
2	Co 228.616†	3791.4	4051.2	60.444	µg/L	60.444	ppb	12:33:51
2	Cr 267.716†	8452.9	8699.0	103.69	µg/L	103.69	ppb	12:33:51
2	Cu 324.752†	37984.4	33893.2	159.08	µg/L	159.08	ppb	12:33:30
2	Mn 257.610†	2554980.3	2668209.3	4674.3	µg/L	4674.3	ppb	12:33:30
2	Mo 202.031†	-53.1	-25.8	2.3919	µg/L	2.3919	ppb	12:33:51
2	Ni 231.604†	8864.9	9456.0	150.33	µg/L	150.33	ppb	12:33:51
2	P 214.914†	18965.7	19902.5	7166.9	µg/L	7166.9	ppb	12:33:51
2	Pb 220.353†	1004.5	975.3	100.70	µg/L	100.70	ppb	12:33:51

2	S 181.975 Axial†	4595.1	4696.4	5213.2 µg/L	5213.2 ppb		12:33:51
2	Sb 206.836†	64.6	23.2	-9.0267 µg/L	-9.0267 ppb		12:33:51
2	Se 196.026†	-73.4	-84.7	13.7 µg/L	13.7 ppb		12:33:51
2	SiO2†	625011.0	649727.0	71910 µg/L	71910 ppb		12:33:30
2	Si 251.611†	1880931.9	1963816.5	33313 µg/L	33313 ppb		12:33:30
2	Sn 189.927†	-15.5	11.3	1.6598 µg/L	1.6598 ppb		12:33:51
2	Ti 334.940†	872903.6	912529.3	1299.0 µg/L	1299.0 ppb		12:33:30
2	Tl 190.801†	-138.7	-58.8	-15.866 µg/L	-15.866 ppb		12:33:51
2	U 367.007†	5100.3	5610.8	-25.998 µg/L	-25.998 ppb		12:33:30
2	V 292.402†	43825.6	45667.1	213.65 µg/L	213.65 ppb		12:33:30
2	Zn 213.857†	114860.4	119911.0	663.52 µg/L	663.52 ppb		12:33:30
3	Sc RADIAL	70111.0	70111.0	97.3 %			12:33:03
3	Al 396.153Radial†	177617.7	182397.5	66619 µg/L	66619 ppb		12:33:03
3	Ca 317.933Radial†	1552562.9	1594888.3	177540 µg/L	177540 ppb		12:33:01
3	Fe 238.204 Radial†	1299001.2	1335219.3	126310 µg/L	126310 ppb		12:33:01
3	K 766.490 Radial†	27364.9	27046.7	14245 µg/L	14245 ppb		12:33:03
3	Mg 279.077 IEC†	102248.1	105031.4	56667 µg/L	56667 ppb		12:33:03
3	Na 589.592 Radial†	7667.0	7838.0	1307.0 µg/L	1307.0 ppb		12:33:03
3	Sr 421.552†	199551.0	205494.2	590.07 µg/L	590.07 ppb		12:33:03
3	Sc 361.383	1305780.6	1305780.6	98.090 %			12:33:53
3	Y 371.029	771961.2	771961.2	106.56 %			12:33:53
3	Ag 328.068†	-2278.0	-431.5	3.2700 µg/L	3.2700 ppb		12:33:53
3	As 188.979†	43.1	73.9	56.484 µg/L	56.484 ppb		12:34:14
3	B 249.677†	-881.3	-1783.3	67.005 µg/L	67.005 ppb		12:33:53
3	Ba 233.527†	172015.2	175605.1	1566.4 µg/L	1566.4 ppb		12:33:53
3	Be 313.107†	15853.0	19817.5	-32.852 µg/L	-32.852 ppb		12:33:53
3	Cd 226.502†	2283.2	2507.7	4.5107 µg/L	4.5107 ppb		12:34:14
3	Co 228.616†	3765.6	3930.5	58.677 µg/L	58.677 ppb		12:34:14
3	Cr 267.716†	8391.7	8426.1	100.44 µg/L	100.44 ppb		12:34:14
3	Cu 324.752†	38824.7	33803.7	158.52 µg/L	158.52 ppb		12:33:53
3	Mn 257.610†	2614804.7	2665563.1	4669.7 µg/L	4669.7 ppb		12:33:53
3	Mo 202.031†	-48.8	-20.0	2.6304 µg/L	2.6304 ppb		12:34:14
3	Ni 231.604†	8830.1	9199.7	146.26 µg/L	146.26 ppb		12:34:14
3	P 214.914†	18879.2	19341.9	6965.0 µg/L	6965.0 ppb		12:34:14
3	Pb 220.353†	992.4	938.0	96.930 µg/L	96.930 ppb		12:34:14
3	S 181.975 Axial†	4571.1	4557.4	5058.7 µg/L	5058.7 ppb		12:34:14
3	Sb 206.836†	62.5	19.4	-9.4436 µg/L	-9.4436 ppb		12:34:14
3	Se 196.026†	-73.6	-83.0	13.4 µg/L	13.4 ppb		12:34:14
3	SiO2†	639314.0	648741.8	71801 µg/L	71801 ppb		12:33:53
3	Si 251.611†	1925143.4	1962041.6	33282 µg/L	33282 ppb		12:33:53
3	Sn 189.927†	-29.4	-2.5	-0.1114 µg/L	-0.1114 ppb		12:34:14
3	Ti 334.940†	892534.1	910801.0	1296.5 µg/L	1296.5 ppb		12:33:53
3	Tl 190.801†	-128.7	-45.2	-11.722 µg/L	-11.722 ppb		12:34:14
3	U 367.007†	5227.2	5613.2	-11.626 µg/L	-11.626 ppb		12:33:53
3	V 292.402†	44803.6	45572.6	213.05 µg/L	213.05 ppb		12:33:53
3	Zn 213.857†	118022.4	120273.8	665.84 µg/L	665.84 ppb		12:33:53

Mean Data: 409254014|1611117|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1297529.2	97.470	%	1.5083				1.55%
Sc RADIAL	70994.2	98.6	%	1.39				1.41%
Y 371.029	767808.8	105.99	%	1.639				1.55%
Ag 328.068†	-660.4	2.0809	µg/L	1.15814	2.0809	ppb	1.15814	55.65%
Al 396.153Radial†	181896.4	66436	µg/L	189.1	66436	ppb	189.1	0.28%
As 188.979†	79.2	59.412	µg/L	3.9101	59.412	ppb	3.9101	6.58%
B 249.677†	-1866.9	65.715	µg/L	1.4233	65.715	ppb	1.4233	2.17%
Ba 233.527†	176194.3	1571.7	µg/L	5.92	1571.7	ppb	5.92	0.38%
Be 313.107†	19730.3	-33.004	µg/L	0.1431	-33.004	ppb	0.1431	0.43%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1593677.0	177410	µg/L	3773.7	177410	ppb	3773.7	2.13%
Cd 226.502†	2531.6	4.7058	µg/L	0.18188	4.7058	ppb	0.18188	3.87%
Co 228.616†	3983.7	59.474	µg/L	0.8962	59.474	ppb	0.8962	1.51%
Cr 267.716†	8531.4	101.67	µg/L	1.767	101.67	ppb	1.767	1.74%
Cu 324.752†	33836.1	158.66	µg/L	0.367	158.66	ppb	0.367	0.23%
Fe 238.204 Radial†	1333961.8	126190	µg/L	2713.3	126190	ppb	2713.3	2.15%
K 766.490 Radial†	26867.8	14151	µg/L	88.1	14151	ppb	88.1	0.62%
Mg 279.077 IEC†	104854.7	56572	µg/L	149.6	56572	ppb	149.6	0.26%
Mn 257.610†	2671337.6	4679.8	µg/L	13.71	4679.8	ppb	13.71	0.29%
Mo 202.031†	-25.1	2.3634	µg/L	0.28238	2.3634	ppb	0.28238	11.95%

Na 589.592 Radial†	7900.0	1317.4 µg/L	9.76	1317.4 ppb	9.76	0.74%
Ni 231.604†	9285.2	147.62 µg/L	2.352	147.62 ppb	2.352	1.59%
P 214.914†	19528.6	7032.3 µg/L	116.57	7032.3 ppb	116.57	1.66%
Pb 220.353†	957.1	98.848 µg/L	1.8850	98.848 ppb	1.8850	1.91%
S 181.975 Axial†	4611.9	5119.4 µg/L	82.36	5119.4 ppb	82.36	1.61%
Sb 206.836†	21.2	-9.1077 µg/L	0.30357	-9.1077 ppb	0.30357	3.33%
Se 196.026†	-83.4	13.2 µg/L	0.70	13.2 ppb	0.70	5.31%
SiO2†	649841.2	71923 µg/L	128.5	71923 ppb	128.5	0.18%
Si 251.611†	1965585.5	33342 µg/L	79.2	33342 ppb	79.2	0.24%
Sn 189.927†	0.2	0.2294 µg/L	1.29409	0.2294 ppb	1.29409	564.18%
Sr 421.552†	205196.1	589.21 µg/L	1.168	589.21 ppb	1.168	0.20%
Ti 334.940†	912348.8	1298.7 µg/L	2.06	1298.7 ppb	2.06	0.16%
Tl 190.801†	-53.7	-14.349 µg/L	2.2840	-14.349 ppb	2.2840	15.92%
U 367.007†	5642.1	-7.4017 µg/L	21.02908	-7.4017 ppb	21.02908	284.11%
V 292.402†	45666.8	213.47 µg/L	0.363	213.47 ppb	0.363	0.17%
Zn 213.857†	120404.5	666.60 µg/L	3.518	666.60 ppb	3.518	0.53%

Sequence No.: 20 **Autosampler Location: 321**
Sample ID: 409254015|1611117|1 **Date Collected: 11/11/2016 12:34:22**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254015|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71337.9	71337.9	99.0	%			12:34:49
1	Al 396.153Radial†	191363.7	193139.7	70549	µg/L	70549	ppb	12:34:49
1	Ca 317.933Radial†	2038429.0	2058087.3	229110	µg/L	229110	ppb	12:34:47
1	Fe 238.204 Radial†	1444014.1	1458701.1	137990	µg/L	137990	ppb	12:34:47
1	K 766.490 Radial†	27652.2	26853.3	14144	µg/L	14144	ppb	12:34:49
1	Mg 279.077 IEC†	130082.1	131331.7	70851	µg/L	70851	ppb	12:34:49
1	Na 589.592 Radial†	10761.7	10827.5	1805.5	µg/L	1805.5	ppb	12:34:49
1	Sr 421.552†	244015.0	246868.4	708.33	µg/L	708.33	ppb	12:34:49
1	Sc 361.383	1303481.3	1303481.3	97.917	%			12:35:02
1	Y 371.029	777562.1	777562.1	107.33	%			12:35:02
1	Ag 328.068†	-2675.2	-841.2	1.3788	µg/L	1.3788	ppb	12:35:02
1	As 188.979†	75.8	107.3	76.198	µg/L	76.198	ppb	12:35:22
1	B 249.677†	-1503.2	-2420.0	66.416	µg/L	66.416	ppb	12:35:02
1	Ba 233.527†	184076.1	188231.8	1679.1	µg/L	1679.1	ppb	12:35:02
1	Be 313.107†	16752.7	20764.9	-35.347	µg/L	-35.347	ppb	12:35:02
1	Cd 226.502†	2475.3	2707.9	4.6884	µg/L	4.6884	ppb	12:35:22
1	Co 228.616†	4070.9	4249.0	63.397	µg/L	63.397	ppb	12:35:22
1	Cr 267.716†	9198.8	9265.4	110.40	µg/L	110.40	ppb	12:35:22
1	Cu 324.752†	40514.2	35599.0	167.42	µg/L	167.42	ppb	12:35:02
1	Mn 257.610†	2712567.6	2770107.5	4852.4	µg/L	4852.4	ppb	12:35:02
1	Mo 202.031†	-55.0	-26.4	2.7318	µg/L	2.7318	ppb	12:35:22
1	Ni 231.604†	9520.1	9920.3	157.71	µg/L	157.71	ppb	12:35:22
1	P 214.914†	19931.3	20450.3	7363.9	µg/L	7363.9	ppb	12:35:22
1	Pb 220.353†	1040.0	988.4	102.04	µg/L	102.04	ppb	12:35:22
1	S 181.975 Axial†	3021.0	2982.6	3298.0	µg/L	3298.0	ppb	12:35:22
1	Sb 206.836†	85.7	43.2	-6.1257	µg/L	-6.1257	ppb	12:35:22
1	Se 196.026†	-89.9	-99.9	9.90	µg/L	9.90	ppb	12:35:22
1	SiO2†	675630.6	686980.4	76033	µg/L	76033	ppb	12:35:02
1	Si 251.611†	2033837.9	2076509.8	35225	µg/L	35225	ppb	12:35:02
1	Sn 189.927†	-24.4	2.6	0.5551	µg/L	0.5551	ppb	12:35:22
1	Ti 334.940†	980800.1	1002549.3	1427.5	µg/L	1427.5	ppb	12:35:02
1	Tl 190.801†	-156.6	-73.9	-20.356	µg/L	-20.356	ppb	12:35:22
1	U 367.007†	5574.0	5976.7	-34.926	µg/L	-34.926	ppb	12:35:02
1	V 292.402†	47891.2	48806.5	228.36	µg/L	228.36	ppb	12:35:02
1	Zn 213.857†	128533.9	131221.1	725.98	µg/L	725.98	ppb	12:35:02
2	Sc RADIAL	69632.0	69632.0	96.7	%			12:34:53
2	Al 396.153Radial†	187835.5	194223.8	70945	µg/L	70945	ppb	12:34:53
2	Ca 317.933Radial†	1972164.5	2039962.4	227090	µg/L	227090	ppb	12:34:51
2	Fe 238.204 Radial†	1397603.9	1446411.1	136820	µg/L	136820	ppb	12:34:51
2	K 766.490 Radial†	27213.5	27083.6	14264	µg/L	14264	ppb	12:34:53
2	Mg 279.077 IEC†	126765.6	131118.7	70735	µg/L	70735	ppb	12:34:53
2	Na 589.592 Radial†	10641.4	10969.3	1829.2	µg/L	1829.2	ppb	12:34:53
2	Sr 421.552†	239128.4	247849.7	711.25	µg/L	711.25	ppb	12:34:53
2	Sc 361.383	1297679.4	1297679.4	97.482	%			12:35:24
2	Y 371.029	773686.1	773686.1	106.80	%			12:35:24
2	Ag 328.068†	-2429.9	-601.8	2.5676	µg/L	2.5676	ppb	12:35:24
2	As 188.979†	71.8	103.6	74.017	µg/L	74.017	ppb	12:35:45
2	B 249.677†	-1318.3	-2237.2	68.192	µg/L	68.192	ppb	12:35:24
2	Ba 233.527†	183577.5	188560.8	1682.0	µg/L	1682.0	ppb	12:35:24
2	Be 313.107†	16811.5	20901.7	-35.384	µg/L	-35.384	ppb	12:35:24
2	Cd 226.502†	2494.3	2738.8	5.0550	µg/L	5.0550	ppb	12:35:45
2	Co 228.616†	4068.6	4265.2	63.656	µg/L	63.656	ppb	12:35:45
2	Cr 267.716†	9196.0	9304.6	110.84	µg/L	110.84	ppb	12:35:45
2	Cu 324.752†	40190.7	35452.1	166.69	µg/L	166.69	ppb	12:35:24
2	Mn 257.610†	2701198.1	2770830.0	4853.6	µg/L	4853.6	ppb	12:35:24
2	Mo 202.031†	-56.2	-27.9	2.6265	µg/L	2.6265	ppb	12:35:45
2	Ni 231.604†	9561.8	10006.5	159.08	µg/L	159.08	ppb	12:35:45
2	P 214.914†	19966.4	20577.3	7409.7	µg/L	7409.7	ppb	12:35:45
2	Pb 220.353†	1039.3	992.4	102.47	µg/L	102.47	ppb	12:35:45

2	S 181.975 Axial†	3024.5	3000.0	3317.7 µg/L	3317.7 ppb		12:35:45
2	Sb 206.836†	79.8	37.5	-7.1006 µg/L	-7.1006 ppb		12:35:45
2	Se 196.026†	-80.3	-90.4	14.3 µg/L	14.3 ppb		12:35:45
2	SiO2†	672686.9	687045.7	76040 µg/L	76040 ppb		12:35:24
2	Si 251.611†	2025505.4	2077248.7	35237 µg/L	35237 ppb		12:35:24
2	Sn 189.927†	-20.9	6.1	1.0004 µg/L	1.0004 ppb		12:35:45
2	Ti 334.940†	976395.8	1002509.7	1427.4 µg/L	1427.4 ppb		12:35:24
2	Tl 190.801†	-140.5	-58.1	-15.518 µg/L	-15.518 ppb		12:35:45
2	U 367.007†	5492.1	5918.2	-35.631 µg/L	-35.631 ppb		12:35:24
2	V 292.402†	47996.8	49133.4	229.74 µg/L	229.74 ppb		12:35:24
2	Zn 213.857†	128052.4	131314.0	726.64 µg/L	726.64 ppb		12:35:24
3	Sc RADIAL	71389.0	71389.0	99.1 %			12:34:57
3	Al 396.153Radial†	190902.7	192536.1	70328 µg/L	70328 ppb		12:34:57
3	Ca 317.933Radial†	1972515.1	1990099.4	221540 µg/L	221540 ppb		12:34:55
3	Fe 238.204 Radial†	1397377.9	1410596.2	133440 µg/L	133440 ppb		12:34:55
3	K 766.490 Radial†	27442.1	26621.3	14021 µg/L	14021 ppb		12:34:57
3	Mg 279.077 IEC†	129195.1	130342.5	70316 µg/L	70316 ppb		12:34:57
3	Na 589.592 Radial†	10651.7	10708.7	1785.7 µg/L	1785.7 ppb		12:34:57
3	Sr 421.552†	243472.4	246144.3	706.49 µg/L	706.49 ppb		12:34:57
3	Sc 361.383	1288389.9	1288389.9	96.784 %			12:35:47
3	Y 371.029	767922.7	767922.7	106.00 %			12:35:47
3	Ag 328.068†	-2765.4	-966.5	0.5234 µg/L	0.5234 ppb		12:35:47
3	As 188.979†	74.0	106.4	75.130 µg/L	75.130 ppb		12:36:08
3	B 249.677†	-1320.3	-2249.0	65.538 µg/L	65.538 ppb		12:35:47
3	Ba 233.527†	181825.9	188108.9	1678.0 µg/L	1678.0 ppb		12:35:47
3	Be 313.107†	16690.7	20901.3	-35.278 µg/L	-35.278 ppb		12:35:47
3	Cd 226.502†	2486.2	2748.8	5.5192 µg/L	5.5192 ppb		12:36:08
3	Co 228.616†	4049.6	4275.7	63.849 µg/L	63.849 ppb		12:36:08
3	Cr 267.716†	9204.5	9381.3	111.67 µg/L	111.67 ppb		12:36:08
3	Cu 324.752†	40031.1	35584.5	167.06 µg/L	167.06 ppb		12:35:47
3	Mn 257.610†	2677740.8	2766572.5	4846.2 µg/L	4846.2 ppb		12:35:47
3	Mo 202.031†	-35.6	-7.0	3.6246 µg/L	3.6246 ppb		12:36:08
3	Ni 231.604†	9480.1	9992.9	158.87 µg/L	158.87 ppb		12:36:08
3	P 214.914†	19837.7	20592.0	7415.2 µg/L	7415.2 ppb		12:36:08
3	Pb 220.353†	1041.9	1002.9	103.48 µg/L	103.48 ppb		12:36:08
3	S 181.975 Axial†	3001.1	2998.1	3316.4 µg/L	3316.4 ppb		12:36:08
3	Sb 206.836†	84.1	42.6	-5.7967 µg/L	-5.7967 ppb		12:36:08
3	Se 196.026†	-73.8	-84.3	16.0 µg/L	16.0 ppb		12:36:08
3	SiO2†	667523.6	686686.3	76001 µg/L	76001 ppb		12:35:47
3	Si 251.611†	2010039.3	2076250.2	35220 µg/L	35220 ppb		12:35:47
3	Sn 189.927†	-9.0	18.2	2.5494 µg/L	2.5494 ppb		12:36:08
3	Ti 334.940†	971070.1	1004228.8	1429.8 µg/L	1429.8 ppb		12:35:47
3	Tl 190.801†	-146.9	-65.8	-17.934 µg/L	-17.934 ppb		12:36:08
3	U 367.007†	5599.1	6069.3	1.8667 µg/L	1.8667 ppb		12:35:47
3	V 292.402†	47388.8	48860.3	228.30 µg/L	228.30 ppb		12:35:47
3	Zn 213.857†	126874.9	131044.5	725.50 µg/L	725.50 ppb		12:35:47

Mean Data: 409254015|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1296516.9	97.394	%	0.5719				0.59%
Sc RADIAL	70786.3	98.3	%	1.39				1.41%
Y 371.029	773057.0	106.71	%	0.670				0.63%
Ag 328.068†	-803.2	1.4899	µg/L	1.02665	1.4899	ppb	1.02665	68.91%
Al 396.153Radial†	193299.9	70607	µg/L	312.6	70607	ppb	312.6	0.44%
As 188.979†	105.8	75.115	µg/L	1.0906	75.115	ppb	1.0906	1.45%
B 249.677†	-2302.1	66.715	µg/L	1.3523	66.715	ppb	1.3523	2.03%
Ba 233.527†	188300.5	1679.7	µg/L	2.09	1679.7	ppb	2.09	0.12%
Be 313.107†	20856.0	-35.336	µg/L	0.0536	-35.336	ppb	0.0536	0.15%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	2029383.0	225910	µg/L	3919.3	225910	ppb	3919.3	1.73%
Cd 226.502†	2731.8	5.0876	µg/L	0.41632	5.0876	ppb	0.41632	8.18%
Co 228.616†	4263.3	63.634	µg/L	0.2267	63.634	ppb	0.2267	0.36%
Cr 267.716†	9317.1	110.97	µg/L	0.646	110.97	ppb	0.646	0.58%
Cu 324.752†	35545.2	167.05	µg/L	0.365	167.05	ppb	0.365	0.22%
Fe 238.204 Radial†	1438569.5	136080	µg/L	2364.2	136080	ppb	2364.2	1.74%
K 766.490 Radial†	26852.7	14143	µg/L	121.9	14143	ppb	121.9	0.86%
Mg 279.077 IEC†	130931.0	70634	µg/L	281.5	70634	ppb	281.5	0.40%
Mn 257.610†	2769170.0	4850.7	µg/L	3.98	4850.7	ppb	3.98	0.08%
Mo 202.031†	-20.5	2.9943	µg/L	0.54838	2.9943	ppb	0.54838	18.31%

Na 589.592 Radial†	10835.2	1806.8 µg/L	21.76	1806.8 ppb	21.76	1.20%
Ni 231.604†	9973.2	158.56 µg/L	0.737	158.56 ppb	0.737	0.46%
P 214.914†	20539.8	7396.3 µg/L	28.17	7396.3 ppb	28.17	0.38%
Pb 220.353†	994.6	102.67 µg/L	0.739	102.67 ppb	0.739	0.72%
S 181.975 Axial†	2993.6	3310.7 µg/L	11.01	3310.7 ppb	11.01	0.33%
Sb 206.836†	41.1	-6.3410 µg/L	0.67809	-6.3410 ppb	0.67809	10.69%
Se 196.026†	-91.5	13.4 µg/L	3.15	13.4 ppb	3.15	23.52%
SiO2†	686904.1	76025 µg/L	21.2	76025 ppb	21.2	0.03%
Si 251.611†	2076669.6	35227 µg/L	8.9	35227 ppb	8.9	0.03%
Sn 189.927†	9.0	1.3683 µg/L	1.04684	1.3683 ppb	1.04684	76.51%
Sr 421.552†	246954.1	708.69 µg/L	2.398	708.69 ppb	2.398	0.34%
Ti 334.940†	1003096.0	1428.2 µg/L	1.34	1428.2 ppb	1.34	0.09%
Tl 190.801†	-65.9	-17.936 µg/L	2.4190	-17.936 ppb	2.4190	13.49%
U 367.007†	5988.1	-22.897 µg/L	21.4487	-22.897 ppb	21.4487	93.68%
V 292.402†	48933.4	228.80 µg/L	0.817	228.80 ppb	0.817	0.36%
Zn 213.857†	131193.2	726.04 µg/L	0.574	726.04 ppb	0.574	0.08%

Sequence No.: 21 **Autosampler Location: 322**
Sample ID: 409254016|1611117|1 **Date Collected: 11/11/2016 12:36:15**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254016|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70850.9	70850.9	98.4	%			12:36:42
1	Al 396.153Radial†	176649.9	179507.6	65563	µg/L	65563	ppb	12:36:42
1	Ca 317.933Radial†	1558668.7	1584437.6	176380	µg/L	176380	ppb	12:36:40
1	Fe 238.204 Radial†	1344124.4	1367160.4	129330	µg/L	129330	ppb	12:36:40
1	K 766.490 Radial†	24968.0	24316.1	12811	µg/L	12811	ppb	12:36:42
1	Mg 279.077 IEC†	111841.5	113688.4	61336	µg/L	61336	ppb	12:36:42
1	Na 589.592 Radial†	9649.4	9771.3	1629.4	µg/L	1629.4	ppb	12:36:42
1	Sr 421.552†	196231.5	199978.0	574.11	µg/L	574.11	ppb	12:36:42
1	Sc 361.383	1287699.2	1287699.2	96.732	%			12:36:54
1	Y 371.029	761722.3	761722.3	105.15	%			12:36:54
1	Ag 328.068†	-2553.9	-749.4	1.8222	µg/L	1.8222	ppb	12:36:54
1	As 188.979†	79.4	112.1	77.627	µg/L	77.627	ppb	12:37:15
1	B 249.677†	-1167.7	-2092.0	64.782	µg/L	64.782	ppb	12:36:54
1	Ba 233.527†	171528.8	177564.7	1583.9	µg/L	1583.9	ppb	12:36:54
1	Be 313.107†	15673.5	19859.0	-33.275	µg/L	-33.275	ppb	12:36:54
1	Cd 226.502†	2273.5	2530.4	4.3366	µg/L	4.3366	ppb	12:37:15
1	Co 228.616†	3892.0	4115.0	61.401	µg/L	61.401	ppb	12:37:15
1	Cr 267.716†	8443.3	8599.5	102.51	µg/L	102.51	ppb	12:37:15
1	Cu 324.752†	36994.5	32467.4	152.87	µg/L	152.87	ppb	12:36:54
1	Mn 257.610†	2406438.5	2487588.4	4357.6	µg/L	4357.6	ppb	12:36:54
1	Mo 202.031†	-57.1	-29.3	2.2721	µg/L	2.2721	ppb	12:37:15
1	Ni 231.604†	9004.4	9506.4	151.13	µg/L	151.13	ppb	12:37:15
1	P 214.914†	17754.3	18449.2	6643.1	µg/L	6643.1	ppb	12:37:15
1	Pb 220.353†	970.9	930.0	96.031	µg/L	96.031	ppb	12:37:15
1	S 181.975 Axial†	2874.4	2868.9	3173.1	µg/L	3173.1	ppb	12:37:15
1	Sb 206.836†	84.2	42.8	-5.2967	µg/L	-5.2967	ppb	12:37:15
1	Se 196.026†	-57.8	-67.8	22.8	µg/L	22.8	ppb	12:37:15
1	SiO2†	654467.5	673558.9	74548	µg/L	74548	ppb	12:36:54
1	Si 251.611†	1970166.1	2036143.9	34539	µg/L	34539	ppb	12:36:54
1	Sn 189.927†	-21.4	5.4	0.8935	µg/L	0.8935	ppb	12:37:15
1	Ti 334.940†	944538.4	977339.0	1391.0	µg/L	1391.0	ppb	12:36:54
1	Tl 190.801†	-158.0	-77.3	-21.534	µg/L	-21.534	ppb	12:37:15
1	U 367.007†	5070.3	5525.8	-38.697	µg/L	-38.697	ppb	12:36:54
1	V 292.402†	44787.4	46197.3	216.06	µg/L	216.06	ppb	12:36:54
1	Zn 213.857†	122653.6	126750.9	702.04	µg/L	702.04	ppb	12:36:54
2	Sc RADIAL	71690.6	71690.6	99.5	%			12:36:46
2	Al 396.153Radial†	178071.3	178832.2	65316	µg/L	65316	ppb	12:36:46
2	Ca 317.933Radial†	1545347.2	1552490.0	172820	µg/L	172820	ppb	12:36:44
2	Fe 238.204 Radial†	1330864.4	1337829.5	126550	µg/L	126550	ppb	12:36:44
2	K 766.490 Radial†	25251.8	24303.9	12804	µg/L	12804	ppb	12:36:46
2	Mg 279.077 IEC†	113131.7	113652.9	61316	µg/L	61316	ppb	12:36:46
2	Na 589.592 Radial†	9633.2	9640.1	1607.5	µg/L	1607.5	ppb	12:36:46
2	Sr 421.552†	197962.6	199380.6	572.50	µg/L	572.50	ppb	12:36:46
2	Sc 361.383	1319631.0	1319631.0	99.131	%			12:37:17
2	Y 371.029	781171.5	781171.5	107.83	%			12:37:17
2	Ag 328.068†	-2456.5	-587.2	2.5243	µg/L	2.5243	ppb	12:37:17
2	As 188.979†	71.8	102.4	72.027	µg/L	72.027	ppb	12:37:38
2	B 249.677†	-1218.8	-2114.4	62.425	µg/L	62.425	ppb	12:37:17
2	Ba 233.527†	176655.8	178445.9	1591.8	µg/L	1591.8	ppb	12:37:17
2	Be 313.107†	15773.9	19568.2	-33.546	µg/L	-33.546	ppb	12:37:17
2	Cd 226.502†	2298.2	2498.4	4.4123	µg/L	4.4123	ppb	12:37:38
2	Co 228.616†	3882.2	4007.8	59.851	µg/L	59.851	ppb	12:37:38
2	Cr 267.716†	8456.5	8401.7	100.13	µg/L	100.13	ppb	12:37:38
2	Cu 324.752†	37851.1	32406.2	152.43	µg/L	152.43	ppb	12:37:17
2	Mn 257.610†	2474274.6	2495822.1	4372.0	µg/L	4372.0	ppb	12:37:17
2	Mo 202.031†	-34.9	-5.5	3.4437	µg/L	3.4437	ppb	12:37:38
2	Ni 231.604†	8953.5	9229.8	146.74	µg/L	146.74	ppb	12:37:38
2	P 214.914†	17740.3	17991.0	6478.1	µg/L	6478.1	ppb	12:37:38
2	Pb 220.353†	1008.8	943.9	97.423	µg/L	97.423	ppb	12:37:38

2	S 181.975 Axial†	2867.0	2789.5	3085.0 µg/L	3085.0 ppb		12:37:38
2	Sb 206.836†	90.7	47.2	-4.1299 µg/L	-4.1299 ppb		12:37:38
2	Se 196.026†	-75.3	-84.0	13.0 µg/L	13.0 ppb		12:37:38
2	SiO2†	674011.1	676902.4	74918 µg/L	74918 ppb		12:37:17
2	Si 251.611†	2028281.5	2045485.2	34697 µg/L	34697 ppb		12:37:17
2	Sn 189.927†	-26.7	0.6	0.2759 µg/L	0.2759 ppb		12:37:38
2	Ti 334.940†	972152.9	981568.0	1397.0 µg/L	1397.0 ppb		12:37:17
2	Tl 190.801†	-142.4	-57.6	-15.531 µg/L	-15.531 ppb		12:37:38
2	U 367.007†	5226.8	5556.8	-19.484 µg/L	-19.484 ppb		12:37:17
2	V 292.402†	46221.7	46523.7	217.33 µg/L	217.33 ppb		12:37:17
2	Zn 213.857†	126422.7	127485.0	706.50 µg/L	706.50 ppb		12:37:17
3	Sc RADIAL	72541.6	72541.6	101 %			12:36:50
3	Al 396.153Radial†	180250.9	178897.6	65340 µg/L	65340 ppb		12:36:50
3	Ca 317.933Radial†	1561334.5	1550149.7	172560 µg/L	172560 ppb		12:36:48
3	Fe 238.204 Radial†	1344293.9	1335477.4	126330 µg/L	126330 ppb		12:36:48
3	K 766.490 Radial†	25467.4	24220.3	12760 µg/L	12760 ppb		12:36:50
3	Mg 279.077 IEC†	114410.3	113589.1	61281 µg/L	61281 ppb		12:36:50
3	Na 589.592 Radial†	9851.7	9743.5	1624.8 µg/L	1624.8 ppb		12:36:50
3	Sr 421.552†	200356.1	199423.9	572.63 µg/L	572.63 ppb		12:36:50
3	Sc 361.383	1271630.2	1271630.2	95.525 %			12:37:40
3	Y 371.029	752211.5	752211.5	103.83 %			12:37:40
3	Ag 328.068†	-2447.1	-670.9	2.0794 µg/L	2.0794 ppb		12:37:40
3	As 188.979†	72.2	105.5	73.696 µg/L	73.696 ppb		12:38:01
3	B 249.677†	-1185.1	-2125.5	62.101 µg/L	62.101 ppb		12:37:40
3	Ba 233.527†	169259.5	177429.9	1582.7 µg/L	1582.7 ppb		12:37:40
3	Be 313.107†	15100.4	19463.8	-33.350 µg/L	-33.350 ppb		12:37:40
3	Cd 226.502†	2298.5	2586.2	5.1022 µg/L	5.1022 ppb		12:38:01
3	Co 228.616†	3874.5	4147.6	61.920 µg/L	61.920 ppb		12:38:01
3	Cr 267.716†	8407.8	8672.7	103.31 µg/L	103.31 ppb		12:38:01
3	Cu 324.752†	36444.2	32374.6	152.28 µg/L	152.28 ppb		12:37:40
3	Mn 257.610†	2371259.8	2482197.9	4348.1 µg/L	4348.1 ppb		12:37:40
3	Mo 202.031†	-38.3	-10.4	3.1807 µg/L	3.1807 ppb		12:38:01
3	Ni 231.604†	8938.0	9554.4	151.90 µg/L	151.90 ppb		12:38:01
3	P 214.914†	17773.8	18701.6	6734.2 µg/L	6734.2 ppb		12:38:01
3	Pb 220.353†	990.5	963.2	99.377 µg/L	99.377 ppb		12:38:01
3	S 181.975 Axial†	2883.8	2916.2	3226.6 µg/L	3226.6 ppb		12:38:01
3	Sb 206.836†	77.4	36.7	-6.1745 µg/L	-6.1745 ppb		12:38:01
3	Se 196.026†	-77.2	-88.9	10.4 µg/L	10.4 ppb		12:38:01
3	SiO2†	646270.2	673527.3	74544 µg/L	74544 ppb		12:37:40
3	Si 251.611†	1944460.9	2034971.6	34519 µg/L	34519 ppb		12:37:40
3	Sn 189.927†	-26.6	-0.3	0.1617 µg/L	0.1617 ppb		12:38:01
3	Ti 334.940†	932853.7	977445.8	1391.1 µg/L	1391.1 ppb		12:37:40
3	Tl 190.801†	-137.8	-58.3	-15.747 µg/L	-15.747 ppb		12:38:01
3	U 367.007†	5071.6	5593.4	-13.757 µg/L	-13.757 ppb		12:37:40
3	V 292.402†	44291.8	46263.5	216.16 µg/L	216.16 ppb		12:37:40
3	Zn 213.857†	120478.0	126075.8	698.53 µg/L	698.53 ppb		12:37:40

Mean Data: 409254016|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1292986.8	97.129	%	1.8354				1.89%
Sc RADIAL	71694.3	99.5	%	1.17				1.18%
Y 371.029	765035.1	105.60	%	2.038				1.93%
Ag 328.068†	-669.2	2.1420	µg/L	0.35523	2.1420	ppb	0.35523	16.58%
Al 396.153Radial†	179079.1	65407	µg/L	136.3	65407	ppb	136.3	0.21%
As 188.979†	106.6	74.450	µg/L	2.8753	74.450	ppb	2.8753	3.86%
B 249.677†	-2110.6	63.103	µg/L	1.4633	63.103	ppb	1.4633	2.32%
Ba 233.527†	177813.5	1586.1	µg/L	4.92	1586.1	ppb	4.92	0.31%
Be 313.107†	19630.3	-33.390	µg/L	0.1400	-33.390	ppb	0.1400	0.42%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1562359.1	173920	µg/L	2132.5	173920	ppb	2132.5	1.23%
Cd 226.502†	2538.3	4.6170	µg/L	0.42185	4.6170	ppb	0.42185	9.14%
Co 228.616†	4090.1	61.058	µg/L	1.0764	61.058	ppb	1.0764	1.76%
Cr 267.716†	8558.0	101.99	µg/L	1.654	101.99	ppb	1.654	1.62%
Cu 324.752†	32416.1	152.53	µg/L	0.309	152.53	ppb	0.309	0.20%
Fe 238.204 Radial†	1346822.4	127400	µg/L	1669.8	127400	ppb	1669.8	1.31%
K 766.490 Radial†	24280.1	12792	µg/L	27.7	12792	ppb	27.7	0.22%
Mg 279.077 IEC†	113643.5	61311	µg/L	27.6	61311	ppb	27.6	0.04%
Mn 257.610†	2488536.1	4359.2	µg/L	12.02	4359.2	ppb	12.02	0.28%
Mo 202.031†	-15.1	2.9655	µg/L	0.61474	2.9655	ppb	0.61474	20.73%

Na 589.592 Radial†	9718.3	1620.6 µg/L	11.54	1620.6 ppb	11.54	0.71%
Ni 231.604†	9430.2	149.92 µg/L	2.786	149.92 ppb	2.786	1.86%
P 214.914†	18380.6	6618.4 µg/L	129.84	6618.4 ppb	129.84	1.96%
Pb 220.353†	945.7	97.610 µg/L	1.6810	97.610 ppb	1.6810	1.72%
S 181.975 Axial†	2858.2	3161.6 µg/L	71.46	3161.6 ppb	71.46	2.26%
Sb 206.836†	42.2	-5.2004 µg/L	1.02565	-5.2004 ppb	1.02565	19.72%
Se 196.026†	-80.2	15.4 µg/L	6.54	15.4 ppb	6.54	42.39%
SiO2†	674662.9	74670 µg/L	214.7	74670 ppb	214.7	0.29%
Si 251.611†	2038866.9	34585 µg/L	97.6	34585 ppb	97.6	0.28%
Sn 189.927†	1.9	0.4437 µg/L	0.39370	0.4437 ppb	0.39370	88.73%
Sr 421.552†	199594.2	573.08 µg/L	0.894	573.08 ppb	0.894	0.16%
Ti 334.940†	978784.2	1393.1 µg/L	3.42	1393.1 ppb	3.42	0.25%
Tl 190.801†	-64.4	-17.604 µg/L	3.4053	-17.604 ppb	3.4053	19.34%
U 367.007†	5558.7	-23.979 µg/L	13.0639	-23.979 ppb	13.0639	54.48%
V 292.402†	46328.2	216.51 µg/L	0.709	216.51 ppb	0.709	0.33%
Zn 213.857†	126770.5	702.36 µg/L	3.994	702.36 ppb	3.994	0.57%

Sequence No.: 22 **Autosampler Location: 323**
Sample ID: 409254017|1611117|1 **Date Collected: 11/11/2016 12:38:09**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254017|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	69052.8	69052.8	95.9	%			12:38:36
1	Al 396.153Radial†	149037.9	155378.9	56758	µg/L	56758	ppb	12:38:36
1	Ca 317.933Radial†	1660945.4	1732402.9	192850	µg/L	192850	ppb	12:38:34
1	Fe 238.204 Radial†	1329355.0	1387339.5	131240	µg/L	131240	ppb	12:38:34
1	K 766.490 Radial†	23689.8	23643.6	12457	µg/L	12457	ppb	12:38:36
1	Mg 279.077 IEC†	133071.5	138797.3	74873	µg/L	74873	ppb	12:38:36
1	Na 589.592 Radial†	12919.6	13438.3	2240.9	µg/L	2240.9	ppb	12:38:36
1	Sr 421.552†	184514.3	192949.7	553.15	µg/L	553.15	ppb	12:38:36
1	Sc 361.383	1270033.3	1270033.3	95.405	%			12:38:48
1	Y 371.029	761498.5	761498.5	105.11	%			12:38:48
1	Ag 328.068†	-2616.9	-852.1	1.2561	µg/L	1.2561	ppb	12:38:48
1	As 188.979†	89.4	123.6	84.125	µg/L	84.125	ppb	12:39:09
1	B 249.677†	-2649.0	-3661.5	43.611	µg/L	43.611	ppb	12:38:48
1	Ba 233.527†	230728.5	242082.2	2159.2	µg/L	2159.2	ppb	12:38:48
1	Be 313.107†	14776.2	19143.8	-47.611	µg/L	-47.611	ppb	12:38:48
1	Cd 226.502†	2070.3	2350.1	2.7537	µg/L	2.7537	ppb	12:39:09
1	Co 228.616†	3618.1	3883.9	58.619	µg/L	58.619	ppb	12:39:09
1	Cr 267.716†	8223.9	8491.0	101.18	µg/L	101.18	ppb	12:39:09
1	Cu 324.752†	27858.9	23423.8	113.28	µg/L	113.28	ppb	12:38:48
1	Mn 257.610†	1558481.9	1633394.0	2860.0	µg/L	2860.0	ppb	12:38:48
1	Mo 202.031†	-67.4	-40.9	1.8582	µg/L	1.8582	ppb	12:39:09
1	Ni 231.604†	8949.2	9578.0	152.27	µg/L	152.27	ppb	12:39:09
1	P 214.914†	14568.1	15364.8	5531.2	µg/L	5531.2	ppb	12:39:09
1	Pb 220.353†	832.2	798.6	82.154	µg/L	82.154	ppb	12:39:09
1	S 181.975 Axial†	1557.1	1529.4	1677.5	µg/L	1677.5	ppb	12:39:09
1	Sb 206.836†	69.2	28.3	-8.4894	µg/L	-8.4894	ppb	12:39:09
1	Se 196.026†	-91.0	-103.4	5.22	µg/L	5.22	ppb	12:39:09
1	SiO2†	563703.2	587834.1	65060	µg/L	65060	ppb	12:38:48
1	Si 251.611†	1699879.0	1781168.9	30216	µg/L	30216	ppb	12:38:48
1	Sn 189.927†	-57.5	-32.8	-4.0154	µg/L	-4.0154	ppb	12:39:09
1	Ti 334.940†	1381050.4	1448457.8	2060.9	µg/L	2060.9	ppb	12:38:48
1	Tl 190.801†	-181.2	-103.9	-29.678	µg/L	-29.678	ppb	12:39:09
1	U 367.007†	5121.6	5652.5	-34.928	µg/L	-34.928	ppb	12:38:48
1	V 292.402†	39920.0	41739.5	196.21	µg/L	196.21	ppb	12:38:48
1	Zn 213.857†	73217.5	76697.5	417.23	µg/L	417.23	ppb	12:38:48
2	Sc RADIAL	71162.6	71162.6	98.8	%			12:38:40
2	Al 396.153Radial†	153328.7	155113.0	56660	µg/L	56660	ppb	12:38:40
2	Ca 317.933Radial†	1687977.4	1708396.2	190180	µg/L	190180	ppb	12:38:38
2	Fe 238.204 Radial†	1350396.6	1367524.5	129360	µg/L	129360	ppb	12:38:38
2	K 766.490 Radial†	24742.0	23976.1	12631	µg/L	12631	ppb	12:38:40
2	Mg 279.077 IEC†	137565.9	139231.1	75107	µg/L	75107	ppb	12:38:40
2	Na 589.592 Radial†	13243.6	13366.7	2229.0	µg/L	2229.0	ppb	12:38:40
2	Sr 421.552†	190365.5	193166.0	553.87	µg/L	553.87	ppb	12:38:40
2	Sc 361.383	1288738.2	1288738.2	96.810	%			12:39:11
2	Y 371.029	771471.0	771471.0	106.49	%			12:39:11
2	Ag 328.068†	-2688.9	-886.7	0.9867	µg/L	0.9867	ppb	12:39:11
2	As 188.979†	94.5	127.6	86.039	µg/L	86.039	ppb	12:39:32
2	B 249.677†	-2677.3	-3650.4	42.395	µg/L	42.395	ppb	12:39:11
2	Ba 233.527†	233542.1	241478.5	2153.8	µg/L	2153.8	ppb	12:39:11
2	Be 313.107†	15210.4	19367.5	-47.416	µg/L	-47.416	ppb	12:39:11
2	Cd 226.502†	2066.1	2314.2	2.6973	µg/L	2.6973	ppb	12:39:32
2	Co 228.616†	3584.0	3793.6	57.294	µg/L	57.294	ppb	12:39:32
2	Cr 267.716†	8196.7	8337.8	99.340	µg/L	99.340	ppb	12:39:32
2	Cu 324.752†	28383.2	23541.6	113.69	µg/L	113.69	ppb	12:39:11
2	Mn 257.610†	1577439.3	1629266.5	2852.8	µg/L	2852.8	ppb	12:39:11
2	Mo 202.031†	-63.3	-35.6	2.0895	µg/L	2.0895	ppb	12:39:32
2	Ni 231.604†	8939.2	9431.5	149.94	µg/L	149.94	ppb	12:39:32
2	P 214.914†	14507.4	15080.5	5428.9	µg/L	5428.9	ppb	12:39:32
2	Pb 220.353†	818.4	771.7	79.419	µg/L	79.419	ppb	12:39:32

2	S 181.975 Axial†	1577.5	1526.8	1675.1 µg/L	1675.1 ppb		12:39:32
2	Sb 206.836†	72.3	30.4	-7.8614 µg/L	-7.8614 ppb		12:39:32
2	Se 196.026†	-98.2	-109.4	1.25 µg/L	1.25 ppb		12:39:32
2	SiO2†	570965.5	586760.0	64941 µg/L	64941 ppb		12:39:11
2	Si 251.611†	1722877.7	1779064.8	30180 µg/L	30180 ppb		12:39:11
2	Sn 189.927†	-60.8	-35.3	-4.3315 µg/L	-4.3315 ppb		12:39:32
2	Ti 334.940†	1399116.1	1446108.5	2057.5 µg/L	2057.5 ppb		12:39:11
2	Tl 190.801†	-176.0	-95.8	-27.215 µg/L	-27.215 ppb		12:39:32
2	U 367.007†	5250.4	5707.6	-17.731 µg/L	-17.731 ppb		12:39:11
2	V 292.402†	40414.0	41642.3	195.65 µg/L	195.65 ppb		12:39:11
2	Zn 213.857†	74339.2	76742.3	417.67 µg/L	417.67 ppb		12:39:11
3	Sc RADIAL	71355.1	71355.1	99.1 %			12:38:44
3	Al 396.153Radial†	153220.2	154584.6	56467 µg/L	56467 ppb		12:38:44
3	Ca 317.933Radial†	1691302.4	1707142.9	190040 µg/L	190040 ppb		12:38:42
3	Fe 238.204 Radial†	1352082.0	1365537.8	129170 µg/L	129170 ppb		12:38:42
3	K 766.490 Radial†	24669.0	23834.8	12557 µg/L	12557 ppb		12:38:44
3	Mg 279.077 IEC†	136787.5	138069.6	74480 µg/L	74480 ppb		12:38:44
3	Na 589.592 Radial†	13473.0	13562.1	2261.6 µg/L	2261.6 ppb		12:38:44
3	Sr 421.552†	190298.7	192578.6	552.17 µg/L	552.17 ppb		12:38:44
3	Sc 361.383	1284907.3	1284907.3	96.522 %			12:39:34
3	Y 371.029	769326.0	769326.0	106.20 %			12:39:34
3	Ag 328.068†	-2675.4	-880.9	1.0101 µg/L	1.0101 ppb		12:39:34
3	As 188.979†	86.2	119.3	81.499 µg/L	81.499 ppb		12:39:55
3	B 249.677†	-2752.6	-3736.7	41.017 µg/L	41.017 ppb		12:39:34
3	Ba 233.527†	234015.5	242688.1	2164.6 µg/L	2164.6 ppb		12:39:34
3	Be 313.107†	15180.1	19383.0	-47.679 µg/L	-47.679 ppb		12:39:34
3	Cd 226.502†	2085.1	2340.3	2.9157 µg/L	2.9157 ppb		12:39:55
3	Co 228.616†	3596.9	3818.0	57.673 µg/L	57.673 ppb		12:39:55
3	Cr 267.716†	8224.3	8391.6	99.978 µg/L	99.978 ppb		12:39:55
3	Cu 324.752†	28265.9	23507.5	113.51 µg/L	113.51 ppb		12:39:34
3	Mn 257.610†	1576172.7	1632812.3	2859.0 µg/L	2859.0 ppb		12:39:34
3	Mo 202.031†	-62.7	-35.2	2.1013 µg/L	2.1013 ppb		12:39:55
3	Ni 231.604†	8964.3	9485.0	150.79 µg/L	150.79 ppb		12:39:55
3	P 214.914†	14644.5	15267.3	5496.2 µg/L	5496.2 ppb		12:39:55
3	Pb 220.353†	830.1	786.3	80.902 µg/L	80.902 ppb		12:39:55
3	S 181.975 Axial†	1576.3	1530.4	1679.1 µg/L	1679.1 ppb		12:39:55
3	Sb 206.836†	78.2	36.7	-6.6392 µg/L	-6.6392 ppb		12:39:55
3	Se 196.026†	-91.7	-103.0	4.52 µg/L	4.52 ppb		12:39:55
3	SiO2†	570795.0	588341.7	65116 µg/L	65116 ppb		12:39:34
3	Si 251.611†	1721047.0	1782474.2	30238 µg/L	30238 ppb		12:39:34
3	Sn 189.927†	-58.9	-33.5	-4.1048 µg/L	-4.1048 ppb		12:39:55
3	Ti 334.940†	1396863.4	1448083.5	2060.3 µg/L	2060.3 ppb		12:39:34
3	Tl 190.801†	-190.7	-111.5	-32.061 µg/L	-32.061 ppb		12:39:55
3	U 367.007†	5183.0	5653.9	-23.297 µg/L	-23.297 ppb		12:39:34
3	V 292.402†	40398.5	41750.7	196.12 µg/L	196.12 ppb		12:39:34
3	Zn 213.857†	74284.9	76915.0	418.70 µg/L	418.70 ppb		12:39:34

Mean Data: 409254017|1611117|1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1281226.3	96.246	%	0.7423				0.77%
Sc RADIAL	70523.5	97.9	%	1.77				1.81%
Y 371.029	767431.8	105.93	%	0.725				0.68%
Ag 328.068†	-873.2	1.0843	µg/L	0.14920	1.0843	ppb	0.14920	13.76%
Al 396.153Radial†	155025.5	56628	µg/L	147.8	56628	ppb	147.8	0.26%
As 188.979†	123.5	83.888	µg/L	2.2791	83.888	ppb	2.2791	2.72%
B 249.677†	-3682.9	42.341	µg/L	1.2978	42.341	ppb	1.2978	3.07%
Ba 233.527†	242082.9	2159.2	µg/L	5.39	2159.2	ppb	5.39	0.25%
Be 313.107†	19298.1	-47.569	µg/L	0.1368	-47.569	ppb	0.1368	0.29%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1715980.7	191020	µg/L	1584.7	191020	ppb	1584.7	0.83%
Cd 226.502†	2334.9	2.7889	µg/L	0.11336	2.7889	ppb	0.11336	4.06%
Co 228.616†	3831.8	57.862	µg/L	0.6825	57.862	ppb	0.6825	1.18%
Cr 267.716†	8406.8	100.17	µg/L	0.935	100.17	ppb	0.935	0.93%
Cu 324.752†	23491.0	113.49	µg/L	0.205	113.49	ppb	0.205	0.18%
Fe 238.204 Radial†	1373467.3	129920	µg/L	1140.3	129920	ppb	1140.3	0.88%
K 766.490 Radial†	23818.2	12549	µg/L	87.4	12549	ppb	87.4	0.70%
Mg 279.077 IEC†	138699.3	74820	µg/L	316.5	74820	ppb	316.5	0.42%
Mn 257.610†	1631824.3	2857.3	µg/L	3.92	2857.3	ppb	3.92	0.14%
Mo 202.031†	-37.3	2.0163	µg/L	0.13706	2.0163	ppb	0.13706	6.80%

Na 589.592 Radial†	13455.7	2243.8	µg/L	16.49	2243.8	ppb	16.49	0.73%
Ni 231.604†	9498.2	151.00	µg/L	1.178	151.00	ppb	1.178	0.78%
P 214.914†	15237.5	5485.4	µg/L	52.04	5485.4	ppb	52.04	0.95%
Pb 220.353†	785.5	80.825	µg/L	1.3695	80.825	ppb	1.3695	1.69%
S 181.975 Axial†	1528.9	1677.2	µg/L	2.05	1677.2	ppb	2.05	0.12%
Sb 206.836†	31.8	-7.6633	µg/L	0.94089	-7.6633	ppb	0.94089	12.28%
Se 196.026†	-105.3	3.66	µg/L	2.118	3.66	ppb	2.118	57.85%
SiO2†	587645.3	65039	µg/L	89.4	65039	ppb	89.4	0.14%
Si 251.611†	1780902.6	30212	µg/L	29.2	30212	ppb	29.2	0.10%
Sn 189.927†	-33.9	-4.1505	µg/L	0.16295	-4.1505	ppb	0.16295	3.93%
Sr 421.552†	192898.1	553.06	µg/L	0.853	553.06	ppb	0.853	0.15%
Ti 334.940†	1447549.9	2059.6	µg/L	1.81	2059.6	ppb	1.81	0.09%
Tl 190.801†	-103.7	-29.651	µg/L	2.4230	-29.651	ppb	2.4230	8.17%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	5671.4	-25.319	µg/L	8.7748	-25.319	ppb	8.7748	34.66%
V 292.402†	41710.8	195.99	µg/L	0.301	195.99	ppb	0.301	0.15%
Zn 213.857†	76784.9	417.86	µg/L	0.756	417.86	ppb	0.756	0.18%

Sequence No.: 23 **Autosampler Location: 324**
Sample ID: 409254018|1611117|1 **Date Collected: 11/11/2016 12:40:02**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254018|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70582.7	70582.7	98.0	%			12:40:29
1	Al 396.153Radial†	196744.4	200698.9	73295	µg/L	73295	ppb	12:40:29
1	Ca 317.933Radial†	1297785.6	1324198.2	147410	µg/L	147410	ppb	12:40:27
1	Fe 238.204 Radial†	1053257.8	1075490.4	101740	µg/L	101740	ppb	12:40:27
1	K 766.490 Radial†	28874.1	28399.2	14949	µg/L	14949	ppb	12:40:29
1	Mg 279.077 IEC†	107633.8	109826.1	59244	µg/L	59244	ppb	12:40:29
1	Na 589.592 Radial†	10555.2	10733.1	1789.8	µg/L	1789.8	ppb	12:40:29
1	Sr 421.552†	187132.4	191449.5	550.36	µg/L	550.36	ppb	12:40:29
1	Sc 361.383	1296564.9	1296564.9	97.398	%			12:40:41
1	Y 371.029	771327.5	771327.5	106.47	%			12:40:41
1	Ag 328.068†	-2400.4	-573.7	1.4117	µg/L	1.4117	ppb	12:40:43
1	As 188.979†	27.0	57.7	44.847	µg/L	44.847	ppb	12:41:03
1	B 249.677†	-354.0	-1248.3	56.676	µg/L	56.676	ppb	12:40:43
1	Ba 233.527†	201213.1	206829.5	1844.7	µg/L	1844.7	ppb	12:40:43
1	Be 313.107†	18895.2	23055.9	-38.853	µg/L	-38.853	ppb	12:40:43
1	Cd 226.502†	1832.2	2061.2	3.9458	µg/L	3.9458	ppb	12:41:03
1	Co 228.616†	4809.0	5029.0	75.623	µg/L	75.623	ppb	12:41:03
1	Cr 267.716†	9805.4	9938.4	117.86	µg/L	117.86	ppb	12:40:43
1	Cu 324.752†	44422.5	39832.5	183.52	µg/L	183.52	ppb	12:40:43
1	Mn 257.610†	1817851.4	1866265.6	3268.7	µg/L	3268.7	ppb	12:40:41
1	Mo 202.031†	-45.1	-16.5	2.2430	µg/L	2.2430	ppb	12:41:03
1	Ni 231.604†	11467.4	11971.5	190.32	µg/L	190.32	ppb	12:40:43
1	P 214.914†	11242.3	11637.7	4189.4	µg/L	4189.4	ppb	12:40:43
1	Pb 220.353†	1060.0	1014.6	105.10	µg/L	105.10	ppb	12:41:03
1	S 181.975 Axial†	2881.8	2856.1	3164.8	µg/L	3164.8	ppb	12:41:03
1	Sb 206.836†	75.6	33.3	-4.2839	µg/L	-4.2839	ppb	12:41:03
1	Se 196.026†	-70.5	-80.4	3.27	µg/L	3.27	ppb	12:41:03
1	SiO2†	667453.6	682265.7	75511	µg/L	75511	ppb	12:40:41
1	Si 251.611†	2009476.3	2062577.5	34984	µg/L	34984	ppb	12:40:41
1	Sn 189.927†	-37.9	-11.4	-1.2285	µg/L	-1.2285	ppb	12:41:03
1	Ti 334.940†	988733.0	1016037.4	1445.7	µg/L	1445.7	ppb	12:40:41
1	Tl 190.801†	-150.8	-68.8	-19.394	µg/L	-19.394	ppb	12:41:03
1	U 367.007†	4378.5	4779.7	22.036	µg/L	22.036	ppb	12:40:43
1	V 292.402†	49877.8	51107.0	236.21	µg/L	236.21	ppb	12:40:43
1	Zn 213.857†	88333.7	90647.1	500.24	µg/L	500.24	ppb	12:40:43
2	Sc RADIAL	72598.0	72598.0	101	%			12:40:33
2	Al 396.153Radial†	202599.9	200935.0	73381	µg/L	73381	ppb	12:40:33
2	Ca 317.933Radial†	1361374.5	1350527.2	150340	µg/L	150340	ppb	12:40:31
2	Fe 238.204 Radial†	1104212.2	1096210.4	103700	µg/L	103700	ppb	12:40:31
2	K 766.490 Radial†	29696.4	28397.0	14949	µg/L	14949	ppb	12:40:33
2	Mg 279.077 IEC†	111250.8	110365.6	59536	µg/L	59536	ppb	12:40:33
2	Na 589.592 Radial†	10710.1	10587.7	1765.5	µg/L	1765.5	ppb	12:40:33
2	Sr 421.552†	193292.6	192260.2	552.62	µg/L	552.62	ppb	12:40:33
2	Sc 361.383	1310186.5	1310186.5	98.421	%			12:41:06
2	Y 371.029	778867.8	778867.8	107.51	%			12:41:06
2	Ag 328.068†	-2332.7	-479.3	1.9982	µg/L	1.9982	ppb	12:41:08
2	As 188.979†	21.2	51.5	41.689	µg/L	41.689	ppb	12:41:28
2	B 249.677†	-124.5	-1011.3	61.522	µg/L	61.522	ppb	12:41:08
2	Ba 233.527†	196859.4	200258.2	1786.1	µg/L	1786.1	ppb	12:41:08
2	Be 313.107†	18703.0	22658.9	-37.526	µg/L	-37.526	ppb	12:41:08
2	Cd 226.502†	1782.4	1991.0	3.1902	µg/L	3.1902	ppb	12:41:28
2	Co 228.616†	4778.0	4946.1	74.299	µg/L	74.299	ppb	12:41:28
2	Cr 267.716†	9493.4	9516.7	112.94	µg/L	112.94	ppb	12:41:08
2	Cu 324.752†	43772.2	38697.5	178.62	µg/L	178.62	ppb	12:41:08
2	Mn 257.610†	1833121.6	1862376.3	3261.9	µg/L	3261.9	ppb	12:41:06
2	Mo 202.031†	-19.9	9.6	3.6496	µg/L	3.6496	ppb	12:41:28
2	Ni 231.604†	11105.7	11481.6	182.54	µg/L	182.54	ppb	12:41:08
2	P 214.914†	10879.5	11149.1	4013.2	µg/L	4013.2	ppb	12:41:08
2	Pb 220.353†	1056.3	999.5	103.60	µg/L	103.60	ppb	12:41:28

2	S 181.975 Axial†	2866.1	2809.4	3112.1 µg/L	3112.1 ppb		12:41:28
2	Sb 206.836†	62.5	19.2	-7.1361 µg/L	-7.1361 ppb		12:41:28
2	Se 196.026†	-67.4	-76.5	6.21 µg/L	6.21 ppb		12:41:28
2	SiO2†	673272.8	681053.5	75377 µg/L	75377 ppb		12:41:06
2	Si 251.611†	2026563.0	2058488.3	34915 µg/L	34915 ppb		12:41:06
2	Sn 189.927†	-27.0	0.0	0.2354 µg/L	0.2354 ppb		12:41:28
2	Ti 334.940†	996620.4	1013497.3	1442.2 µg/L	1442.2 ppb		12:41:06
2	Tl 190.801†	-151.1	-67.4	-18.949 µg/L	-18.949 ppb		12:41:28
2	U 367.007†	4290.0	4643.1	-5.6795 µg/L	-5.6795 ppb		12:41:08
2	V 292.402†	48669.4	49346.8	228.44 µg/L	228.44 ppb		12:41:08
2	Zn 213.857†	86345.5	87684.1	483.21 µg/L	483.21 ppb		12:41:08
3	Sc RADIAL	70985.7	70985.7	98.5 %			12:40:37
3	Al 396.153Radial†	197836.7	200667.4	73284 µg/L	73284 ppb		12:40:37
3	Ca 317.933Radial†	1356032.7	1375789.0	153150 µg/L	153150 ppb		12:40:35
3	Fe 238.204 Radial†	1099263.3	1116074.9	105580 µg/L	105580 ppb		12:40:35
3	K 766.490 Radial†	29053.2	28413.6	14958 µg/L	14958 ppb		12:40:37
3	Mg 279.077 IEC†	107725.6	109295.5	58960 µg/L	58960 ppb		12:40:37
3	Na 589.592 Radial†	10448.7	10563.8	1761.6 µg/L	1761.6 ppb		12:40:37
3	Sr 421.552†	188625.6	191880.5	551.42 µg/L	551.42 ppb		12:40:37
3	Sc 361.383	1325966.1	1325966.1	99.607 %			12:41:30
3	Y 371.029	788005.8	788005.8	108.77 %			12:41:30
3	Ag 328.068†	-2324.6	-443.0	2.2718 µg/L	2.2718 ppb		12:41:32
3	As 188.979†	28.0	58.1	45.521 µg/L	45.521 ppb		12:41:52
3	B 249.677†	-227.5	-1113.2	61.435 µg/L	61.435 ppb		12:41:32
3	Ba 233.527†	200136.1	201167.5	1794.3 µg/L	1794.3 ppb		12:41:32
3	Be 313.107†	19221.4	22953.3	-37.645 µg/L	-37.645 ppb		12:41:32
3	Cd 226.502†	1767.9	1954.9	2.7023 µg/L	2.7023 ppb		12:41:52
3	Co 228.616†	4809.0	4919.5	73.890 µg/L	73.890 ppb		12:41:52
3	Cr 267.716†	9746.5	9656.0	114.62 µg/L	114.62 ppb		12:41:32
3	Cu 324.752†	44459.1	38857.9	179.44 µg/L	179.44 ppb		12:41:32
3	Mn 257.610†	1865462.5	1872680.0	3280.0 µg/L	3280.0 ppb		12:41:30
3	Mo 202.031†	-45.7	-16.1	2.3533 µg/L	2.3533 ppb		12:41:52
3	Ni 231.604†	11567.1	11810.5	187.76 µg/L	187.76 ppb		12:41:32
3	P 214.914†	11133.7	11272.7	4057.6 µg/L	4057.6 ppb		12:41:32
3	Pb 220.353†	1065.9	996.4	103.28 µg/L	103.28 ppb		12:41:52
3	S 181.975 Axial†	2862.0	2770.6	3068.5 µg/L	3068.5 ppb		12:41:52
3	Sb 206.836†	67.0	23.0	-6.6328 µg/L	-6.6328 ppb		12:41:52
3	Se 196.026†	-58.8	-67.1	12.0 µg/L	12.0 ppb		12:41:52
3	SiO2†	685207.4	684894.5	75802 µg/L	75802 ppb		12:41:30
3	Si 251.611†	2062395.2	2069958.2	35109 µg/L	35109 ppb		12:41:30
3	Sn 189.927†	-21.8	5.6	0.9419 µg/L	0.9419 ppb		12:41:52
3	Ti 334.940†	1015128.9	1020028.4	1451.5 µg/L	1451.5 ppb		12:41:30
3	Tl 190.801†	-163.5	-78.1	-22.203 µg/L	-22.203 ppb		12:41:52
3	U 367.007†	4344.6	4646.0	-15.781 µg/L	-15.781 ppb		12:41:32
3	V 292.402†	49590.9	49683.4	230.07 µg/L	230.07 ppb		12:41:32
3	Zn 213.857†	88051.2	88352.6	486.82 µg/L	486.82 ppb		12:41:32

Mean Data: 409254018|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1310905.8	98.475	%	1.1053				1.12%
Sc RADIAL	71388.8	99.1	%	1.48				1.49%
Y 371.029	779400.4	107.59	%	1.153				1.07%
Ag 328.068†	-498.7	1.8939	µg/L	0.43945	1.8939	ppb	0.43945	23.20%
Al 396.153Radial†	200767.1	73320	µg/L	53.3	73320	ppb	53.3	0.07%
As 188.979†	55.8	44.019	µg/L	2.0456	44.019	ppb	2.0456	4.65%
B 249.677†	-1124.3	59.878	µg/L	2.7730	59.878	ppb	2.7730	4.63%
Ba 233.527†	202751.7	1808.4	µg/L	31.74	1808.4	ppb	31.74	1.76%
Be 313.107†	22889.4	-38.008	µg/L	0.7340	-38.008	ppb	0.7340	1.93%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1350171.4	150300	µg/L	2871.8	150300	ppb	2871.8	1.91%
Cd 226.502†	2002.4	3.2794	µg/L	0.62654	3.2794	ppb	0.62654	19.11%
Co 228.616†	4964.9	74.604	µg/L	0.9060	74.604	ppb	0.9060	1.21%
Cr 267.716†	9703.7	115.14	µg/L	2.496	115.14	ppb	2.496	2.17%
Cu 324.752†	39129.3	180.53	µg/L	2.620	180.53	ppb	2.620	1.45%
Fe 238.204 Radial†	1095925.2	103670	µg/L	1919.7	103670	ppb	1919.7	1.85%
K 766.490 Radial†	28403.3	14952	µg/L	5.1	14952	ppb	5.1	0.03%
Mg 279.077 IEC†	109829.0	59247	µg/L	288.2	59247	ppb	288.2	0.49%
Mn 257.610†	1867107.3	3270.2	µg/L	9.13	3270.2	ppb	9.13	0.28%
Mo 202.031†	-7.7	2.7486	µg/L	0.78218	2.7486	ppb	0.78218	28.46%

Na 589.592 Radial†	10628.2	1772.3	µg/L	15.28	1772.3	ppb	15.28	0.86%
Ni 231.604†	11754.5	186.87	µg/L	3.969	186.87	ppb	3.969	2.12%
P 214.914†	11353.2	4086.7	µg/L	91.64	4086.7	ppb	91.64	2.24%
Pb 220.353†	1003.5	103.99	µg/L	0.970	103.99	ppb	0.970	0.93%
S 181.975 Axial†	2812.1	3115.1	µg/L	48.21	3115.1	ppb	48.21	1.55%
Sb 206.836†	25.2	-6.0176	µg/L	1.52238	-6.0176	ppb	1.52238	25.30%
Se 196.026†	-74.7	7.17	µg/L	4.453	7.17	ppb	4.453	62.10%
SiO2†	682737.9	75564	µg/L	217.3	75564	ppb	217.3	0.29%
Si 251.611†	2063674.7	35003	µg/L	98.7	35003	ppb	98.7	0.28%
Sn 189.927†	-1.9	-0.0171	µg/L	1.10704	-0.0171	ppb	1.10704	>999.9%
Sr 421.552†	191863.4	551.47	µg/L	1.126	551.47	ppb	1.126	0.20%
Ti 334.940†	1016521.0	1446.5	µg/L	4.70	1446.5	ppb	4.70	0.33%
Tl 190.801†	-71.4	-20.182	µg/L	1.7644	-20.182	ppb	1.7644	8.74%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	4689.6	0.1920	µg/L	19.58035	0.1920	ppb	19.58035	>999.9%
V 292.402†	50045.7	231.57	µg/L	4.097	231.57	ppb	4.097	1.77%
Zn 213.857†	88894.6	490.09	µg/L	8.972	490.09	ppb	8.972	1.83%

Sequence No.: 24 **Autosampler Location: 325**
Sample ID: 409254019|1611117|1 **Date Collected: 11/11/2016 12:42:00**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254019|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71627.1	71627.1	99.4	%			12:42:27
1	Al 396.153Radial†	131722.9	132376.5	48355	µg/L	48355	ppb	12:42:27
1	Ca 317.933Radial†	1458026.7	1466044.4	163200	µg/L	163200	ppb	12:42:25
1	Fe 238.204 Radial†	1108317.4	1115191.1	105490	µg/L	105490	ppb	12:42:25
1	K 766.490 Radial†	21578.9	20632.4	10868	µg/L	10868	ppb	12:42:27
1	Mg 279.077 IEC†	118344.5	118996.4	64190	µg/L	64190	ppb	12:42:27
1	Na 589.592 Radial†	12674.3	12707.3	2119.0	µg/L	2119.0	ppb	12:42:27
1	Sr 421.552†	184478.6	185995.5	534.00	µg/L	534.00	ppb	12:42:27
1	Sc 361.383	1291905.0	1291905.0	97.048	%			12:42:39
1	Y 371.029	766844.7	766844.7	105.85	%			12:42:39
1	Ag 328.068†	-2546.2	-732.9	0.6768	µg/L	0.6768	ppb	12:42:41
1	As 188.979†	47.6	79.0	56.588	µg/L	56.588	ppb	12:43:01
1	B 249.677†	-1826.5	-2767.0	37.591	µg/L	37.591	ppb	12:42:41
1	Ba 233.527†	210273.2	216910.4	1934.6	µg/L	1934.6	ppb	12:42:41
1	Be 313.107†	13680.2	17752.3	-42.510	µg/L	-42.510	ppb	12:42:41
1	Cd 226.502†	1819.1	2054.4	3.4648	µg/L	3.4648	ppb	12:43:01
1	Co 228.616†	3095.8	3281.5	49.723	µg/L	49.723	ppb	12:43:01
1	Cr 267.716†	7204.2	7294.4	86.801	µg/L	86.801	ppb	12:42:41
1	Cu 324.752†	32053.1	27251.2	128.30	µg/L	128.30	ppb	12:42:41
1	Mn 257.610†	1213452.0	1250212.8	2188.8	µg/L	2188.8	ppb	12:42:39
1	Mo 202.031†	-85.5	-58.3	0.2136	µg/L	0.2136	ppb	12:43:01
1	Ni 231.604†	7575.0	8003.1	127.23	µg/L	127.23	ppb	12:43:01
1	P 214.914†	12364.1	12835.3	4620.8	µg/L	4620.8	ppb	12:42:41
1	Pb 220.353†	765.4	715.0	73.490	µg/L	73.490	ppb	12:43:01
1	S 181.975 Axial†	1462.3	1404.1	1543.4	µg/L	1543.4	ppb	12:43:01
1	Sb 206.836†	53.7	11.0	-9.1012	µg/L	-9.1012	ppb	12:43:01
1	Se 196.026†	-64.1	-74.1	8.92	µg/L	8.92	ppb	12:43:01
1	SiO2†	556033.3	569927.8	63078	µg/L	63078	ppb	12:42:39
1	Si 251.611†	1677170.5	1727604.9	29305	µg/L	29305	ppb	12:42:39
1	Sn 189.927†	-53.2	-27.4	-3.3464	µg/L	-3.3464	ppb	12:43:01
1	Ti 334.940†	1319311.2	1360333.4	1935.3	µg/L	1935.3	ppb	12:42:39
1	Tl 190.801†	-177.5	-96.8	-27.951	µg/L	-27.951	ppb	12:43:01
1	U 367.007†	4364.0	4781.0	0.3995	µg/L	0.3995	ppb	12:42:41
1	V 292.402†	36334.1	37336.1	174.70	µg/L	174.70	ppb	12:42:41
1	Zn 213.857†	66854.7	68841.9	375.93	µg/L	375.93	ppb	12:42:41
2	Sc RADIAL	70842.5	70842.5	98.3	%			12:42:31
2	Al 396.153Radial†	130677.2	132780.5	48503	µg/L	48503	ppb	12:42:31
2	Ca 317.933Radial†	1474938.7	1499482.4	166920	µg/L	166920	ppb	12:42:29
2	Fe 238.204 Radial†	1121431.5	1140871.7	107920	µg/L	107920	ppb	12:42:29
2	K 766.490 Radial†	21302.2	20591.4	10847	µg/L	10847	ppb	12:42:31
2	Mg 279.077 IEC†	116240.8	118175.3	63748	µg/L	63748	ppb	12:42:31
2	Na 589.592 Radial†	12620.6	12793.8	2133.4	µg/L	2133.4	ppb	12:42:31
2	Sr 421.552†	183135.8	186684.9	535.87	µg/L	535.87	ppb	12:42:31
2	Sc 361.383	1283796.1	1283796.1	96.439	%			12:43:04
2	Y 371.029	762112.1	762112.1	105.20	%			12:43:04
2	Ag 328.068†	-2430.5	-629.4	1.3127	µg/L	1.3127	ppb	12:43:06
2	As 188.979†	48.0	79.7	57.307	µg/L	57.307	ppb	12:43:26
2	B 249.677†	-1713.7	-2661.9	40.884	µg/L	40.884	ppb	12:43:06
2	Ba 233.527†	208396.3	216332.7	1929.5	µg/L	1929.5	ppb	12:43:06
2	Be 313.107†	13863.0	18030.8	-42.302	µg/L	-42.302	ppb	12:43:06
2	Cd 226.502†	1838.4	2086.3	3.4275	µg/L	3.4275	ppb	12:43:26
2	Co 228.616†	3101.0	3307.0	50.066	µg/L	50.066	ppb	12:43:26
2	Cr 267.716†	7252.3	7391.1	87.971	µg/L	87.971	ppb	12:43:06
2	Cu 324.752†	31762.2	27158.2	128.05	µg/L	128.05	ppb	12:43:06
2	Mn 257.610†	1201070.4	1245271.7	2180.2	µg/L	2180.2	ppb	12:43:04
2	Mo 202.031†	-76.8	-49.9	0.7069	µg/L	0.7069	ppb	12:43:26
2	Ni 231.604†	7540.4	8016.6	127.45	µg/L	127.45	ppb	12:43:26
2	P 214.914†	12189.0	12734.2	4584.3	µg/L	4584.3	ppb	12:43:06
2	Pb 220.353†	805.4	761.4	78.178	µg/L	78.178	ppb	12:43:26

2	S 181.975 Axial†	1466.9	1418.4	1558.8 µg/L	1558.8 ppb		12:43:26
2	Sb 206.836†	69.4	27.7	-6.1501 µg/L	-6.1501 ppb		12:43:26
2	Se 196.026†	-54.6	-64.7	15.0 µg/L	15.0 ppb		12:43:26
2	SiO2†	550616.9	567930.3	62857 µg/L	62857 ppb		12:43:04
2	Si 251.611†	1660818.8	1721565.1	29203 µg/L	29203 ppb		12:43:04
2	Sn 189.927†	-49.9	-24.3	-2.9489 µg/L	-2.9489 ppb		12:43:26
2	Ti 334.940†	1308298.3	1357500.5	1931.3 µg/L	1931.3 ppb		12:43:04
2	Tl 190.801†	-183.1	-103.8	-30.039 µg/L	-30.039 ppb		12:43:26
2	U 367.007†	4456.4	4905.2	2.1481 µg/L	2.1481 ppb		12:43:06
2	V 292.402†	36015.0	37241.6	174.44 µg/L	174.44 ppb		12:43:06
2	Zn 213.857†	66237.1	68636.6	374.53 µg/L	374.53 ppb		12:43:06
3	Sc RADIAL	70349.7	70349.7	97.7 %			12:42:35
3	Al 396.153Radial†	129121.1	132117.9	48261 µg/L	48261 ppb		12:42:35
3	Ca 317.933Radial†	1456434.0	1491040.5	165980 µg/L	165980 ppb		12:42:33
3	Fe 238.204 Radial†	1108416.2	1135532.6	107420 µg/L	107420 ppb		12:42:33
3	K 766.490 Radial†	21247.5	20687.2	10897 µg/L	10897 ppb		12:42:35
3	Mg 279.077 IEC†	115114.2	117849.7	63572 µg/L	63572 ppb		12:42:35
3	Na 589.592 Radial†	12448.5	12707.5	2119.0 µg/L	2119.0 ppb		12:42:35
3	Sr 421.552†	180860.6	185659.7	532.93 µg/L	532.93 ppb		12:42:35
3	Sc 361.383	1285290.7	1285290.7	96.551 %			12:43:28
3	Y 371.029	762119.8	762119.8	105.20 %			12:43:28
3	Ag 328.068†	-2365.1	-558.8	1.6653 µg/L	1.6653 ppb		12:43:30
3	As 188.979†	46.6	78.2	56.387 µg/L	56.387 ppb		12:43:50
3	B 249.677†	-1701.7	-2647.4	40.722 µg/L	40.722 ppb		12:43:30
3	Ba 233.527†	204380.7	211922.4	1890.2 µg/L	1890.2 ppb		12:43:30
3	Be 313.107†	13621.6	17764.1	-41.414 µg/L	-41.414 ppb		12:43:30
3	Cd 226.502†	1823.6	2068.7	3.3525 µg/L	3.3525 ppb		12:43:50
3	Co 228.616†	3103.7	3306.1	50.012 µg/L	50.012 ppb		12:43:50
3	Cr 267.716†	6903.3	7020.9	83.625 µg/L	83.625 ppb		12:43:30
3	Cu 324.752†	31301.5	26642.7	125.73 µg/L	125.73 ppb		12:43:30
3	Mn 257.610†	1206505.7	1249452.9	2187.5 µg/L	2187.5 ppb		12:43:28
3	Mo 202.031†	-75.3	-48.2	0.7789 µg/L	0.7789 ppb		12:43:50
3	Ni 231.604†	7552.8	8020.4	127.51 µg/L	127.51 ppb		12:43:50
3	P 214.914†	11963.2	12485.7	4494.7 µg/L	4494.7 ppb		12:43:30
3	Pb 220.353†	784.3	738.6	75.881 µg/L	75.881 ppb		12:43:50
3	S 181.975 Axial†	1456.4	1405.8	1544.9 µg/L	1544.9 ppb		12:43:50
3	Sb 206.836†	62.5	20.5	-7.4337 µg/L	-7.4337 ppb		12:43:50
3	Se 196.026†	-30.6	-39.7	27.8 µg/L	27.8 ppb		12:43:50
3	SiO2†	553385.3	570133.7	63101 µg/L	63101 ppb		12:43:28
3	Si 251.611†	1668107.2	1727111.3	29297 µg/L	29297 ppb		12:43:28
3	Sn 189.927†	-39.2	-13.1	-1.5259 µg/L	-1.5259 ppb		12:43:50
3	Ti 334.940†	1312064.7	1359823.9	1934.6 µg/L	1934.6 ppb		12:43:28
3	Tl 190.801†	-186.9	-107.6	-31.217 µg/L	-31.217 ppb		12:43:50
3	U 367.007†	4325.9	4764.7	-12.317 µg/L	-12.317 ppb		12:43:30
3	V 292.402†	35291.5	36448.9	170.84 µg/L	170.84 ppb		12:43:30
3	Zn 213.857†	64782.5	67050.1	365.60 µg/L	365.60 ppb		12:43:30

Mean Data: 409254019|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 361.383	1286997.3	96.679	%	0.3242				0.34%
Sc RADIAL	70939.8	98.5	%	0.89				0.91%
Y 371.029	763692.2	105.42	%	0.377				0.36%
Ag 328.068†	-640.4	1.2183	µg/L	0.50098	1.2183	ppb	0.50098	41.12%
Al 396.153Radial†	132425.0	48373	µg/L	122.0	48373	ppb	122.0	0.25%
As 188.979†	79.0	56.761	µg/L	0.4838	56.761	ppb	0.4838	0.85%
B 249.677†	-2692.1	39.732	µg/L	1.8566	39.732	ppb	1.8566	4.67%
Ba 233.527†	215055.2	1918.1	µg/L	24.33	1918.1	ppb	24.33	1.27%
Be 313.107†	17849.1	-42.075	µg/L	0.5822	-42.075	ppb	0.5822	1.38%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1485522.4	165370	µg/L	1935.7	165370	ppb	1935.7	1.17%
Cd 226.502†	2069.8	3.4150	µg/L	0.05717	3.4150	ppb	0.05717	1.67%
Co 228.616†	3298.2	49.933	µg/L	0.1842	49.933	ppb	0.1842	0.37%
Cr 267.716†	7235.5	86.132	µg/L	2.2492	86.132	ppb	2.2492	2.61%
Cu 324.752†	27017.4	127.36	µg/L	1.419	127.36	ppb	1.419	1.11%
Fe 238.204 Radial†	1130531.8	106940	µg/L	1281.9	106940	ppb	1281.9	1.20%
K 766.490 Radial†	20637.0	10871	µg/L	25.2	10871	ppb	25.2	0.23%
Mg 279.077 IEC†	118340.5	63837	µg/L	318.2	63837	ppb	318.2	0.50%
Mn 257.610†	1248312.4	2185.5	µg/L	4.66	2185.5	ppb	4.66	0.21%
Mo 202.031†	-52.2	0.5665	µg/L	0.30770	0.5665	ppb	0.30770	54.32%

Na 589.592 Radial†	12736.2	2123.8	µg/L	8.32	2123.8	ppb	8.32	0.39%
Ni 231.604†	8013.3	127.40	µg/L	0.144	127.40	ppb	0.144	0.11%
P 214.914†	12685.1	4566.6	µg/L	64.88	4566.6	ppb	64.88	1.42%
Pb 220.353†	738.3	75.850	µg/L	2.3442	75.850	ppb	2.3442	3.09%
S 181.975 Axial†	1409.4	1549.0	µg/L	8.51	1549.0	ppb	8.51	0.55%
Sb 206.836†	19.7	-7.5616	µg/L	1.47970	-7.5616	ppb	1.47970	19.57%
Se 196.026†	-59.5	17.2	µg/L	9.64	17.2	ppb	9.64	55.96%
SiO2†	569330.6	63012	µg/L	134.7	63012	ppb	134.7	0.21%
Si 251.611†	1725427.1	29268	µg/L	56.7	29268	ppb	56.7	0.19%
Sn 189.927†	-21.6	-2.6071	µg/L	0.95719	-2.6071	ppb	0.95719	36.72%
Sr 421.552†	186113.4	534.26	µg/L	1.489	534.26	ppb	1.489	0.28%
Ti 334.940†	1359219.3	1933.8	µg/L	2.13	1933.8	ppb	2.13	0.11%
Tl 190.801†	-102.7	-29.735	µg/L	1.6541	-29.735	ppb	1.6541	5.56%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	4817.0	-3.2564	µg/L	7.89510	-3.2564	ppb	7.89510	242.45%
V 292.402†	37008.8	173.33	µg/L	2.155	173.33	ppb	2.155	1.24%
Zn 213.857†	68176.2	372.02	µg/L	5.608	372.02	ppb	5.608	1.51%

Sequence No.: 25 **Autosampler Location: 326**
Sample ID: 409254020|1611117|1 **Date Collected: 11/11/2016 12:43:58**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254020|1611117|1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71028.3	71028.3	98.6	%			12:44:25
1	Al 396.153Radial†	294258.6	298339.1	108930	µg/L	108930	ppb	12:44:25
1	Ca 317.933Radial†	1030577.7	1044881.9	116320	µg/L	116320	ppb	12:44:25
1	Fe 238.204 Radial†	2144643.0	2175642.4	205810	µg/L	205810	ppb	12:44:23
1	K 766.490 Radial†	38435.1	37911.2	19987	µg/L	19987	ppb	12:44:25
1	Mg 279.077 IEC†	92080.1	93362.0	50402	µg/L	50402	ppb	12:44:25
1	Na 589.592 Radial†	92259.6	93531.1	15597	µg/L	15597	ppb	12:44:25
1	Sr 421.552†	199476.9	202771.0	584.28	µg/L	584.28	ppb	12:44:25
1	Sc 361.383	1305462.6	1305462.6	98.066	%			12:44:37
1	Y 371.029	805643.9	805643.9	111.21	%			12:44:40
1	Ag 328.068†	-2786.4	-950.5	5.5354	µg/L	5.5354	ppb	12:44:40
1	As 188.979†	153.3	186.2	127.71	µg/L	127.71	ppb	12:45:00
1	B 249.677†	-4790.8	-5770.2	67.986	µg/L	67.986	ppb	12:44:40
1	Ba 233.527†	350101.8	357246.1	3186.5	µg/L	3186.5	ppb	12:44:40
1	Be 313.107†	25655.0	29816.8	-69.815	µg/L	-69.815	ppb	12:44:40
1	Cd 226.502†	3734.0	3987.6	6.6053	µg/L	6.6053	ppb	12:45:00
1	Co 228.616†	5554.2	5755.2	86.711	µg/L	86.711	ppb	12:45:00
1	Cr 267.716†	12452.4	12569.0	150.28	µg/L	150.28	ppb	12:45:00
1	Cu 324.752†	53165.7	48437.2	228.40	µg/L	228.40	ppb	12:44:40
1	Mn 257.610†	4429929.5	4517128.7	7915.0	µg/L	7915.0	ppb	12:44:37
1	Mo 202.031†	-14.4	15.0	6.3202	µg/L	6.3202	ppb	12:45:00
1	Ni 231.604†	13936.8	14409.4	229.08	µg/L	229.08	ppb	12:45:00
1	P 214.914†	16666.0	17089.7	6149.1	µg/L	6149.1	ppb	12:45:00
1	Pb 220.353†	1532.9	1489.4	154.48	µg/L	154.48	ppb	12:45:00
1	S 181.975 Axial†	13621.2	13787.1	15344	µg/L	15344	ppb	12:45:00
1	Sb 206.836†	86.2	43.6	-12.848	µg/L	-12.848	ppb	12:45:00
1	Se 196.026†	-124.0	-134.4	22.3	µg/L	22.3	ppb	12:45:00
1	SiO2†	641345.5	650972.1	72048	µg/L	72048	ppb	12:44:40
1	Si 251.611†	1953894.7	1991837.9	33798	µg/L	33798	ppb	12:44:37
1	Sn 189.927†	-19.4	7.7	1.3315	µg/L	1.3315	ppb	12:45:00
1	Ti 334.940†	1173759.5	1197793.4	1703.4	µg/L	1703.4	ppb	12:44:37
1	Tl 190.801†	-176.8	-94.3	-25.454	µg/L	-25.454	ppb	12:45:00
1	U 367.007†	8307.9	8755.9	-51.752	µg/L	-51.752	ppb	12:44:40
1	V 292.402†	70323.7	71607.0	335.24	µg/L	335.24	ppb	12:44:40
1	Zn 213.857†	126756.9	129209.8	708.23	µg/L	708.23	ppb	12:44:40
2	Sc RADIAL	71451.0	71451.0	99.2	%			12:44:29
2	Al 396.153Radial†	297186.5	299525.5	109370	µg/L	109370	ppb	12:44:29
2	Ca 317.933Radial†	1040349.9	1048550.9	116730	µg/L	116730	ppb	12:44:29
2	Fe 238.204 Radial†	2103068.8	2120858.9	200620	µg/L	200620	ppb	12:44:27
2	K 766.490 Radial†	38744.9	37992.9	20029	µg/L	20029	ppb	12:44:29
2	Mg 279.077 IEC†	92964.1	93700.8	50583	µg/L	50583	ppb	12:44:29
2	Na 589.592 Radial†	93100.3	93825.1	15646	µg/L	15646	ppb	12:44:29
2	Sr 421.552†	201148.5	203259.5	585.69	µg/L	585.69	ppb	12:44:29
2	Sc 361.383	1327371.4	1327371.4	99.712	%			12:45:02
2	Y 371.029	821735.0	821735.0	113.43	%			12:45:04
2	Ag 328.068†	-2751.3	-868.4	5.6534	µg/L	5.6534	ppb	12:45:04
2	As 188.979†	148.9	179.3	123.28	µg/L	123.28	ppb	12:45:25
2	B 249.677†	-4766.7	-5665.3	65.692	µg/L	65.692	ppb	12:45:04
2	Ba 233.527†	356938.4	358209.8	3195.0	µg/L	3195.0	ppb	12:45:04
2	Be 313.107†	26217.4	29949.0	-69.991	µg/L	-69.991	ppb	12:45:04
2	Cd 226.502†	3708.3	3899.0	6.5282	µg/L	6.5282	ppb	12:45:25
2	Co 228.616†	5492.8	5600.2	84.482	µg/L	84.482	ppb	12:45:25
2	Cr 267.716†	12360.7	12267.4	146.64	µg/L	146.64	ppb	12:45:25
2	Cu 324.752†	54618.3	48999.1	230.55	µg/L	230.55	ppb	12:45:04
2	Mn 257.610†	4523495.9	4536405.6	7948.7	µg/L	7948.7	ppb	12:45:02
2	Mo 202.031†	-26.4	3.3	5.5850	µg/L	5.5850	ppb	12:45:25
2	Ni 231.604†	13826.8	14064.5	223.60	µg/L	223.60	ppb	12:45:25
2	P 214.914†	16525.3	16668.1	5997.4	µg/L	5997.4	ppb	12:45:25
2	Pb 220.353†	1503.4	1434.0	148.90	µg/L	148.90	ppb	12:45:25

2	S 181.975 Axial†	13507.7	13444.0	14962 µg/L	14962 ppb		12:45:25
2	Sb 206.836†	81.2	37.2	-13.484 µg/L	-13.484 ppb		12:45:25
2	Se 196.026†	-133.8	-142.2	15.8 µg/L	15.8 ppb		12:45:25
2	SiO2†	655366.8	654239.4	72409 µg/L	72409 ppb		12:45:04
2	Si 251.611†	1996962.0	2002143.8	33972 µg/L	33972 ppb		12:45:02
2	Sn 189.927†	-18.2	9.2	1.5177 µg/L	1.5177 ppb		12:45:25
2	Ti 334.940†	1199305.0	1203657.2	1711.8 µg/L	1711.8 ppb		12:45:02
2	Tl 190.801†	-165.2	-79.6	-21.047 µg/L	-21.047 ppb		12:45:25
2	U 367.007†	8433.2	8741.8	-25.352 µg/L	-25.352 ppb		12:45:04
2	V 292.402†	71801.6	71905.6	336.23 µg/L	336.23 ppb		12:45:04
2	Zn 213.857†	129859.3	130187.7	714.32 µg/L	714.32 ppb		12:45:04
3	Sc RADIAL	72678.6	72678.6	101 %			12:44:33
3	Al 396.153Radial†	301631.1	298870.3	109130 µg/L	109130 ppb		12:44:33
3	Ca 317.933Radial†	1058617.7	1048941.7	116770 µg/L	116770 ppb		12:44:33
3	Fe 238.204 Radial†	2188335.6	2169561.3	205230 µg/L	205230 ppb		12:44:31
3	K 766.490 Radial†	39437.3	38019.4	20044 µg/L	20044 ppb		12:44:33
3	Mg 279.077 IEC†	94714.3	93852.5	50666 µg/L	50666 ppb		12:44:33
3	Na 589.592 Radial†	94327.9	93456.6	15584 µg/L	15584 ppb		12:44:33
3	Sr 421.552†	204281.5	202939.6	584.76 µg/L	584.76 ppb		12:44:33
3	Sc 361.383	1322200.2	1322200.2	99.324 %			12:45:27
3	Y 371.029	830077.6	830077.6	114.58 %			12:45:29
3	Ag 328.068†	-2887.8	-1016.7	5.1527 µg/L	5.1527 ppb		12:45:29
3	As 188.979†	144.2	175.1	121.57 µg/L	121.57 ppb		12:45:49
3	B 249.677†	-4655.1	-5571.7	70.418 µg/L	70.418 ppb		12:45:29
3	Ba 233.527†	360088.5	362781.4	3235.8 µg/L	3235.8 ppb		12:45:29
3	Be 313.107†	26370.6	30206.1	-70.920 µg/L	-70.920 ppb		12:45:29
3	Cd 226.502†	3724.5	3929.9	6.2345 µg/L	6.2345 ppb		12:45:49
3	Co 228.616†	5540.8	5670.0	85.511 µg/L	85.511 ppb		12:45:49
3	Cr 267.716†	12401.8	12357.2	147.77 µg/L	147.77 ppb		12:45:49
3	Cu 324.752†	54572.1	49166.8	231.59 µg/L	231.59 ppb		12:45:29
3	Mn 257.610†	4469357.6	4499641.6	7884.3 µg/L	7884.3 ppb		12:45:27
3	Mo 202.031†	-9.6	20.1	6.5710 µg/L	6.5710 ppb		12:45:49
3	Ni 231.604†	13931.8	14224.4	226.14 µg/L	226.14 ppb		12:45:49
3	P 214.914†	16634.5	16842.8	6060.1 µg/L	6060.1 ppb		12:45:49
3	Pb 220.353†	1518.6	1455.2	151.02 µg/L	151.02 ppb		12:45:49
3	S 181.975 Axial†	13596.4	13586.3	15120 µg/L	15120 ppb		12:45:49
3	Sb 206.836†	88.2	44.5	-12.575 µg/L	-12.575 ppb		12:45:49
3	Se 196.026†	-133.8	-142.7	17.7 µg/L	17.7 ppb		12:45:49
3	SiO2†	660787.0	662267.1	73298 µg/L	73298 ppb		12:45:29
3	Si 251.611†	1971636.2	1984478.4	33673 µg/L	33673 ppb		12:45:27
3	Sn 189.927†	-4.8	22.6	3.2373 µg/L	3.2373 ppb		12:45:49
3	Ti 334.940†	1186889.5	1195861.4	1700.7 µg/L	1700.7 ppb		12:45:27
3	Tl 190.801†	-149.7	-64.6	-16.367 µg/L	-16.367 ppb		12:45:49
3	U 367.007†	8468.1	8809.9	-42.017 µg/L	-42.017 ppb		12:45:29
3	V 292.402†	72622.4	73013.6	341.50 µg/L	341.50 ppb		12:45:29
3	Zn 213.857†	130901.7	131746.6	722.66 µg/L	722.66 ppb		12:45:29

Mean Data: 409254020|1611117|1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1318344.7	99.034	%	0.8603				0.87%
Sc RADIAL	71719.3	99.6	%	1.19				1.20%
Y 371.029	819152.2	113.07	%	1.714				1.52%
Ag 328.068†	-945.2	5.4472	µg/L	0.26175	5.4472	ppb	0.26175	4.81%
Al 396.153Radial†	298911.6	109140	µg/L	217.0	109140	ppb	217.0	0.20%
As 188.979†	180.2	124.19	µg/L	3.170	124.19	ppb	3.170	2.55%
B 249.677†	-5669.1	68.032	µg/L	2.3636	68.032	ppb	2.3636	3.47%
Ba 233.527†	359412.4	3205.8	µg/L	26.37	3205.8	ppb	26.37	0.82%
Be 313.107†	29990.6	-70.242	µg/L	0.5939	-70.242	ppb	0.5939	0.85%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	1047458.2	116600	µg/L	249.3	116600	ppb	249.3	0.21%
Cd 226.502†	3938.9	6.4560	µg/L	0.19563	6.4560	ppb	0.19563	3.03%
Co 228.616†	5675.2	85.568	µg/L	1.1157	85.568	ppb	1.1157	1.30%
Cr 267.716†	12397.9	148.23	µg/L	1.863	148.23	ppb	1.863	1.26%
Cu 324.752†	48867.7	230.18	µg/L	1.628	230.18	ppb	1.628	0.71%
Fe 238.204 Radial†	2155354.2	203890	µg/L	2840.5	203890	ppb	2840.5	1.39%
K 766.490 Radial†	37974.5	20020	µg/L	29.2	20020	ppb	29.2	0.15%
Mg 279.077 IEC†	93638.4	50550	µg/L	135.1	50550	ppb	135.1	0.27%
Mn 257.610†	4517725.3	7916.0	µg/L	32.23	7916.0	ppb	32.23	0.41%
Mo 202.031†	12.8	6.1587	µg/L	0.51241	6.1587	ppb	0.51241	8.32%

Na 589.592 Radial†	93604.3	15609	µg/L	32.5	15609	ppb	32.5	0.21%
Ni 231.604†	14232.8	226.27	µg/L	2.744	226.27	ppb	2.744	1.21%
P 214.914†	16866.9	6068.8	µg/L	76.23	6068.8	ppb	76.23	1.26%
Pb 220.353†	1459.6	151.47	µg/L	2.819	151.47	ppb	2.819	1.86%
S 181.975 Axial†	13605.8	15142	µg/L	191.9	15142	ppb	191.9	1.27%
Sb 206.836†	41.7	-12.969	µg/L	0.4665	-12.969	ppb	0.4665	3.60%
Concentration less than lower limit for Sb 206.836.								
Se 196.026†	-139.8	18.6	µg/L	3.32	18.6	ppb	3.32	17.86%
SiO2†	655826.2	72585	µg/L	643.3	72585	ppb	643.3	0.89%
Si 251.611†	1992820.1	33814	µg/L	150.1	33814	ppb	150.1	0.44%
Sn 189.927†	13.2	2.0288	µg/L	1.05064	2.0288	ppb	1.05064	51.79%
Sr 421.552†	202990.0	584.91	µg/L	0.714	584.91	ppb	0.714	0.12%
Ti 334.940†	1199104.0	1705.3	µg/L	5.77	1705.3	ppb	5.77	0.34%
Tl 190.801†	-79.5	-20.956	µg/L	4.5444	-20.956	ppb	4.5444	21.69%
Concentration less than lower limit for Tl 190.801.								
U 367.007†	8769.2	-39.707	µg/L	13.3507	-39.707	ppb	13.3507	33.62%
V 292.402†	72175.4	337.66	µg/L	3.368	337.66	ppb	3.368	1.00%
Zn 213.857†	130381.4	715.07	µg/L	7.248	715.07	ppb	7.248	1.01%

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Analysis Begun

Start Time: 11/11/2016 13:04:59 **Plasma On Time: 11/7/2016 06:01:25**
Logged In Analyst: lab **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N No Serial #Autosampler Model: AS-93plus

Sample Information File: C:\pe\optima4\Sample Information\111116.sif
Batch ID:
Results Data Set: 111116
Results Library: C:\pe\optima4\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/11/2016 13:05:00**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71815.4	71815.4	99.7	%			13:05:33
1	Al 396.153Radial†	13929.6	13871.0	5064.7	µg/L	5064.7	ppb	13:05:33
1	Ca 317.933Radial†	45599.2	45397.2	5053.6	µg/L	5053.6	ppb	13:05:33
1	Fe 238.204 Radial†	53171.4	53854.1	5094.3	µg/L	5094.3	ppb	13:05:33
1	K 766.490 Radial†	10695.7	9658.6	5077.1	µg/L	5077.1	ppb	13:05:33
1	Mg 279.077 IEC†	9225.4	9227.1	4976.4	µg/L	4976.4	ppb	13:05:33
1	Na 589.592 Radial†	58142.3	58282.6	9718.9	µg/L	9718.9	ppb	13:05:31
1	Sr 421.552†	169593.4	170577.7	494.72	µg/L	494.72	ppb	13:05:31
1	Sc 361.383	1312887.4	1312887.4	98.624	%			13:05:44
1	Y 371.029	701638.9	701638.9	96.852	%			13:05:44
1	Ag 328.068†	93012.2	96200.7	496.42	µg/L	496.42	ppb	13:05:46
1	As 188.979†	898.1	940.6	516.15	µg/L	516.15	ppb	13:06:07
1	B 249.677†	34873.1	34474.8	499.53	µg/L	499.53	ppb	13:05:46
1	Ba 233.527†	54732.3	55736.6	497.01	µg/L	497.01	ppb	13:05:46
1	Be 313.107†	1784152.3	1812699.9	482.32	µg/L	482.32	ppb	13:05:44
1	Cd 226.502†	64253.8	65330.3	493.73	µg/L	493.73	ppb	13:05:46
1	Co 228.616†	32891.8	33442.2	497.31	µg/L	497.31	ppb	13:05:46
1	Cr 267.716†	41860.2	42315.2	497.25	µg/L	497.25	ppb	13:05:46
1	Cu 324.752†	116505.5	112354.1	496.60	µg/L	496.60	ppb	13:05:46
1	Mn 257.610†	280556.6	284318.9	498.12	µg/L	498.12	ppb	13:05:46
1	Mo 202.031†	9585.0	9748.5	506.83	µg/L	506.83	ppb	13:06:07
1	Ni 231.604†	30500.9	31124.2	494.82	µg/L	494.82	ppb	13:05:46
1	P 214.914†	6808.2	6998.3	2522.2	µg/L	2522.2	ppb	13:06:07
1	Pb 220.353†	5037.2	5033.8	508.76	µg/L	508.76	ppb	13:06:07
1	S 181.975 Axial†	985.1	896.1	999.15	µg/L	999.15	ppb	13:06:07
1	Sb 206.836†	2647.6	2640.3	501.99	µg/L	501.99	ppb	13:06:07
1	Se 196.026†	954.7	960.0	506	µg/L	506	ppb	13:06:07
1	SiO2†	51427.2	49125.0	5437.0	µg/L	5437.0	ppb	13:05:46
1	Si 251.611†	149204.1	150701.3	2555.8	µg/L	2555.8	ppb	13:05:46
1	Sn 189.927†	3897.1	3979.0	508.76	µg/L	508.76	ppb	13:06:07
1	Ti 334.940†	342252.7	347916.9	494.20	µg/L	494.20	ppb	13:05:46
1	Tl 190.801†	1541.7	1649.3	506.69	µg/L	506.69	ppb	13:06:07
1	U 367.007†	3796.1	4133.2	480.37	µg/L	480.37	ppb	13:05:46
1	V 292.402†	109296.1	110717.7	497.49	µg/L	497.49	ppb	13:05:46
1	Zn 213.857†	86484.4	87644.5	495.93	µg/L	495.93	ppb	13:05:46
2	Sc RADIAL	73140.9	73140.9	102	%			13:05:37
2	Al 396.153Radial†	13944.8	13632.8	4977.8	µg/L	4977.8	ppb	13:05:37
2	Ca 317.933Radial†	45988.2	44951.5	5004.0	µg/L	5004.0	ppb	13:05:37
2	Fe 238.204 Radial†	53781.5	53488.5	5059.8	µg/L	5059.8	ppb	13:05:37
2	K 766.490 Radial†	10847.2	9613.4	5053.4	µg/L	5053.4	ppb	13:05:37
2	Mg 279.077 IEC†	9369.8	9201.7	4962.6	µg/L	4962.6	ppb	13:05:37
2	Na 589.592 Radial†	58784.4	57858.1	9648.1	µg/L	9648.1	ppb	13:05:35
2	Sr 421.552†	171162.1	169039.9	490.26	µg/L	490.26	ppb	13:05:35
2	Sc 361.383	1347943.1	1347943.1	101.26	%			13:06:09
2	Y 371.029	718977.7	718977.7	99.245	%			13:06:09
2	Ag 328.068†	94401.2	95119.7	490.85	µg/L	490.85	ppb	13:06:11
2	As 188.979†	902.9	921.7	505.83	µg/L	505.83	ppb	13:06:31

2	B 249.677†	35648.6	34321.1	497.29 µg/L	497.29 ppb	13:06:11
2	Ba 233.527†	55887.2	55433.9	494.31 µg/L	494.31 ppb	13:06:11
2	Be 313.107†	1827356.0	1808319.7	481.18 µg/L	481.18 ppb	13:06:09
2	Cd 226.502†	65487.0	64853.8	490.13 µg/L	490.13 ppb	13:06:11
2	Co 228.616†	33627.9	33301.8	495.22 µg/L	495.22 ppb	13:06:11
2	Cr 267.716†	42470.8	41814.4	491.37 µg/L	491.37 ppb	13:06:11
2	Cu 324.752†	118457.2	111209.3	491.54 µg/L	491.54 ppb	13:06:11
2	Mn 257.610†	285432.2	281735.7	493.59 µg/L	493.59 ppb	13:06:11
2	Mo 202.031†	9558.1	9469.1	492.31 µg/L	492.31 ppb	13:06:31
2	Ni 231.604†	31077.3	30889.1	491.08 µg/L	491.08 ppb	13:06:11
2	P 214.914†	6761.5	6772.7	2440.9 µg/L	2440.9 ppb	13:06:31
2	Pb 220.353†	4999.8	4864.0	491.60 µg/L	491.60 ppb	13:06:31
2	S 181.975 Axial†	987.3	872.4	972.68 µg/L	972.68 ppb	13:06:31
2	Sb 206.836†	2621.2	2544.3	483.54 µg/L	483.54 ppb	13:06:31
2	Se 196.026†	966.4	946.3	498 µg/L	498 ppb	13:06:31
2	SiO2†	52675.0	49001.1	5423.3 µg/L	5423.3 ppb	13:06:11
2	Si 251.611†	151942.9	149471.6	2534.9 µg/L	2534.9 ppb	13:06:11
2	Sn 189.927†	3855.9	3835.5	490.42 µg/L	490.42 ppb	13:06:31
2	Ti 334.940†	347629.9	344202.3	488.92 µg/L	488.92 ppb	13:06:11
2	Tl 190.801†	1529.3	1596.3	490.44 µg/L	490.44 ppb	13:06:31
2	U 367.007†	3773.2	4010.6	465.47 µg/L	465.47 ppb	13:06:11
2	V 292.402†	110976.4	109495.0	491.99 µg/L	491.99 ppb	13:06:11
2	Zn 213.857†	88146.8	87005.7	492.32 µg/L	492.32 ppb	13:06:11
3	Sc RADIAL	71842.6	71842.6	99.7 %		13:05:41
3	Al 396.153Radial†	13746.1	13681.8	4995.6 µg/L	4995.6 ppb	13:05:41
3	Ca 317.933Radial†	45204.1	44983.8	5007.6 µg/L	5007.6 ppb	13:05:41
3	Fe 238.204 Radial†	52754.2	53415.7	5052.9 µg/L	5052.9 ppb	13:05:41
3	K 766.490 Radial†	10704.8	9663.7	5079.8 µg/L	5079.8 ppb	13:05:41
3	Mg 279.077 IEC†	9072.0	9069.9	4891.6 µg/L	4891.6 ppb	13:05:41
3	Na 589.592 Radial†	59175.9	59297.0	9888.0 µg/L	9888.0 ppb	13:05:39
3	Sr 421.552†	172653.5	173581.9	503.44 µg/L	503.44 ppb	13:05:39
3	Sc 361.383	1338036.6	1338036.6	100.51 %		13:06:33
3	Y 371.029	713246.4	713246.4	98.454 %		13:06:33
3	Ag 328.068†	95645.7	97048.1	500.80 µg/L	500.80 ppb	13:06:35
3	As 188.979†	893.2	918.6	504.26 µg/L	504.26 ppb	13:06:55
3	B 249.677†	36329.3	35259.0	510.78 µg/L	510.78 ppb	13:06:35
3	Ba 233.527†	56496.6	56448.9	503.36 µg/L	503.36 ppb	13:06:35
3	Be 313.107†	1806191.0	1800624.0	478.86 µg/L	478.86 ppb	13:06:33
3	Cd 226.502†	66696.9	66536.3	502.86 µg/L	502.86 ppb	13:06:35
3	Co 228.616†	34114.8	34032.1	506.08 µg/L	506.08 ppb	13:06:35
3	Cr 267.716†	43177.8	42828.3	503.29 µg/L	503.29 ppb	13:06:35
3	Cu 324.752†	120152.1	113761.7	502.80 µg/L	502.80 ppb	13:06:35
3	Mn 257.610†	289566.9	287936.3	504.46 µg/L	504.46 ppb	13:06:35
3	Mo 202.031†	9555.0	9536.0	495.78 µg/L	495.78 ppb	13:06:55
3	Ni 231.604†	31789.8	31825.2	505.96 µg/L	505.96 ppb	13:06:35
3	P 214.914†	6763.7	6824.3	2459.5 µg/L	2459.5 ppb	13:06:55
3	Pb 220.353†	5005.7	4906.4	495.89 µg/L	495.89 ppb	13:06:55
3	S 181.975 Axial†	981.0	873.3	973.70 µg/L	973.70 ppb	13:06:55
3	Sb 206.836†	2642.9	2585.1	491.25 µg/L	491.25 ppb	13:06:55
3	Se 196.026†	959.8	946.9	499 µg/L	499 ppb	13:06:55
3	SiO2†	53563.2	50269.9	5563.7 µg/L	5563.7 ppb	13:06:35
3	Si 251.611†	154651.8	153277.6	2599.5 µg/L	2599.5 ppb	13:06:35
3	Sn 189.927†	3863.4	3871.1	494.97 µg/L	494.97 ppb	13:06:55
3	Ti 334.940†	352571.2	351660.1	499.52 µg/L	499.52 ppb	13:06:35
3	Tl 190.801†	1515.1	1593.4	489.54 µg/L	489.54 ppb	13:06:55
3	U 367.007†	3761.7	4026.7	467.49 µg/L	467.49 ppb	13:06:35
3	V 292.402†	112629.7	111951.2	503.02 µg/L	503.02 ppb	13:06:35
3	Zn 213.857†	89666.6	89162.2	504.54 µg/L	504.54 ppb	13:06:35

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1332955.7	100.13	%	1.358				1.36%
Sc RADIAL	72266.3	100	%	1.1				1.05%
Y 371.029	711287.7	98.184	%	1.2194				1.24%
Ag 328.068†	96122.8	496.02	µg/L	4.987	496.02	ppb	4.987	1.01%
QC value within limits for Ag 328.068 Recovery = 99.20%								
Al 396.153Radial†	13728.6	5012.7	µg/L	45.93	5012.7	ppb	45.93	0.92%
QC value within limits for Al 396.153Radial Recovery = 100.25%								
As 188.979†	926.9	508.75	µg/L	6.458	508.75	ppb	6.458	1.27%

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   QC value within limits for As 188.979  Recovery = 101.75%
B 249.677†          34684.9      502.53 µg/L          7.226      502.53 ppb          7.226   1.44%
   QC value within limits for B 249.677  Recovery = 100.51%
Ba 233.527†         55873.2      498.23 µg/L          4.646      498.23 ppb          4.646   0.93%
   QC value within limits for Ba 233.527  Recovery = 99.65%
Be 313.107†       1807214.6      480.79 µg/L          1.761      480.79 ppb          1.761   0.37%
   QC value within limits for Be 313.107  Recovery = 96.16%
Ca 317.933Radial†   45110.8      5021.8 µg/L          27.67      5021.8 ppb          27.67   0.55%
   QC value within limits for Ca 317.933Radial  Recovery = 100.44%
Cd 226.502†         65573.4      495.58 µg/L          6.563      495.58 ppb          6.563   1.32%
   QC value within limits for Cd 226.502  Recovery = 99.12%
Co 228.616†         33592.1      499.53 µg/L          5.762      499.53 ppb          5.762   1.15%
   QC value within limits for Co 228.616  Recovery = 99.91%
Cr 267.716†         42319.3      497.30 µg/L          5.961      497.30 ppb          5.961   1.20%
   QC value within limits for Cr 267.716  Recovery = 99.46%
Cu 324.752†        112441.7      496.98 µg/L          5.641      496.98 ppb          5.641   1.14%
   QC value within limits for Cu 324.752  Recovery = 99.40%
Fe 238.204 Radial†  53586.1      5069.0 µg/L          22.23      5069.0 ppb          22.23   0.44%
   QC value within limits for Fe 238.204 Radial  Recovery = 101.38%
K 766.490 Radial†    9645.2      5070.1 µg/L          14.54      5070.1 ppb          14.54   0.29%
   QC value within limits for K 766.490 Radial  Recovery = 101.40%
Mg 279.077 IEC†      9166.2      4943.5 µg/L          45.52      4943.5 ppb          45.52   0.92%
   QC value within limits for Mg 279.077 IEC  Recovery = 98.87%
Mn 257.610†        284663.6      498.73 µg/L          5.460      498.73 ppb          5.460   1.09%
   QC value within limits for Mn 257.610  Recovery = 99.75%
Mo 202.031†          9584.5      498.31 µg/L          7.582      498.31 ppb          7.582   1.52%
   QC value within limits for Mo 202.031  Recovery = 99.66%
Na 589.592 Radial†  58479.2      9751.7 µg/L         123.28      9751.7 ppb         123.28   1.26%
   QC value within limits for Na 589.592 Radial  Recovery = 97.52%
Ni 231.604†         31279.5      497.29 µg/L          7.742      497.29 ppb          7.742   1.56%
   QC value within limits for Ni 231.604  Recovery = 99.46%
P 214.914†           6865.1      2474.2 µg/L          42.62      2474.2 ppb          42.62   1.72%
   QC value within limits for P 214.914  Recovery = 98.97%
Pb 220.353†          4934.7      498.75 µg/L          8.932      498.75 ppb          8.932   1.79%
   QC value within limits for Pb 220.353  Recovery = 99.75%
S 181.975 Axial†      880.6      981.84 µg/L         14.996      981.84 ppb         14.996   1.53%
   QC value within limits for S 181.975 Axial  Recovery = 98.18%
Sb 206.836†          2589.9      492.26 µg/L          9.264      492.26 ppb          9.264   1.88%
   QC value within limits for Sb 206.836  Recovery = 98.45%
Se 196.026†           951.1       501 µg/L           4.1         501 ppb            4.1   0.82%
   QC value within limits for Se 196.026  Recovery = 100.19%
SiO2†               49465.3      5474.7 µg/L          77.42      5474.7 ppb          77.42   1.41%
   QC value within limits for SiO2  Recovery = 102.38%
Si 251.611†        151150.2      2563.4 µg/L          32.93      2563.4 ppb          32.93   1.28%
   QC value within limits for Si 251.611  Recovery = 102.54%
Sn 189.927†          3895.2      498.05 µg/L          9.553      498.05 ppb          9.553   1.92%
   QC value within limits for Sn 189.927  Recovery = 99.61%
Sr 421.552†        171066.5      496.14 µg/L          6.702      496.14 ppb          6.702   1.35%
   QC value within limits for Sr 421.552  Recovery = 99.23%
Ti 334.940†        347926.4      494.21 µg/L          5.298      494.21 ppb          5.298   1.07%
   QC value within limits for Ti 334.940  Recovery = 98.84%
Tl 190.801†          1613.0      495.56 µg/L          9.655      495.56 ppb          9.655   1.95%
   QC value within limits for Tl 190.801  Recovery = 99.11%
U 367.007†           4056.8      471.11 µg/L          8.082      471.11 ppb          8.082   1.72%
   QC value within limits for U 367.007  Recovery = 94.22%
V 292.402†         110721.3      497.50 µg/L          5.513      497.50 ppb          5.513   1.11%
   QC value within limits for V 292.402  Recovery = 99.50%
Zn 213.857†         87937.5      497.60 µg/L          6.282      497.60 ppb          6.282   1.26%
   QC value within limits for Zn 213.857  Recovery = 99.52%
All analyte(s) passed QC.
```

Sequence No.: 2 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 13:07:03**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	72246.8	72246.8	100	%			13:07:28
1	Al 396.153Radial†	98.9	-3.0	-1.1090	µg/L	-1.1090	ppb	13:07:48
1	Ca 317.933Radial†	344.3	0.1	0.0123	µg/L	0.0123	ppb	13:07:48
1	Fe 238.204 Radial†	-485.7	33.8	3.1952	µg/L	3.1952	ppb	13:07:48
1	K 766.490 Radial†	1148.8	75.3	39.559	µg/L	39.559	ppb	13:07:28
1	Mg 279.077 IEC†	23.6	-3.3	-1.7604	µg/L	-1.7604	ppb	13:07:48
1	Na 589.592 Radial†	119.8	79.7	13.284	µg/L	13.284	ppb	13:07:28
1	Sr 421.552†	-436.2	24.1	0.0699	µg/L	0.0699	ppb	13:07:48
1	Sc 361.383	1315277.1	1315277.1	98.804	%			13:08:35
1	Y 371.029	711309.2	711309.2	98.187	%			13:08:35
1	Ag 328.068†	-1731.3	138.6	0.7154	µg/L	0.7154	ppb	13:08:37
1	As 188.979†	-31.6	-2.0	-1.0839	µg/L	-1.0839	ppb	13:08:57
1	B 249.677†	774.7	-100.8	-1.4476	µg/L	-1.4476	ppb	13:08:37
1	Ba 233.527†	-222.5	15.6	0.1392	µg/L	0.1392	ppb	13:08:57
1	Be 313.107†	-2904.3	716.4	0.1920	µg/L	0.1920	ppb	13:08:37
1	Cd 226.502†	-145.8	32.5	0.2452	µg/L	0.2452	ppb	13:08:57
1	Co 228.616†	-110.3	-20.1	-0.2991	µg/L	-0.2991	ppb	13:08:57
1	Cr 267.716†	124.8	-2.7	-0.0318	µg/L	-0.0318	ppb	13:08:57
1	Cu 324.752†	5452.8	-258.0	-1.1385	µg/L	-1.1385	ppb	13:08:37
1	Mn 257.610†	174.1	24.2	0.0426	µg/L	0.0426	ppb	13:08:57
1	Mo 202.031†	-4.1	25.6	1.3300	µg/L	1.3300	ppb	13:08:57
1	Ni 231.604†	-170.8	24.8	0.3945	µg/L	0.3945	ppb	13:08:57
1	P 214.914†	-90.9	3.1	1.1132	µg/L	1.1132	ppb	13:08:57
1	Pb 220.353†	80.5	7.8	0.7879	µg/L	0.7879	ppb	13:08:57
1	S 181.975 Axial†	93.3	-8.3	-9.2592	µg/L	-9.2592	ppb	13:08:57
1	Sb 206.836†	60.4	16.8	3.2451	µg/L	3.2451	ppb	13:08:57
1	Se 196.026†	3.7	-4.3	-2.24	µg/L	-2.24	ppb	13:08:57
1	SiO2†	2897.5	-87.1	-9.6448	µg/L	-9.6448	ppb	13:08:37
1	Si 251.611†	629.6	52.7	0.8943	µg/L	0.8943	ppb	13:08:37
1	Sn 189.927†	-17.6	9.7	1.2380	µg/L	1.2380	ppb	13:08:57
1	Ti 334.940†	-619.1	262.6	0.3733	µg/L	0.3733	ppb	13:08:37
1	Tl 190.801†	-89.8	-4.8	-1.4726	µg/L	-1.4726	ppb	13:08:57
1	U 367.007†	-280.0	0.8	0.0844	µg/L	0.0844	ppb	13:08:37
1	V 292.402†	38.3	-64.5	-0.2890	µg/L	-0.2890	ppb	13:08:37
1	Zn 213.857†	10.7	-35.7	-0.2015	µg/L	-0.2015	ppb	13:08:57
2	Sc RADIAL	71745.8	71745.8	99.6	%			13:07:50
2	Al 396.153Radial†	104.4	3.1	1.1375	µg/L	1.1375	ppb	13:08:10
2	Ca 317.933Radial†	337.9	-3.9	-0.4320	µg/L	-0.4320	ppb	13:08:10
2	Fe 238.204 Radial†	-458.1	58.1	5.4975	µg/L	5.4975	ppb	13:08:10
2	K 766.490 Radial†	961.6	-104.7	-55.045	µg/L	-55.045	ppb	13:07:50
2	Mg 279.077 IEC†	22.5	-4.3	-2.2931	µg/L	-2.2931	ppb	13:08:10
2	Na 589.592 Radial†	167.2	128.2	21.373	µg/L	21.373	ppb	13:07:50
2	Sr 421.552†	-429.5	27.8	0.0805	µg/L	0.0805	ppb	13:08:10
2	Sc 361.383	1321646.3	1321646.3	99.282	%			13:08:59
2	Y 371.029	713383.8	713383.8	98.473	%			13:08:59
2	Ag 328.068†	-1802.5	75.3	0.3887	µg/L	0.3887	ppb	13:09:01
2	As 188.979†	-33.0	-3.3	-1.7963	µg/L	-1.7963	ppb	13:09:22
2	B 249.677†	798.0	-81.1	-1.1626	µg/L	-1.1626	ppb	13:09:01
2	Ba 233.527†	-226.7	12.4	0.1109	µg/L	0.1109	ppb	13:09:22
2	Be 313.107†	-2910.5	724.4	0.1951	µg/L	0.1951	ppb	13:09:01
2	Cd 226.502†	-138.2	40.8	0.3083	µg/L	0.3083	ppb	13:09:22
2	Co 228.616†	-91.6	-0.7	-0.0110	µg/L	-0.0110	ppb	13:09:22
2	Cr 267.716†	123.3	-4.8	-0.0573	µg/L	-0.0573	ppb	13:09:22
2	Cu 324.752†	5242.3	-496.7	-2.1908	µg/L	-2.1908	ppb	13:09:01
2	Mn 257.610†	247.3	97.2	0.1704	µg/L	0.1704	ppb	13:09:22
2	Mo 202.031†	-9.6	20.1	1.0423	µg/L	1.0423	ppb	13:09:22
2	Ni 231.604†	-178.8	17.6	0.2802	µg/L	0.2802	ppb	13:09:22
2	P 214.914†	-80.0	14.5	5.2131	µg/L	5.2131	ppb	13:09:22
2	Pb 220.353†	81.3	8.2	0.8291	µg/L	0.8291	ppb	13:09:22

2	S 181.975 Axial†	85.0	-17.0	-19.003 µg/L	-19.003 ppb	13:09:22
2	Sb 206.836†	65.8	22.0	4.2427 µg/L	4.2427 ppb	13:09:22
2	Se 196.026†	-3.1	-11.2	-5.84 µg/L	-5.84 ppb	13:09:22
2	SiO2†	2855.9	-143.2	-15.852 µg/L	-15.852 ppb	13:09:01
2	Si 251.611†	582.4	2.1	0.0366 µg/L	0.0366 ppb	13:09:01
2	Sn 189.927†	-19.6	7.7	0.9840 µg/L	0.9840 ppb	13:09:22
2	Ti 334.940†	-445.1	441.0	0.6264 µg/L	0.6264 ppb	13:09:01
2	Tl 190.801†	-66.2	19.4	5.9484 µg/L	5.9484 ppb	13:09:22
2	U 367.007†	-275.8	6.4	0.7612 µg/L	0.7612 ppb	13:09:01
2	V 292.402†	168.4	66.3	0.2976 µg/L	0.2976 ppb	13:09:01
2	Zn 213.857†	4.0	-42.5	-0.2393 µg/L	-0.2393 ppb	13:09:22
3	Sc RADIAL	69561.7	69561.7	96.6 %		13:08:12
3	Al 396.153Radial†	105.1	7.2	2.6135 µg/L	2.6135 ppb	13:08:32
3	Ca 317.933Radial†	348.3	17.5	1.9499 µg/L	1.9499 ppb	13:08:32
3	Fe 238.204 Radial†	-448.2	53.9	5.0954 µg/L	5.0954 ppb	13:08:32
3	K 766.490 Radial†	893.1	-145.3	-76.349 µg/L	-76.349 ppb	13:08:12
3	Mg 279.077 IEC†	24.8	-1.1	-0.6019 µg/L	-0.6019 ppb	13:08:32
3	Na 589.592 Radial†	72.5	35.3	5.8890 µg/L	5.8890 ppb	13:08:12
3	Sr 421.552†	-446.6	-3.4	-0.0100 µg/L	-0.0100 ppb	13:08:32
3	Sc 361.383	1328811.5	1328811.5	99.820 %		13:09:24
3	Y 371.029	717510.8	717510.8	99.043 %		13:09:24
3	Ag 328.068†	-1810.9	76.7	0.3944 µg/L	0.3944 ppb	13:09:26
3	As 188.979†	-31.0	-1.1	-0.6185 µg/L	-0.6185 ppb	13:09:46
3	B 249.677†	816.5	-66.9	-0.9577 µg/L	-0.9577 ppb	13:09:26
3	Ba 233.527†	-235.3	5.1	0.0452 µg/L	0.0452 ppb	13:09:46
3	Be 313.107†	-2821.3	829.6	0.2261 µg/L	0.2261 ppb	13:09:26
3	Cd 226.502†	-143.8	36.0	0.2715 µg/L	0.2715 ppb	13:09:46
3	Co 228.616†	-85.2	6.1	0.0911 µg/L	0.0911 ppb	13:09:46
3	Cr 267.716†	146.9	18.2	0.2114 µg/L	0.2114 ppb	13:09:46
3	Cu 324.752†	5415.9	-351.2	-1.5474 µg/L	-1.5474 ppb	13:09:26
3	Mn 257.610†	262.6	111.1	0.1948 µg/L	0.1948 ppb	13:09:46
3	Mo 202.031†	-22.0	7.7	0.4008 µg/L	0.4008 ppb	13:09:46
3	Ni 231.604†	-157.4	40.0	0.6365 µg/L	0.6365 ppb	13:09:46
3	P 214.914†	-52.4	42.6	15.354 µg/L	15.354 ppb	13:09:46
3	Pb 220.353†	68.9	-4.7	-0.4811 µg/L	-0.4811 ppb	13:09:46
3	S 181.975 Axial†	88.8	-13.7	-15.339 µg/L	-15.339 ppb	13:09:46
3	Sb 206.836†	60.3	16.1	3.1106 µg/L	3.1106 ppb	13:09:46
3	Se 196.026†	-3.5	-11.6	-6.06 µg/L	-6.06 ppb	13:09:46
3	SiO2†	2919.6	-94.9	-10.507 µg/L	-10.507 ppb	13:09:26
3	Si 251.611†	599.3	15.9	0.2704 µg/L	0.2704 ppb	13:09:26
3	Sn 189.927†	-23.8	3.7	0.4723 µg/L	0.4723 ppb	13:09:46
3	Ti 334.940†	-450.3	438.2	0.6214 µg/L	0.6214 ppb	13:09:26
3	Tl 190.801†	-69.4	16.5	5.0758 µg/L	5.0758 ppb	13:09:46
3	U 367.007†	-262.5	21.3	2.5897 µg/L	2.5897 ppb	13:09:26
3	V 292.402†	19.1	-84.2	-0.3756 µg/L	-0.3756 ppb	13:09:26
3	Zn 213.857†	19.3	-27.2	-0.1530 µg/L	-0.1530 ppb	13:09:46

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1321911.6	99.302	%	0.5086				0.51%
Sc RADIAL	71184.7	98.8	%	1.98				2.01%
Y 371.029	714067.9	98.567	%	0.4358				0.44%
Ag 328.068†	96.9	0.4995	µg/L	0.18697	0.4995	ppb	0.18697	37.43%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	2.4	0.8807	µg/L	1.87448	0.8807	ppb	1.87448	212.85%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-2.1	-1.1662	µg/L	0.59316	-1.1662	ppb	0.59316	50.86%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-82.9	-1.1893	µg/L	0.24605	-1.1893	ppb	0.24605	20.69%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	11.0	0.0984	µg/L	0.04823	0.0984	ppb	0.04823	49.00%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	756.8	0.2044	µg/L	0.01884	0.2044	ppb	0.01884	9.22%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	4.6	0.5101	µg/L	1.26657	0.5101	ppb	1.26657	248.31%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	36.4	0.2750	µg/L	0.03169	0.2750	ppb	0.03169	11.52%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	-4.9	-0.0730	µg/L	0.20236	-0.0730	ppb	0.20236	277.25%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	3.5	0.0408 µg/L	0.14830	0.0408 ppb	0.14830	363.71%
QC value within limits for Cr 267.716 Recovery = Not calculated						
Cu 324.752†	-368.6	-1.6256 µg/L	0.53052	-1.6256 ppb	0.53052	32.64%
QC value within limits for Cu 324.752 Recovery = Not calculated						
Fe 238.204 Radial†	48.6	4.5961 µg/L	1.22972	4.5961 ppb	1.22972	26.76%
QC value within limits for Fe 238.204 Radial Recovery = Not calculated						
K 766.490 Radial†	-58.3	-30.612 µg/L	61.6958	-30.612 ppb	61.6958	201.54%
QC value within limits for K 766.490 Radial Recovery = Not calculated						
Mg 279.077 IEC†	-2.9	-1.5518 µg/L	0.86468	-1.5518 ppb	0.86468	55.72%
QC value within limits for Mg 279.077 IEC Recovery = Not calculated						
Mn 257.610†	77.5	0.1359 µg/L	0.08178	0.1359 ppb	0.08178	60.17%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	17.8	0.9244 µg/L	0.47567	0.9244 ppb	0.47567	51.46%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592 Radial†	81.0	13.515 µg/L	7.7443	13.515 ppb	7.7443	57.30%
QC value within limits for Na 589.592 Radial Recovery = Not calculated						
Ni 231.604†	27.5	0.4371 µg/L	0.18189	0.4371 ppb	0.18189	41.62%
QC value within limits for Ni 231.604 Recovery = Not calculated						
P 214.914†	20.1	7.2268 µg/L	7.33088	7.2268 ppb	7.33088	101.44%
QC value within limits for P 214.914 Recovery = Not calculated						
Pb 220.353†	3.8	0.3786 µg/L	0.74484	0.3786 ppb	0.74484	196.74%
QC value within limits for Pb 220.353 Recovery = Not calculated						
S 181.975 Axial†	-13.0	-14.534 µg/L	4.9216	-14.534 ppb	4.9216	33.86%
QC value within limits for S 181.975 Axial Recovery = Not calculated						
Sb 206.836†	18.3	3.5328 µg/L	0.61848	3.5328 ppb	0.61848	17.51%
QC value within limits for Sb 206.836 Recovery = Not calculated						
Se 196.026†	-9.0	-4.71 µg/L	2.145	-4.71 ppb	2.145	45.51%
QC value within limits for Se 196.026 Recovery = Not calculated						
SiO2†	-108.4	-12.001 µg/L	3.3622	-12.001 ppb	3.3622	28.02%
QC value within limits for SiO2 Recovery = Not calculated						
Si 251.611†	23.6	0.4004 µg/L	0.44336	0.4004 ppb	0.44336	110.72%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	7.0	0.8981 µg/L	0.39002	0.8981 ppb	0.39002	43.43%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 421.552†	16.1	0.0468 µg/L	0.04950	0.0468 ppb	0.04950	105.79%
QC value within limits for Sr 421.552 Recovery = Not calculated						
Ti 334.940†	380.6	0.5404 µg/L	0.14471	0.5404 ppb	0.14471	26.78%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	10.4	3.1839 µg/L	4.05613	3.1839 ppb	4.05613	127.40%
QC value within limits for Tl 190.801 Recovery = Not calculated						
U 367.007†	9.5	1.1451 µg/L	1.29600	1.1451 ppb	1.29600	113.18%
QC value within limits for U 367.007 Recovery = Not calculated						
V 292.402†	-27.5	-0.1223 µg/L	0.36623	-0.1223 ppb	0.36623	299.35%
QC value within limits for V 292.402 Recovery = Not calculated						
Zn 213.857†	-35.1	-0.1980 µg/L	0.04324	-0.1980 ppb	0.04324	21.84%
QC value within limits for Zn 213.857 Recovery = Not calculated						

All analyte(s) passed QC.

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Analysis Begun

Start Time: 11/11/2016 13:13:19 **Plasma On Time: 11/7/2016 06:01:25**
Logged In Analyst: lab **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N No Serial #Autosampler Model: AS-93plus

Sample Information File: C:\pe\optima4\Sample Information\111116.sif
Batch ID:
Results Data Set: 111116
Results Library: C:\pe\optima4\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/11/2016 13:13:19**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	73600.8	73600.8	102	%			13:13:56
1	Al 396.153Radial†	14164.4	13761.9	5024.9	µg/L	5024.9	ppb	13:13:56
1	Ca 317.933Radial†	46611.7	45278.7	5040.4	µg/L	5040.4	ppb	13:13:56
1	Fe 238.204 Radial†	53952.1	53324.5	5044.2	µg/L	5044.2	ppb	13:13:56
1	K 766.490 Radial†	10750.9	9452.4	4968.7	µg/L	4968.7	ppb	13:13:56
1	Mg 279.077 IEC†	9289.8	9065.7	4889.3	µg/L	4889.3	ppb	13:13:56
1	Na 589.592 Radial†	59209.7	57912.6	9657.2	µg/L	9657.2	ppb	13:13:54
1	Sr 421.552†	173473.3	170248.6	493.77	µg/L	493.77	ppb	13:13:54
1	Sc 361.383	1340829.5	1340829.5	100.72	%			13:14:07
1	Y 371.029	715225.4	715225.4	98.727	%			13:14:07
1	Ag 328.068†	95184.1	96391.7	497.41	µg/L	497.41	ppb	13:14:09
1	As 188.979†	898.9	922.4	506.31	µg/L	506.31	ppb	13:14:29
1	B 249.677†	35817.7	34675.7	502.38	µg/L	502.38	ppb	13:14:09
1	Ba 233.527†	56119.2	55957.1	498.98	µg/L	498.98	ppb	13:14:09
1	Be 313.107†	1795989.5	1786752.7	475.19	µg/L	475.19	ppb	13:14:07
1	Cd 226.502†	65937.8	65644.5	496.12	µg/L	496.12	ppb	13:14:09
1	Co 228.616†	33739.4	33588.8	499.49	µg/L	499.49	ppb	13:14:09
1	Cr 267.716†	42894.6	42457.6	498.93	µg/L	498.93	ppb	13:14:09
1	Cu 324.752†	119759.7	113123.1	499.99	µg/L	499.99	ppb	13:14:09
1	Mn 257.610†	287430.7	285215.4	499.70	µg/L	499.70	ppb	13:14:09
1	Mo 202.031†	9536.1	9497.4	493.77	µg/L	493.77	ppb	13:14:29
1	Ni 231.604†	31278.9	31252.1	496.85	µg/L	496.85	ppb	13:14:09
1	P 214.914†	6750.5	6797.1	2449.7	µg/L	2449.7	ppb	13:14:29
1	Pb 220.353†	4981.7	4872.2	492.43	µg/L	492.43	ppb	13:14:29
1	S 181.975 Axial†	973.2	863.5	962.75	µg/L	962.75	ppb	13:14:29
1	Sb 206.836†	2633.5	2570.3	488.45	µg/L	488.45	ppb	13:14:29
1	Se 196.026†	947.7	932.9	491	µg/L	491	ppb	13:14:29
1	SiO2†	52930.7	49531.0	5482.0	µg/L	5482.0	ppb	13:14:09
1	Si 251.611†	153016.3	151333.4	2566.5	µg/L	2566.5	ppb	13:14:09
1	Sn 189.927†	3858.8	3858.6	493.38	µg/L	493.38	ppb	13:14:29
1	Ti 334.940†	350990.1	349359.7	496.25	µg/L	496.25	ppb	13:14:09
1	Tl 190.801†	1526.0	1601.0	491.88	µg/L	491.88	ppb	13:14:29
1	U 367.007†	3799.7	4056.7	471.22	µg/L	471.22	ppb	13:14:09
1	V 292.402†	112108.5	111200.4	499.64	µg/L	499.64	ppb	13:14:09
1	Zn 213.857†	88516.0	87834.1	497.01	µg/L	497.01	ppb	13:14:09
2	Sc RADIAL	71294.7	71294.7	99.0	%			13:14:00
2	Al 396.153Radial†	13710.0	13751.2	5021.0	µg/L	5021.0	ppb	13:14:00
2	Ca 317.933Radial†	45057.4	45183.8	5029.9	µg/L	5029.9	ppb	13:14:00
2	Fe 238.204 Radial†	52098.0	53159.1	5028.6	µg/L	5028.6	ppb	13:14:00
2	K 766.490 Radial†	10640.3	9681.0	5088.8	µg/L	5088.8	ppb	13:14:00
2	Mg 279.077 IEC†	8955.7	9022.2	4865.8	µg/L	4865.8	ppb	13:14:00
2	Na 589.592 Radial†	59053.2	59629.0	9943.4	µg/L	9943.4	ppb	13:13:58
2	Sr 421.552†	172549.7	174807.2	506.99	µg/L	506.99	ppb	13:13:58
2	Sc 361.383	1325473.7	1325473.7	99.570	%			13:14:32
2	Y 371.029	706144.7	706144.7	97.474	%			13:14:32
2	Ag 328.068†	94311.9	96610.5	498.54	µg/L	498.54	ppb	13:14:34
2	As 188.979†	900.2	934.0	512.58	µg/L	512.58	ppb	13:14:54

2	B 249.677†	35506.9	34775.6	503.81 µg/L	503.81 ppb	13:14:34
2	Ba 233.527†	55745.7	56227.5	501.39 µg/L	501.39 ppb	13:14:34
2	Be 313.107†	1777889.8	1789232.3	475.81 µg/L	475.81 ppb	13:14:32
2	Cd 226.502†	65134.6	65596.2	495.75 µg/L	495.75 ppb	13:14:34
2	Co 228.616†	33387.0	33622.8	499.99 µg/L	499.99 ppb	13:14:34
2	Cr 267.716†	42298.1	42352.0	497.69 µg/L	497.69 ppb	13:14:34
2	Cu 324.752†	118542.2	113277.8	500.66 µg/L	500.66 ppb	13:14:34
2	Mn 257.610†	284739.4	285818.5	500.75 µg/L	500.75 ppb	13:14:34
2	Mo 202.031†	9578.5	9649.6	501.68 µg/L	501.68 ppb	13:14:54
2	Ni 231.604†	31042.5	31374.4	498.79 µg/L	498.79 ppb	13:14:34
2	P 214.914†	6769.8	6894.1	2484.7 µg/L	2484.7 ppb	13:14:54
2	Pb 220.353†	4994.9	4942.7	499.56 µg/L	499.56 ppb	13:14:54
2	S 181.975 Axial†	981.7	883.3	984.84 µg/L	984.84 ppb	13:14:54
2	Sb 206.836†	2627.8	2594.9	493.22 µg/L	493.22 ppb	13:14:54
2	Se 196.026†	967.4	963.6	507 µg/L	507 ppb	13:14:54
2	SiO2†	52609.4	49817.1	5513.6 µg/L	5513.6 ppb	13:14:34
2	Si 251.611†	151914.2	151986.5	2577.6 µg/L	2577.6 ppb	13:14:34
2	Sn 189.927†	3880.0	3924.3	501.77 µg/L	501.77 ppb	13:14:54
2	Ti 334.940†	347570.0	349961.9	497.11 µg/L	497.11 ppb	13:14:34
2	Tl 190.801†	1539.9	1632.6	501.59 µg/L	501.59 ppb	13:14:54
2	U 367.007†	3728.7	4029.0	467.90 µg/L	467.90 ppb	13:14:34
2	V 292.402†	111122.8	111499.9	500.98 µg/L	500.98 ppb	13:14:34
2	Zn 213.857†	87855.1	88188.4	499.02 µg/L	499.02 ppb	13:14:34
3	Sc RADIAL	72030.8	72030.8	100.0 %		13:14:04
3	Al 396.153Radial†	13747.2	13646.9	4982.9 µg/L	4982.9 ppb	13:14:04
3	Ca 317.933Radial†	45469.5	45130.8	5024.0 µg/L	5024.0 ppb	13:14:04
3	Fe 238.204 Radial†	52466.5	52989.7	5012.6 µg/L	5012.6 ppb	13:14:04
3	K 766.490 Radial†	10766.1	9696.9	5097.2 µg/L	5097.2 ppb	13:14:04
3	Mg 279.077 IEC†	9038.5	9012.6	4860.7 µg/L	4860.7 ppb	13:14:04
3	Na 589.592 Radial†	56926.5	56892.4	9487.1 µg/L	9487.1 ppb	13:14:02
3	Sr 421.552†	165610.1	166085.4	481.69 µg/L	481.69 ppb	13:14:02
3	Sc 361.383	1322771.3	1322771.3	99.367 %		13:14:56
3	Y 371.029	703777.4	703777.4	97.147 %		13:14:56
3	Ag 328.068†	92577.3	95058.3	490.53 µg/L	490.53 ppb	13:14:58
3	As 188.979†	895.9	931.6	511.23 µg/L	511.23 ppb	13:15:18
3	B 249.677†	35001.9	34340.2	497.53 µg/L	497.53 ppb	13:14:58
3	Ba 233.527†	54664.7	55253.9	492.71 µg/L	492.71 ppb	13:14:58
3	Be 313.107†	1774617.9	1789587.3	476.12 µg/L	476.12 ppb	13:14:56
3	Cd 226.502†	64021.2	64609.3	488.29 µg/L	488.29 ppb	13:14:58
3	Co 228.616†	32922.8	33224.2	494.06 µg/L	494.06 ppb	13:14:58
3	Cr 267.716†	41775.1	41912.4	492.52 µg/L	492.52 ppb	13:14:58
3	Cu 324.752†	116978.7	111947.6	494.79 µg/L	494.79 ppb	13:14:58
3	Mn 257.610†	280269.5	281904.3	493.89 µg/L	493.89 ppb	13:14:58
3	Mo 202.031†	9477.8	9568.0	497.44 µg/L	497.44 ppb	13:15:18
3	Ni 231.604†	30392.4	30783.9	489.41 µg/L	489.41 ppb	13:14:58
3	P 214.914†	6729.6	6867.6	2475.1 µg/L	2475.1 ppb	13:15:18
3	Pb 220.353†	4962.8	4920.8	497.34 µg/L	497.34 ppb	13:15:18
3	S 181.975 Axial†	973.4	876.9	977.69 µg/L	977.69 ppb	13:15:18
3	Sb 206.836†	2630.5	2603.0	494.86 µg/L	494.86 ppb	13:15:18
3	Se 196.026†	954.5	952.6	502 µg/L	502 ppb	13:15:18
3	SiO2†	51738.0	49048.0	5428.5 µg/L	5428.5 ppb	13:14:58
3	Si 251.611†	149515.6	149884.3	2541.9 µg/L	2541.9 ppb	13:14:58
3	Sn 189.927†	3822.2	3874.1	495.35 µg/L	495.35 ppb	13:15:18
3	Ti 334.940†	342102.4	345172.6	490.30 µg/L	490.30 ppb	13:14:58
3	Tl 190.801†	1506.4	1602.0	492.18 µg/L	492.18 ppb	13:15:18
3	U 367.007†	3727.6	4035.6	468.80 µg/L	468.80 ppb	13:14:58
3	V 292.402†	109149.5	109742.0	493.10 µg/L	493.10 ppb	13:14:58
3	Zn 213.857†	86404.8	86909.1	491.77 µg/L	491.77 ppb	13:14:58

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1329691.5	99.886	%	0.7317				0.73%
Sc RADIAL	72308.8	100	%	1.6				1.63%
Y 371.029	708382.5	97.783	%	0.8342				0.85%
Ag 328.068†	96020.2	495.49	µg/L	4.336	495.49	ppb	4.336	0.88%
QC value within limits for Ag 328.068 Recovery = 99.10%								
Al 396.153Radial†	13720.0	5009.6	µg/L	23.20	5009.6	ppb	23.20	0.46%
QC value within limits for Al 396.153Radial Recovery = 100.19%								
As 188.979†	929.3	510.04	µg/L	3.299	510.04	ppb	3.299	0.65%

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   QC value within limits for As 188.979  Recovery = 102.01%
B 249.677†            34597.1      501.24 µg/L          3.289      501.24 ppb          3.289   0.66%
   QC value within limits for B 249.677  Recovery = 100.25%
Ba 233.527†           55812.9      497.69 µg/L          4.481      497.69 ppb          4.481   0.90%
   QC value within limits for Ba 233.527  Recovery = 99.54%
Be 313.107†         1788524.1      475.70 µg/L          0.471      475.70 ppb          0.471   0.10%
   QC value within limits for Be 313.107  Recovery = 95.14%
Ca 317.933Radial†     45197.8      5031.4 µg/L           8.34      5031.4 ppb           8.34   0.17%
   QC value within limits for Ca 317.933Radial  Recovery = 100.63%
Cd 226.502†           65283.3      493.38 µg/L          4.419      493.38 ppb          4.419   0.90%
   QC value within limits for Cd 226.502  Recovery = 98.68%
Co 228.616†           33478.6      497.85 µg/L          3.287      497.85 ppb          3.287   0.66%
   QC value within limits for Co 228.616  Recovery = 99.57%
Cr 267.716†           42240.7      496.38 µg/L          3.400      496.38 ppb          3.400   0.68%
   QC value within limits for Cr 267.716  Recovery = 99.28%
Cu 324.752†          112782.8      498.48 µg/L          3.211      498.48 ppb          3.211   0.64%
   QC value within limits for Cu 324.752  Recovery = 99.70%
Fe 238.204 Radial†    53157.7      5028.5 µg/L          15.83      5028.5 ppb          15.83   0.31%
   QC value within limits for Fe 238.204 Radial  Recovery = 100.57%
K 766.490 Radial†      9610.1      5051.6 µg/L          71.89      5051.6 ppb          71.89   1.42%
   QC value within limits for K 766.490 Radial  Recovery = 101.03%
Mg 279.077 IEC†        9033.5      4871.9 µg/L          15.27      4871.9 ppb          15.27   0.31%
   QC value within limits for Mg 279.077 IEC  Recovery = 97.44%
Mn 257.610†          284312.7      498.11 µg/L          3.693      498.11 ppb          3.693   0.74%
   QC value within limits for Mn 257.610  Recovery = 99.62%
Mo 202.031†            9571.7      497.63 µg/L          3.959      497.63 ppb          3.959   0.80%
   QC value within limits for Mo 202.031  Recovery = 99.53%
Na 589.592 Radial†    58144.6      9695.9 µg/L         230.62      9695.9 ppb         230.62   2.38%
   QC value within limits for Na 589.592 Radial  Recovery = 96.96%
Ni 231.604†           31136.8      495.02 µg/L          4.955      495.02 ppb          4.955   1.00%
   QC value within limits for Ni 231.604  Recovery = 99.00%
P 214.914†             6852.9      2469.8 µg/L          18.07      2469.8 ppb          18.07   0.73%
   QC value within limits for P 214.914  Recovery = 98.79%
Pb 220.353†            4911.9      496.44 µg/L          3.652      496.44 ppb          3.652   0.74%
   QC value within limits for Pb 220.353  Recovery = 99.29%
S 181.975 Axial†        874.6      975.09 µg/L         11.268      975.09 ppb         11.268   1.16%
   QC value within limits for S 181.975 Axial  Recovery = 97.51%
Sb 206.836†            2589.4      492.18 µg/L          3.331      492.18 ppb          3.331   0.68%
   QC value within limits for Sb 206.836  Recovery = 98.44%
Se 196.026†             949.7       500 µg/L            8.1         500 ppb            8.1   1.62%
   QC value within limits for Se 196.026  Recovery = 100.04%
SiO2†                 49465.4      5474.7 µg/L          43.02      5474.7 ppb          43.02   0.79%
   QC value within limits for SiO2  Recovery = 102.38%
Si 251.611†          151068.1      2562.0 µg/L          18.24      2562.0 ppb          18.24   0.71%
   QC value within limits for Si 251.611  Recovery = 102.48%
Sn 189.927†            3885.7      496.83 µg/L          4.389      496.83 ppb          4.389   0.88%
   QC value within limits for Sn 189.927  Recovery = 99.37%
Sr 421.552†          170380.4      494.15 µg/L         12.657      494.15 ppb         12.657   2.56%
   QC value within limits for Sr 421.552  Recovery = 98.83%
Ti 334.940†          348164.7      494.55 µg/L          3.707      494.55 ppb          3.707   0.75%
   QC value within limits for Ti 334.940  Recovery = 98.91%
Tl 190.801†            1611.9      495.22 µg/L          5.520      495.22 ppb          5.520   1.11%
   QC value within limits for Tl 190.801  Recovery = 99.04%
U 367.007†             4040.4      469.31 µg/L          1.714      469.31 ppb          1.714   0.37%
   QC value within limits for U 367.007  Recovery = 93.86%
V 292.402†           110814.1      497.91 µg/L          4.220      497.91 ppb          4.220   0.85%
   QC value within limits for V 292.402  Recovery = 99.58%
Zn 213.857†           87643.9      495.94 µg/L          3.743      495.94 ppb          3.743   0.75%
   QC value within limits for Zn 213.857  Recovery = 99.19%
All analyte(s) passed QC.
```

Sequence No.: 2 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 13:15:26**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	72390.3	72390.3	100	%			13:15:51
1	Al 396.153Radial†	102.3	0.1	0.0368	µg/L	0.0368	ppb	13:16:11
1	Ca 317.933Radial†	461.2	115.8	12.886	µg/L	12.886	ppb	13:16:11
1	Fe 238.204 Radial†	-453.9	66.4	6.2773	µg/L	6.2773	ppb	13:16:11
1	K 766.490 Radial†	1020.7	-54.5	-28.625	µg/L	-28.625	ppb	13:15:51
1	Mg 279.077 IEC†	17.8	-9.1	-4.9182	µg/L	-4.9182	ppb	13:16:11
1	Na 589.592 Radial†	170.7	130.1	21.695	µg/L	21.695	ppb	13:15:51
1	Sr 421.552†	-398.8	62.2	0.1799	µg/L	0.1799	ppb	13:16:11
1	Sc 361.383	1354014.4	1354014.4	101.71	%			13:16:58
1	Y 371.029	731462.4	731462.4	100.97	%			13:16:58
1	Ag 328.068†	-1855.1	66.9	0.3530	µg/L	0.3530	ppb	13:17:00
1	As 188.979†	-33.9	-3.3	-1.8125	µg/L	-1.8125	ppb	13:17:20
1	B 249.677†	811.0	-87.5	-1.2540	µg/L	-1.2540	ppb	13:17:00
1	Ba 233.527†	-235.6	9.1	0.0814	µg/L	0.0814	ppb	13:17:20
1	Be 313.107†	-2798.4	904.6	0.2402	µg/L	0.2402	ppb	13:17:00
1	Cd 226.502†	-137.1	45.3	0.3418	µg/L	0.3418	ppb	13:17:20
1	Co 228.616†	-89.6	3.4	0.0508	µg/L	0.0508	ppb	13:17:20
1	Cr 267.716†	146.7	15.2	0.1905	µg/L	0.1905	ppb	13:17:20
1	Cu 324.752†	5399.7	-468.1	-2.0756	µg/L	-2.0756	ppb	13:17:00
1	Mn 257.610†	218.5	62.8	0.1103	µg/L	0.1103	ppb	13:17:20
1	Mo 202.031†	-15.3	14.7	0.7616	µg/L	0.7616	ppb	13:17:20
1	Ni 231.604†	-194.7	6.3	0.1009	µg/L	0.1009	ppb	13:17:20
1	P 214.914†	-69.2	27.1	9.7580	µg/L	9.7580	ppb	13:17:20
1	Pb 220.353†	90.2	15.0	1.5322	µg/L	1.5322	ppb	13:17:20
1	S 181.975 Axial†	89.5	-14.7	-16.396	µg/L	-16.396	ppb	13:17:20
1	Sb 206.836†	64.8	19.4	3.7406	µg/L	3.7406	ppb	13:17:20
1	Se 196.026†	-2.5	-10.5	-5.51	µg/L	-5.51	ppb	13:17:20
1	SiO2†	2978.7	-91.3	-10.102	µg/L	-10.102	ppb	13:17:00
1	Si 251.611†	719.5	122.9	2.0852	µg/L	2.0852	ppb	13:17:00
1	Sn 189.927†	-20.2	7.6	0.9692	µg/L	0.9692	ppb	13:17:20
1	Ti 334.940†	-752.3	149.6	0.2194	µg/L	0.2194	ppb	13:17:00
1	Tl 190.801†	-81.9	5.5	1.6934	µg/L	1.6934	ppb	13:17:20
1	U 367.007†	-393.3	-102.5	-12.641	µg/L	-12.641	ppb	13:17:00
1	V 292.402†	28.7	-75.2	-0.3407	µg/L	-0.3407	ppb	13:17:00
1	Zn 213.857†	29.8	-17.2	-0.0957	µg/L	-0.0957	ppb	13:17:20
2	Sc RADIAL	71919.9	71919.9	99.8	%			13:16:13
2	Al 396.153Radial†	145.0	43.6	15.910	µg/L	15.910	ppb	13:16:33
2	Ca 317.933Radial†	452.6	110.1	12.261	µg/L	12.261	ppb	13:16:33
2	Fe 238.204 Radial†	-440.4	76.9	7.2781	µg/L	7.2781	ppb	13:16:33
2	K 766.490 Radial†	964.7	-103.9	-54.607	µg/L	-54.607	ppb	13:16:13
2	Mg 279.077 IEC†	17.3	-9.5	-5.1217	µg/L	-5.1217	ppb	13:16:33
2	Na 589.592 Radial†	90.6	51.0	8.5072	µg/L	8.5072	ppb	13:16:13
2	Sr 421.552†	-411.9	46.5	0.1345	µg/L	0.1345	ppb	13:16:33
2	Sc 361.383	1329004.1	1329004.1	99.835	%			13:17:23
2	Y 371.029	717553.8	717553.8	99.049	%			13:17:23
2	Ag 328.068†	-1739.1	148.9	0.7600	µg/L	0.7600	ppb	13:17:25
2	As 188.979†	-33.6	-3.7	-2.0037	µg/L	-2.0037	ppb	13:17:45
2	B 249.677†	843.4	-40.1	-0.5714	µg/L	-0.5714	ppb	13:17:25
2	Ba 233.527†	-233.1	7.3	0.0653	µg/L	0.0653	ppb	13:17:45
2	Be 313.107†	-2740.3	911.1	0.2523	µg/L	0.2523	ppb	13:17:25
2	Cd 226.502†	-153.4	26.3	0.1985	µg/L	0.1985	ppb	13:17:45
2	Co 228.616†	-107.6	-16.3	-0.2422	µg/L	-0.2422	ppb	13:17:45
2	Cr 267.716†	137.7	8.9	0.0911	µg/L	0.0911	ppb	13:17:45
2	Cu 324.752†	5502.7	-265.1	-1.1576	µg/L	-1.1576	ppb	13:17:25
2	Mn 257.610†	210.3	58.7	0.1030	µg/L	0.1030	ppb	13:17:45
2	Mo 202.031†	-18.4	11.3	0.5879	µg/L	0.5879	ppb	13:17:45
2	Ni 231.604†	-178.2	19.2	0.3057	µg/L	0.3057	ppb	13:17:45
2	P 214.914†	-72.1	22.9	8.2469	µg/L	8.2469	ppb	13:17:45
2	Pb 220.353†	72.8	-0.8	-0.0997	µg/L	-0.0997	ppb	13:17:45

2	S 181.975 Axial†	96.1	-6.4	-7.1609 µg/L	-7.1609 ppb	13:17:45
2	Sb 206.836†	56.2	12.0	2.3071 µg/L	2.3071 ppb	13:17:45
2	Se 196.026†	12.3	4.3	2.27 µg/L	2.27 ppb	13:17:45
2	SiO2†	2820.6	-194.5	-21.531 µg/L	-21.531 ppb	13:17:25
2	Si 251.611†	574.4	-9.1	-0.1535 µg/L	-0.1535 ppb	13:17:25
2	Sn 189.927†	-18.4	9.1	1.1603 µg/L	1.1603 ppb	13:17:45
2	Ti 334.940†	-530.4	358.0	0.5012 µg/L	0.5012 ppb	13:17:25
2	Tl 190.801†	-69.0	17.0	5.2145 µg/L	5.2145 ppb	13:17:45
2	U 367.007†	-162.6	121.3	14.883 µg/L	14.883 ppb	13:17:25
2	V 292.402†	27.5	-75.8	-0.3334 µg/L	-0.3334 ppb	13:17:25
2	Zn 213.857†	23.1	-23.4	-0.1319 µg/L	-0.1319 ppb	13:17:45
3	Sc RADIAL	71690.2	71690.2	99.5 %		13:16:35
3	Al 396.153Radial†	116.0	14.9	5.4425 µg/L	5.4425 ppb	13:16:55
3	Ca 317.933Radial†	438.1	97.0	10.800 µg/L	10.800 ppb	13:16:55
3	Fe 238.204 Radial†	-428.5	87.5	8.2739 µg/L	8.2739 ppb	13:16:55
3	K 766.490 Radial†	962.0	-103.6	-54.436 µg/L	-54.436 ppb	13:16:35
3	Mg 279.077 IEC†	18.0	-8.7	-4.7080 µg/L	-4.7080 ppb	13:16:55
3	Na 589.592 Radial†	46.1	6.6	1.1004 µg/L	1.1004 ppb	13:16:35
3	Sr 421.552†	-418.6	38.4	0.1112 µg/L	0.1112 ppb	13:16:55
3	Sc 361.383	1332331.6	1332331.6	100.08 %		13:17:47
3	Y 371.029	719168.8	719168.8	99.272 %		13:17:47
3	Ag 328.068†	-1848.0	44.4	0.2311 µg/L	0.2311 ppb	13:17:49
3	As 188.979†	-29.3	0.7	0.3824 µg/L	0.3824 ppb	13:18:09
3	B 249.677†	856.9	-28.7	-0.4068 µg/L	-0.4068 ppb	13:17:49
3	Ba 233.527†	-241.0	-0.1	-0.0006 µg/L	-0.0006 ppb	13:18:09
3	Be 313.107†	-2661.4	996.8	0.2707 µg/L	0.2707 ppb	13:17:49
3	Cd 226.502†	-144.1	36.0	0.2715 µg/L	0.2715 ppb	13:18:09
3	Co 228.616†	-99.1	-7.5	-0.1108 µg/L	-0.1108 ppb	13:18:09
3	Cr 267.716†	125.6	-3.5	-0.0382 µg/L	-0.0382 ppb	13:18:09
3	Cu 324.752†	5596.3	-185.3	-0.8198 µg/L	-0.8198 ppb	13:17:49
3	Mn 257.610†	242.4	90.2	0.1583 µg/L	0.1583 ppb	13:18:09
3	Mo 202.031†	-15.4	14.4	0.7485 µg/L	0.7485 ppb	13:18:09
3	Ni 231.604†	-148.8	49.1	0.7803 µg/L	0.7803 ppb	13:18:09
3	P 214.914†	-84.6	10.5	3.7884 µg/L	3.7884 ppb	13:18:09
3	Pb 220.353†	89.3	15.5	1.5728 µg/L	1.5728 ppb	13:18:09
3	S 181.975 Axial†	97.6	-5.1	-5.7251 µg/L	-5.7251 ppb	13:18:09
3	Sb 206.836†	60.6	16.2	3.1319 µg/L	3.1319 ppb	13:18:09
3	Se 196.026†	13.5	5.5	2.86 µg/L	2.86 ppb	13:18:09
3	SiO2†	2924.2	-98.0	-10.848 µg/L	-10.848 ppb	13:17:49
3	Si 251.611†	595.7	10.7	0.1824 µg/L	0.1824 ppb	13:17:49
3	Sn 189.927†	-26.2	1.3	0.1690 µg/L	0.1690 ppb	13:18:09
3	Ti 334.940†	-479.4	410.3	0.5849 µg/L	0.5849 ppb	13:17:49
3	Tl 190.801†	-64.4	21.7	6.6706 µg/L	6.6706 ppb	13:18:09
3	U 367.007†	-310.0	-25.6	-3.1912 µg/L	-3.1912 ppb	13:17:49
3	V 292.402†	152.6	49.2	0.2197 µg/L	0.2197 ppb	13:17:49
3	Zn 213.857†	35.9	-10.7	-0.0603 µg/L	-0.0603 ppb	13:18:09

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1338450.0	100.54	%	1.020				1.01%
Sc RADIAL	72000.1	99.9	%	0.50				0.50%
Y 371.029	722728.4	99.763	%	1.0500				1.05%
Ag 328.068†	86.7	0.4481	µg/L	0.27697	0.4481	ppb	0.27697	61.82%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	19.5	7.1296	µg/L	8.06974	7.1296	ppb	8.06974	113.19%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-2.1	-1.1446	µg/L	1.32583	-1.1446	ppb	1.32583	115.83%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-52.1	-0.7441	µg/L	0.44919	-0.7441	ppb	0.44919	60.37%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	5.5	0.0487	µg/L	0.04346	0.0487	ppb	0.04346	89.21%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	937.5	0.2544	µg/L	0.01539	0.2544	ppb	0.01539	6.05%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	107.6	11.983	µg/L	1.0707	11.983	ppb	1.0707	8.94%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	35.9	0.2706	µg/L	0.07164	0.2706	ppb	0.07164	26.47%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	-6.8	-0.1008	µg/L	0.14674	-0.1008	ppb	0.14674	145.64%

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   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†                6.9      0.0811 µg/L       0.11465      0.0811 ppb        0.11465 141.29%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -306.2     -1.3510 µg/L       0.64982     -1.3510 ppb        0.64982  48.10%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         76.9      7.2765 µg/L       0.99832      7.2765 ppb        0.99832  13.72%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         -87.3     -45.889 µg/L       14.9517     -45.889 ppb        14.9517  32.58%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -9.1     -4.9159 µg/L       0.20685     -4.9159 ppb        0.20685   4.21%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               70.6      0.1239 µg/L       0.03005      0.1239 ppb        0.03005  24.26%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               13.5      0.6993 µg/L       0.09672      0.6993 ppb        0.09672  13.83%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        62.6      10.434 µg/L       10.4314      10.434 ppb        10.4314  99.98%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               24.9      0.3956 µg/L       0.34853      0.3956 ppb        0.34853  88.09%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                20.2      7.2644 µg/L       3.10373      7.2644 ppb        3.10373  42.73%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                9.9      1.0018 µg/L       0.95409      1.0018 ppb        0.95409  95.24%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -8.7     -9.7608 µg/L       5.79128     -9.7608 ppb        5.79128  59.33%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               15.8      3.0599 µg/L       0.71944      3.0599 ppb        0.71944  23.51%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -0.2      -0.125 µg/L        4.6752      -0.125 ppb         4.6752 >999.9%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -127.9     -14.160 µg/L        6.3939     -14.160 ppb        6.3939  45.15%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               41.5      0.7047 µg/L       1.20726      0.7047 ppb        1.20726 171.31%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                6.0      0.7661 µg/L       0.52592      0.7661 ppb        0.52592  68.65%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               49.0      0.1418 µg/L       0.03494      0.1418 ppb        0.03494  24.63%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              306.0      0.4352 µg/L       0.19151      0.4352 ppb        0.19151  44.01%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               14.7      4.5262 µg/L       2.55900      4.5262 ppb        2.55900  56.54%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                -2.2     -0.3166 µg/L      13.98520     -0.3166 ppb       13.98520 >999.9%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               -33.9     -0.1515 µg/L       0.32146     -0.1515 ppb        0.32146 212.22%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -17.1     -0.0959 µg/L       0.03581     -0.0959 ppb        0.03581  37.32%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 3 **Autosampler Location: 349**
Sample ID: 409254011|1611117|10 **Date Collected: 11/11/2016 13:18:17**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254011|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70635.4	70635.4	98.1	%			13:18:45
1	Al 396.153Radial†	7956.1	8012.4	2957.2	µg/L	2957.2	ppb	13:18:45
1	Ca 317.933Radial†	1620497.3	1652329.0	183940	µg/L	183940	ppb	13:18:43
1	Fe 238.204 Radial†	109801.4	112499.6	10642	µg/L	10642	ppb	13:18:45
1	K 766.490 Radial†	2397.8	1375.2	712.45	µg/L	712.45	ppb	13:18:45
1	Mg 279.077 IEC†	8980.5	9132.0	4926.8	µg/L	4926.8	ppb	13:18:45
1	Na 589.592 Radial†	2286.8	2292.5	382.28	µg/L	382.28	ppb	13:18:45
1	Sr 421.552†	140713.9	143966.8	411.34	µg/L	411.34	ppb	13:18:43
1	Sc 361.383	1313485.6	1313485.6	98.669	%			13:18:57
1	Y 371.029	707905.5	707905.5	97.717	%			13:18:57
1	Ag 328.068†	-2030.6	-167.1	-1.8388	µg/L	-1.8388	ppb	13:18:57
1	As 188.979†	-23.7	5.9	4.5895	µg/L	4.5895	ppb	13:19:17
1	B 249.677†	555.1	-322.2	3.1723	µg/L	3.1723	ppb	13:18:57
1	Ba 233.527†	9491.8	9860.7	87.976	µg/L	87.976	ppb	13:19:17
1	Be 313.107†	-2135.7	1491.4	-1.7240	µg/L	-1.7240	ppb	13:18:57
1	Cd 226.502†	17.9	198.2	0.2809	µg/L	0.2809	ppb	13:19:17
1	Co 228.616†	173.0	266.8	3.9362	µg/L	3.9362	ppb	13:19:17
1	Cr 267.716†	804.3	686.1	8.1550	µg/L	8.1550	ppb	13:19:17
1	Cu 324.752†	9363.8	3713.3	17.199	µg/L	17.199	ppb	13:18:57
1	Mn 257.610†	167545.0	169653.1	297.16	µg/L	297.16	ppb	13:18:57
1	Mo 202.031†	-21.3	8.1	0.7323	µg/L	0.7323	ppb	13:19:17
1	Ni 231.604†	596.4	802.2	12.753	µg/L	12.753	ppb	13:19:17
1	P 214.914†	797.6	903.5	325.09	µg/L	325.09	ppb	13:19:17
1	Pb 220.353†	1096.7	1037.8	104.99	µg/L	104.99	ppb	13:19:17
1	S 181.975 Axial†	4731.7	4692.9	5236.3	µg/L	5236.3	ppb	13:19:17
1	Sb 206.836†	68.8	25.4	3.7436	µg/L	3.7436	ppb	13:19:17
1	Se 196.026†	-6.2	-14.3	-2.60	µg/L	-2.60	ppb	13:19:17
1	SiO2†	52324.5	50010.6	5535.0	µg/L	5535.0	ppb	13:18:57
1	Si 251.611†	151298.5	152755.0	2591.3	µg/L	2591.3	ppb	13:18:57
1	Sn 189.927†	-40.6	-13.7	-1.7403	µg/L	-1.7403	ppb	13:19:17
1	Ti 334.940†	69677.3	71506.5	103.89	µg/L	103.89	ppb	13:18:57
1	Tl 190.801†	-81.9	3.0	1.1074	µg/L	1.1074	ppb	13:19:17
1	U 367.007†	419.4	709.3	13.238	µg/L	13.238	ppb	13:18:57
1	V 292.402†	2273.4	2200.7	10.617	µg/L	10.617	ppb	13:18:57
1	Zn 213.857†	10169.8	10260.5	56.808	µg/L	56.808	ppb	13:19:17
2	Sc RADIAL	69410.6	69410.6	96.4	%			13:18:50
2	Al 396.153Radial†	7852.6	8048.2	2970.2	µg/L	2970.2	ppb	13:18:50
2	Ca 317.933Radial†	1589300.3	1649114.1	183580	µg/L	183580	ppb	13:18:48
2	Fe 238.204 Radial†	108720.2	113353.5	10723	µg/L	10723	ppb	13:18:50
2	K 766.490 Radial†	2285.0	1301.3	673.66	µg/L	673.66	ppb	13:18:50
2	Mg 279.077 IEC†	8820.9	9128.0	4924.7	µg/L	4924.7	ppb	13:18:50
2	Na 589.592 Radial†	2310.7	2358.4	393.27	µg/L	393.27	ppb	13:18:50
2	Sr 421.552†	138388.2	144085.4	411.70	µg/L	411.70	ppb	13:18:48
2	Sc 361.383	1292261.3	1292261.3	97.075	%			13:19:20
2	Y 371.029	696455.0	696455.0	96.136	%			13:19:20
2	Ag 328.068†	-2002.0	-171.5	-1.8431	µg/L	-1.8431	ppb	13:19:20
2	As 188.979†	-21.5	7.8	5.6281	µg/L	5.6281	ppb	13:19:40
2	B 249.677†	431.7	-440.1	1.5361	µg/L	1.5361	ppb	13:19:20
2	Ba 233.527†	9512.3	10039.8	89.573	µg/L	89.573	ppb	13:19:40
2	Be 313.107†	-2332.4	1253.2	-1.8348	µg/L	-1.8348	ppb	13:19:20
2	Cd 226.502†	21.2	201.8	0.2994	µg/L	0.2994	ppb	13:19:40
2	Co 228.616†	150.3	246.3	3.6330	µg/L	3.6330	ppb	13:19:40
2	Cr 267.716†	782.0	676.6	8.0606	µg/L	8.0606	ppb	13:19:40
2	Cu 324.752†	9089.7	3586.7	16.632	µg/L	16.632	ppb	13:19:20
2	Mn 257.610†	166375.8	171237.6	299.94	µg/L	299.94	ppb	13:19:20
2	Mo 202.031†	-26.5	2.4	0.4398	µg/L	0.4398	ppb	13:19:40
2	Ni 231.604†	608.8	824.9	13.114	µg/L	13.114	ppb	13:19:40
2	P 214.914†	782.1	900.7	324.10	µg/L	324.10	ppb	13:19:40
2	Pb 220.353†	1139.5	1100.1	111.32	µg/L	111.32	ppb	13:19:40

2	S 181.975 Axial†	4762.5	4803.3	5359.6 µg/L	5359.6 ppb		13:19:40
2	Sb 206.836†	78.0	36.1	5.7965 µg/L	5.7965 ppb		13:19:40
2	Se 196.026†	-8.6	-16.9	-3.94 µg/L	-3.94 ppb		13:19:40
2	SiO2†	51871.5	50414.9	5579.8 µg/L	5579.8 ppb		13:19:20
2	Si 251.611†	149417.8	153336.1	2601.2 µg/L	2601.2 ppb		13:19:20
2	Sn 189.927†	-46.2	-20.1	-2.5550 µg/L	-2.5550 ppb		13:19:40
2	Ti 334.940†	69041.1	72011.0	104.61 µg/L	104.61 ppb		13:19:20
2	Tl 190.801†	-74.3	9.5	3.1104 µg/L	3.1104 ppb		13:19:40
2	U 367.007†	267.9	560.2	-5.5173 µg/L	-5.5173 ppb		13:19:20
2	V 292.402†	2208.0	2171.2	10.483 µg/L	10.483 ppb		13:19:20
2	Zn 213.857†	10233.2	10495.0	58.131 µg/L	58.131 ppb		13:19:40
3	Sc RADIAL	72192.9	72192.9	100 %			13:18:54
3	Al 396.153Radial†	8026.9	7908.0	2918.5 µg/L	2918.5 ppb		13:18:54
3	Ca 317.933Radial†	1627949.4	1624108.9	180800 µg/L	180800 ppb		13:18:52
3	Fe 238.204 Radial†	112679.4	112955.4	10685 µg/L	10685 ppb		13:18:54
3	K 766.490 Radial†	2320.8	1245.6	644.63 µg/L	644.63 ppb		13:18:54
3	Mg 279.077 IEC†	9072.9	9026.6	4870.1 µg/L	4870.1 ppb		13:18:54
3	Na 589.592 Radial†	2408.8	2363.9	394.19 µg/L	394.19 ppb		13:18:54
3	Sr 421.552†	141161.4	141317.2	403.76 µg/L	403.76 ppb		13:18:52
3	Sc 361.383	1294559.6	1294559.6	97.247 %			13:19:42
3	Y 371.029	697517.5	697517.5	96.283 %			13:19:42
3	Ag 328.068†	-1876.1	-38.3	-1.1338 µg/L	-1.1338 ppb		13:19:42
3	As 188.979†	-24.6	4.7	3.9144 µg/L	3.9144 ppb		13:20:02
3	B 249.677†	517.2	-353.0	2.7615 µg/L	2.7615 ppb		13:19:42
3	Ba 233.527†	9615.6	10128.6	90.365 µg/L	90.365 ppb		13:20:02
3	Be 313.107†	-2272.1	1319.5	-1.8368 µg/L	-1.8368 ppb		13:19:42
3	Cd 226.502†	36.6	217.7	0.4235 µg/L	0.4235 ppb		13:20:02
3	Co 228.616†	162.1	258.2	3.8109 µg/L	3.8109 ppb		13:20:02
3	Cr 267.716†	799.2	692.9	8.2533 µg/L	8.2533 ppb		13:20:02
3	Cu 324.752†	9133.6	3615.2	16.753 µg/L	16.753 ppb		13:19:42
3	Mn 257.610†	166815.6	171385.6	300.20 µg/L	300.20 ppb		13:19:42
3	Mo 202.031†	-11.6	17.8	1.2389 µg/L	1.2389 ppb		13:20:02
3	Ni 231.604†	642.1	858.0	13.640 µg/L	13.640 ppb		13:20:02
3	P 214.914†	799.5	917.2	330.05 µg/L	330.05 ppb		13:20:02
3	Pb 220.353†	1166.0	1125.3	113.86 µg/L	113.86 ppb		13:20:02
3	S 181.975 Axial†	4802.1	4835.3	5395.3 µg/L	5395.3 ppb		13:20:02
3	Sb 206.836†	58.8	16.2	1.9524 µg/L	1.9524 ppb		13:20:02
3	Se 196.026†	-5.2	-13.4	-2.11 µg/L	-2.11 ppb		13:20:02
3	SiO2†	52191.1	50648.7	5605.7 µg/L	5605.7 ppb		13:19:42
3	Si 251.611†	150035.3	153697.8	2607.3 µg/L	2607.3 ppb		13:19:42
3	Sn 189.927†	-41.0	-14.6	-1.8607 µg/L	-1.8607 ppb		13:20:02
3	Ti 334.940†	69470.1	72325.8	105.02 µg/L	105.02 ppb		13:19:42
3	Tl 190.801†	-65.8	18.4	5.8390 µg/L	5.8390 ppb		13:20:02
3	U 367.007†	256.4	547.8	-6.5843 µg/L	-6.5843 ppb		13:19:42
3	V 292.402†	2194.0	2152.8	10.398 µg/L	10.398 ppb		13:19:42
3	Zn 213.857†	10351.6	10598.1	58.722 µg/L	58.722 ppb		13:20:02

Mean Data: 409254011|1611117|10

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1300102.2	97.664	%	0.8749				0.90%
Sc RADIAL	70746.3	98.2	%	1.94				1.97%
Y 371.029	700626.0	96.712	%	0.8733				0.90%
Ag 328.068†	-125.6	-1.6052	µg/L	0.40828	-1.6052	ppb	0.40828	25.43%
Al 396.153Radial†	7989.5	2948.7	µg/L	26.88	2948.7	ppb	26.88	0.91%
As 188.979†	6.1	4.7106	µg/L	0.86327	4.7106	ppb	0.86327	18.33%
B 249.677†	-371.8	2.4900	µg/L	0.85123	2.4900	ppb	0.85123	34.19%
Ba 233.527†	10009.7	89.305	µg/L	1.2169	89.305	ppb	1.2169	1.36%
Be 313.107†	1354.7	-1.7985	µg/L	0.06457	-1.7985	ppb	0.06457	3.59%
Ca 317.933Radial†	1641850.7	182770	µg/L	1719.8	182770	ppb	1719.8	0.94%
Cd 226.502†	205.9	0.3346	µg/L	0.07754	0.3346	ppb	0.07754	23.17%
Co 228.616†	257.1	3.7933	µg/L	0.15236	3.7933	ppb	0.15236	4.02%
Cr 267.716†	685.2	8.1563	µg/L	0.09639	8.1563	ppb	0.09639	1.18%
Cu 324.752†	3638.4	16.861	µg/L	0.2991	16.861	ppb	0.2991	1.77%
Fe 238.204 Radial†	112936.1	10683	µg/L	40.4	10683	ppb	40.4	0.38%
K 766.490 Radial†	1307.4	676.91	µg/L	34.024	676.91	ppb	34.024	5.03%
Mg 279.077 IEC†	9095.5	4907.2	µg/L	32.19	4907.2	ppb	32.19	0.66%
Mn 257.610†	170758.8	299.10	µg/L	1.684	299.10	ppb	1.684	0.56%
Mo 202.031†	9.5	0.8036	µg/L	0.40431	0.8036	ppb	0.40431	50.31%
Na 589.592 Radial†	2338.2	389.91	µg/L	6.626	389.91	ppb	6.626	1.70%

Ni 231.604†	828.3	13.169 µg/L	0.4461	13.169 ppb	0.4461	3.39%
P 214.914†	907.1	326.41 µg/L	3.191	326.41 ppb	3.191	0.98%
Pb 220.353†	1087.7	110.06 µg/L	4.569	110.06 ppb	4.569	4.15%
S 181.975 Axial†	4777.2	5330.4 µg/L	83.42	5330.4 ppb	83.42	1.56%
Sb 206.836†	25.9	3.8308 µg/L	1.92356	3.8308 ppb	1.92356	50.21%
Se 196.026†	-14.8	-2.88 µg/L	0.950	-2.88 ppb	0.950	32.97%
SiO2†	50358.0	5573.5 µg/L	35.73	5573.5 ppb	35.73	0.64%
Si 251.611†	153263.0	2599.9 µg/L	8.07	2599.9 ppb	8.07	0.31%
Sn 189.927†	-16.1	-2.0520 µg/L	0.43971	-2.0520 ppb	0.43971	21.43%
Sr 421.552†	143123.2	408.94 µg/L	4.482	408.94 ppb	4.482	1.10%
Ti 334.940†	71947.8	104.51 µg/L	0.575	104.51 ppb	0.575	0.55%
Tl 190.801†	10.3	3.3523 µg/L	2.37504	3.3523 ppb	2.37504	70.85%
U 367.007†	605.8	0.3787 µg/L	11.14907	0.3787 ppb	11.14907	>999.9%
V 292.402†	2174.9	10.499 µg/L	0.1105	10.499 ppb	0.1105	1.05%
Zn 213.857†	10451.2	57.887 µg/L	0.9801	57.887 ppb	0.9801	1.69%

Sequence No.: 4 **Autosampler Location: 350**
Sample ID: 409254012|1611117|10 **Date Collected: 11/11/2016 13:20:10**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254012|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71079.4	71079.4	98.7	%			13:20:35
1	Al 396.153Radial†	19200.9	19358.2	7070.1	µg/L	7070.1	ppb	13:20:35
1	Ca 317.933Radial†	152237.6	153947.3	17137	µg/L	17137	ppb	13:20:35
1	Fe 238.204 Radial†	172660.3	175506.6	16602	µg/L	16602	ppb	13:20:35
1	K 766.490 Radial†	3588.4	2566.6	1353.4	µg/L	1353.4	ppb	13:20:35
1	Mg 279.077 IEC†	16453.1	16648.2	8981.1	µg/L	8981.1	ppb	13:20:35
1	Na 589.592 Radial†	4163.5	4179.9	697.02	µg/L	697.02	ppb	13:20:35
1	Sr 421.552†	12972.9	13606.9	38.886	µg/L	38.886	ppb	13:20:35
1	Sc 361.383	1339598.4	1339598.4	100.63	%			13:20:43
1	Y 371.029	731229.2	731229.2	100.94	%			13:20:43
1	Ag 328.068†	-1854.3	48.2	1.0274	µg/L	1.0274	ppb	13:20:43
1	As 188.979†	-19.8	10.3	7.7142	µg/L	7.7142	ppb	13:21:03
1	B 249.677†	256.8	-629.7	3.1231	µg/L	3.1231	ppb	13:20:43
1	Ba 233.527†	26180.7	26257.4	234.21	µg/L	234.21	ppb	13:20:43
1	Be 313.107†	-849.8	2811.4	-4.9608	µg/L	-4.9608	ppb	13:20:43
1	Cd 226.502†	133.9	313.1	0.4679	µg/L	0.4679	ppb	13:21:03
1	Co 228.616†	520.3	608.5	9.1108	µg/L	9.1108	ppb	13:21:03
1	Cr 267.716†	1132.8	996.7	11.896	µg/L	11.896	ppb	13:21:03
1	Cu 324.752†	9091.3	3257.4	15.618	µg/L	15.618	ppb	13:20:43
1	Mn 257.610†	444349.0	441412.7	773.30	µg/L	773.30	ppb	13:20:43
1	Mo 202.031†	-49.6	-19.5	-0.5158	µg/L	-0.5158	ppb	13:21:03
1	Ni 231.604†	1226.2	1416.2	22.515	µg/L	22.515	ppb	13:21:03
1	P 214.914†	1647.8	1732.6	623.63	µg/L	623.63	ppb	13:21:03
1	Pb 220.353†	365.8	289.8	29.497	µg/L	29.497	ppb	13:21:03
1	S 181.975 Axial†	214.7	110.7	119.81	µg/L	119.81	ppb	13:21:03
1	Sb 206.836†	59.5	14.8	1.1084	µg/L	1.1084	ppb	13:21:03
1	Se 196.026†	-12.2	-20.1	-3.03	µg/L	-3.03	ppb	13:21:03
1	SiO2†	62013.4	58605.0	6486.2	µg/L	6486.2	ppb	13:20:43
1	Si 251.611†	180496.8	178781.3	3033.3	µg/L	3033.3	ppb	13:20:43
1	Sn 189.927†	-34.7	-7.0	-0.8749	µg/L	-0.8749	ppb	13:21:03
1	Ti 334.940†	155324.2	155240.2	220.83	µg/L	220.83	ppb	13:20:43
1	Tl 190.801†	-82.7	3.8	1.4631	µg/L	1.4631	ppb	13:21:03
1	U 367.007†	397.6	679.3	-8.1794	µg/L	-8.1794	ppb	13:20:43
1	V 292.402†	5555.2	5417.1	25.432	µg/L	25.432	ppb	13:20:43
1	Zn 213.857†	12412.0	12287.8	67.471	µg/L	67.471	ppb	13:20:43
2	Sc RADIAL	71315.6	71315.6	99.0	%			13:20:37
2	Al 396.153Radial†	19245.9	19339.1	7063.1	µg/L	7063.1	ppb	13:20:37
2	Ca 317.933Radial†	152222.3	153420.8	17079	µg/L	17079	ppb	13:20:37
2	Fe 238.204 Radial†	172757.7	175025.3	16557	µg/L	16557	ppb	13:20:37
2	K 766.490 Radial†	3387.4	2351.5	1240.3	µg/L	1240.3	ppb	13:20:37
2	Mg 279.077 IEC†	16432.8	16572.4	8940.2	µg/L	8940.2	ppb	13:20:37
2	Na 589.592 Radial†	4285.6	4289.2	715.25	µg/L	715.25	ppb	13:20:37
2	Sr 421.552†	12956.9	13547.2	38.715	µg/L	38.715	ppb	13:20:37
2	Sc 361.383	1351913.1	1351913.1	101.56	%			13:21:05
2	Y 371.029	737565.9	737565.9	101.81	%			13:21:05
2	Ag 328.068†	-1818.5	100.2	1.2911	µg/L	1.2911	ppb	13:21:05
2	As 188.979†	-18.5	11.8	8.5232	µg/L	8.5232	ppb	13:21:25
2	B 249.677†	181.9	-705.8	1.9951	µg/L	1.9951	ppb	13:21:05
2	Ba 233.527†	26435.2	26271.1	234.33	µg/L	234.33	ppb	13:21:05
2	Be 313.107†	-950.8	2719.7	-4.9870	µg/L	-4.9870	ppb	13:21:05
2	Cd 226.502†	174.4	351.8	0.7658	µg/L	0.7658	ppb	13:21:25
2	Co 228.616†	515.6	599.2	8.9732	µg/L	8.9732	ppb	13:21:25
2	Cr 267.716†	1130.7	984.4	11.746	µg/L	11.746	ppb	13:21:25
2	Cu 324.752†	9195.3	3277.5	15.708	µg/L	15.708	ppb	13:21:05
2	Mn 257.610†	449942.9	442898.6	775.91	µg/L	775.91	ppb	13:21:05
2	Mo 202.031†	-37.8	-7.5	0.1071	µg/L	0.1071	ppb	13:21:25
2	Ni 231.604†	1204.9	1384.1	22.005	µg/L	22.005	ppb	13:21:25
2	P 214.914†	1646.9	1716.8	617.93	µg/L	617.93	ppb	13:21:25
2	Pb 220.353†	385.9	306.2	31.153	µg/L	31.153	ppb	13:21:25

2	S 181.975 Axial†	199.6	93.9	101.07 µg/L	101.07 ppb	13:21:25
2	Sb 206.836†	62.9	17.7	1.6663 µg/L	1.6663 ppb	13:21:25
2	Se 196.026†	-1.7	-9.7	2.41 µg/L	2.41 ppb	13:21:25
2	SiO2†	63037.5	59052.1	6535.7 µg/L	6535.7 ppb	13:21:05
2	Si 251.611†	183038.4	179650.1	3048.1 µg/L	3048.1 ppb	13:21:05
2	Sn 189.927†	-30.8	-2.9	-0.3461 µg/L	-0.3461 ppb	13:21:25
2	Ti 334.940†	157517.4	155993.8	221.90 µg/L	221.90 ppb	13:21:05
2	Tl 190.801†	-93.9	-6.4	-1.6892 µg/L	-1.6892 ppb	13:21:25
2	U 367.007†	441.7	719.2	-3.0252 µg/L	-3.0252 ppb	13:21:05
2	V 292.402†	5595.8	5406.8	25.384 µg/L	25.384 ppb	13:21:05
2	Zn 213.857†	12468.2	12230.7	67.154 µg/L	67.154 ppb	13:21:05
3	Sc RADIAL	72465.1	72465.1	101 %		13:20:39
3	Al 396.153Radial†	19601.6	19384.4	7079.6 µg/L	7079.6 ppb	13:20:39
3	Ca 317.933Radial†	154569.3	153314.9	17067 µg/L	17067 ppb	13:20:39
3	Fe 238.204 Radial†	175525.0	175008.2	16555 µg/L	16555 ppb	13:20:39
3	K 766.490 Radial†	3526.8	2435.8	1284.6 µg/L	1284.6 ppb	13:20:39
3	Mg 279.077 IEC†	16667.9	16542.8	8924.2 µg/L	8924.2 ppb	13:20:39
3	Na 589.592 Radial†	4199.5	4135.0	689.52 µg/L	689.52 ppb	13:20:39
3	Sr 421.552†	13280.2	13660.9	39.045 µg/L	39.045 ppb	13:20:39
3	Sc 361.383	1341409.8	1341409.8	100.77 %		13:21:27
3	Y 371.029	731278.6	731278.6	100.94 %		13:21:27
3	Ag 328.068†	-1995.0	-89.0	0.3096 µg/L	0.3096 ppb	13:21:27
3	As 188.979†	-9.9	20.1	13.072 µg/L	13.072 ppb	13:21:48
3	B 249.677†	174.9	-711.3	1.9147 µg/L	1.9147 ppb	13:21:27
3	Ba 233.527†	26283.4	26324.2	234.81 µg/L	234.81 ppb	13:21:27
3	Be 313.107†	-893.4	2769.3	-4.9819 µg/L	-4.9819 ppb	13:21:27
3	Cd 226.502†	183.6	362.2	0.8447 µg/L	0.8447 ppb	13:21:48
3	Co 228.616†	541.7	629.1	9.4174 µg/L	9.4174 ppb	13:21:48
3	Cr 267.716†	1160.0	1022.2	12.182 µg/L	12.182 ppb	13:21:48
3	Cu 324.752†	9228.0	3380.9	16.171 µg/L	16.171 ppb	13:21:27
3	Mn 257.610†	447123.1	443569.4	777.08 µg/L	777.08 ppb	13:21:27
3	Mo 202.031†	-29.3	0.6	0.5294 µg/L	0.5294 ppb	13:21:48
3	Ni 231.604†	1213.3	1401.8	22.286 µg/L	22.286 ppb	13:21:48
3	P 214.914†	1661.1	1743.6	627.60 µg/L	627.60 ppb	13:21:48
3	Pb 220.353†	364.2	287.7	29.268 µg/L	29.268 ppb	13:21:48
3	S 181.975 Axial†	195.2	91.0	97.812 µg/L	97.812 ppb	13:21:48
3	Sb 206.836†	58.6	13.9	0.9295 µg/L	0.9295 ppb	13:21:48
3	Se 196.026†	-8.6	-16.5	-1.16 µg/L	-1.16 ppb	13:21:48
3	SiO2†	62485.4	58990.2	6528.9 µg/L	6528.9 ppb	13:21:27
3	Si 251.611†	181543.8	179578.1	3046.8 µg/L	3046.8 ppb	13:21:27
3	Sn 189.927†	-28.9	-1.2	-0.1330 µg/L	-0.1330 ppb	13:21:48
3	Ti 334.940†	156551.2	156249.4	222.26 µg/L	222.26 ppb	13:21:27
3	Tl 190.801†	-84.4	2.3	0.9905 µg/L	0.9905 ppb	13:21:48
3	U 367.007†	511.7	792.1	5.9534 µg/L	5.9534 ppb	13:21:27
3	V 292.402†	5510.7	5365.4	25.202 µg/L	25.202 ppb	13:21:27
3	Zn 213.857†	12499.1	12357.5	67.874 µg/L	67.874 ppb	13:21:27

Mean Data: 409254012|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1344307.1	100.98	%	0.499				0.49%
Sc RADIAL	71620.0	99.4	%	1.03				1.04%
Y 371.029	733357.9	101.23	%	0.503				0.50%
Ag 328.068†	19.8	0.8760	µg/L	0.50794	0.8760	ppb	0.50794	57.98%
Al 396.153Radial†	19360.6	7070.9	µg/L	8.30	7070.9	ppb	8.30	0.12%
As 188.979†	14.1	9.7699	µg/L	2.88837	9.7699	ppb	2.88837	29.56%
B 249.677†	-682.2	2.3443	µg/L	0.67565	2.3443	ppb	0.67565	28.82%
Ba 233.527†	26284.2	234.45	µg/L	0.314	234.45	ppb	0.314	0.13%
Be 313.107†	2766.8	-4.9766	µg/L	0.01390	-4.9766	ppb	0.01390	0.28%
Ca 317.933Radial†	153561.0	17094	µg/L	37.7	17094	ppb	37.7	0.22%
Cd 226.502†	342.3	0.6928	µg/L	0.19873	0.6928	ppb	0.19873	28.69%
Co 228.616†	612.3	9.1671	µg/L	0.22738	9.1671	ppb	0.22738	2.48%
Cr 267.716†	1001.1	11.941	µg/L	0.2218	11.941	ppb	0.2218	1.86%
Cu 324.752†	3305.3	15.832	µg/L	0.2966	15.832	ppb	0.2966	1.87%
Fe 238.204 Radial†	175180.1	16571	µg/L	26.8	16571	ppb	26.8	0.16%
K 766.490 Radial†	2451.3	1292.8	µg/L	56.97	1292.8	ppb	56.97	4.41%
Mg 279.077 IEC†	16587.8	8948.5	µg/L	29.32	8948.5	ppb	29.32	0.33%
Mn 257.610†	442626.9	775.43	µg/L	1.936	775.43	ppb	1.936	0.25%
Mo 202.031†	-8.8	0.0402	µg/L	0.52581	0.0402	ppb	0.52581	>999.9%
Na 589.592 Radial†	4201.4	700.60	µg/L	13.230	700.60	ppb	13.230	1.89%

Ni 231.604†	1400.7	22.269 µg/L	0.2555	22.269 ppb	0.2555	1.15%
P 214.914†	1731.0	623.05 µg/L	4.860	623.05 ppb	4.860	0.78%
Pb 220.353†	294.6	29.972 µg/L	1.0285	29.972 ppb	1.0285	3.43%
S 181.975 Axial†	98.5	106.23 µg/L	11.874	106.23 ppb	11.874	11.18%
Sb 206.836†	15.5	1.2348 µg/L	0.38428	1.2348 ppb	0.38428	31.12%
Se 196.026†	-15.5	-0.591 µg/L	2.7630	-0.591 ppb	2.7630	467.37%
SiO2†	58882.4	6516.9 µg/L	26.81	6516.9 ppb	26.81	0.41%
Si 251.611†	179336.5	3042.7 µg/L	8.17	3042.7 ppb	8.17	0.27%
Sn 189.927†	-3.7	-0.4513 µg/L	0.38199	-0.4513 ppb	0.38199	84.64%
Sr 421.552†	13605.0	38.882 µg/L	0.1653	38.882 ppb	0.1653	0.43%
Ti 334.940†	155827.8	221.66 µg/L	0.742	221.66 ppb	0.742	0.33%
Tl 190.801†	-0.1	0.2548 µg/L	1.70007	0.2548 ppb	1.70007	667.25%
U 367.007†	730.2	-1.7504 µg/L	7.15213	-1.7504 ppb	7.15213	408.60%
V 292.402†	5396.4	25.339 µg/L	0.1209	25.339 ppb	0.1209	0.48%
Zn 213.857†	12292.0	67.499 µg/L	0.3607	67.499 ppb	0.3607	0.53%

Sequence No.: 5 **Autosampler Location: 351**
Sample ID: 409254013|1611117|10 **Date Collected: 11/11/2016 13:21:56**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254013|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	72192.3	72192.3	100	%			13:22:23
1	Al 396.153Radial†	18313.2	18172.4	6637.0	µg/L	6637.0	ppb	13:22:23
1	Ca 317.933Radial†	145315.0	144660.9	16104	µg/L	16104	ppb	13:22:23
1	Fe 238.204 Radial†	148107.8	148309.0	14029	µg/L	14029	ppb	13:22:21
1	K 766.490 Radial†	3602.8	2524.8	1330.6	µg/L	1330.6	ppb	13:22:23
1	Mg 279.077 IEC†	9264.8	9218.2	4974.4	µg/L	4974.4	ppb	13:22:23
1	Na 589.592 Radial†	801.6	760.1	126.76	µg/L	126.76	ppb	13:22:23
1	Sr 421.552†	18572.1	18991.4	54.544	µg/L	54.544	ppb	13:22:23
1	Sc 361.383	1348076.2	1348076.2	101.27	%			13:22:34
1	Y 371.029	734136.1	734136.1	101.34	%			13:22:34
1	Ag 328.068†	-2107.6	-190.4	-0.3364	µg/L	-0.3364	ppb	13:22:34
1	As 188.979†	-14.2	15.9	10.473	µg/L	10.473	ppb	13:22:55
1	B 249.677†	367.0	-522.5	2.7769	µg/L	2.7769	ppb	13:22:34
1	Ba 233.527†	17304.9	17329.1	154.59	µg/L	154.59	ppb	13:22:34
1	Be 313.107†	-1214.7	2456.4	-3.1056	µg/L	-3.1056	ppb	13:22:34
1	Cd 226.502†	103.1	281.9	0.5261	µg/L	0.5261	ppb	13:22:55
1	Co 228.616†	345.6	432.8	6.4392	µg/L	6.4392	ppb	13:22:55
1	Cr 267.716†	1009.6	868.0	10.373	µg/L	10.373	ppb	13:22:55
1	Cu 324.752†	8743.8	2857.4	13.624	µg/L	13.624	ppb	13:22:34
1	Mn 257.610†	272148.3	268590.2	470.56	µg/L	470.56	ppb	13:22:34
1	Mo 202.031†	-37.2	-7.0	0.0317	µg/L	0.0317	ppb	13:22:55
1	Ni 231.604†	813.0	1000.5	15.906	µg/L	15.906	ppb	13:22:55
1	P 214.914†	1912.3	1983.5	714.18	µg/L	714.18	ppb	13:22:55
1	Pb 220.353†	183.7	107.6	11.101	µg/L	11.101	ppb	13:22:55
1	S 181.975 Axial†	409.4	301.6	333.43	µg/L	333.43	ppb	13:22:55
1	Sb 206.836†	44.1	-0.7	-1.6134	µg/L	-1.6134	ppb	13:22:55
1	Se 196.026†	-7.1	-15.0	-1.54	µg/L	-1.54	ppb	13:22:55
1	SiO2†	64780.3	60949.7	6745.7	µg/L	6745.7	ppb	13:22:34
1	Si 251.611†	188391.8	185449.5	3146.1	µg/L	3146.1	ppb	13:22:34
1	Sn 189.927†	-17.1	10.6	1.3802	µg/L	1.3802	ppb	13:22:55
1	Ti 334.940†	91203.0	90950.8	129.44	µg/L	129.44	ppb	13:22:34
1	Tl 190.801†	-96.3	-9.1	-2.5434	µg/L	-2.5434	ppb	13:22:55
1	U 367.007†	267.4	548.2	-10.230	µg/L	-10.230	ppb	13:22:34
1	V 292.402†	4545.3	4385.1	20.627	µg/L	20.627	ppb	13:22:34
1	Zn 213.857†	11239.4	11052.3	60.938	µg/L	60.938	ppb	13:22:55
2	Sc RADIAL	71075.5	71075.5	98.7	%			13:22:27
2	Al 396.153Radial†	18052.9	18195.7	6645.5	µg/L	6645.5	ppb	13:22:27
2	Ca 317.933Radial†	141869.3	143447.1	15969	µg/L	15969	ppb	13:22:27
2	Fe 238.204 Radial†	146858.0	149364.6	14129	µg/L	14129	ppb	13:22:25
2	K 766.490 Radial†	3650.7	2629.9	1385.9	µg/L	1385.9	ppb	13:22:27
2	Mg 279.077 IEC†	9144.6	9241.6	4987.1	µg/L	4987.1	ppb	13:22:27
2	Na 589.592 Radial†	1062.9	1037.6	173.02	µg/L	173.02	ppb	13:22:27
2	Sr 421.552†	18319.2	19026.3	54.650	µg/L	54.650	ppb	13:22:27
2	Sc 361.383	1347077.4	1347077.4	101.19	%			13:22:57
2	Y 371.029	733242.9	733242.9	101.21	%			13:22:57
2	Ag 328.068†	-2001.7	-87.3	0.2029	µg/L	0.2029	ppb	13:22:57
2	As 188.979†	-16.7	13.5	9.1392	µg/L	9.1392	ppb	13:23:17
2	B 249.677†	579.1	-312.6	5.8686	µg/L	5.8686	ppb	13:22:57
2	Ba 233.527†	17315.8	17352.5	154.80	µg/L	154.80	ppb	13:22:57
2	Be 313.107†	-1048.4	2619.8	-3.0663	µg/L	-3.0663	ppb	13:22:57
2	Cd 226.502†	68.6	247.8	0.2567	µg/L	0.2567	ppb	13:23:17
2	Co 228.616†	346.8	434.2	6.4585	µg/L	6.4585	ppb	13:23:17
2	Cr 267.716†	1017.4	876.4	10.473	µg/L	10.473	ppb	13:23:17
2	Cu 324.752†	8654.6	2775.7	13.269	µg/L	13.269	ppb	13:22:57
2	Mn 257.610†	272636.6	269272.0	471.75	µg/L	471.75	ppb	13:22:57
2	Mo 202.031†	-22.0	8.0	0.8116	µg/L	0.8116	ppb	13:23:17
2	Ni 231.604†	825.9	1013.9	16.119	µg/L	16.119	ppb	13:23:17
2	P 214.914†	1937.7	2010.0	723.73	µg/L	723.73	ppb	13:23:17
2	Pb 220.353†	201.0	124.9	12.849	µg/L	12.849	ppb	13:23:17

2	S 181.975 Axial†	418.1	310.5	343.44 µg/L	343.44 ppb	13:23:17
2	Sb 206.836†	50.3	5.4	-0.4315 µg/L	-0.4315 ppb	13:23:17
2	Se 196.026†	0.4	-7.6	2.38 µg/L	2.38 ppb	13:23:17
2	SiO2†	64887.5	61103.2	6762.7 µg/L	6762.7 ppb	13:22:57
2	Si 251.611†	189040.9	186228.9	3159.3 µg/L	3159.3 ppb	13:22:57
2	Sn 189.927†	-25.3	2.5	0.3424 µg/L	0.3424 ppb	13:23:17
2	Ti 334.940†	91568.2	91378.5	130.05 µg/L	130.05 ppb	13:22:57
2	Tl 190.801†	-84.6	2.5	1.0049 µg/L	1.0049 ppb	13:23:17
2	U 367.007†	265.3	546.4	-10.985 µg/L	-10.985 ppb	13:22:57
2	V 292.402†	4583.8	4426.4	20.819 µg/L	20.819 ppb	13:22:57
2	Zn 213.857†	11393.9	11213.2	61.839 µg/L	61.839 ppb	13:23:17
3	Sc RADIAL	72479.0	72479.0	101 %		13:22:31
3	Al 396.153Radial†	18329.4	18116.2	6616.5 µg/L	6616.5 ppb	13:22:31
3	Ca 317.933Radial†	145171.5	143944.8	16024 µg/L	16024 ppb	13:22:31
3	Fe 238.204 Radial†	146688.0	146313.3	13841 µg/L	13841 ppb	13:22:29
3	K 766.490 Radial†	3726.9	2634.0	1387.9 µg/L	1387.9 ppb	13:22:31
3	Mg 279.077 IEC†	9320.4	9236.9	4984.5 µg/L	4984.5 ppb	13:22:31
3	Na 589.592 Radial†	848.1	803.2	133.93 µg/L	133.93 ppb	13:22:31
3	Sr 421.552†	18501.0	18847.5	54.129 µg/L	54.129 ppb	13:22:31
3	Sc 361.383	1298260.6	1298260.6	97.525 %		13:23:19
3	Y 371.029	706854.5	706854.5	97.572 %		13:23:19
3	Ag 328.068†	-1796.7	48.5	0.8697 µg/L	0.8697 ppb	13:23:19
3	As 188.979†	-16.1	13.4	9.0923 µg/L	9.0923 ppb	13:23:39
3	B 249.677†	527.5	-344.0	5.2054 µg/L	5.2054 ppb	13:23:19
3	Ba 233.527†	16823.7	17491.4	156.03 µg/L	156.03 ppb	13:23:19
3	Be 313.107†	-1046.7	2582.6	-3.0964 µg/L	-3.0964 ppb	13:23:19
3	Cd 226.502†	89.3	271.6	0.4704 µg/L	0.4704 ppb	13:23:39
3	Co 228.616†	338.9	439.1	6.5357 µg/L	6.5357 ppb	13:23:39
3	Cr 267.716†	1017.5	914.3	10.888 µg/L	10.888 ppb	13:23:39
3	Cu 324.752†	8333.7	2768.2	13.241 µg/L	13.241 ppb	13:23:19
3	Mn 257.610†	265691.8	272281.8	477.02 µg/L	477.02 ppb	13:23:19
3	Mo 202.031†	-31.1	-2.1	0.2794 µg/L	0.2794 ppb	13:23:39
3	Ni 231.604†	812.1	1030.4	16.382 µg/L	16.382 ppb	13:23:39
3	P 214.914†	1906.2	2049.7	738.07 µg/L	738.07 ppb	13:23:39
3	Pb 220.353†	173.8	104.5	10.748 µg/L	10.748 ppb	13:23:39
3	S 181.975 Axial†	418.9	326.9	361.74 µg/L	361.74 ppb	13:23:39
3	Sb 206.836†	60.5	17.8	1.9714 µg/L	1.9714 ppb	13:23:39
3	Se 196.026†	-0.0	-8.1	2.05 µg/L	2.05 ppb	13:23:39
3	SiO2†	63498.4	62089.9	6871.9 µg/L	6871.9 ppb	13:23:19
3	Si 251.611†	184418.1	188513.3	3198.0 µg/L	3198.0 ppb	13:23:19
3	Sn 189.927†	-32.9	-6.2	-0.7744 µg/L	-0.7744 ppb	13:23:39
3	Ti 334.940†	89433.2	92591.8	131.76 µg/L	131.76 ppb	13:23:19
3	Tl 190.801†	-93.6	-9.9	-2.8002 µg/L	-2.8002 ppb	13:23:39
3	U 367.007†	485.4	782.0	19.556 µg/L	19.556 ppb	13:23:19
3	V 292.402†	4544.1	4556.1	21.392 µg/L	21.392 ppb	13:23:19
3	Zn 213.857†	11317.1	11557.7	63.825 µg/L	63.825 ppb	13:23:39

Mean Data: 409254013|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1331138.1	99.995	%	2.1392				2.14%
Sc RADIAL	71915.6	99.8	%	1.03				1.03%
Y 371.029	724744.5	100.04	%	2.140				2.14%
Ag 328.068†	-76.4	0.2454	µg/L	0.60421	0.2454	ppb	0.60421	246.24%
Al 396.153Radial†	18161.4	6633.0	µg/L	14.92	6633.0	ppb	14.92	0.22%
As 188.979†	14.3	9.5683	µg/L	0.78425	9.5683	ppb	0.78425	8.20%
B 249.677†	-393.0	4.6170	µg/L	1.62765	4.6170	ppb	1.62765	35.25%
Ba 233.527†	17391.0	155.14	µg/L	0.782	155.14	ppb	0.782	0.50%
Be 313.107†	2553.0	-3.0894	µg/L	0.02058	-3.0894	ppb	0.02058	0.67%
Ca 317.933Radial†	144017.6	16032	µg/L	67.9	16032	ppb	67.9	0.42%
Cd 226.502†	267.1	0.4177	µg/L	0.14220	0.4177	ppb	0.14220	34.04%
Co 228.616†	435.4	6.4778	µg/L	0.05106	6.4778	ppb	0.05106	0.79%
Cr 267.716†	886.2	10.578	µg/L	0.2731	10.578	ppb	0.2731	2.58%
Cu 324.752†	2800.5	13.378	µg/L	0.2132	13.378	ppb	0.2132	1.59%
Fe 238.204 Radial†	147995.6	14000	µg/L	146.6	14000	ppb	146.6	1.05%
K 766.490 Radial†	2596.2	1368.1	µg/L	32.51	1368.1	ppb	32.51	2.38%
Mg 279.077 IEC†	9232.2	4982.0	µg/L	6.67	4982.0	ppb	6.67	0.13%
Mn 257.610†	270048.0	473.11	µg/L	3.443	473.11	ppb	3.443	0.73%
Mo 202.031†	-0.4	0.3742	µg/L	0.39847	0.3742	ppb	0.39847	106.48%
Na 589.592 Radial†	867.0	144.57	µg/L	24.900	144.57	ppb	24.900	17.22%

Ni 231.604†	1014.9	16.136 µg/L	0.2381	16.136 ppb	0.2381	1.48%
P 214.914†	2014.4	725.33 µg/L	12.025	725.33 ppb	12.025	1.66%
Pb 220.353†	112.3	11.566 µg/L	1.1253	11.566 ppb	1.1253	9.73%
S 181.975 Axial†	313.0	346.20 µg/L	14.353	346.20 ppb	14.353	4.15%
Sb 206.836†	7.5	-0.0245 µg/L	1.82675	-0.0245 ppb	1.82675	>999.9%
Se 196.026†	-10.2	0.967 µg/L	2.1733	0.967 ppb	2.1733	224.82%
SiO2†	61380.9	6793.5 µg/L	68.48	6793.5 ppb	68.48	1.01%
Si 251.611†	186730.6	3167.8 µg/L	26.98	3167.8 ppb	26.98	0.85%
Sn 189.927†	2.3	0.3160 µg/L	1.07755	0.3160 ppb	1.07755	340.95%
Sr 421.552†	18955.0	54.441 µg/L	0.2752	54.441 ppb	0.2752	0.51%
Ti 334.940†	91640.4	130.42 µg/L	1.201	130.42 ppb	1.201	0.92%
Tl 190.801†	-5.5	-1.4462 µg/L	2.12662	-1.4462 ppb	2.12662	147.05%
U 367.007†	625.5	-0.5529 µg/L	17.41927	-0.5529 ppb	17.41927	>999.9%
V 292.402†	4455.9	20.946 µg/L	0.3981	20.946 ppb	0.3981	1.90%
Zn 213.857†	11274.4	62.201 µg/L	1.4775	62.201 ppb	1.4775	2.38%

Sequence No.: 6 **Autosampler Location: 352**
Sample ID: 409254014|1611117|10 **Date Collected: 11/11/2016 13:23:47**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254014|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70276.6	70276.6	97.6	%			13:24:12
1	Al 396.153Radial†	18280.8	18637.3	6807.0	µg/L	6807.0	ppb	13:24:12
1	Ca 317.933Radial†	158771.2	162407.2	18079	µg/L	18079	ppb	13:24:12
1	Fe 238.204 Radial†	134560.2	138450.6	13097	µg/L	13097	ppb	13:24:12
1	K 766.490 Radial†	3597.5	2617.4	1378.8	µg/L	1378.8	ppb	13:24:12
1	Mg 279.077 IEC†	10670.0	10910.6	5886.6	µg/L	5886.6	ppb	13:24:12
1	Na 589.592 Radial†	846.3	827.8	138.04	µg/L	138.04	ppb	13:24:12
1	Sr 421.552†	19639.1	20590.4	59.115	µg/L	59.115	ppb	13:24:12
1	Sc 361.383	1345845.4	1345845.4	101.10	%			13:24:19
1	Y 371.029	732911.7	732911.7	101.17	%			13:24:19
1	Ag 328.068†	-1873.0	38.2	0.7664	µg/L	0.7664	ppb	13:24:19
1	As 188.979†	-25.8	4.5	4.1157	µg/L	4.1157	ppb	13:24:39
1	B 249.677†	560.2	-330.8	4.8502	µg/L	4.8502	ppb	13:24:19
1	Ba 233.527†	17923.9	17969.7	160.29	µg/L	160.29	ppb	13:24:19
1	Be 313.107†	-1315.2	2355.0	-3.2700	µg/L	-3.2700	ppb	13:24:19
1	Cd 226.502†	102.2	281.1	0.6270	µg/L	0.6270	ppb	13:24:39
1	Co 228.616†	316.9	405.0	6.0434	µg/L	6.0434	ppb	13:24:39
1	Cr 267.716†	1025.6	885.5	10.547	µg/L	10.547	ppb	13:24:39
1	Cu 324.752†	8397.8	2529.5	12.137	µg/L	12.137	ppb	13:24:19
1	Mn 257.610†	281884.6	278666.1	488.18	µg/L	488.18	ppb	13:24:19
1	Mo 202.031†	-47.8	-17.5	-0.5288	µg/L	-0.5288	ppb	13:24:39
1	Ni 231.604†	805.6	994.5	15.811	µg/L	15.811	ppb	13:24:39
1	P 214.914†	1858.3	1933.1	696.09	µg/L	696.09	ppb	13:24:39
1	Pb 220.353†	204.4	128.4	13.194	µg/L	13.194	ppb	13:24:39
1	S 181.975 Axial†	539.4	430.8	477.95	µg/L	477.95	ppb	13:24:39
1	Sb 206.836†	52.5	7.6	0.0991	µg/L	0.0991	ppb	13:24:39
1	Se 196.026†	-8.6	-16.5	-2.72	µg/L	-2.72	ppb	13:24:39
1	SiO2†	67559.0	63804.3	7061.7	µg/L	7061.7	ppb	13:24:19
1	Si 251.611†	196711.5	193987.0	3290.7	µg/L	3290.7	ppb	13:24:19
1	Sn 189.927†	-25.4	2.4	0.3244	µg/L	0.3244	ppb	13:24:39
1	Ti 334.940†	90468.7	90373.8	128.64	µg/L	128.64	ppb	13:24:19
1	Tl 190.801†	-86.4	0.6	0.4025	µg/L	0.4025	ppb	13:24:39
1	U 367.007†	352.4	632.8	5.0675	µg/L	5.0675	ppb	13:24:19
1	V 292.402†	4665.9	4511.8	21.137	µg/L	21.137	ppb	13:24:19
1	Zn 213.857†	12615.5	12431.7	68.821	µg/L	68.821	ppb	13:24:19
2	Sc RADIAL	70794.6	70794.6	98.3	%			13:24:14
2	Al 396.153Radial†	18358.0	18578.7	6785.7	µg/L	6785.7	ppb	13:24:14
2	Ca 317.933Radial†	159989.8	162456.2	18085	µg/L	18085	ppb	13:24:14
2	Fe 238.204 Radial†	135951.9	138857.4	13135	µg/L	13135	ppb	13:24:14
2	K 766.490 Radial†	3488.9	2479.9	1306.5	µg/L	1306.5	ppb	13:24:14
2	Mg 279.077 IEC†	10762.5	10924.7	5894.2	µg/L	5894.2	ppb	13:24:14
2	Na 589.592 Radial†	750.6	724.0	120.73	µg/L	120.73	ppb	13:24:14
2	Sr 421.552†	19857.5	20665.2	59.332	µg/L	59.332	ppb	13:24:14
2	Sc 361.383	1335509.4	1335509.4	100.32	%			13:24:42
2	Y 371.029	726964.0	726964.0	100.35	%			13:24:42
2	Ag 328.068†	-1937.5	-40.4	0.3633	µg/L	0.3633	ppb	13:24:42
2	As 188.979†	-15.6	14.4	9.5413	µg/L	9.5413	ppb	13:25:02
2	B 249.677†	565.0	-321.7	5.0085	µg/L	5.0085	ppb	13:24:42
2	Ba 233.527†	17855.3	18038.5	160.91	µg/L	160.91	ppb	13:24:42
2	Be 313.107†	-1065.8	2593.6	-3.2204	µg/L	-3.2204	ppb	13:24:42
2	Cd 226.502†	88.8	268.5	0.5275	µg/L	0.5275	ppb	13:25:02
2	Co 228.616†	328.0	418.5	6.2448	µg/L	6.2448	ppb	13:25:02
2	Cr 267.716†	1019.0	886.7	10.563	µg/L	10.563	ppb	13:25:02
2	Cu 324.752†	8228.3	2424.9	11.677	µg/L	11.677	ppb	13:24:42
2	Mn 257.610†	280984.4	279926.7	490.39	µg/L	490.39	ppb	13:24:42
2	Mo 202.031†	-35.8	-5.9	0.0748	µg/L	0.0748	ppb	13:25:02
2	Ni 231.604†	816.2	1011.3	16.077	µg/L	16.077	ppb	13:25:02
2	P 214.914†	1849.0	1938.1	697.88	µg/L	697.88	ppb	13:25:02
2	Pb 220.353†	171.0	96.7	9.9856	µg/L	9.9856	ppb	13:25:02

2	S 181.975 Axial†	543.0	438.6	486.58 µg/L	486.58 ppb		13:25:02
2	Sb 206.836†	54.5	10.0	0.5608 µg/L	0.5608 ppb		13:25:02
2	Se 196.026†	-0.0	-8.0	1.73 µg/L	1.73 ppb		13:25:02
2	SiO2†	67269.7	64033.1	7087.0 µg/L	7087.0 ppb		13:24:42
2	Si 251.611†	196348.9	195131.5	3310.1 µg/L	3310.1 ppb		13:24:42
2	Sn 189.927†	-31.1	-3.5	-0.4322 µg/L	-0.4322 ppb		13:25:02
2	Ti 334.940†	90101.9	90700.7	129.11 µg/L	129.11 ppb		13:24:42
2	Tl 190.801†	-82.6	3.7	1.3684 µg/L	1.3684 ppb		13:25:02
2	U 367.007†	341.1	624.2	3.8014 µg/L	3.8014 ppb		13:24:42
2	V 292.402†	4711.7	4593.2	21.504 µg/L	21.504 ppb		13:24:42
2	Zn 213.857†	12704.0	12616.6	69.865 µg/L	69.865 ppb		13:24:42
3	Sc RADIAL	72377.3	72377.3	100 %			13:24:16
3	Al 396.153Radial†	18685.2	18495.9	6755.4 µg/L	6755.4 ppb		13:24:16
3	Ca 317.933Radial†	163583.8	162473.4	18087 µg/L	18087 ppb		13:24:16
3	Fe 238.204 Radial†	138765.4	138632.6	13114 µg/L	13114 ppb		13:24:16
3	K 766.490 Radial†	3665.7	2578.3	1358.2 µg/L	1358.2 ppb		13:24:16
3	Mg 279.077 IEC†	11016.6	10938.1	5901.4 µg/L	5901.4 ppb		13:24:16
3	Na 589.592 Radial†	926.3	882.2	147.10 µg/L	147.10 ppb		13:24:16
3	Sr 421.552†	20280.1	20644.0	59.270 µg/L	59.270 ppb		13:24:16
3	Sc 361.383	1341571.9	1341571.9	100.78 %			13:25:04
3	Y 371.029	729516.6	729516.6	100.70 %			13:25:04
3	Ag 328.068†	-1918.0	-12.4	0.5159 µg/L	0.5159 ppb		13:25:04
3	As 188.979†	-18.6	11.5	7.9478 µg/L	7.9478 ppb		13:25:24
3	B 249.677†	595.5	-294.0	5.3917 µg/L	5.3917 ppb		13:25:04
3	Ba 233.527†	17898.1	18000.5	160.57 µg/L	160.57 ppb		13:25:04
3	Be 313.107†	-839.1	2823.3	-3.1551 µg/L	-3.1551 ppb		13:25:04
3	Cd 226.502†	89.5	268.8	0.5324 µg/L	0.5324 ppb		13:25:24
3	Co 228.616†	328.7	417.7	6.2321 µg/L	6.2321 ppb		13:25:24
3	Cr 267.716†	1026.5	889.6	10.611 µg/L	10.611 ppb		13:25:24
3	Cu 324.752†	8484.7	2642.2	12.622 µg/L	12.622 ppb		13:25:04
3	Mn 257.610†	282296.6	279963.1	490.45 µg/L	490.45 ppb		13:25:04
3	Mo 202.031†	-41.0	-10.9	-0.1870 µg/L	-0.1870 ppb		13:25:24
3	Ni 231.604†	773.4	965.2	15.344 µg/L	15.344 ppb		13:25:24
3	P 214.914†	1881.9	1962.5	706.66 µg/L	706.66 ppb		13:25:24
3	Pb 220.353†	186.0	110.9	11.435 µg/L	11.435 ppb		13:25:24
3	S 181.975 Axial†	541.9	435.0	482.59 µg/L	482.59 ppb		13:25:24
3	Sb 206.836†	55.1	10.4	0.6366 µg/L	0.6366 ppb		13:25:24
3	Se 196.026†	-9.1	-17.0	-3.03 µg/L	-3.03 ppb		13:25:24
3	SiO2†	67625.2	64082.8	7092.5 µg/L	7092.5 ppb		13:25:04
3	Si 251.611†	197112.2	195004.5	3308.0 µg/L	3308.0 ppb		13:25:04
3	Sn 189.927†	-30.8	-3.1	-0.3693 µg/L	-0.3693 ppb		13:25:24
3	Ti 334.940†	90748.8	90936.8	129.45 µg/L	129.45 ppb		13:25:04
3	Tl 190.801†	-89.0	-2.3	-0.4788 µg/L	-0.4788 ppb		13:25:24
3	U 367.007†	212.8	495.3	-11.935 µg/L	-11.935 ppb		13:25:04
3	V 292.402†	4688.8	4549.2	21.300 µg/L	21.300 ppb		13:25:04
3	Zn 213.857†	12618.3	12474.3	69.059 µg/L	69.059 ppb		13:25:04

Mean Data: 409254014|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1340975.6	100.73	%	0.390				0.39%
Sc RADIAL	71149.5	98.8	%	1.52				1.54%
Y 371.029	729797.5	100.74	%	0.412				0.41%
Ag 328.068†	-4.9	0.5485	µg/L	0.20353	0.5485	ppb	0.20353	37.11%
Al 396.153Radial†	18570.6	6782.7	µg/L	25.93	6782.7	ppb	25.93	0.38%
As 188.979†	10.1	7.2016	µg/L	2.78869	7.2016	ppb	2.78869	38.72%
B 249.677†	-315.5	5.0835	µg/L	0.27839	5.0835	ppb	0.27839	5.48%
Ba 233.527†	18002.9	160.59	µg/L	0.307	160.59	ppb	0.307	0.19%
Be 313.107†	2590.6	-3.2152	µg/L	0.05760	-3.2152	ppb	0.05760	1.79%
Ca 317.933Radial†	162445.6	18084	µg/L	3.8	18084	ppb	3.8	0.02%
Cd 226.502†	272.8	0.5623	µg/L	0.05611	0.5623	ppb	0.05611	9.98%
Co 228.616†	413.7	6.1734	µg/L	0.11280	6.1734	ppb	0.11280	1.83%
Cr 267.716†	887.2	10.573	µg/L	0.0332	10.573	ppb	0.0332	0.31%
Cu 324.752†	2532.2	12.146	µg/L	0.4726	12.146	ppb	0.4726	3.89%
Fe 238.204 Radial†	138646.9	13115	µg/L	19.3	13115	ppb	19.3	0.15%
K 766.490 Radial†	2558.6	1347.9	µg/L	37.22	1347.9	ppb	37.22	2.76%
Mg 279.077 IEC†	10924.5	5894.1	µg/L	7.42	5894.1	ppb	7.42	0.13%
Mn 257.610†	279518.6	489.68	µg/L	1.294	489.68	ppb	1.294	0.26%
Mo 202.031†	-11.4	-0.2137	µg/L	0.30265	-0.2137	ppb	0.30265	141.64%
Na 589.592 Radial†	811.3	135.29	µg/L	13.400	135.29	ppb	13.400	9.90%

Ni 231.604†	990.3	15.744 µg/L	0.3711	15.744 ppb	0.3711	2.36%
P 214.914†	1944.6	700.21 µg/L	5.657	700.21 ppb	5.657	0.81%
Pb 220.353†	112.0	11.538 µg/L	1.6065	11.538 ppb	1.6065	13.92%
S 181.975 Axial†	434.8	482.37 µg/L	4.323	482.37 ppb	4.323	0.90%
Sb 206.836†	9.4	0.4322 µg/L	0.29090	0.4322 ppb	0.29090	67.31%
Se 196.026†	-13.8	-1.34 µg/L	2.661	-1.34 ppb	2.661	198.36%
SiO2†	63973.4	7080.4 µg/L	16.44	7080.4 ppb	16.44	0.23%
Si 251.611†	194707.7	3302.9 µg/L	10.64	3302.9 ppb	10.64	0.32%
Sn 189.927†	-1.4	-0.1590 µg/L	0.41983	-0.1590 ppb	0.41983	263.99%
Sr 421.552†	20633.2	59.239 µg/L	0.1118	59.239 ppb	0.1118	0.19%
Ti 334.940†	90670.4	129.07 µg/L	0.406	129.07 ppb	0.406	0.31%
Tl 190.801†	0.7	0.4307 µg/L	0.92396	0.4307 ppb	0.92396	214.52%
U 367.007†	584.1	-1.0222 µg/L	9.47235	-1.0222 ppb	9.47235	926.66%
V 292.402†	4551.4	21.313 µg/L	0.1838	21.313 ppb	0.1838	0.86%
Zn 213.857†	12507.5	69.248 µg/L	0.5474	69.248 ppb	0.5474	0.79%

Sequence No.: 7 **Autosampler Location: 353**
Sample ID: 409254015|1611117|10 **Date Collected: 11/11/2016 13:25:32**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254015|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70933.3	70933.3	98.5	%			13:25:59
1	Al 396.153Radial†	19613.8	19817.5	7238.8	µg/L	7238.8	ppb	13:25:59
1	Ca 317.933Radial†	205078.2	207928.6	23147	µg/L	23147	ppb	13:25:57
1	Fe 238.204 Radial†	147307.5	150119.5	14201	µg/L	14201	ppb	13:25:57
1	K 766.490 Radial†	3757.1	2745.4	1446.1	µg/L	1446.1	ppb	13:25:59
1	Mg 279.077 IEC†	13384.3	13565.9	7318.5	µg/L	7318.5	ppb	13:25:59
1	Na 589.592 Radial†	1134.9	1112.8	185.57	µg/L	185.57	ppb	13:25:59
1	Sr 421.552†	24045.3	24878.7	71.382	µg/L	71.382	ppb	13:25:59
1	Sc 361.383	1349758.5	1349758.5	101.39	%			13:26:11
1	Y 371.029	736069.4	736069.4	101.60	%			13:26:11
1	Ag 328.068†	-1831.8	84.2	1.0187	µg/L	1.0187	ppb	13:26:11
1	As 188.979†	-16.9	13.3	9.0496	µg/L	9.0496	ppb	13:26:31
1	B 249.677†	513.4	-378.5	4.9738	µg/L	4.9738	ppb	13:26:11
1	Ba 233.527†	19289.2	19264.8	171.85	µg/L	171.85	ppb	13:26:11
1	Be 313.107†	-1033.8	2636.3	-3.4729	µg/L	-3.4729	ppb	13:26:11
1	Cd 226.502†	112.3	290.8	0.5740	µg/L	0.5740	ppb	13:26:31
1	Co 228.616†	352.9	439.6	6.5580	µg/L	6.5580	ppb	13:26:31
1	Cr 267.716†	1109.8	965.6	11.490	µg/L	11.490	ppb	13:26:31
1	Cu 324.752†	8564.5	2669.9	12.856	µg/L	12.856	ppb	13:26:11
1	Mn 257.610†	294541.8	290341.0	508.59	µg/L	508.59	ppb	13:26:11
1	Mo 202.031†	-49.1	-18.7	-0.5480	µg/L	-0.5480	ppb	13:26:31
1	Ni 231.604†	860.7	1046.6	16.639	µg/L	16.639	ppb	13:26:31
1	P 214.914†	1953.6	2021.8	728.01	µg/L	728.01	ppb	13:26:31
1	Pb 220.353†	178.2	102.0	10.514	µg/L	10.514	ppb	13:26:31
1	S 181.975 Axial†	383.9	275.9	304.80	µg/L	304.80	ppb	13:26:31
1	Sb 206.836†	41.2	-3.7	-2.2020	µg/L	-2.2020	ppb	13:26:31
1	Se 196.026†	-6.1	-14.0	-0.919	µg/L	-0.919	ppb	13:26:31
1	SiO2†	71659.4	67654.6	7487.8	µg/L	7487.8	ppb	13:26:11
1	Si 251.611†	208962.8	205505.9	3486.1	µg/L	3486.1	ppb	13:26:11
1	Sn 189.927†	-34.5	-6.6	-0.8186	µg/L	-0.8186	ppb	13:26:31
1	Ti 334.940†	100427.9	99936.7	142.29	µg/L	142.29	ppb	13:26:11
1	Tl 190.801†	-80.7	6.5	2.2245	µg/L	2.2245	ppb	13:26:31
1	U 367.007†	453.1	731.1	10.714	µg/L	10.714	ppb	13:26:11
1	V 292.402†	4909.7	4738.9	22.234	µg/L	22.234	ppb	13:26:11
1	Zn 213.857†	13766.1	13530.4	74.864	µg/L	74.864	ppb	13:26:11
2	Sc RADIAL	72536.8	72536.8	101	%			13:26:03
2	Al 396.153Radial†	19995.5	19756.3	7216.4	µg/L	7216.4	ppb	13:26:03
2	Ca 317.933Radial†	210587.0	208795.1	23243	µg/L	23243	ppb	13:26:01
2	Fe 238.204 Radial†	151001.4	150480.7	14235	µg/L	14235	ppb	13:26:01
2	K 766.490 Radial†	3631.8	2536.6	1336.3	µg/L	1336.3	ppb	13:26:03
2	Mg 279.077 IEC†	13737.5	13616.2	7345.6	µg/L	7345.6	ppb	13:26:03
2	Na 589.592 Radial†	1173.4	1125.6	187.70	µg/L	187.70	ppb	13:26:03
2	Sr 421.552†	24391.1	24682.3	70.809	µg/L	70.809	ppb	13:26:03
2	Sc 361.383	1312158.9	1312158.9	98.569	%			13:26:33
2	Y 371.029	714848.9	714848.9	98.675	%			13:26:33
2	Ag 328.068†	-1921.6	-58.7	0.2792	µg/L	0.2792	ppb	13:26:33
2	As 188.979†	-20.7	9.0	6.7245	µg/L	6.7245	ppb	13:26:53
2	B 249.677†	498.9	-378.7	4.9952	µg/L	4.9952	ppb	13:26:33
2	Ba 233.527†	18854.0	19368.4	172.77	µg/L	172.77	ppb	13:26:33
2	Be 313.107†	-1188.6	2450.0	-3.5444	µg/L	-3.5444	ppb	13:26:33
2	Cd 226.502†	126.1	308.0	0.7003	µg/L	0.7003	ppb	13:26:53
2	Co 228.616†	366.9	463.7	6.9172	µg/L	6.9172	ppb	13:26:53
2	Cr 267.716†	1149.2	1036.9	12.324	µg/L	12.324	ppb	13:26:53
2	Cu 324.752†	8449.8	2795.6	13.417	µg/L	13.417	ppb	13:26:33
2	Mn 257.610†	288216.4	292247.7	511.93	µg/L	511.93	ppb	13:26:33
2	Mo 202.031†	-42.5	-13.3	-0.2688	µg/L	-0.2688	ppb	13:26:53
2	Ni 231.604†	895.5	1106.3	17.588	µg/L	17.588	ppb	13:26:53
2	P 214.914†	1994.1	2118.2	762.73	µg/L	762.73	ppb	13:26:53
2	Pb 220.353†	190.4	119.4	12.267	µg/L	12.267	ppb	13:26:53

2	S 181.975 Axial†	379.3	282.1	311.72 µg/L	311.72 ppb	13:26:53
2	Sb 206.836†	50.9	7.3	-0.1011 µg/L	-0.1011 ppb	13:26:53
2	Se 196.026†	-0.4	-8.4	2.02 µg/L	2.02 ppb	13:26:53
2	SiO2†	69920.1	67915.2	7516.7 µg/L	7516.7 ppb	13:26:33
2	Si 251.611†	204040.6	206417.7	3501.6 µg/L	3501.6 ppb	13:26:33
2	Sn 189.927†	-32.0	-5.0	-0.6188 µg/L	-0.6188 ppb	13:26:53
2	Ti 334.940†	98247.9	100563.2	143.18 µg/L	143.18 ppb	13:26:33
2	Tl 190.801†	-92.7	-8.0	-2.2122 µg/L	-2.2122 ppb	13:26:53
2	U 367.007†	485.7	777.0	16.166 µg/L	16.166 ppb	13:26:33
2	V 292.402†	5033.3	5003.1	23.424 µg/L	23.424 ppb	13:26:33
2	Zn 213.857†	13600.8	13751.7	76.114 µg/L	76.114 ppb	13:26:33
3	Sc RADIAL	72030.1	72030.1	100.0 %		13:26:07
3	Al 396.153Radial†	20144.8	20045.2	7321.9 µg/L	7321.9 ppb	13:26:07
3	Ca 317.933Radial†	206673.8	206352.8	22971 µg/L	22971 ppb	13:26:05
3	Fe 238.204 Radial†	148312.2	148846.2	14080 µg/L	14080 ppb	13:26:05
3	K 766.490 Radial†	3695.9	2626.1	1383.3 µg/L	1383.3 ppb	13:26:07
3	Mg 279.077 IEC†	13700.4	13675.0	7377.3 µg/L	7377.3 ppb	13:26:07
3	Na 589.592 Radial†	1233.5	1193.9	199.08 µg/L	199.08 ppb	13:26:07
3	Sr 421.552†	24572.6	25034.3	71.839 µg/L	71.839 ppb	13:26:07
3	Sc 361.383	1355550.6	1355550.6	101.83 %		13:26:55
3	Y 371.029	737493.6	737493.6	101.80 %		13:26:55
3	Ag 328.068†	-2096.8	-168.3	-0.2846 µg/L	-0.2846 ppb	13:26:55
3	As 188.979†	-21.3	9.0	6.7057 µg/L	6.7057 ppb	13:27:15
3	B 249.677†	550.0	-344.7	5.3712 µg/L	5.3712 ppb	13:26:55
3	Ba 233.527†	19579.4	19468.5	173.66 µg/L	173.66 ppb	13:26:55
3	Be 313.107†	-1014.1	2660.0	-3.5146 µg/L	-3.5146 ppb	13:26:55
3	Cd 226.502†	121.3	299.2	0.6512 µg/L	0.6512 ppb	13:27:15
3	Co 228.616†	347.8	433.1	6.4652 µg/L	6.4652 ppb	13:27:15
3	Cr 267.716†	1120.0	970.9	11.559 µg/L	11.559 ppb	13:27:15
3	Cu 324.752†	8720.1	2786.6	13.356 µg/L	13.356 ppb	13:26:55
3	Mn 257.610†	298530.8	293017.1	513.28 µg/L	513.28 ppb	13:26:55
3	Mo 202.031†	-44.6	-14.0	-0.3085 µg/L	-0.3085 ppb	13:27:15
3	Ni 231.604†	869.0	1051.1	16.710 µg/L	16.710 ppb	13:27:15
3	P 214.914†	1989.1	2048.4	737.60 µg/L	737.60 ppb	13:27:15
3	Pb 220.353†	194.6	117.4	12.087 µg/L	12.087 ppb	13:27:15
3	S 181.975 Axial†	393.2	283.4	313.17 µg/L	313.17 ppb	13:27:15
3	Sb 206.836†	56.3	11.0	0.6497 µg/L	0.6497 ppb	13:27:15
3	Se 196.026†	-7.8	-15.7	-1.88 µg/L	-1.88 ppb	13:27:15
3	SiO2†	72376.8	68057.1	7532.4 µg/L	7532.4 ppb	13:26:55
3	Si 251.611†	211803.1	207414.6	3518.5 µg/L	3518.5 ppb	13:26:55
3	Sn 189.927†	-27.4	0.6	0.0979 µg/L	0.0979 ppb	13:27:15
3	Ti 334.940†	102014.9	101072.0	143.91 µg/L	143.91 ppb	13:26:55
3	Tl 190.801†	-100.7	-12.8	-3.6951 µg/L	-3.6951 ppb	13:27:15
3	U 367.007†	374.7	652.2	1.6801 µg/L	1.6801 ppb	13:26:55
3	V 292.402†	5255.9	5058.1	23.653 µg/L	23.653 ppb	13:26:55
3	Zn 213.857†	14037.9	13739.2	76.058 µg/L	76.058 ppb	13:26:55

Mean Data: 409254015|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1339156.0	100.60	%	1.770				1.76%
Sc RADIAL	71833.4	99.7	%	1.14				1.14%
Y 371.029	729470.6	100.69	%	1.751				1.74%
Ag 328.068†	-47.6	0.3378	µg/L	0.65359	0.3378	ppb	0.65359	193.50%
Al 396.153Radial†	19873.0	7259.0	µg/L	55.57	7259.0	ppb	55.57	0.77%
As 188.979†	10.4	7.4933	µg/L	1.34785	7.4933	ppb	1.34785	17.99%
B 249.677†	-367.3	5.1134	µg/L	0.22356	5.1134	ppb	0.22356	4.37%
Ba 233.527†	19367.3	172.76	µg/L	0.908	172.76	ppb	0.908	0.53%
Be 313.107†	2582.1	-3.5106	µg/L	0.03590	-3.5106	ppb	0.03590	1.02%
Ca 317.933Radial†	207692.1	23120	µg/L	137.8	23120	ppb	137.8	0.60%
Cd 226.502†	299.3	0.6418	µg/L	0.06369	0.6418	ppb	0.06369	9.92%
Co 228.616†	445.5	6.6468	µg/L	0.23868	6.6468	ppb	0.23868	3.59%
Cr 267.716†	991.1	11.791	µg/L	0.4629	11.791	ppb	0.4629	3.93%
Cu 324.752†	2750.7	13.210	µg/L	0.3082	13.210	ppb	0.3082	2.33%
Fe 238.204 Radial†	149815.5	14172	µg/L	81.2	14172	ppb	81.2	0.57%
K 766.490 Radial†	2636.0	1388.6	µg/L	55.05	1388.6	ppb	55.05	3.96%
Mg 279.077 IEC†	13619.0	7347.1	µg/L	29.44	7347.1	ppb	29.44	0.40%
Mn 257.610†	291868.6	511.27	µg/L	2.414	511.27	ppb	2.414	0.47%
Mo 202.031†	-15.3	-0.3751	µg/L	0.15101	-0.3751	ppb	0.15101	40.26%
Na 589.592 Radial†	1144.1	190.78	µg/L	7.266	190.78	ppb	7.266	3.81%

Ni 231.604†	1068.0	16.979 µg/L	0.5283	16.979 ppb	0.5283	3.11%
P 214.914†	2062.8	742.78 µg/L	17.930	742.78 ppb	17.930	2.41%
Pb 220.353†	112.9	11.623 µg/L	0.9642	11.623 ppb	0.9642	8.30%
S 181.975 Axial†	280.5	309.90 µg/L	4.476	309.90 ppb	4.476	1.44%
Sb 206.836†	4.9	-0.5511 µg/L	1.47815	-0.5511 ppb	1.47815	268.21%
Se 196.026†	-12.7	-0.258 µg/L	2.0317	-0.258 ppb	2.0317	786.16%
SiO2†	67875.6	7512.3 µg/L	22.59	7512.3 ppb	22.59	0.30%
Si 251.611†	206446.0	3502.1 µg/L	16.18	3502.1 ppb	16.18	0.46%
Sn 189.927†	-3.7	-0.4465 µg/L	0.48190	-0.4465 ppb	0.48190	107.93%
Sr 421.552†	24865.1	71.343 µg/L	0.5164	71.343 ppb	0.5164	0.72%
Ti 334.940†	100523.9	143.13 µg/L	0.810	143.13 ppb	0.810	0.57%
Tl 190.801†	-4.8	-1.2276 µg/L	3.08018	-1.2276 ppb	3.08018	250.91%
U 367.007†	720.1	9.5199 µg/L	7.31640	9.5199 ppb	7.31640	76.85%
V 292.402†	4933.4	23.104 µg/L	0.7618	23.104 ppb	0.7618	3.30%
Zn 213.857†	13673.8	75.679 µg/L	0.7062	75.679 ppb	0.7062	0.93%

Sequence No.: 8 **Autosampler Location: 354**
Sample ID: 409254016|1611117|10 **Date Collected: 11/11/2016 13:27:24**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254016|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	73104.1	73104.1	101	%			13:27:51
1	Al 396.153Radial†	19194.4	18812.7	6871.1	µg/L	6871.1	ppb	13:27:51
1	Ca 317.933Radial†	164105.3	161368.5	17964	µg/L	17964	ppb	13:27:51
1	Fe 238.204 Radial†	144702.3	143109.7	13538	µg/L	13538	ppb	13:27:49
1	K 766.490 Radial†	3457.5	2336.8	1231.5	µg/L	1231.5	ppb	13:27:51
1	Mg 279.077 IEC†	12086.4	11883.3	6411.1	µg/L	6411.1	ppb	13:27:51
1	Na 589.592 Radial†	1048.1	993.0	165.59	µg/L	165.59	ppb	13:27:51
1	Sr 421.552†	20076.6	20242.8	58.110	µg/L	58.110	ppb	13:27:51
1	Sc 361.383	1355691.0	1355691.0	101.84	%			13:28:03
1	Y 371.029	738200.9	738200.9	101.90	%			13:28:03
1	Ag 328.068†	-1971.1	-44.6	0.3767	µg/L	0.3767	ppb	13:28:03
1	As 188.979†	-21.0	9.3	6.8304	µg/L	6.8304	ppb	13:28:23
1	B 249.677†	534.0	-360.5	4.7460	µg/L	4.7460	ppb	13:28:03
1	Ba 233.527†	18381.2	18289.9	163.15	µg/L	163.15	ppb	13:28:03
1	Be 313.107†	-1277.3	2401.7	-3.3346	µg/L	-3.3346	ppb	13:28:03
1	Cd 226.502†	107.6	285.7	0.6112	µg/L	0.6112	ppb	13:28:23
1	Co 228.616†	331.6	417.2	6.2225	µg/L	6.2225	ppb	13:28:23
1	Cr 267.716†	1065.8	917.6	10.947	µg/L	10.947	ppb	13:28:23
1	Cu 324.752†	8418.6	2489.7	11.981	µg/L	11.981	ppb	13:28:03
1	Mn 257.610†	268232.8	263236.0	461.12	µg/L	461.12	ppb	13:28:03
1	Mo 202.031†	-44.7	-14.1	-0.3379	µg/L	-0.3379	ppb	13:28:23
1	Ni 231.604†	842.1	1024.6	16.289	µg/L	16.289	ppb	13:28:23
1	P 214.914†	1779.2	1842.1	663.26	µg/L	663.26	ppb	13:28:23
1	Pb 220.353†	197.6	120.3	12.390	µg/L	12.390	ppb	13:28:23
1	S 181.975 Axial†	377.6	268.1	296.20	µg/L	296.20	ppb	13:28:23
1	Sb 206.836†	50.3	5.1	-0.4442	µg/L	-0.4442	ppb	13:28:23
1	Se 196.026†	-1.8	-9.8	0.967	µg/L	0.967	ppb	13:28:23
1	SiO2†	71408.4	67098.8	7426.3	µg/L	7426.3	ppb	13:28:03
1	Si 251.611†	208644.3	204291.2	3465.5	µg/L	3465.5	ppb	13:28:03
1	Sn 189.927†	-33.4	-5.3	-0.6605	µg/L	-0.6605	ppb	13:28:23
1	Ti 334.940†	99376.0	98470.3	140.16	µg/L	140.16	ppb	13:28:03
1	Tl 190.801†	-73.9	13.5	4.3694	µg/L	4.3694	ppb	13:28:23
1	U 367.007†	192.6	473.4	-16.930	µg/L	-16.930	ppb	13:28:03
1	V 292.402†	4920.7	4728.5	22.131	µg/L	22.131	ppb	13:28:03
1	Zn 213.857†	13611.0	13318.7	73.780	µg/L	73.780	ppb	13:28:03
2	Sc RADIAL	71693.9	71693.9	99.5	%			13:27:55
2	Al 396.153Radial†	18717.7	18705.8	6832.0	µg/L	6832.0	ppb	13:27:55
2	Ca 317.933Radial†	160335.5	160761.5	17896	µg/L	17896	ppb	13:27:55
2	Fe 238.204 Radial†	141598.4	142795.8	13508	µg/L	13508	ppb	13:27:53
2	K 766.490 Radial†	3372.1	2318.0	1221.6	µg/L	1221.6	ppb	13:27:55
2	Mg 279.077 IEC†	11788.1	11817.8	6375.8	µg/L	6375.8	ppb	13:27:55
2	Na 589.592 Radial†	946.2	911.0	151.91	µg/L	151.91	ppb	13:27:55
2	Sr 421.552†	19575.0	20127.9	57.779	µg/L	57.779	ppb	13:27:55
2	Sc 361.383	1356023.5	1356023.5	101.86	%			13:28:25
2	Y 371.029	737617.0	737617.0	101.82	%			13:28:25
2	Ag 328.068†	-2063.9	-135.3	-0.1007	µg/L	-0.1007	ppb	13:28:25
2	As 188.979†	-19.5	10.8	7.6028	µg/L	7.6028	ppb	13:28:45
2	B 249.677†	569.0	-326.2	5.2169	µg/L	5.2169	ppb	13:28:25
2	Ba 233.527†	18637.9	18537.5	165.36	µg/L	165.36	ppb	13:28:25
2	Be 313.107†	-799.5	2871.1	-3.2554	µg/L	-3.2554	ppb	13:28:25
2	Cd 226.502†	103.6	281.7	0.5847	µg/L	0.5847	ppb	13:28:45
2	Co 228.616†	344.2	429.4	6.4073	µg/L	6.4073	ppb	13:28:45
2	Cr 267.716†	1022.6	874.9	10.432	µg/L	10.432	ppb	13:28:45
2	Cu 324.752†	8449.6	2518.1	12.116	µg/L	12.116	ppb	13:28:25
2	Mn 257.610†	269189.4	264110.4	462.65	µg/L	462.65	ppb	13:28:25
2	Mo 202.031†	-40.8	-10.3	-0.1417	µg/L	-0.1417	ppb	13:28:45
2	Ni 231.604†	864.3	1046.2	16.632	µg/L	16.632	ppb	13:28:45
2	P 214.914†	1812.9	1874.8	675.06	µg/L	675.06	ppb	13:28:45
2	Pb 220.353†	177.2	100.3	10.346	µg/L	10.346	ppb	13:28:45

2	S 181.975 Axial†	377.7	268.1	296.22 µg/L	296.22 ppb	13:28:45
2	Sb 206.836†	54.9	9.6	0.4378 µg/L	0.4378 ppb	13:28:45
2	Se 196.026†	-6.6	-14.5	-1.49 µg/L	-1.49 ppb	13:28:45
2	SiO2†	71719.0	67386.5	7458.2 µg/L	7458.2 ppb	13:28:25
2	Si 251.611†	209835.5	205410.4	3484.4 µg/L	3484.4 ppb	13:28:25
2	Sn 189.927†	-26.5	1.4	0.2037 µg/L	0.2037 ppb	13:28:45
2	Ti 334.940†	99631.7	98697.4	140.47 µg/L	140.47 ppb	13:28:25
2	Tl 190.801†	-92.7	-5.0	-1.2936 µg/L	-1.2936 ppb	13:28:45
2	U 367.007†	316.9	595.3	-1.7583 µg/L	-1.7583 ppb	13:28:25
2	V 292.402†	4842.5	4650.5	21.784 µg/L	21.784 ppb	13:28:25
2	Zn 213.857†	13679.8	13382.9	74.149 µg/L	74.149 ppb	13:28:25
3	Sc RADIAL	72771.2	72771.2	101 %		13:27:59
3	Al 396.153Radial†	19052.8	18759.1	6851.5 µg/L	6851.5 ppb	13:27:59
3	Ca 317.933Radial†	164290.4	162291.5	18066 µg/L	18066 ppb	13:27:59
3	Fe 238.204 Radial†	138989.3	138106.7	13064 µg/L	13064 ppb	13:27:57
3	K 766.490 Radial†	3566.9	2460.8	1296.5 µg/L	1296.5 ppb	13:27:59
3	Mg 279.077 IEC†	12079.7	11931.1	6436.8 µg/L	6436.8 ppb	13:27:59
3	Na 589.592 Radial†	1138.9	1087.6	181.37 µg/L	181.37 ppb	13:27:59
3	Sr 421.552†	20060.6	20317.5	58.324 µg/L	58.324 ppb	13:27:59
3	Sc 361.383	1347015.6	1347015.6	101.19 %		13:28:47
3	Y 371.029	733503.4	733503.4	101.25 %		13:28:47
3	Ag 328.068†	-2047.9	-133.0	-0.1163 µg/L	-0.1163 ppb	13:28:47
3	As 188.979†	-18.7	11.5	7.9405 µg/L	7.9405 ppb	13:29:07
3	B 249.677†	575.6	-316.0	5.0386 µg/L	5.0386 ppb	13:28:47
3	Ba 233.527†	18529.3	18552.6	165.49 µg/L	165.49 ppb	13:28:47
3	Be 313.107†	-1167.0	2502.6	-3.3592 µg/L	-3.3592 ppb	13:28:47
3	Cd 226.502†	88.1	267.1	0.5247 µg/L	0.5247 ppb	13:29:07
3	Co 228.616†	324.3	412.0	6.1542 µg/L	6.1542 ppb	13:29:07
3	Cr 267.716†	1047.9	906.6	10.795 µg/L	10.795 ppb	13:29:07
3	Cu 324.752†	8408.0	2532.4	12.152 µg/L	12.152 ppb	13:28:47
3	Mn 257.610†	267978.2	264680.7	463.65 µg/L	463.65 ppb	13:28:47
3	Mo 202.031†	-34.1	-3.9	0.1810 µg/L	0.1810 ppb	13:29:07
3	Ni 231.604†	844.6	1032.5	16.414 µg/L	16.414 ppb	13:29:07
3	P 214.914†	1798.5	1872.5	674.23 µg/L	674.23 ppb	13:29:07
3	Pb 220.353†	192.0	116.0	11.939 µg/L	11.939 ppb	13:29:07
3	S 181.975 Axial†	383.8	276.6	305.77 µg/L	305.77 ppb	13:29:07
3	Sb 206.836†	57.7	12.7	1.0907 µg/L	1.0907 ppb	13:29:07
3	Se 196.026†	-1.9	-9.9	0.688 µg/L	0.688 ppb	13:29:07
3	SiO2†	71395.1	67537.3	7474.8 µg/L	7474.8 ppb	13:28:47
3	Si 251.611†	208727.1	205692.6	3489.2 µg/L	3489.2 ppb	13:28:47
3	Sn 189.927†	-25.2	2.5	0.3471 µg/L	0.3471 ppb	13:29:07
3	Ti 334.940†	99209.1	98933.8	140.81 µg/L	140.81 ppb	13:28:47
3	Tl 190.801†	-108.0	-20.7	-6.1405 µg/L	-6.1405 ppb	13:29:07
3	U 367.007†	315.3	595.8	0.6999 µg/L	0.6999 ppb	13:28:47
3	V 292.402†	4943.0	4781.6	22.343 µg/L	22.343 ppb	13:28:47
3	Zn 213.857†	13494.3	13289.4	73.663 µg/L	73.663 ppb	13:28:47

Mean Data: 409254016|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1352910.0	101.63	%	0.384				0.38%
Sc RADIAL	72523.1	101	%	1.0				1.02%
Y 371.029	736440.4	101.66	%	0.353				0.35%
Ag 328.068†	-104.3	0.0533	µg/L	0.28026	0.0533	ppb	0.28026	526.28%
Al 396.153Radial†	18759.2	6851.5	µg/L	19.52	6851.5	ppb	19.52	0.28%
As 188.979†	10.5	7.4579	µg/L	0.56906	7.4579	ppb	0.56906	7.63%
B 249.677†	-334.3	5.0005	µg/L	0.23775	5.0005	ppb	0.23775	4.75%
Ba 233.527†	18460.0	164.67	µg/L	1.314	164.67	ppb	1.314	0.80%
Be 313.107†	2591.8	-3.3164	µg/L	0.05421	-3.3164	ppb	0.05421	1.63%
Ca 317.933Radial†	161473.8	17975	µg/L	85.8	17975	ppb	85.8	0.48%
Cd 226.502†	278.1	0.5735	µg/L	0.04434	0.5735	ppb	0.04434	7.73%
Co 228.616†	419.5	6.2613	µg/L	0.13096	6.2613	ppb	0.13096	2.09%
Cr 267.716†	899.7	10.725	µg/L	0.2649	10.725	ppb	0.2649	2.47%
Cu 324.752†	2513.4	12.083	µg/L	0.0901	12.083	ppb	0.0901	0.75%
Fe 238.204 Radial†	141337.4	13370	µg/L	265.1	13370	ppb	265.1	1.98%
K 766.490 Radial†	2371.9	1249.9	µg/L	40.66	1249.9	ppb	40.66	3.25%
Mg 279.077 IEC†	11877.4	6407.9	µg/L	30.61	6407.9	ppb	30.61	0.48%
Mn 257.610†	264009.0	462.47	µg/L	1.275	462.47	ppb	1.275	0.28%
Mo 202.031†	-9.5	-0.0995	µg/L	0.26199	-0.0995	ppb	0.26199	263.20%
Na 589.592 Radial†	997.2	166.29	µg/L	14.744	166.29	ppb	14.744	8.87%

Ni 231.604†	1034.4	16.445 µg/L	0.1736	16.445 ppb	0.1736	1.06%
P 214.914†	1863.1	670.85 µg/L	6.586	670.85 ppb	6.586	0.98%
Pb 220.353†	112.2	11.558 µg/L	1.0739	11.558 ppb	1.0739	9.29%
S 181.975 Axial†	270.9	299.40 µg/L	5.520	299.40 ppb	5.520	1.84%
Sb 206.836†	9.1	0.3614 µg/L	0.77026	0.3614 ppb	0.77026	213.11%
Se 196.026†	-11.4	0.056 µg/L	1.3429	0.056 ppb	1.3429	>999.9%
SiO2†	67340.9	7453.1 µg/L	24.66	7453.1 ppb	24.66	0.33%
Si 251.611†	205131.4	3479.7 µg/L	12.54	3479.7 ppb	12.54	0.36%
Sn 189.927†	-0.5	-0.0365 µg/L	0.54506	-0.0365 ppb	0.54506	>999.9%
Sr 421.552†	20229.4	58.071 µg/L	0.2742	58.071 ppb	0.2742	0.47%
Ti 334.940†	98700.5	140.48 µg/L	0.326	140.48 ppb	0.326	0.23%
Tl 190.801†	-4.1	-1.0216 µg/L	5.26025	-1.0216 ppb	5.26025	514.92%
U 367.007†	554.9	-5.9960 µg/L	9.54825	-5.9960 ppb	9.54825	159.24%
V 292.402†	4720.2	22.086 µg/L	0.2819	22.086 ppb	0.2819	1.28%
Zn 213.857†	13330.3	73.864 µg/L	0.2535	73.864 ppb	0.2535	0.34%

Sequence No.: 9 **Autosampler Location: 355**
Sample ID: 409254017|1611117|10 **Date Collected: 11/11/2016 13:29:15**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254017|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71885.6	71885.6	99.8	%			13:29:40
1	Al 396.153Radial†	14822.6	14752.3	5388.8	µg/L	5388.8	ppb	13:29:40
1	Ca 317.933Radial†	164097.2	164101.6	18268	µg/L	18268	ppb	13:29:40
1	Fe 238.204 Radial†	133110.4	133910.5	12667	µg/L	12667	ppb	13:29:40
1	K 766.490 Radial†	3212.9	2149.5	1132.7	µg/L	1132.7	ppb	13:29:40
1	Mg 279.077 IEC†	13549.6	13551.5	7310.2	µg/L	7310.2	ppb	13:29:40
1	Na 589.592 Radial†	1303.8	1266.8	211.24	µg/L	211.24	ppb	13:29:40
1	Sr 421.552†	17469.5	17965.6	51.493	µg/L	51.493	ppb	13:29:40
1	Sc 361.383	1316979.0	1316979.0	98.931	%			13:29:47
1	Y 371.029	717215.5	717215.5	99.002	%			13:29:47
1	Ag 328.068†	-1795.5	76.0	0.9380	µg/L	0.9380	ppb	13:29:47
1	As 188.979†	-18.5	11.3	7.7551	µg/L	7.7551	ppb	13:30:07
1	B 249.677†	456.6	-423.3	3.2044	µg/L	3.2044	ppb	13:29:47
1	Ba 233.527†	22787.0	23273.9	207.59	µg/L	207.59	ppb	13:29:47
1	Be 313.107†	-1222.8	2419.9	-4.4176	µg/L	-4.4176	ppb	13:29:47
1	Cd 226.502†	49.6	230.2	0.2912	µg/L	0.2912	ppb	13:30:07
1	Co 228.616†	289.0	383.6	5.7872	µg/L	5.7872	ppb	13:30:07
1	Cr 267.716†	973.0	854.5	10.172	µg/L	10.172	ppb	13:30:07
1	Cu 324.752†	7082.3	1381.9	7.0596	µg/L	7.0596	ppb	13:29:47
1	Mn 257.610†	157539.3	159089.0	278.56	µg/L	278.56	ppb	13:29:47
1	Mo 202.031†	-33.0	-3.6	0.1978	µg/L	0.1978	ppb	13:30:07
1	Ni 231.604†	724.2	929.7	14.781	µg/L	14.781	ppb	13:30:07
1	P 214.914†	1352.0	1461.7	526.18	µg/L	526.18	ppb	13:30:07
1	Pb 220.353†	191.7	120.0	12.266	µg/L	12.266	ppb	13:30:07
1	S 181.975 Axial†	229.2	129.0	141.15	µg/L	141.15	ppb	13:30:07
1	Sb 206.836†	49.8	6.1	-0.1805	µg/L	-0.1805	ppb	13:30:07
1	Se 196.026†	-6.3	-14.3	-1.77	µg/L	-1.77	ppb	13:30:07
1	SiO2†	56843.7	54438.0	6025.0	µg/L	6025.0	ppb	13:29:47
1	Si 251.611†	164169.9	165358.7	2805.3	µg/L	2805.3	ppb	13:29:47
1	Sn 189.927†	-25.3	2.0	0.2666	µg/L	0.2666	ppb	13:30:07
1	Ti 334.940†	132794.0	135117.6	192.25	µg/L	192.25	ppb	13:29:47
1	Tl 190.801†	-97.5	-12.5	-3.6153	µg/L	-3.6153	ppb	13:30:07
1	U 367.007†	297.0	584.4	1.4373	µg/L	1.4373	ppb	13:29:47
1	V 292.402†	3920.5	3859.5	18.183	µg/L	18.183	ppb	13:29:47
1	Zn 213.857†	7596.4	7631.9	41.570	µg/L	41.570	ppb	13:30:07
2	Sc RADIAL	71627.4	71627.4	99.4	%			13:29:42
2	Al 396.153Radial†	15083.5	15068.3	5504.2	µg/L	5504.2	ppb	13:29:42
2	Ca 317.933Radial†	165659.0	166265.1	18509	µg/L	18509	ppb	13:29:42
2	Fe 238.204 Radial†	134275.8	135563.3	12824	µg/L	12824	ppb	13:29:42
2	K 766.490 Radial†	3286.0	2234.6	1177.5	µg/L	1177.5	ppb	13:29:42
2	Mg 279.077 IEC†	13684.1	13735.7	7409.6	µg/L	7409.6	ppb	13:29:42
2	Na 589.592 Radial†	1421.9	1390.2	231.83	µg/L	231.83	ppb	13:29:42
2	Sr 421.552†	17844.1	18405.4	52.761	µg/L	52.761	ppb	13:29:42
2	Sc 361.383	1288388.2	1288388.2	96.784	%			13:30:10
2	Y 371.029	702311.4	702311.4	96.945	%			13:30:10
2	Ag 328.068†	-1775.3	56.6	0.8420	µg/L	0.8420	ppb	13:30:10
2	As 188.979†	-16.1	13.3	8.9054	µg/L	8.9054	ppb	13:30:30
2	B 249.677†	384.8	-487.3	2.3984	µg/L	2.3984	ppb	13:30:10
2	Ba 233.527†	22558.9	23549.3	210.04	µg/L	210.04	ppb	13:30:10
2	Be 313.107†	-1197.6	2418.5	-4.4765	µg/L	-4.4765	ppb	13:30:10
2	Cd 226.502†	54.4	236.3	0.3191	µg/L	0.3191	ppb	13:30:30
2	Co 228.616†	306.6	408.3	6.1544	µg/L	6.1544	ppb	13:30:30
2	Cr 267.716†	960.0	863.0	10.269	µg/L	10.269	ppb	13:30:30
2	Cu 324.752†	7179.2	1640.9	8.2182	µg/L	8.2182	ppb	13:30:10
2	Mn 257.610†	156689.3	161744.5	283.21	µg/L	283.21	ppb	13:30:10
2	Mo 202.031†	-41.4	-13.1	-0.2898	µg/L	-0.2898	ppb	13:30:30
2	Ni 231.604†	748.8	971.4	15.443	µg/L	15.443	ppb	13:30:30
2	P 214.914†	1373.9	1514.6	545.26	µg/L	545.26	ppb	13:30:30
2	Pb 220.353†	174.5	106.6	10.908	µg/L	10.908	ppb	13:30:30

2	S 181.975 Axial†	229.2	134.1	146.81 µg/L	146.81 ppb	13:30:30
2	Sb 206.836†	49.1	6.5	-0.1193 µg/L	-0.1193 ppb	13:30:30
2	Se 196.026†	4.3	-3.5	3.96 µg/L	3.96 ppb	13:30:30
2	SiO2†	56402.8	55257.4	6115.7 µg/L	6115.7 ppb	13:30:10
2	Si 251.611†	163318.0	168160.9	2852.8 µg/L	2852.8 ppb	13:30:10
2	Sn 189.927†	-35.8	-9.5	-1.1943 µg/L	-1.1943 ppb	13:30:30
2	Ti 334.940†	132219.5	137502.7	195.64 µg/L	195.64 ppb	13:30:10
2	Tl 190.801†	-97.6	-14.8	-4.3259 µg/L	-4.3259 ppb	13:30:30
2	U 367.007†	330.8	626.0	5.6751 µg/L	5.6751 ppb	13:30:10
2	V 292.402†	4071.6	4103.6	19.289 µg/L	19.289 ppb	13:30:10
2	Zn 213.857†	7615.7	7822.3	42.627 µg/L	42.627 ppb	13:30:30
3	Sc RADIAL	72462.0	72462.0	101 %		13:29:44
3	Al 396.153Radial†	15101.3	14911.2	5446.8 µg/L	5446.8 ppb	13:29:44
3	Ca 317.933Radial†	166947.9	165627.5	18438 µg/L	18438 ppb	13:29:44
3	Fe 238.204 Radial†	135211.5	134938.2	12765 µg/L	12765 ppb	13:29:44
3	K 766.490 Radial†	3306.2	2216.6	1168.0 µg/L	1168.0 ppb	13:29:44
3	Mg 279.077 IEC†	13765.8	13658.4	7367.9 µg/L	7367.9 ppb	13:29:44
3	Na 589.592 Radial†	1327.3	1279.8	213.41 µg/L	213.41 ppb	13:29:44
3	Sr 421.552†	17782.3	18137.2	51.985 µg/L	51.985 ppb	13:29:44
3	Sc 361.383	1324002.3	1324002.3	99.459 %		13:30:32
3	Y 371.029	720781.8	720781.8	99.494 %		13:30:32
3	Ag 328.068†	-1957.1	-76.9	0.1492 µg/L	0.1492 ppb	13:30:32
3	As 188.979†	-10.5	19.4	12.166 µg/L	12.166 ppb	13:30:52
3	B 249.677†	397.4	-485.3	2.3836 µg/L	2.3836 ppb	13:30:32
3	Ba 233.527†	23188.0	23554.9	210.09 µg/L	210.09 ppb	13:30:32
3	Be 313.107†	-1258.5	2390.6	-4.4846 µg/L	-4.4846 ppb	13:30:32
3	Cd 226.502†	59.1	239.4	0.3498 µg/L	0.3498 ppb	13:30:52
3	Co 228.616†	270.6	363.6	5.4908 µg/L	5.4908 ppb	13:30:52
3	Cr 267.716†	966.8	843.1	10.033 µg/L	10.033 ppb	13:30:52
3	Cu 324.752†	7239.4	1501.9	7.6016 µg/L	7.6016 ppb	13:30:32
3	Mn 257.610†	160557.6	161279.0	282.39 µg/L	282.39 ppb	13:30:32
3	Mo 202.031†	-34.1	-4.5	0.1530 µg/L	0.1530 ppb	13:30:52
3	Ni 231.604†	768.7	970.6	15.431 µg/L	15.431 ppb	13:30:52
3	P 214.914†	1362.2	1464.7	527.27 µg/L	527.27 ppb	13:30:52
3	Pb 220.353†	157.5	84.7	8.6829 µg/L	8.6829 ppb	13:30:52
3	S 181.975 Axial†	228.1	126.7	138.55 µg/L	138.55 ppb	13:30:52
3	Sb 206.836†	45.1	1.1	-1.1541 µg/L	-1.1541 ppb	13:30:52
3	Se 196.026†	0.7	-7.3	1.97 µg/L	1.97 ppb	13:30:52
3	SiO2†	57711.9	55006.1	6087.9 µg/L	6087.9 ppb	13:30:32
3	Si 251.611†	167271.5	167596.9	2843.2 µg/L	2843.2 ppb	13:30:32
3	Sn 189.927†	-33.6	-6.3	-0.7874 µg/L	-0.7874 ppb	13:30:52
3	Ti 334.940†	135961.7	137590.6	195.76 µg/L	195.76 ppb	13:30:32
3	Tl 190.801†	-94.3	-8.8	-2.4800 µg/L	-2.4800 ppb	13:30:52
3	U 367.007†	354.7	640.8	7.8337 µg/L	7.8337 ppb	13:30:32
3	V 292.402†	4101.3	4020.2	18.912 µg/L	18.912 ppb	13:30:32
3	Zn 213.857†	7634.8	7629.8	41.544 µg/L	41.544 ppb	13:30:52

Mean Data: 409254017|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1309789.8	98.391	%	1.4171				1.44%
Sc RADIAL	71991.7	99.9	%	0.59				0.59%
Y 371.029	713436.2	98.480	%	1.3525				1.37%
Ag 328.068†	18.6	0.6431	µg/L	0.43038	0.6431	ppb	0.43038	66.92%
Al 396.153Radial†	14910.6	5446.6	µg/L	57.70	5446.6	ppb	57.70	1.06%
As 188.979†	14.6	9.6089	µg/L	2.28824	9.6089	ppb	2.28824	23.81%
B 249.677†	-465.3	2.6621	µg/L	0.46970	2.6621	ppb	0.46970	17.64%
Ba 233.527†	23459.4	209.24	µg/L	1.433	209.24	ppb	1.433	0.68%
Be 313.107†	2409.7	-4.4596	µg/L	0.03661	-4.4596	ppb	0.03661	0.82%
Ca 317.933Radial†	165331.4	18405	µg/L	123.8	18405	ppb	123.8	0.67%
Cd 226.502†	235.3	0.3201	µg/L	0.02933	0.3201	ppb	0.02933	9.16%
Co 228.616†	385.2	5.8108	µg/L	0.33243	5.8108	ppb	0.33243	5.72%
Cr 267.716†	853.5	10.158	µg/L	0.1187	10.158	ppb	0.1187	1.17%
Cu 324.752†	1508.2	7.6265	µg/L	0.57971	7.6265	ppb	0.57971	7.60%
Fe 238.204 Radial†	134804.0	12752	µg/L	78.9	12752	ppb	78.9	0.62%
K 766.490 Radial†	2200.2	1159.4	µg/L	23.57	1159.4	ppb	23.57	2.03%
Mg 279.077 IEC†	13648.6	7362.6	µg/L	49.90	7362.6	ppb	49.90	0.68%
Mn 257.610†	160704.2	281.39	µg/L	2.483	281.39	ppb	2.483	0.88%
Mo 202.031†	-7.1	0.0203	µg/L	0.26951	0.0203	ppb	0.26951	>999.9%
Na 589.592 Radial†	1312.3	218.83	µg/L	11.313	218.83	ppb	11.313	5.17%

Ni 231.604†	957.2	15.218 µg/L	0.3788	15.218 ppb	0.3788	2.49%
P 214.914†	1480.3	532.90 µg/L	10.715	532.90 ppb	10.715	2.01%
Pb 220.353†	103.8	10.619 µg/L	1.8089	10.619 ppb	1.8089	17.03%
S 181.975 Axial†	129.9	142.17 µg/L	4.221	142.17 ppb	4.221	2.97%
Sb 206.836†	4.5	-0.4846 µg/L	0.58056	-0.4846 ppb	0.58056	119.79%
Se 196.026†	-8.4	1.39 µg/L	2.907	1.39 ppb	2.907	209.70%
SiO2†	54900.5	6076.2 µg/L	46.46	6076.2 ppb	46.46	0.76%
Si 251.611†	167038.9	2833.8 µg/L	25.14	2833.8 ppb	25.14	0.89%
Sn 189.927†	-4.6	-0.5717 µg/L	0.75397	-0.5717 ppb	0.75397	131.89%
Sr 421.552†	18169.4	52.080 µg/L	0.6391	52.080 ppb	0.6391	1.23%
Ti 334.940†	136737.0	194.55 µg/L	1.994	194.55 ppb	1.994	1.02%
Tl 190.801†	-12.0	-3.4737 µg/L	0.93106	-3.4737 ppb	0.93106	26.80%
U 367.007†	617.1	4.9820 µg/L	3.25402	4.9820 ppb	3.25402	65.31%
V 292.402†	3994.4	18.794 µg/L	0.5623	18.794 ppb	0.5623	2.99%
Zn 213.857†	7694.7	41.914 µg/L	0.6179	41.914 ppb	0.6179	1.47%

Sequence No.: 10 **Autosampler Location: 356**
Sample ID: 409254018|1611117|10 **Date Collected: 11/11/2016 13:31:00**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254018|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70372.0	70372.0	97.7	%			13:31:25
1	Al 396.153Radial†	20494.4	20877.9	7624.6	µg/L	7624.6	ppb	13:31:25
1	Ca 317.933Radial†	136362.1	139246.9	15501	µg/L	15501	ppb	13:31:25
1	Fe 238.204 Radial†	111674.4	114836.0	10863	µg/L	10863	ppb	13:31:25
1	K 766.490 Radial†	3849.4	2870.3	1511.1	µg/L	1511.1	ppb	13:31:25
1	Mg 279.077 IEC†	11253.6	11493.2	6199.9	µg/L	6199.9	ppb	13:31:25
1	Na 589.592 Radial†	1006.5	990.6	165.18	µg/L	165.18	ppb	13:31:25
1	Sr 421.552†	18647.3	19547.7	56.179	µg/L	56.179	ppb	13:31:25
1	Sc 361.383	1322621.4	1322621.4	99.355	%			13:31:32
1	Y 371.029	721159.7	721159.7	99.546	%			13:31:32
1	Ag 328.068†	-1877.1	1.5	0.4784	µg/L	0.4784	ppb	13:31:32
1	As 188.979†	-23.3	6.5	4.9802	µg/L	4.9802	ppb	13:31:52
1	B 249.677†	721.5	-158.7	5.6863	µg/L	5.6863	ppb	13:31:32
1	Ba 233.527†	20617.0	20991.6	187.23	µg/L	187.23	ppb	13:31:32
1	Be 313.107†	-745.1	2906.0	-3.7888	µg/L	-3.7888	ppb	13:31:32
1	Cd 226.502†	25.0	205.2	0.3087	µg/L	0.3087	ppb	13:31:52
1	Co 228.616†	426.9	521.2	7.8287	µg/L	7.8287	ppb	13:31:52
1	Cr 267.716†	1143.7	1022.1	12.128	µg/L	12.128	ppb	13:31:52
1	Cu 324.752†	8868.1	3148.8	14.718	µg/L	14.718	ppb	13:31:32
1	Mn 257.610†	197549.2	198679.2	347.98	µg/L	347.98	ppb	13:31:32
1	Mo 202.031†	-34.7	-5.2	0.0600	µg/L	0.0600	ppb	13:31:52
1	Ni 231.604†	1106.6	1311.5	20.850	µg/L	20.850	ppb	13:31:52
1	P 214.914†	1052.7	1154.6	415.61	µg/L	415.61	ppb	13:31:52
1	Pb 220.353†	191.3	118.9	12.282	µg/L	12.282	ppb	13:31:52
1	S 181.975 Axial†	368.1	267.8	296.48	µg/L	296.48	ppb	13:31:52
1	Sb 206.836†	51.3	7.3	0.2718	µg/L	0.2718	ppb	13:31:52
1	Se 196.026†	-4.6	-12.6	-1.76	µg/L	-1.76	ppb	13:31:52
1	SiO2†	71260.9	68703.5	7603.9	µg/L	7603.9	ppb	13:31:32
1	Si 251.611†	208309.8	209077.1	3546.3	µg/L	3546.3	ppb	13:31:32
1	Sn 189.927†	-27.7	-0.4	-0.0212	µg/L	-0.0212	ppb	13:31:52
1	Ti 334.940†	101745.4	103294.9	146.98	µg/L	146.98	ppb	13:31:32
1	Tl 190.801†	-91.8	-6.4	-1.7760	µg/L	-1.7760	ppb	13:31:52
1	U 367.007†	201.3	486.9	-0.5156	µg/L	-0.5156	ppb	13:31:32
1	V 292.402†	5291.7	5222.7	24.170	µg/L	24.170	ppb	13:31:32
1	Zn 213.857†	9378.6	9392.9	51.802	µg/L	51.802	ppb	13:31:52
2	Sc RADIAL	70786.9	70786.9	98.3	%			13:31:27
2	Al 396.153Radial†	20585.4	20847.5	7613.5	µg/L	7613.5	ppb	13:31:27
2	Ca 317.933Radial†	137178.6	139259.6	15502	µg/L	15502	ppb	13:31:27
2	Fe 238.204 Radial†	112305.3	114808.0	10860	µg/L	10860	ppb	13:31:27
2	K 766.490 Radial†	3893.2	2891.8	1522.4	µg/L	1522.4	ppb	13:31:27
2	Mg 279.077 IEC†	11475.8	11651.8	6285.4	µg/L	6285.4	ppb	13:31:27
2	Na 589.592 Radial†	1266.1	1248.7	208.23	µg/L	208.23	ppb	13:31:27
2	Sr 421.552†	18666.1	19455.0	55.910	µg/L	55.910	ppb	13:31:27
2	Sc 361.383	1310062.4	1310062.4	98.412	%			13:31:55
2	Y 371.029	713459.4	713459.4	98.483	%			13:31:55
2	Ag 328.068†	-2072.7	-215.3	-0.6451	µg/L	-0.6451	ppb	13:31:55
2	As 188.979†	-35.5	-6.1	-1.8770	µg/L	-1.8770	ppb	13:32:15
2	B 249.677†	591.1	-284.3	3.8785	µg/L	3.8785	ppb	13:31:55
2	Ba 233.527†	20588.9	21161.9	188.75	µg/L	188.75	ppb	13:31:55
2	Be 313.107†	-702.7	2941.9	-3.8136	µg/L	-3.8136	ppb	13:31:55
2	Cd 226.502†	43.6	224.3	0.4536	µg/L	0.4536	ppb	13:32:15
2	Co 228.616†	451.5	550.3	8.2636	µg/L	8.2636	ppb	13:32:15
2	Cr 267.716†	1160.6	1050.3	12.452	µg/L	12.452	ppb	13:32:15
2	Cu 324.752†	8923.0	3290.1	15.348	µg/L	15.348	ppb	13:31:55
2	Mn 257.610†	195717.1	198723.7	348.06	µg/L	348.06	ppb	13:31:55
2	Mo 202.031†	-35.6	-6.4	-0.0032	µg/L	-0.0032	ppb	13:32:15
2	Ni 231.604†	1090.8	1306.1	20.765	µg/L	20.765	ppb	13:32:15
2	P 214.914†	1064.5	1176.7	423.57	µg/L	423.57	ppb	13:32:15
2	Pb 220.353†	205.5	135.1	13.918	µg/L	13.918	ppb	13:32:15

2	S 181.975 Axial†	360.3	263.5	291.61 µg/L	291.61 ppb	13:32:15
2	Sb 206.836†	42.1	-1.5	-1.4456 µg/L	-1.4456 ppb	13:32:15
2	Se 196.026†	-5.9	-14.0	-2.48 µg/L	-2.48 ppb	13:32:15
2	SiO2†	70735.5	68857.3	7620.9 µg/L	7620.9 ppb	13:31:55
2	Si 251.611†	206891.8	209646.2	3555.9 µg/L	3555.9 ppb	13:31:55
2	Sn 189.927†	-28.5	-1.5	-0.1707 µg/L	-0.1707 ppb	13:32:15
2	Ti 334.940†	101080.7	103601.2	147.42 µg/L	147.42 ppb	13:31:55
2	Tl 190.801†	-94.1	-9.6	-2.7697 µg/L	-2.7697 ppb	13:32:15
2	U 367.007†	260.9	549.4	7.1892 µg/L	7.1892 ppb	13:31:55
2	V 292.402†	4993.6	4970.9	23.044 µg/L	23.044 ppb	13:31:55
2	Zn 213.857†	9419.3	9524.8	52.546 µg/L	52.546 ppb	13:32:15
3	Sc RADIAL	71478.6	71478.6	99.2 %		13:31:29
3	Al 396.153Radial†	20709.5	20769.9	7585.1 µg/L	7585.1 ppb	13:31:29
3	Ca 317.933Radial†	138413.1	139152.9	15491 µg/L	15491 ppb	13:31:29
3	Fe 238.204 Radial†	113114.9	114518.1	10833 µg/L	10833 ppb	13:31:29
3	K 766.490 Radial†	3752.5	2711.7	1427.7 µg/L	1427.7 ppb	13:31:29
3	Mg 279.077 IEC†	11472.0	11535.0	6222.5 µg/L	6222.5 ppb	13:31:29
3	Na 589.592 Radial†	1126.1	1095.1	182.61 µg/L	182.61 ppb	13:31:29
3	Sr 421.552†	18796.1	19402.2	55.757 µg/L	55.757 ppb	13:31:29
3	Sc 361.383	1326176.0	1326176.0	99.622 %		13:32:17
3	Y 371.029	721701.3	721701.3	99.621 %		13:32:17
3	Ag 328.068†	-1822.7	61.2	0.7810 µg/L	0.7810 ppb	13:32:17
3	As 188.979†	-24.0	5.9	4.6377 µg/L	4.6377 ppb	13:32:37
3	B 249.677†	720.4	-161.7	5.6210 µg/L	5.6210 ppb	13:32:17
3	Ba 233.527†	20711.0	21030.3	187.57 µg/L	187.57 ppb	13:32:17
3	Be 313.107†	-694.8	2958.5	-3.7807 µg/L	-3.7807 ppb	13:32:17
3	Cd 226.502†	59.4	239.6	0.5727 µg/L	0.5727 ppb	13:32:37
3	Co 228.616†	445.9	539.1	8.0958 µg/L	8.0958 ppb	13:32:37
3	Cr 267.716†	1181.9	1057.4	12.536 µg/L	12.536 ppb	13:32:37
3	Cu 324.752†	8864.5	3121.2	14.599 µg/L	14.599 ppb	13:32:17
3	Mn 257.610†	197751.9	198349.7	347.41 µg/L	347.41 ppb	13:32:17
3	Mo 202.031†	-27.9	1.8	0.4211 µg/L	0.4211 ppb	13:32:37
3	Ni 231.604†	1123.6	1325.6	21.074 µg/L	21.074 ppb	13:32:37
3	P 214.914†	1069.3	1168.5	420.60 µg/L	420.60 ppb	13:32:37
3	Pb 220.353†	197.3	124.4	12.831 µg/L	12.831 ppb	13:32:37
3	S 181.975 Axial†	370.6	269.3	298.11 µg/L	298.11 ppb	13:32:37
3	Sb 206.836†	49.4	5.2	-0.1347 µg/L	-0.1347 ppb	13:32:37
3	Se 196.026†	2.5	-5.5	1.96 µg/L	1.96 ppb	13:32:37
3	SiO2†	71618.1	68869.9	7622.3 µg/L	7622.3 ppb	13:32:17
3	Si 251.611†	209327.4	209536.7	3554.1 µg/L	3554.1 ppb	13:32:17
3	Sn 189.927†	-34.3	-6.9	-0.8632 µg/L	-0.8632 ppb	13:32:37
3	Ti 334.940†	102212.0	103488.8	147.26 µg/L	147.26 ppb	13:32:17
3	Tl 190.801†	-84.8	0.9	0.4635 µg/L	0.4635 ppb	13:32:37
3	U 367.007†	252.8	538.0	5.9390 µg/L	5.9390 ppb	13:32:17
3	V 292.402†	5228.8	5145.3	23.824 µg/L	23.824 ppb	13:32:17
3	Zn 213.857†	9393.9	9383.0	51.748 µg/L	51.748 ppb	13:32:37

Mean Data: 409254018|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1319619.9	99.130	%	0.6359				0.64%
Sc RADIAL	70879.2	98.4	%	0.78				0.79%
Y 371.029	718773.5	99.217	%	0.6364				0.64%
Ag 328.068†	-50.9	0.2048	µg/L	0.75139	0.2048	ppb	0.75139	366.93%
Al 396.153Radial†	20831.8	7607.7	µg/L	20.33	7607.7	ppb	20.33	0.27%
As 188.979†	2.1	2.5803	µg/L	3.86393	2.5803	ppb	3.86393	149.75%
B 249.677†	-201.6	5.0619	µg/L	1.02541	5.0619	ppb	1.02541	20.26%
Ba 233.527†	21061.3	187.85	µg/L	0.796	187.85	ppb	0.796	0.42%
Be 313.107†	2935.5	-3.7944	µg/L	0.01714	-3.7944	ppb	0.01714	0.45%
Ca 317.933Radial†	139219.8	15498	µg/L	6.5	15498	ppb	6.5	0.04%
Cd 226.502†	223.1	0.4450	µg/L	0.13221	0.4450	ppb	0.13221	29.71%
Co 228.616†	536.9	8.0627	µg/L	0.21934	8.0627	ppb	0.21934	2.72%
Cr 267.716†	1043.3	12.372	µg/L	0.2158	12.372	ppb	0.2158	1.74%
Cu 324.752†	3186.7	14.888	µg/L	0.4026	14.888	ppb	0.4026	2.70%
Fe 238.204 Radial†	114720.7	10852	µg/L	16.7	10852	ppb	16.7	0.15%
K 766.490 Radial†	2824.6	1487.0	µg/L	51.71	1487.0	ppb	51.71	3.48%
Mg 279.077 IEC†	11560.0	6236.0	µg/L	44.32	6236.0	ppb	44.32	0.71%
Mn 257.610†	198584.2	347.82	µg/L	0.357	347.82	ppb	0.357	0.10%
Mo 202.031†	-3.3	0.1593	µg/L	0.22894	0.1593	ppb	0.22894	143.71%
Na 589.592 Radial†	1111.5	185.34	µg/L	21.653	185.34	ppb	21.653	11.68%

Ni 231.604†	1314.4	20.897 µg/L	0.1595	20.897 ppb	0.1595	0.76%
P 214.914†	1166.6	419.93 µg/L	4.021	419.93 ppb	4.021	0.96%
Pb 220.353†	126.1	13.010 µg/L	0.8325	13.010 ppb	0.8325	6.40%
S 181.975 Axial†	266.9	295.40 µg/L	3.382	295.40 ppb	3.382	1.14%
Sb 206.836†	3.7	-0.4362 µg/L	0.89748	-0.4362 ppb	0.89748	205.76%
Se 196.026†	-10.7	-0.761 µg/L	2.3811	-0.761 ppb	2.3811	312.70%
SiO2†	68810.2	7615.7 µg/L	10.25	7615.7 ppb	10.25	0.13%
Si 251.611†	209420.0	3552.1 µg/L	5.12	3552.1 ppb	5.12	0.14%
Sn 189.927†	-2.9	-0.3517 µg/L	0.44926	-0.3517 ppb	0.44926	127.74%
Sr 421.552†	19468.3	55.948 µg/L	0.2136	55.948 ppb	0.2136	0.38%
Ti 334.940†	103461.7	147.22 µg/L	0.218	147.22 ppb	0.218	0.15%
Tl 190.801†	-5.0	-1.3607 µg/L	1.65611	-1.3607 ppb	1.65611	121.71%
U 367.007†	524.7	4.2042 µg/L	4.13501	4.2042 ppb	4.13501	98.35%
V 292.402†	5113.0	23.679 µg/L	0.5764	23.679 ppb	0.5764	2.43%
Zn 213.857†	9433.6	52.032 µg/L	0.4458	52.032 ppb	0.4458	0.86%

Sequence No.: 11 **Autosampler Location: 357**
Sample ID: 409254019|1611117|10 **Date Collected: 11/11/2016 13:32:45**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254019|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	72339.7	72339.7	100	%			13:33:10
1	Al 396.153Radial†	12895.5	12740.0	4653.7	µg/L	4653.7	ppb	13:33:10
1	Ca 317.933Radial†	141804.5	140869.6	15682	µg/L	15682	ppb	13:33:10
1	Fe 238.204 Radial†	109186.1	109248.6	10334	µg/L	10334	ppb	13:33:10
1	K 766.490 Radial†	2984.3	1901.6	1001.8	µg/L	1001.8	ppb	13:33:10
1	Mg 279.077 IEC†	11590.3	11515.1	6211.6	µg/L	6211.6	ppb	13:33:10
1	Na 589.592 Radial†	1187.4	1142.7	190.56	µg/L	190.56	ppb	13:33:10
1	Sr 421.552†	17075.0	17462.8	50.123	µg/L	50.123	ppb	13:33:10
1	Sc 361.383	1317564.4	1317564.4	98.975	%			13:33:17
1	Y 371.029	718152.6	718152.6	99.131	%			13:33:17
1	Ag 328.068†	-1945.2	-74.5	0.0499	µg/L	0.0499	ppb	13:33:17
1	As 188.979†	-19.9	9.8	6.6829	µg/L	6.6829	ppb	13:33:37
1	B 249.677†	573.3	-305.6	3.1858	µg/L	3.1858	ppb	13:33:17
1	Ba 233.527†	19973.0	20420.6	182.13	µg/L	182.13	ppb	13:33:17
1	Be 313.107†	-1553.3	2086.5	-3.8847	µg/L	-3.8847	ppb	13:33:17
1	Cd 226.502†	11.1	191.3	0.2639	µg/L	0.2639	ppb	13:33:37
1	Co 228.616†	228.7	322.6	4.8797	µg/L	4.8797	ppb	13:33:37
1	Cr 267.716†	839.8	719.5	8.5534	µg/L	8.5534	ppb	13:33:37
1	Cu 324.752†	7461.8	1762.1	8.5701	µg/L	8.5701	ppb	13:33:17
1	Mn 257.610†	120044.3	121135.1	212.08	µg/L	212.08	ppb	13:33:17
1	Mo 202.031†	-40.2	-10.9	-0.2505	µg/L	-0.2505	ppb	13:33:37
1	Ni 231.604†	615.9	820.0	13.037	µg/L	13.037	ppb	13:33:37
1	P 214.914†	1095.4	1201.8	432.64	µg/L	432.64	ppb	13:33:37
1	Pb 220.353†	160.8	88.7	9.0772	µg/L	9.0772	ppb	13:33:37
1	S 181.975 Axial†	212.5	112.1	122.74	µg/L	122.74	ppb	13:33:37
1	Sb 206.836†	59.4	15.7	1.9385	µg/L	1.9385	ppb	13:33:37
1	Se 196.026†	-3.5	-11.5	-1.35	µg/L	-1.35	ppb	13:33:37
1	SiO2†	55094.1	52644.7	5826.6	µg/L	5826.6	ppb	13:33:17
1	Si 251.611†	159098.8	160161.4	2716.8	µg/L	2716.8	ppb	13:33:17
1	Sn 189.927†	-32.0	-4.8	-0.6051	µg/L	-0.6051	ppb	13:33:37
1	Ti 334.940†	124737.4	126918.0	180.56	µg/L	180.56	ppb	13:33:17
1	Tl 190.801†	-91.3	-6.2	-1.7242	µg/L	-1.7242	ppb	13:33:37
1	U 367.007†	254.0	540.8	8.9828	µg/L	8.9828	ppb	13:33:17
1	V 292.402†	3499.0	3431.9	16.106	µg/L	16.106	ppb	13:33:17
1	Zn 213.857†	6636.3	6658.5	36.351	µg/L	36.351	ppb	13:33:37
2	Sc RADIAL	70839.2	70839.2	98.3	%			13:33:12
2	Al 396.153Radial†	12837.4	12952.9	4731.5	µg/L	4731.5	ppb	13:33:12
2	Ca 317.933Radial†	139630.0	141649.5	15768	µg/L	15768	ppb	13:33:12
2	Fe 238.204 Radial†	107315.4	109649.4	10372	µg/L	10372	ppb	13:33:12
2	K 766.490 Radial†	2905.2	1884.1	992.64	µg/L	992.64	ppb	13:33:12
2	Mg 279.077 IEC†	11332.7	11497.7	6202.2	µg/L	6202.2	ppb	13:33:12
2	Na 589.592 Radial†	1227.4	1208.4	201.50	µg/L	201.50	ppb	13:33:12
2	Sr 421.552†	16801.0	17544.3	50.357	µg/L	50.357	ppb	13:33:12
2	Sc 361.383	1326539.4	1326539.4	99.650	%			13:33:40
2	Y 371.029	722621.4	722621.4	99.748	%			13:33:40
2	Ag 328.068†	-1811.7	72.8	0.8217	µg/L	0.8217	ppb	13:33:40
2	As 188.979†	-24.4	5.4	4.3024	µg/L	4.3024	ppb	13:34:00
2	B 249.677†	390.7	-492.8	0.5214	µg/L	0.5214	ppb	13:33:40
2	Ba 233.527†	20198.1	20509.9	182.93	µg/L	182.93	ppb	13:33:40
2	Be 313.107†	-1509.0	2141.6	-3.8958	µg/L	-3.8958	ppb	13:33:40
2	Cd 226.502†	30.7	210.8	0.4075	µg/L	0.4075	ppb	13:34:00
2	Co 228.616†	241.7	334.1	5.0502	µg/L	5.0502	ppb	13:34:00
2	Cr 267.716†	872.2	746.3	8.8857	µg/L	8.8857	ppb	13:34:00
2	Cu 324.752†	7488.7	1738.1	8.4523	µg/L	8.4523	ppb	13:33:40
2	Mn 257.610†	121608.6	121884.3	213.39	µg/L	213.39	ppb	13:33:40
2	Mo 202.031†	-40.9	-11.3	-0.2689	µg/L	-0.2689	ppb	13:34:00
2	Ni 231.604†	628.7	828.6	13.174	µg/L	13.174	ppb	13:34:00
2	P 214.914†	1093.7	1192.7	429.34	µg/L	429.34	ppb	13:34:00
2	Pb 220.353†	163.2	90.1	9.2377	µg/L	9.2377	ppb	13:34:00

2	S 181.975 Axial†	220.1	118.1	129.53 µg/L	129.53 ppb	13:34:00
2	Sb 206.836†	41.3	-2.9	-1.6681 µg/L	-1.6681 ppb	13:34:00
2	Se 196.026†	-0.1	-8.1	0.440 µg/L	0.440 ppb	13:34:00
2	SiO2†	55776.9	52953.2	5860.7 µg/L	5860.7 ppb	13:33:40
2	Si 251.611†	161108.0	161090.1	2732.6 µg/L	2732.6 ppb	13:33:40
2	Sn 189.927†	-20.7	6.8	0.8795 µg/L	0.8795 ppb	13:34:00
2	Ti 334.940†	126630.2	127964.8	182.06 µg/L	182.06 ppb	13:33:40
2	Tl 190.801†	-103.4	-17.8	-5.2763 µg/L	-5.2763 ppb	13:34:00
2	U 367.007†	111.2	395.8	-9.0761 µg/L	-9.0761 ppb	13:33:40
2	V 292.402†	3398.7	3307.4	15.545 µg/L	15.545 ppb	13:33:40
2	Zn 213.857†	6651.8	6628.7	36.178 µg/L	36.178 ppb	13:34:00
3	Sc RADIAL	69800.2	69800.2	96.9 %		13:33:14
3	Al 396.153Radial†	12559.1	12860.1	4697.6 µg/L	4697.6 ppb	13:33:14
3	Ca 317.933Radial†	138110.5	142194.9	15829 µg/L	15829 ppb	13:33:14
3	Fe 238.204 Radial†	106118.4	110038.5	10409 µg/L	10409 ppb	13:33:14
3	K 766.490 Radial†	2894.6	1917.2	1010.0 µg/L	1010.0 ppb	13:33:14
3	Mg 279.077 IEC†	11214.1	11546.8	6228.7 µg/L	6228.7 ppb	13:33:14
3	Na 589.592 Radial†	1236.1	1235.9	206.10 µg/L	206.10 ppb	13:33:14
3	Sr 421.552†	16628.1	17620.2	50.575 µg/L	50.575 ppb	13:33:14
3	Sc 361.383	1329251.7	1329251.7	99.853 %		13:34:02
3	Y 371.029	723626.8	723626.8	99.887 %		13:34:02
3	Ag 328.068†	-1860.4	27.7	0.5931 µg/L	0.5931 ppb	13:34:02
3	As 188.979†	-21.9	8.0	5.6822 µg/L	5.6822 ppb	13:34:22
3	B 249.677†	566.9	-317.2	3.0742 µg/L	3.0742 ppb	13:34:02
3	Ba 233.527†	20245.4	20515.9	182.98 µg/L	182.98 ppb	13:34:02
3	Be 313.107†	-1587.3	2066.3	-3.9193 µg/L	-3.9193 ppb	13:34:02
3	Cd 226.502†	37.5	217.6	0.4542 µg/L	0.4542 ppb	13:34:22
3	Co 228.616†	238.7	330.5	4.9970 µg/L	4.9970 ppb	13:34:22
3	Cr 267.716†	841.8	714.0	8.5109 µg/L	8.5109 ppb	13:34:22
3	Cu 324.752†	7539.7	1773.9	8.6091 µg/L	8.6091 ppb	13:34:02
3	Mn 257.610†	121422.9	121449.3	212.63 µg/L	212.63 ppb	13:34:02
3	Mo 202.031†	-37.5	-7.8	-0.0879 µg/L	-0.0879 ppb	13:34:22
3	Ni 231.604†	655.2	853.9	13.576 µg/L	13.576 ppb	13:34:22
3	P 214.914†	1114.4	1211.1	435.98 µg/L	435.98 ppb	13:34:22
3	Pb 220.353†	159.0	85.6	8.7840 µg/L	8.7840 ppb	13:34:22
3	S 181.975 Axial†	220.2	117.8	129.18 µg/L	129.18 ppb	13:34:22
3	Sb 206.836†	49.3	5.1	-0.1222 µg/L	-0.1222 ppb	13:34:22
3	Se 196.026†	5.4	-2.6	3.32 µg/L	3.32 ppb	13:34:22
3	SiO2†	55731.5	52793.6	5843.0 µg/L	5843.0 ppb	13:34:02
3	Si 251.611†	160706.4	160358.0	2720.2 µg/L	2720.2 ppb	13:34:02
3	Sn 189.927†	-35.0	-7.6	-0.9569 µg/L	-0.9569 ppb	13:34:22
3	Ti 334.940†	126084.6	127159.1	180.92 µg/L	180.92 ppb	13:34:02
3	Tl 190.801†	-94.4	-8.5	-2.4239 µg/L	-2.4239 ppb	13:34:22
3	U 367.007†	74.1	358.4	-13.882 µg/L	-13.882 ppb	13:34:02
3	V 292.402†	3550.9	3452.8	16.197 µg/L	16.197 ppb	13:34:02
3	Zn 213.857†	6656.3	6619.5	36.121 µg/L	36.121 ppb	13:34:22

Mean Data: 409254019|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1324451.8	99.493	%	0.4595				0.46%
Sc RADIAL	70993.0	98.5	%	1.77				1.80%
Y 371.029	721466.9	99.589	%	0.4022				0.40%
Ag 328.068†	8.7	0.4882	µg/L	0.39648	0.4882	ppb	0.39648	81.21%
Al 396.153Radial†	12851.0	4694.2	µg/L	38.98	4694.2	ppb	38.98	0.83%
As 188.979†	7.7	5.5558	µg/L	1.19527	5.5558	ppb	1.19527	21.51%
B 249.677†	-371.9	2.2605	µg/L	1.50709	2.2605	ppb	1.50709	66.67%
Ba 233.527†	20482.1	182.68	µg/L	0.476	182.68	ppb	0.476	0.26%
Be 313.107†	2098.1	-3.8999	µg/L	0.01763	-3.8999	ppb	0.01763	0.45%
Ca 317.933Radial†	141571.4	15760	µg/L	74.1	15760	ppb	74.1	0.47%
Cd 226.502†	206.6	0.3752	µg/L	0.09917	0.3752	ppb	0.09917	26.43%
Co 228.616†	329.1	4.9756	µg/L	0.08720	4.9756	ppb	0.08720	1.75%
Cr 267.716†	726.6	8.6500	µg/L	0.20518	8.6500	ppb	0.20518	2.37%
Cu 324.752†	1758.0	8.5438	µg/L	0.08162	8.5438	ppb	0.08162	0.96%
Fe 238.204 Radial†	109645.5	10372	µg/L	37.4	10372	ppb	37.4	0.36%
K 766.490 Radial†	1901.0	1001.5	µg/L	8.70	1001.5	ppb	8.70	0.87%
Mg 279.077 IEC†	11519.9	6214.2	µg/L	13.45	6214.2	ppb	13.45	0.22%
Mn 257.610†	121489.6	212.70	µg/L	0.660	212.70	ppb	0.660	0.31%
Mo 202.031†	-10.0	-0.2025	µg/L	0.09961	-0.2025	ppb	0.09961	49.20%
Na 589.592 Radial†	1195.7	199.38	µg/L	7.984	199.38	ppb	7.984	4.00%

Ni 231.604†	834.2	13.262 µg/L	0.2800	13.262 ppb	0.2800	2.11%
P 214.914†	1201.9	432.65 µg/L	3.321	432.65 ppb	3.321	0.77%
Pb 220.353†	88.1	9.0330 µg/L	0.23005	9.0330 ppb	0.23005	2.55%
S 181.975 Axial†	116.0	127.15 µg/L	3.822	127.15 ppb	3.822	3.01%
Sb 206.836†	6.0	0.0494 µg/L	1.80941	0.0494 ppb	1.80941	>999.9%
Se 196.026†	-7.4	0.801 µg/L	2.3568	0.801 ppb	2.3568	294.33%
SiO2†	52797.2	5843.4 µg/L	17.08	5843.4 ppb	17.08	0.29%
Si 251.611†	160536.5	2723.2 µg/L	8.30	2723.2 ppb	8.30	0.30%
Sn 189.927†	-1.9	-0.2275 µg/L	0.97468	-0.2275 ppb	0.97468	428.42%
Sr 421.552†	17542.4	50.352 µg/L	0.2259	50.352 ppb	0.2259	0.45%
Ti 334.940†	127347.3	181.18 µg/L	0.783	181.18 ppb	0.783	0.43%
Tl 190.801†	-10.8	-3.1415 µg/L	1.88163	-3.1415 ppb	1.88163	59.90%
U 367.007†	431.7	-4.6586 µg/L	12.05571	-4.6586 ppb	12.05571	258.79%
V 292.402†	3397.3	15.949 µg/L	0.3532	15.949 ppb	0.3532	2.21%
Zn 213.857†	6635.6	36.217 µg/L	0.1197	36.217 ppb	0.1197	0.33%

Sequence No.: 12 **Autosampler Location: 358**
Sample ID: 409254020|1611117|10 **Date Collected: 11/11/2016 13:34:30**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254020|1611117|10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	73864.0	73864.0	103	%			13:34:57
1	Al 396.153Radial†	28600.6	27791.9	10148	µg/L	10148	ppb	13:34:57
1	Ca 317.933Radial†	100980.1	98140.3	10925	µg/L	10925	ppb	13:34:57
1	Fe 238.204 Radial†	208980.1	204331.4	19329	µg/L	19329	ppb	13:34:55
1	K 766.490 Radial†	4549.5	3366.8	1775.4	µg/L	1775.4	ppb	13:34:57
1	Mg 279.077 IEC†	9180.7	8926.9	4819.1	µg/L	4819.1	ppb	13:34:57
1	Na 589.592 Radial†	8956.7	8695.5	1450.0	µg/L	1450.0	ppb	13:34:57
1	Sr 421.552†	18620.5	18619.2	53.643	µg/L	53.643	ppb	13:34:57
1	Sc 361.383	1331760.5	1331760.5	100.04	%			13:35:09
1	Y 371.029	727976.9	727976.9	100.49	%			13:35:09
1	Ag 328.068†	-1913.9	-22.3	0.8626	µg/L	0.8626	ppb	13:35:09
1	As 188.979†	-11.9	18.0	12.298	µg/L	12.298	ppb	13:35:29
1	B 249.677†	151.5	-733.5	3.6303	µg/L	3.6303	ppb	13:35:09
1	Ba 233.527†	33834.0	34060.7	303.80	µg/L	303.80	ppb	13:35:09
1	Be 313.107†	-279.0	3377.0	-6.5094	µg/L	-6.5094	ppb	13:35:09
1	Cd 226.502†	210.9	390.9	0.7441	µg/L	0.7441	ppb	13:35:29
1	Co 228.616†	471.7	563.0	8.4834	µg/L	8.4834	ppb	13:35:29
1	Cr 267.716†	1348.8	1219.2	14.565	µg/L	14.565	ppb	13:35:29
1	Cu 324.752†	9460.4	3679.5	17.618	µg/L	17.618	ppb	13:35:09
1	Mn 257.610†	441865.8	441529.2	773.66	µg/L	773.66	ppb	13:35:09
1	Mo 202.031†	-29.7	0.0	0.5234	µg/L	0.5234	ppb	13:35:29
1	Ni 231.604†	1231.9	1429.2	22.721	µg/L	22.721	ppb	13:35:29
1	P 214.914†	1514.5	1608.9	578.91	µg/L	578.91	ppb	13:35:29
1	Pb 220.353†	234.5	160.7	16.601	µg/L	16.601	ppb	13:35:29
1	S 181.975 Axial†	1349.3	1246.1	1386.6	µg/L	1386.6	ppb	13:35:29
1	Sb 206.836†	47.9	3.6	-1.3122	µg/L	-1.3122	ppb	13:35:29
1	Se 196.026†	-8.9	-17.0	-0.169	µg/L	-0.169	ppb	13:35:29
1	SiO2†	63390.4	60344.1	6678.7	µg/L	6678.7	ppb	13:35:09
1	Si 251.611†	184206.2	183544.8	3114.4	µg/L	3114.4	ppb	13:35:09
1	Sn 189.927†	-29.1	-1.6	-0.1701	µg/L	-0.1701	ppb	13:35:29
1	Ti 334.940†	109960.6	110803.9	157.58	µg/L	157.58	ppb	13:35:09
1	Tl 190.801†	-81.7	4.4	1.6860	µg/L	1.6860	ppb	13:35:29
1	U 367.007†	578.0	862.0	0.0142	µg/L	0.0142	ppb	13:35:09
1	V 292.402†	6640.7	6534.6	30.634	µg/L	30.634	ppb	13:35:09
1	Zn 213.857†	12707.9	12656.0	69.471	µg/L	69.471	ppb	13:35:09
2	Sc RADIAL	72739.6	72739.6	101	%			13:35:01
2	Al 396.153Radial†	28384.4	28008.9	10227	µg/L	10227	ppb	13:35:01
2	Ca 317.933Radial†	99716.0	98410.9	10955	µg/L	10955	ppb	13:35:01
2	Fe 238.204 Radial†	210712.4	209197.8	19789	µg/L	19789	ppb	13:34:59
2	K 766.490 Radial†	4372.4	3260.0	1719.4	µg/L	1719.4	ppb	13:35:01
2	Mg 279.077 IEC†	9048.5	8934.4	4823.3	µg/L	4823.3	ppb	13:35:01
2	Na 589.592 Radial†	8785.2	8660.7	1444.2	µg/L	1444.2	ppb	13:35:01
2	Sr 421.552†	18406.1	18687.6	53.840	µg/L	53.840	ppb	13:35:01
2	Sc 361.383	1309908.3	1309908.3	98.400	%			13:35:31
2	Y 371.029	716464.1	716464.1	98.898	%			13:35:31
2	Ag 328.068†	-1855.8	4.8	1.0309	µg/L	1.0309	ppb	13:35:31
2	As 188.979†	-8.4	21.4	14.177	µg/L	14.177	ppb	13:35:51
2	B 249.677†	248.4	-632.4	5.4215	µg/L	5.4215	ppb	13:35:31
2	Ba 233.527†	33803.7	34594.1	308.56	µg/L	308.56	ppb	13:35:31
2	Be 313.107†	-103.5	3550.7	-6.5799	µg/L	-6.5799	ppb	13:35:31
2	Cd 226.502†	198.6	381.9	0.6234	µg/L	0.6234	ppb	13:35:51
2	Co 228.616†	473.2	572.5	8.6234	µg/L	8.6234	ppb	13:35:51
2	Cr 267.716†	1375.1	1268.5	15.155	µg/L	15.155	ppb	13:35:51
2	Cu 324.752†	9307.4	3681.8	17.655	µg/L	17.655	ppb	13:35:31
2	Mn 257.610†	441369.0	448392.6	785.68	µg/L	785.68	ppb	13:35:31
2	Mo 202.031†	-39.2	-10.1	0.0059	µg/L	0.0059	ppb	13:35:51
2	Ni 231.604†	1236.4	1454.2	23.120	µg/L	23.120	ppb	13:35:51
2	P 214.914†	1545.6	1665.8	599.37	µg/L	599.37	ppb	13:35:51
2	Pb 220.353†	215.5	145.3	15.054	µg/L	15.054	ppb	13:35:51

2	S 181.975 Axial†	1381.0	1300.8	1447.5 µg/L	1447.5 ppb		13:35:51
2	Sb 206.836†	45.3	1.8	-1.7175 µg/L	-1.7175 ppb		13:35:51
2	Se 196.026†	-12.2	-20.5	-1.80 µg/L	-1.80 ppb		13:35:51
2	SiO2†	63407.8	61418.9	6797.7 µg/L	6797.7 ppb		13:35:31
2	Si 251.611†	184018.3	186425.5	3163.3 µg/L	3163.3 ppb		13:35:31
2	Sn 189.927†	-25.7	1.3	0.2040 µg/L	0.2040 ppb		13:35:51
2	Ti 334.940†	110234.7	112916.1	160.58 µg/L	160.58 ppb		13:35:31
2	Tl 190.801†	-85.2	-0.5	0.1741 µg/L	0.1741 ppb		13:35:51
2	U 367.007†	548.4	841.5	-5.0054 µg/L	-5.0054 ppb		13:35:31
2	V 292.402†	6680.9	6686.1	31.344 µg/L	31.344 ppb		13:35:31
2	Zn 213.857†	12560.7	12718.4	69.775 µg/L	69.775 ppb		13:35:31
3	Sc RADIAL	72348.6	72348.6	100 %			13:35:05
3	Al 396.153Radial†	28120.2	27897.8	10187 µg/L	10187 ppb		13:35:05
3	Ca 317.933Radial†	98616.0	97849.2	10893 µg/L	10893 ppb		13:35:05
3	Fe 238.204 Radial†	209133.1	208753.0	19747 µg/L	19747 ppb		13:35:03
3	K 766.490 Radial†	4384.2	3295.1	1737.8 µg/L	1737.8 ppb		13:35:05
3	Mg 279.077 IEC†	8940.6	8875.4	4791.5 µg/L	4791.5 ppb		13:35:05
3	Na 589.592 Radial†	8748.3	8671.0	1445.9 µg/L	1445.9 ppb		13:35:05
3	Sr 421.552†	18243.5	18624.2	53.658 µg/L	53.658 ppb		13:35:05
3	Sc 361.383	1338019.5	1338019.5	100.51 %			13:35:53
3	Y 371.029	730632.0	730632.0	100.85 %			13:35:53
3	Ag 328.068†	-1925.4	-24.8	0.8779 µg/L	0.8779 ppb		13:35:53
3	As 188.979†	-5.7	24.3	15.759 µg/L	15.759 ppb		13:36:14
3	B 249.677†	255.3	-630.9	5.4121 µg/L	5.4121 ppb		13:35:53
3	Ba 233.527†	34899.5	34962.5	311.85 µg/L	311.85 ppb		13:35:53
3	Be 313.107†	-42.3	3613.8	-6.6447 µg/L	-6.6447 ppb		13:35:53
3	Cd 226.502†	224.2	403.0	0.7882 µg/L	0.7882 ppb		13:36:14
3	Co 228.616†	475.8	564.9	8.5152 µg/L	8.5152 ppb		13:36:14
3	Cr 267.716†	1371.4	1235.4	14.768 µg/L	14.768 ppb		13:36:14
3	Cu 324.752†	9616.9	3791.0	18.132 µg/L	18.132 ppb		13:35:53
3	Mn 257.610†	455538.1	453065.9	793.88 µg/L	793.88 ppb		13:35:53
3	Mo 202.031†	-26.9	3.0	0.6843 µg/L	0.6843 ppb		13:36:14
3	Ni 231.604†	1272.2	1463.4	23.266 µg/L	23.266 ppb		13:36:14
3	P 214.914†	1545.9	1633.2	587.62 µg/L	587.62 ppb		13:36:14
3	Pb 220.353†	216.3	141.5	14.673 µg/L	14.673 ppb		13:36:14
3	S 181.975 Axial†	1390.8	1281.0	1425.5 µg/L	1425.5 ppb		13:36:14
3	Sb 206.836†	59.0	14.4	0.7199 µg/L	0.7199 ppb		13:36:14
3	Se 196.026†	-6.5	-14.5	1.31 µg/L	1.31 ppb		13:36:14
3	SiO2†	65316.1	61963.7	6858.0 µg/L	6858.0 ppb		13:35:53
3	Si 251.611†	189806.6	188255.3	3194.4 µg/L	3194.4 ppb		13:35:53
3	Sn 189.927†	-28.0	-0.3	-0.0114 µg/L	-0.0114 ppb		13:36:14
3	Ti 334.940†	113415.9	113727.5	161.73 µg/L	161.73 ppb		13:35:53
3	Tl 190.801†	-90.0	-3.5	-0.7327 µg/L	-0.7327 ppb		13:36:14
3	U 367.007†	532.8	814.3	-8.1149 µg/L	-8.1149 ppb		13:35:53
3	V 292.402†	7035.9	6896.7	32.282 µg/L	32.282 ppb		13:35:53
3	Zn 213.857†	13012.7	12899.9	70.810 µg/L	70.810 ppb		13:35:53

Mean Data: 409254020|1611117|10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1326562.8	99.651	%	1.1087				1.11%
Sc RADIAL	72984.1	101	%	1.1				1.08%
Y 371.029	725024.3	100.08	%	1.040				1.04%
Ag 328.068†	-14.1	0.9238	µg/L	0.09305	0.9238	ppb	0.09305	10.07%
Al 396.153Radial†	27899.5	10187	µg/L	39.6	10187	ppb	39.6	0.39%
As 188.979†	21.2	14.078	µg/L	1.7326	14.078	ppb	1.7326	12.31%
B 249.677†	-665.6	4.8213	µg/L	1.03145	4.8213	ppb	1.03145	21.39%
Ba 233.527†	34539.1	308.07	µg/L	4.044	308.07	ppb	4.044	1.31%
Be 313.107†	3513.9	-6.5780	µg/L	0.06766	-6.5780	ppb	0.06766	1.03%
Concentration less than lower limit for Be 313.107.								
Ca 317.933Radial†	98133.5	10924	µg/L	31.3	10924	ppb	31.3	0.29%
Cd 226.502†	391.9	0.7186	µg/L	0.08535	0.7186	ppb	0.08535	11.88%
Co 228.616†	566.8	8.5407	µg/L	0.07339	8.5407	ppb	0.07339	0.86%
Cr 267.716†	1241.0	14.829	µg/L	0.2997	14.829	ppb	0.2997	2.02%
Cu 324.752†	3717.4	17.802	µg/L	0.2864	17.802	ppb	0.2864	1.61%
Fe 238.204 Radial†	207427.4	19622	µg/L	254.5	19622	ppb	254.5	1.30%
K 766.490 Radial†	3307.3	1744.2	µg/L	28.52	1744.2	ppb	28.52	1.64%
Mg 279.077 IEC†	8912.3	4811.3	µg/L	17.30	4811.3	ppb	17.30	0.36%
Mn 257.610†	447662.6	784.41	µg/L	10.171	784.41	ppb	10.171	1.30%
Mo 202.031†	-2.4	0.4045	µg/L	0.35448	0.4045	ppb	0.35448	87.63%

Na 589.592 Radial†	8675.7	1446.7 µg/L	2.98	1446.7 ppb	2.98	0.21%
Ni 231.604†	1448.9	23.035 µg/L	0.2819	23.035 ppb	0.2819	1.22%
P 214.914†	1636.0	588.64 µg/L	10.267	588.64 ppb	10.267	1.74%
Pb 220.353†	149.2	15.442 µg/L	1.0212	15.442 ppb	1.0212	6.61%
S 181.975 Axial†	1276.0	1419.9 µg/L	30.86	1419.9 ppb	30.86	2.17%
Sb 206.836†	6.6	-0.7699 µg/L	1.30602	-0.7699 ppb	1.30602	169.62%
Se 196.026†	-17.3	-0.219 µg/L	1.5541	-0.219 ppb	1.5541	710.80%
SiO2†	61242.2	6778.1 µg/L	91.21	6778.1 ppb	91.21	1.35%
Si 251.611†	186075.2	3157.4 µg/L	40.29	3157.4 ppb	40.29	1.28%
Sn 189.927†	-0.2	0.0075 µg/L	0.18775	0.0075 ppb	0.18775	>999.9%
Sr 421.552†	18643.7	53.714 µg/L	0.1098	53.714 ppb	0.1098	0.20%
Ti 334.940†	112482.5	159.96 µg/L	2.147	159.96 ppb	2.147	1.34%
Tl 190.801†	0.1	0.3758 µg/L	1.22190	0.3758 ppb	1.22190	325.15%
U 367.007†	839.3	-4.3687 µg/L	4.10178	-4.3687 ppb	4.10178	93.89%
V 292.402†	6705.8	31.420 µg/L	0.8270	31.420 ppb	0.8270	2.63%
Zn 213.857†	12758.1	70.018 µg/L	0.7022	70.018 ppb	0.7022	1.00%

Sequence No.: 13 **Autosampler Location:** 7
Sample ID: CCV **Date Collected:** 11/11/2016 13:36:22
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71869.8	71869.8	99.8	%			13:36:51
1	Al 396.153Radial†	13836.9	13767.6	5027.0	µg/L	5027.0	ppb	13:36:51
1	Ca 317.933Radial†	45272.7	45035.4	5013.4	µg/L	5013.4	ppb	13:36:51
1	Fe 238.204 Radial†	53133.2	53775.5	5086.9	µg/L	5086.9	ppb	13:36:51
1	K 766.490 Radial†	10658.1	9612.8	5053.1	µg/L	5053.1	ppb	13:36:51
1	Mg 279.077 IEC†	9196.8	9191.5	4957.1	µg/L	4957.1	ppb	13:36:51
1	Na 589.592 Radial†	57680.3	57775.4	9634.3	µg/L	9634.3	ppb	13:36:49
1	Sr 421.552†	168375.7	169228.5	490.81	µg/L	490.81	ppb	13:36:49
1	Sc 361.383	1313327.2	1313327.2	98.657	%			13:37:03
1	Y 371.029	700134.8	700134.8	96.644	%			13:37:03
1	Ag 328.068†	93989.9	97160.1	501.37	µg/L	501.37	ppb	13:37:05
1	As 188.979†	897.7	939.9	515.85	µg/L	515.85	ppb	13:37:25
1	B 249.677†	35479.8	35077.9	508.20	µg/L	508.20	ppb	13:37:05
1	Ba 233.527†	55612.2	56610.0	504.80	µg/L	504.80	ppb	13:37:05
1	Be 313.107†	1762174.1	1789816.7	475.89	µg/L	475.89	ppb	13:37:03
1	Cd 226.502†	65274.2	66342.8	501.39	µg/L	501.39	ppb	13:37:05
1	Co 228.616†	33510.1	34057.8	506.46	µg/L	506.46	ppb	13:37:05
1	Cr 267.716†	42436.2	42884.8	503.95	µg/L	503.95	ppb	13:37:05
1	Cu 324.752†	118121.1	113952.1	503.65	µg/L	503.65	ppb	13:37:05
1	Mn 257.610†	284769.9	288494.2	505.44	µg/L	505.44	ppb	13:37:05
1	Mo 202.031†	9509.9	9669.1	502.70	µg/L	502.70	ppb	13:37:25
1	Ni 231.604†	31043.3	31663.6	503.39	µg/L	503.39	ppb	13:37:05
1	P 214.914†	6745.7	6932.6	2498.5	µg/L	2498.5	ppb	13:37:25
1	Pb 220.353†	4971.5	4965.5	501.85	µg/L	501.85	ppb	13:37:25
1	S 181.975 Axial†	970.4	881.0	982.23	µg/L	982.23	ppb	13:37:25
1	Sb 206.836†	2637.7	2629.3	499.76	µg/L	499.76	ppb	13:37:25
1	Se 196.026†	957.1	962.1	507	µg/L	507	ppb	13:37:25
1	SiO2†	52330.2	50022.7	5536.4	µg/L	5536.4	ppb	13:37:05
1	Si 251.611†	151256.0	152730.4	2590.2	µg/L	2590.2	ppb	13:37:05
1	Sn 189.927†	3849.1	3929.0	502.37	µg/L	502.37	ppb	13:37:25
1	Ti 334.940†	347112.8	352726.9	501.03	µg/L	501.03	ppb	13:37:05
1	Tl 190.801†	1518.3	1625.0	499.23	µg/L	499.23	ppb	13:37:25
1	U 367.007†	3783.3	4119.0	478.66	µg/L	478.66	ppb	13:37:05
1	V 292.402†	110764.8	112169.2	504.00	µg/L	504.00	ppb	13:37:05
1	Zn 213.857†	87868.7	89018.3	503.72	µg/L	503.72	ppb	13:37:05
2	Sc RADIAL	73266.6	73266.6	102	%			13:36:55
2	Al 396.153Radial†	13906.5	13571.6	4955.4	µg/L	4955.4	ppb	13:36:55
2	Ca 317.933Radial†	45855.3	44743.1	4980.8	µg/L	4980.8	ppb	13:36:55
2	Fe 238.204 Radial†	53859.3	53474.1	5058.4	µg/L	5058.4	ppb	13:36:55
2	K 766.490 Radial†	10808.3	9556.8	5023.6	µg/L	5023.6	ppb	13:36:55
2	Mg 279.077 IEC†	9295.2	9112.5	4914.5	µg/L	4914.5	ppb	13:36:55
2	Na 589.592 Radial†	58221.3	57205.2	9539.2	µg/L	9539.2	ppb	13:36:53
2	Sr 421.552†	170071.0	167677.8	486.31	µg/L	486.31	ppb	13:36:53
2	Sc 361.383	1318344.6	1318344.6	99.034	%			13:37:27
2	Y 371.029	701231.1	701231.1	96.795	%			13:37:27
2	Ag 328.068†	92229.4	95019.9	490.34	µg/L	490.34	ppb	13:37:30
2	As 188.979†	893.8	932.5	511.73	µg/L	511.73	ppb	13:37:50
2	B 249.677†	34886.8	34342.3	497.60	µg/L	497.60	ppb	13:37:30
2	Ba 233.527†	54434.4	55206.1	492.28	µg/L	492.28	ppb	13:37:30
2	Be 313.107†	1766509.2	1787396.2	475.52	µg/L	475.52	ppb	13:37:27
2	Cd 226.502†	63950.2	64754.0	489.38	µg/L	489.38	ppb	13:37:30
2	Co 228.616†	32756.5	33167.6	493.22	µg/L	493.22	ppb	13:37:30
2	Cr 267.716†	41630.4	41907.4	492.48	µg/L	492.48	ppb	13:37:30
2	Cu 324.752†	116098.0	111453.6	492.60	µg/L	492.60	ppb	13:37:30
2	Mn 257.610†	279301.8	281874.2	493.84	µg/L	493.84	ppb	13:37:30
2	Mo 202.031†	9476.4	9598.6	499.04	µg/L	499.04	ppb	13:37:50
2	Ni 231.604†	30285.7	30778.9	489.33	µg/L	489.33	ppb	13:37:30
2	P 214.914†	6720.3	6880.9	2479.9	µg/L	2479.9	ppb	13:37:50
2	Pb 220.353†	4954.8	4929.5	498.24	µg/L	498.24	ppb	13:37:50

2	S 181.975 Axial†	973.6	880.4	981.59 µg/L	981.59 ppb	13:37:50
2	Sb 206.836†	2604.6	2585.7	491.53 µg/L	491.53 ppb	13:37:50
2	Se 196.026†	961.7	963.0	507 µg/L	507 ppb	13:37:50
2	SiO2†	51342.0	48823.1	5403.6 µg/L	5403.6 ppb	13:37:30
2	Si 251.611†	148506.7	149370.8	2533.2 µg/L	2533.2 ppb	13:37:30
2	Sn 189.927†	3844.3	3909.3	499.85 µg/L	499.85 ppb	13:37:50
2	Ti 334.940†	339966.8	344172.2	488.89 µg/L	488.89 ppb	13:37:30
2	Tl 190.801†	1513.2	1614.0	495.86 µg/L	495.86 ppb	13:37:50
2	U 367.007†	3575.3	3894.4	451.18 µg/L	451.18 ppb	13:37:30
2	V 292.402†	108555.3	109510.9	492.06 µg/L	492.06 ppb	13:37:30
2	Zn 213.857†	86390.8	87187.0	493.35 µg/L	493.35 ppb	13:37:30
3	Sc RADIAL	71465.8	71465.8	99.2 %		13:37:00
3	Al 396.153Radial†	13835.4	13844.5	5055.0 µg/L	5055.0 ppb	13:37:00
3	Ca 317.933Radial†	44827.4	44843.1	4991.9 µg/L	4991.9 ppb	13:37:00
3	Fe 238.204 Radial†	52763.3	53703.7	5080.1 µg/L	5080.1 ppb	13:37:00
3	K 766.490 Radial†	10682.1	9697.4	5097.5 µg/L	5097.5 ppb	13:37:00
3	Mg 279.077 IEC†	9040.3	9085.9	4900.2 µg/L	4900.2 ppb	13:37:00
3	Na 589.592 Radial†	58689.4	59119.4	9858.4 µg/L	9858.4 ppb	13:36:57
3	Sr 421.552†	171996.2	173832.0	504.16 µg/L	504.16 ppb	13:36:57
3	Sc 361.383	1331419.2	1331419.2	100.02 %		13:37:52
3	Y 371.029	708119.4	708119.4	97.746 %		13:37:52
3	Ag 328.068†	91694.0	93570.1	482.86 µg/L	482.86 ppb	13:37:54
3	As 188.979†	903.6	933.4	512.15 µg/L	512.15 ppb	13:38:14
3	B 249.677†	34677.9	33787.5	489.63 µg/L	489.63 ppb	13:37:54
3	Ba 233.527†	54117.1	54349.2	484.64 µg/L	484.64 ppb	13:37:54
3	Be 313.107†	1783654.9	1787022.7	475.61 µg/L	475.61 ppb	13:37:52
3	Cd 226.502†	63405.7	63575.5	480.46 µg/L	480.46 ppb	13:37:54
3	Co 228.616†	32507.3	32593.6	484.68 µg/L	484.68 ppb	13:37:54
3	Cr 267.716†	41316.5	41180.9	483.93 µg/L	483.93 ppb	13:37:54
3	Cu 324.752†	115552.1	109756.6	485.11 µg/L	485.11 ppb	13:37:54
3	Mn 257.610†	277495.2	277298.4	485.82 µg/L	485.82 ppb	13:37:54
3	Mo 202.031†	9418.8	9447.0	491.16 µg/L	491.16 ppb	13:38:14
3	Ni 231.604†	30220.7	30413.5	483.52 µg/L	483.52 ppb	13:37:54
3	P 214.914†	6707.3	6801.3	2451.2 µg/L	2451.2 ppb	13:38:14
3	Pb 220.353†	4936.5	4862.0	491.42 µg/L	491.42 ppb	13:38:14
3	S 181.975 Axial†	968.7	865.8	965.35 µg/L	965.35 ppb	13:38:14
3	Sb 206.836†	2627.0	2582.3	490.99 µg/L	490.99 ppb	13:38:14
3	Se 196.026†	949.0	940.9	496 µg/L	496 ppb	13:38:14
3	SiO2†	51159.9	48131.9	5327.1 µg/L	5327.1 ppb	13:37:54
3	Si 251.611†	147915.3	147307.0	2498.2 µg/L	2498.2 ppb	13:37:54
3	Sn 189.927†	3826.9	3853.7	492.75 µg/L	492.75 ppb	13:38:14
3	Ti 334.940†	338233.6	339068.2	481.64 µg/L	481.64 ppb	13:37:54
3	Tl 190.801†	1515.3	1601.1	491.91 µg/L	491.91 ppb	13:38:14
3	U 367.007†	3589.4	3873.0	448.43 µg/L	448.43 ppb	13:37:54
3	V 292.402†	107893.1	107772.3	484.25 µg/L	484.25 ppb	13:37:54
3	Zn 213.857†	85742.6	85682.2	484.81 µg/L	484.81 ppb	13:37:54

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1321030.4	99.236	%	0.7016				0.71%
Sc RADIAL	72200.7	100	%	1.3				1.31%
Y 371.029	703161.8	97.062	%	0.5975				0.62%
Ag 328.068†	95250.0	491.52	µg/L	9.311	491.52	ppb	9.311	1.89%
QC value within limits for Ag 328.068 Recovery = 98.30%								
Al 396.153Radial†	13727.9	5012.5	µg/L	51.37	5012.5	ppb	51.37	1.02%
QC value within limits for Al 396.153Radial Recovery = 100.25%								
As 188.979†	935.3	513.24	µg/L	2.265	513.24	ppb	2.265	0.44%
QC value within limits for As 188.979 Recovery = 102.65%								
B 249.677†	34402.5	498.48	µg/L	9.313	498.48	ppb	9.313	1.87%
QC value within limits for B 249.677 Recovery = 99.70%								
Ba 233.527†	55388.4	493.91	µg/L	10.177	493.91	ppb	10.177	2.06%
QC value within limits for Ba 233.527 Recovery = 98.78%								
Be 313.107†	1788078.6	475.67	µg/L	0.189	475.67	ppb	0.189	0.04%
QC value within limits for Be 313.107 Recovery = 95.13%								
Ca 317.933Radial†	44873.8	4995.4	µg/L	16.54	4995.4	ppb	16.54	0.33%
QC value within limits for Ca 317.933Radial Recovery = 99.91%								
Cd 226.502†	64890.7	490.41	µg/L	10.507	490.41	ppb	10.507	2.14%
QC value within limits for Cd 226.502 Recovery = 98.08%								
Co 228.616†	33273.0	494.79	µg/L	10.972	494.79	ppb	10.972	2.22%

QC value within limits for Co 228.616 Recovery = 98.96%

Cr 267.716†	41991.0	493.45 µg/L	10.042	493.45 ppb	10.042	2.03%

QC value within limits for Cr 267.716 Recovery = 98.69%

Cu 324.752†	111720.8	493.79 µg/L	9.327	493.79 ppb	9.327	1.89%

QC value within limits for Cu 324.752 Recovery = 98.76%

Fe 238.204 Radial†	53651.1	5075.1 µg/L	14.89	5075.1 ppb	14.89	0.29%

QC value within limits for Fe 238.204 Radial Recovery = 101.50%

K 766.490 Radial†	9622.3	5058.1 µg/L	37.18	5058.1 ppb	37.18	0.74%

QC value within limits for K 766.490 Radial Recovery = 101.16%

Mg 279.077 IEC†	9130.0	4924.0 µg/L	29.63	4924.0 ppb	29.63	0.60%

QC value within limits for Mg 279.077 IEC Recovery = 98.48%

Mn 257.610†	282555.6	495.03 µg/L	9.864	495.03 ppb	9.864	1.99%

QC value within limits for Mn 257.610 Recovery = 99.01%

Mo 202.031†	9571.6	497.63 µg/L	5.899	497.63 ppb	5.899	1.19%

QC value within limits for Mo 202.031 Recovery = 99.53%

Na 589.592 Radial†	58033.3	9677.3 µg/L	163.89	9677.3 ppb	163.89	1.69%

QC value within limits for Na 589.592 Radial Recovery = 96.77%

Ni 231.604†	30952.0	492.08 µg/L	10.219	492.08 ppb	10.219	2.08%

QC value within limits for Ni 231.604 Recovery = 98.42%

P 214.914†	6871.6	2476.6 µg/L	23.85	2476.6 ppb	23.85	0.96%

QC value within limits for P 214.914 Recovery = 99.06%

Pb 220.353†	4919.0	497.17 µg/L	5.295	497.17 ppb	5.295	1.07%

QC value within limits for Pb 220.353 Recovery = 99.43%

S 181.975 Axial†	875.7	976.39 µg/L	9.565	976.39 ppb	9.565	0.98%

QC value within limits for S 181.975 Axial Recovery = 97.64%

Sb 206.836†	2599.1	494.10 µg/L	4.916	494.10 ppb	4.916	1.00%

QC value within limits for Sb 206.836 Recovery = 98.82%

Se 196.026†	955.3	503 µg/L	6.6	503 ppb	6.6	1.31%

QC value within limits for Se 196.026 Recovery = 100.64%

SiO2†	48992.6	5422.4 µg/L	105.89	5422.4 ppb	105.89	1.95%

QC value within limits for SiO2 Recovery = 101.40%

Si 251.611†	149802.7	2540.5 µg/L	46.41	2540.5 ppb	46.41	1.83%

QC value within limits for Si 251.611 Recovery = 101.62%

Sn 189.927†	3897.3	498.32 µg/L	4.991	498.32 ppb	4.991	1.00%

QC value within limits for Sn 189.927 Recovery = 99.66%

Sr 421.552†	170246.1	493.76 µg/L	9.286	493.76 ppb	9.286	1.88%

QC value within limits for Sr 421.552 Recovery = 98.75%

Ti 334.940†	345322.4	490.52 µg/L	9.799	490.52 ppb	9.799	2.00%

QC value within limits for Ti 334.940 Recovery = 98.10%

Tl 190.801†	1613.4	495.67 µg/L	3.664	495.67 ppb	3.664	0.74%

QC value within limits for Tl 190.801 Recovery = 99.13%

U 367.007†	3962.1	459.43 µg/L	16.715	459.43 ppb	16.715	3.64%

QC value within limits for U 367.007 Recovery = 91.89%

V 292.402†	109817.5	493.44 µg/L	9.946	493.44 ppb	9.946	2.02%

QC value within limits for V 292.402 Recovery = 98.69%

Zn 213.857†	87295.8	493.96 µg/L	9.467	493.96 ppb	9.467	1.92%

QC value within limits for Zn 213.857 Recovery = 98.79%

All analyte(s) passed QC.

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Analysis Begun

Start Time: 11/11/2016 13:38:26 **Plasma On Time: 11/7/2016 06:01:25**
Logged In Analyst: lab **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N No Serial #Autosampler Model: AS-93plus

Sample Information File: C:\pe\optima4\Sample Information\111116.sif
Batch ID:
Results Data Set: 111116
Results Library: C:\pe\optima4\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 13:38:28**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71500.4	71500.4	99.3	%			13:38:53
1	Al 396.153Radial†	121.0	20.2	7.3838	µg/L	7.3838	ppb	13:39:13
1	Ca 317.933Radial†	407.8	67.7	7.5382	µg/L	7.5382	ppb	13:39:13
1	Fe 238.204 Radial†	-430.2	84.6	8.0046	µg/L	8.0046	ppb	13:39:13
1	K 766.490 Radial†	873.4	-190.3	-99.987	µg/L	-99.987	ppb	13:38:53
1	Mg 279.077 IEC†	18.2	-8.5	-4.5620	µg/L	-4.5620	ppb	13:39:13
1	Na 589.592 Radial†	253.1	215.3	35.900	µg/L	35.900	ppb	13:38:53
1	Sr 421.552†	-409.6	46.3	0.1341	µg/L	0.1341	ppb	13:39:13
1	Sc 361.383	1329409.3	1329409.3	99.865	%			13:40:00
1	Y 371.029	718434.3	718434.3	99.170	%			13:40:00
1	Ag 328.068†	-1890.5	-2.2	-0.0067	µg/L	-0.0067	ppb	13:40:02
1	As 188.979†	-29.7	0.2	0.1224	µg/L	0.1224	ppb	13:40:23
1	B 249.677†	737.4	-146.5	-2.1006	µg/L	-2.1006	ppb	13:40:02
1	Ba 233.527†	-239.8	0.7	0.0059	µg/L	0.0059	ppb	13:40:23
1	Be 313.107†	-2874.1	777.9	0.2093	µg/L	0.2093	ppb	13:40:02
1	Cd 226.502†	-176.3	3.5	0.0256	µg/L	0.0256	ppb	13:40:23
1	Co 228.616†	-86.7	4.7	0.0700	µg/L	0.0700	ppb	13:40:23
1	Cr 267.716†	136.5	7.6	0.0968	µg/L	0.0968	ppb	13:40:23
1	Cu 324.752†	5588.8	-180.6	-0.8022	µg/L	-0.8022	ppb	13:40:02
1	Mn 257.610†	247.9	96.3	0.1689	µg/L	0.1689	ppb	13:40:23
1	Mo 202.031†	-25.4	4.3	0.2240	µg/L	0.2240	ppb	13:40:23
1	Ni 231.604†	-186.7	10.8	0.1719	µg/L	0.1719	ppb	13:40:23
1	P 214.914†	-79.8	15.2	5.4657	µg/L	5.4657	ppb	13:40:23
1	Pb 220.353†	78.0	4.4	0.4565	µg/L	0.4565	ppb	13:40:23
1	S 181.975 Axial†	90.4	-12.2	-13.569	µg/L	-13.569	ppb	13:40:23
1	Sb 206.836†	57.8	13.6	2.6281	µg/L	2.6281	ppb	13:40:23
1	Se 196.026†	-0.4	-8.4	-4.42	µg/L	-4.42	ppb	13:40:23
1	SiO2†	2884.3	-131.5	-14.558	µg/L	-14.558	ppb	13:40:02
1	Si 251.611†	562.6	-21.1	-0.3560	µg/L	-0.3560	ppb	13:40:02
1	Sn 189.927†	-26.4	1.1	0.1356	µg/L	0.1356	ppb	13:40:23
1	Ti 334.940†	-783.4	104.8	0.1528	µg/L	0.1528	ppb	13:40:02
1	Tl 190.801†	-87.1	-1.2	-0.3574	µg/L	-0.3574	ppb	13:40:23
1	U 367.007†	-343.8	-60.1	-7.4364	µg/L	-7.4364	ppb	13:40:02
1	V 292.402†	118.8	15.6	0.0680	µg/L	0.0680	ppb	13:40:02
1	Zn 213.857†	26.0	-20.5	-0.1161	µg/L	-0.1161	ppb	13:40:23
2	Sc RADIAL	70154.2	70154.2	97.4	%			13:39:15
2	Al 396.153Radial†	128.2	30.0	10.944	µg/L	10.944	ppb	13:39:35
2	Ca 317.933Radial†	395.9	63.3	7.0474	µg/L	7.0474	ppb	13:39:35
2	Fe 238.204 Radial†	-441.2	65.0	6.1462	µg/L	6.1462	ppb	13:39:35
2	K 766.490 Radial†	891.5	-154.8	-81.351	µg/L	-81.351	ppb	13:39:15
2	Mg 279.077 IEC†	29.1	3.1	1.6547	µg/L	1.6547	ppb	13:39:35
2	Na 589.592 Radial†	127.5	91.2	15.209	µg/L	15.209	ppb	13:39:15
2	Sr 421.552†	-435.0	12.4	0.0356	µg/L	0.0356	ppb	13:39:35
2	Sc 361.383	1317570.4	1317570.4	98.976	%			13:40:25
2	Y 371.029	711373.4	711373.4	98.195	%			13:40:25
2	Ag 328.068†	-1810.4	61.7	0.3228	µg/L	0.3228	ppb	13:40:27
2	As 188.979†	-34.8	-5.2	-2.8162	µg/L	-2.8162	ppb	13:40:47

2	B 249.677†	844.3	-31.8	-0.4529 µg/L	-0.4529 ppb		13:40:27
2	Ba 233.527†	-239.9	-1.6	-0.0146 µg/L	-0.0146 ppb		13:40:47
2	Be 313.107†	-2763.1	864.2	0.2334 µg/L	0.2334 ppb		13:40:27
2	Cd 226.502†	-151.5	27.0	0.2036 µg/L	0.2036 ppb		13:40:47
2	Co 228.616†	-76.6	14.1	0.2097 µg/L	0.2097 ppb		13:40:47
2	Cr 267.716†	136.0	8.4	0.1058 µg/L	0.1058 ppb		13:40:47
2	Cu 324.752†	5420.5	-300.3	-1.3307 µg/L	-1.3307 ppb		13:40:27
2	Mn 257.610†	246.9	97.5	0.1708 µg/L	0.1708 ppb		13:40:47
2	Mo 202.031†	-19.2	10.4	0.5383 µg/L	0.5383 ppb		13:40:47
2	Ni 231.604†	-141.2	55.1	0.8756 µg/L	0.8756 ppb		13:40:47
2	P 214.914†	-89.3	4.9	1.7597 µg/L	1.7597 ppb		13:40:47
2	Pb 220.353†	86.9	14.1	1.4313 µg/L	1.4313 ppb		13:40:47
2	S 181.975 Axial†	93.7	-8.1	-8.9939 µg/L	-8.9939 ppb		13:40:47
2	Sb 206.836†	74.9	31.4	6.0594 µg/L	6.0594 ppb		13:40:47
2	Se 196.026†	2.9	-5.1	-2.66 µg/L	-2.66 ppb		13:40:47
2	SiO2†	2951.6	-37.7	-4.1670 µg/L	-4.1670 ppb		13:40:27
2	Si 251.611†	590.8	12.5	0.2124 µg/L	0.2124 ppb		13:40:27
2	Sn 189.927†	-17.5	9.8	1.2503 µg/L	1.2503 ppb		13:40:47
2	Ti 334.940†	-762.3	119.1	0.1732 µg/L	0.1732 ppb		13:40:27
2	Tl 190.801†	-78.8	6.5	1.9871 µg/L	1.9871 ppb		13:40:47
2	U 367.007†	-340.7	-60.0	-7.4151 µg/L	-7.4151 ppb		13:40:27
2	V 292.402†	56.8	-46.0	-0.2081 µg/L	-0.2081 ppb		13:40:27
2	Zn 213.857†	-7.4	-54.0	-0.3058 µg/L	-0.3058 ppb		13:40:47
3	Sc RADIAL	70435.9	70435.9	97.8 %			13:39:37
3	Al 396.153Radial†	137.0	38.5	14.045 µg/L	14.045 ppb		13:39:57
3	Ca 317.933Radial†	370.0	35.3	3.9241 µg/L	3.9241 ppb		13:39:57
3	Fe 238.204 Radial†	-443.5	64.5	6.1034 µg/L	6.1034 ppb		13:39:57
3	K 766.490 Radial†	891.6	-158.4	-83.228 µg/L	-83.228 ppb		13:39:37
3	Mg 279.077 IEC†	35.8	9.8	5.2986 µg/L	5.2986 ppb		13:39:57
3	Na 589.592 Radial†	57.7	19.3	3.2138 µg/L	3.2138 ppb		13:39:37
3	Sr 421.552†	-438.7	10.3	0.0298 µg/L	0.0298 ppb		13:39:57
3	Sc 361.383	1318099.9	1318099.9	99.016 %			13:40:49
3	Y 371.029	711815.2	711815.2	98.256 %			13:40:49
3	Ag 328.068†	-1719.5	154.3	0.7919 µg/L	0.7919 ppb		13:40:51
3	As 188.979†	-29.1	0.5	0.2899 µg/L	0.2899 ppb		13:41:11
3	B 249.677†	766.2	-111.1	-1.5928 µg/L	-1.5928 ppb		13:40:51
3	Ba 233.527†	-218.1	20.5	0.1829 µg/L	0.1829 ppb		13:41:11
3	Be 313.107†	-2604.3	1025.7	0.2782 µg/L	0.2782 ppb		13:40:51
3	Cd 226.502†	-141.5	37.1	0.2800 µg/L	0.2800 ppb		13:41:11
3	Co 228.616†	-75.5	15.2	0.2264 µg/L	0.2264 ppb		13:41:11
3	Cr 267.716†	128.7	1.0	0.0047 µg/L	0.0047 ppb		13:41:11
3	Cu 324.752†	5640.0	-80.8	-0.3496 µg/L	-0.3496 ppb		13:40:51
3	Mn 257.610†	258.2	108.8	0.1905 µg/L	0.1905 ppb		13:41:11
3	Mo 202.031†	-17.3	12.2	0.6352 µg/L	0.6352 ppb		13:41:11
3	Ni 231.604†	-168.6	27.5	0.4372 µg/L	0.4372 ppb		13:41:11
3	P 214.914†	-83.9	10.4	3.7430 µg/L	3.7430 ppb		13:41:11
3	Pb 220.353†	79.5	6.6	0.6545 µg/L	0.6545 ppb		13:41:11
3	S 181.975 Axial†	95.1	-6.6	-7.3609 µg/L	-7.3609 ppb		13:41:11
3	Sb 206.836†	76.4	32.8	6.3414 µg/L	6.3414 ppb		13:41:11
3	Se 196.026†	5.5	-2.4	-1.26 µg/L	-1.26 ppb		13:41:11
3	SiO2†	2863.8	-127.5	-14.106 µg/L	-14.106 ppb		13:40:51
3	Si 251.611†	490.3	-89.3	-1.5132 µg/L	-1.5132 ppb		13:40:51
3	Sn 189.927†	-23.2	4.0	0.5162 µg/L	0.5162 ppb		13:41:11
3	Ti 334.940†	-600.4	282.9	0.3979 µg/L	0.3979 ppb		13:40:51
3	Tl 190.801†	-75.9	9.4	2.8993 µg/L	2.8993 ppb		13:41:11
3	U 367.007†	-215.9	66.2	8.1116 µg/L	8.1116 ppb		13:40:51
3	V 292.402†	4.4	-98.9	-0.4397 µg/L	-0.4397 ppb		13:40:51
3	Zn 213.857†	3.7	-42.8	-0.2434 µg/L	-0.2434 ppb		13:41:11

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1321693.2	99.286	%	0.5024				0.51%
Sc RADIAL	70696.8	98.1	%	0.99				1.00%
Y 371.029	713874.3	98.541	%	0.5460				0.55%
Ag 328.068†	71.3	0.3693	µg/L	0.40129	0.3693	ppb	0.40129	108.66%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	29.6	10.791	µg/L	3.3331	10.791	ppb	3.3331	30.89%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-1.5	-0.8013	µg/L	1.74692	-0.8013	ppb	1.74692	218.01%

QC value within limits for As 188.979 Recovery = Not calculated

B 249.677†	-96.4	-1.3821 µg/L	0.84383	-1.3821 ppb	0.84383	61.05%

QC value within limits for B 249.677 Recovery = Not calculated

Ba 233.527†	6.5	0.0581 µg/L	0.10861	0.0581 ppb	0.10861	187.09%

QC value within limits for Ba 233.527 Recovery = Not calculated

Be 313.107†	889.3	0.2403 µg/L	0.03493	0.2403 ppb	0.03493	14.54%

QC value within limits for Be 313.107 Recovery = Not calculated

Ca 317.933Radial†	55.4	6.1699 µg/L	1.96033	6.1699 ppb	1.96033	31.77%

QC value within limits for Ca 317.933Radial Recovery = Not calculated

Cd 226.502†	22.5	0.1697 µg/L	0.13052	0.1697 ppb	0.13052	76.91%

QC value within limits for Cd 226.502 Recovery = Not calculated

Co 228.616†	11.4	0.1687 µg/L	0.08588	0.1687 ppb	0.08588	50.91%

QC value within limits for Co 228.616 Recovery = Not calculated

Cr 267.716†	5.7	0.0691 µg/L	0.05593	0.0691 ppb	0.05593	80.93%

QC value within limits for Cr 267.716 Recovery = Not calculated

Cu 324.752†	-187.2	-0.8275 µg/L	0.49104	-0.8275 ppb	0.49104	59.34%

QC value within limits for Cu 324.752 Recovery = Not calculated

Fe 238.204 Radial†	71.4	6.7514 µg/L	1.08553	6.7514 ppb	1.08553	16.08%

QC value within limits for Fe 238.204 Radial Recovery = Not calculated

K 766.490 Radial†	-167.8	-88.188 µg/L	10.2606	-88.188 ppb	10.2606	11.63%

QC value within limits for K 766.490 Radial Recovery = Not calculated

Mg 279.077 IEC†	1.5	0.7971 µg/L	4.98595	0.7971 ppb	4.98595	625.52%

QC value within limits for Mg 279.077 IEC Recovery = Not calculated

Mn 257.610†	100.9	0.1767 µg/L	0.01195	0.1767 ppb	0.01195	6.76%

QC value within limits for Mn 257.610 Recovery = Not calculated

Mo 202.031†	9.0	0.4658 µg/L	0.21498	0.4658 ppb	0.21498	46.15%

QC value within limits for Mo 202.031 Recovery = Not calculated

Na 589.592 Radial†	108.6	18.107 µg/L	16.5346	18.107 ppb	16.5346	91.31%

QC value within limits for Na 589.592 Radial Recovery = Not calculated

Ni 231.604†	31.1	0.4949 µg/L	0.35535	0.4949 ppb	0.35535	71.80%

QC value within limits for Ni 231.604 Recovery = Not calculated

P 214.914†	10.1	3.6561 µg/L	1.85455	3.6561 ppb	1.85455	50.72%

QC value within limits for P 214.914 Recovery = Not calculated

Pb 220.353†	8.3	0.8474 µg/L	0.51521	0.8474 ppb	0.51521	60.80%

QC value within limits for Pb 220.353 Recovery = Not calculated

S 181.975 Axial†	-8.9	-9.9747 µg/L	3.21832	-9.9747 ppb	3.21832	32.26%

QC value within limits for S 181.975 Axial Recovery = Not calculated

Sb 206.836†	25.9	5.0097 µg/L	2.06727	5.0097 ppb	2.06727	41.27%

QC value within limits for Sb 206.836 Recovery = Not calculated

Se 196.026†	-5.3	-2.78 µg/L	1.586	-2.78 ppb	1.586	57.04%

QC value within limits for Se 196.026 Recovery = Not calculated

SiO2†	-98.9	-10.944 µg/L	5.8733	-10.944 ppb	5.8733	53.67%

QC value within limits for SiO2 Recovery = Not calculated

Si 251.611†	-32.6	-0.5523 µg/L	0.87938	-0.5523 ppb	0.87938	159.23%

QC value within limits for Si 251.611 Recovery = Not calculated

Sn 189.927†	5.0	0.6340 µg/L	0.56664	0.6340 ppb	0.56664	89.37%

QC value within limits for Sn 189.927 Recovery = Not calculated

Sr 421.552†	23.0	0.0665 µg/L	0.05860	0.0665 ppb	0.05860	88.11%

QC value within limits for Sr 421.552 Recovery = Not calculated

Ti 334.940†	168.9	0.2413 µg/L	0.13602	0.2413 ppb	0.13602	56.37%

QC value within limits for Ti 334.940 Recovery = Not calculated

Tl 190.801†	4.9	1.5097 µg/L	1.68003	1.5097 ppb	1.68003	111.28%

QC value within limits for Tl 190.801 Recovery = Not calculated

U 367.007†	-18.0	-2.2467 µg/L	8.97050	-2.2467 ppb	8.97050	399.28%

QC value within limits for U 367.007 Recovery = Not calculated

V 292.402†	-43.1	-0.1933 µg/L	0.25416	-0.1933 ppb	0.25416	131.51%

QC value within limits for V 292.402 Recovery = Not calculated

Zn 213.857†	-39.1	-0.2218 µg/L	0.09672	-0.2218 ppb	0.09672	43.61%

QC value within limits for Zn 213.857 Recovery = Not calculated

All analyte(s) passed QC.

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Analysis Begun

Start Time: 11/11/2016 13:41:23 **Plasma On Time: 11/7/2016 06:01:25**
Logged In Analyst: lab **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N No Serial #Autosampler Model: AS-93plus

Sample Information File: C:\pe\optima4\Sample Information\111116.sif
Batch ID:
Results Data Set: 111116
Results Library: C:\pe\optima4\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 358**
Sample ID: 409254020|1611117|20 **Date Collected: 11/11/2016 13:41:24**
Analyst: TXT1 **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254020|1611117|20

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	72562.0	72562.0	101	%			13:41:52
1	Al 396.153Radial†	14962.3	14752.6	5386.7	µg/L	5386.7	ppb	13:41:54
1	Ca 317.933Radial†	52101.5	51381.9	5719.9	µg/L	5719.9	ppb	13:41:54
1	Fe 238.204 Radial†	107362.4	107104.9	10132	µg/L	10132	ppb	13:41:52
1	K 766.490 Radial†	2851.9	1761.0	928.63	µg/L	928.63	ppb	13:41:54
1	Mg 279.077 IEC†	4761.3	4700.1	2537.3	µg/L	2537.3	ppb	13:41:54
1	Na 589.592 Radial†	4709.5	4635.7	773.03	µg/L	773.03	ppb	13:41:54
1	Sr 421.552†	9491.1	9881.6	28.472	µg/L	28.472	ppb	13:41:54
1	Sc 361.383	1351709.4	1351709.4	101.54	%			13:42:05
1	Y 371.029	735029.7	735029.7	101.46	%			13:42:05
1	Ag 328.068†	-1842.1	76.7	0.9111	µg/L	0.9111	ppb	13:42:05
1	As 188.979†	-22.1	8.2	5.7722	µg/L	5.7722	ppb	13:42:25
1	B 249.677†	569.8	-323.7	2.7767	µg/L	2.7767	ppb	13:42:05
1	Ba 233.527†	18005.6	17973.2	160.31	µg/L	160.31	ppb	13:42:05
1	Be 313.107†	-1658.2	2022.9	-3.3712	µg/L	-3.3712	ppb	13:42:05
1	Cd 226.502†	39.6	219.0	0.4972	µg/L	0.4972	ppb	13:42:25
1	Co 228.616†	200.6	289.1	4.3589	µg/L	4.3589	ppb	13:42:25
1	Cr 267.716†	777.6	636.9	7.6128	µg/L	7.6128	ppb	13:42:25
1	Cu 324.752†	7647.4	1754.5	8.4621	µg/L	8.4621	ppb	13:42:05
1	Mn 257.610†	235519.8	231795.0	406.16	µg/L	406.16	ppb	13:42:05
1	Mo 202.031†	-37.3	-7.0	-0.0893	µg/L	-0.0893	ppb	13:42:25
1	Ni 231.604†	576.9	765.9	12.176	µg/L	12.176	ppb	13:42:25
1	P 214.914†	761.3	844.8	303.97	µg/L	303.97	ppb	13:42:25
1	Pb 220.353†	148.9	73.0	7.5743	µg/L	7.5743	ppb	13:42:25
1	S 181.975 Axial†	753.4	639.3	711.34	µg/L	711.34	ppb	13:42:25
1	Sb 206.836†	40.9	-4.0	-1.8178	µg/L	-1.8178	ppb	13:42:25
1	Se 196.026†	-4.1	-12.0	-1.74	µg/L	-1.74	ppb	13:42:25
1	SiO2†	34854.7	31306.2	3464.9	µg/L	3464.9	ppb	13:42:05
1	Si 251.611†	97645.8	95580.1	1621.8	µg/L	1621.8	ppb	13:42:05
1	Sn 189.927†	-20.7	7.1	0.9194	µg/L	0.9194	ppb	13:42:25
1	Ti 334.940†	57916.0	57926.7	82.381	µg/L	82.381	ppb	13:42:05
1	Tl 190.801†	-77.7	9.6	3.1077	µg/L	3.1077	ppb	13:42:25
1	U 367.007†	128.5	410.7	-5.0448	µg/L	-5.0448	ppb	13:42:05
1	V 292.402†	3736.9	3576.9	16.735	µg/L	16.735	ppb	13:42:05
1	Zn 213.857†	6663.6	6516.0	35.746	µg/L	35.746	ppb	13:42:25
2	Sc RADIAL	72886.2	72886.2	101	%			13:41:56
2	Al 396.153Radial†	14707.6	14434.7	5270.6	µg/L	5270.6	ppb	13:41:58
2	Ca 317.933Radial†	51059.2	50121.7	5579.6	µg/L	5579.6	ppb	13:41:58
2	Fe 238.204 Radial†	108214.2	107472.6	10166	µg/L	10166	ppb	13:41:56
2	K 766.490 Radial†	2743.4	1641.3	865.71	µg/L	865.71	ppb	13:41:58
2	Mg 279.077 IEC†	4706.2	4624.6	2496.6	µg/L	2496.6	ppb	13:41:58
2	Na 589.592 Radial†	4636.9	4543.2	757.60	µg/L	757.60	ppb	13:41:58
2	Sr 421.552†	9320.6	9671.2	27.866	µg/L	27.866	ppb	13:41:58
2	Sc 361.383	1323255.0	1323255.0	99.403	%			13:42:28
2	Y 371.029	719220.3	719220.3	99.279	%			13:42:28
2	Ag 328.068†	-1946.5	-67.3	0.1687	µg/L	0.1687	ppb	13:42:28
2	As 188.979†	-25.3	4.5	3.7601	µg/L	3.7601	ppb	13:42:48

2	B 249.677†	490.9	-391.0	1.8347 µg/L	1.8347 ppb	13:42:28
2	Ba 233.527†	17931.3	18279.8	163.04 µg/L	163.04 ppb	13:42:28
2	Be 313.107†	-1494.8	2152.1	-3.4015 µg/L	-3.4015 ppb	13:42:28
2	Cd 226.502†	30.8	211.0	0.4325 µg/L	0.4325 ppb	13:42:48
2	Co 228.616†	197.5	290.2	4.3780 µg/L	4.3780 ppb	13:42:48
2	Cr 267.716†	777.0	652.7	7.7958 µg/L	7.7958 ppb	13:42:48
2	Cu 324.752†	7539.1	1807.5	8.7013 µg/L	8.7013 ppb	13:42:28
2	Mn 257.610†	236547.1	237816.1	416.71 µg/L	416.71 ppb	13:42:28
2	Mo 202.031†	-28.4	1.1	0.3317 µg/L	0.3317 ppb	13:42:48
2	Ni 231.604†	601.9	803.2	12.770 µg/L	12.770 ppb	13:42:48
2	P 214.914†	766.5	866.2	311.69 µg/L	311.69 ppb	13:42:48
2	Pb 220.353†	157.6	84.8	8.7628 µg/L	8.7628 ppb	13:42:48
2	S 181.975 Axial†	765.2	667.1	742.36 µg/L	742.36 ppb	13:42:48
2	Sb 206.836†	48.3	4.3	-0.2367 µg/L	-0.2367 ppb	13:42:48
2	Se 196.026†	-10.2	-18.3	-5.01 µg/L	-5.01 ppb	13:42:48
2	SiO2†	34986.0	32176.5	3561.2 µg/L	3561.2 ppb	13:42:28
2	Si 251.611†	98008.2	98012.6	1663.1 µg/L	1663.1 ppb	13:42:28
2	Sn 189.927†	-28.5	-1.2	-0.1359 µg/L	-0.1359 ppb	13:42:48
2	Ti 334.940†	58131.1	59369.6	84.428 µg/L	84.428 ppb	13:42:28
2	Tl 190.801†	-84.0	1.6	0.6631 µg/L	0.6631 ppb	13:42:48
2	U 367.007†	162.7	447.9	-0.6497 µg/L	-0.6497 ppb	13:42:28
2	V 292.402†	3655.8	3574.4	16.728 µg/L	16.728 ppb	13:42:28
2	Zn 213.857†	6809.0	6803.4	37.374 µg/L	37.374 ppb	13:42:48
3	Sc RADIAL	71098.0	71098.0	98.7 %		13:42:00
3	Al 396.153Radial†	14850.3	14945.0	5456.9 µg/L	5456.9 ppb	13:42:02
3	Ca 317.933Radial†	51612.6	51951.7	5783.3 µg/L	5783.3 ppb	13:42:02
3	Fe 238.204 Radial†	105732.1	107647.9	10183 µg/L	10183 ppb	13:42:00
3	K 766.490 Radial†	2734.7	1700.6	896.90 µg/L	896.90 ppb	13:42:02
3	Mg 279.077 IEC†	4745.6	4781.5	2581.2 µg/L	2581.2 ppb	13:42:02
3	Na 589.592 Radial†	4729.4	4752.2	792.45 µg/L	792.45 ppb	13:42:02
3	Sr 421.552†	9274.6	9856.3	28.396 µg/L	28.396 ppb	13:42:02
3	Sc 361.383	1354155.0	1354155.0	101.72 %		13:42:50
3	Y 371.029	735128.9	735128.9	101.47 %		13:42:50
3	Ag 328.068†	-1871.9	50.7	0.7847 µg/L	0.7847 ppb	13:42:50
3	As 188.979†	-25.0	5.4	4.2584 µg/L	4.2584 ppb	13:43:10
3	B 249.677†	486.1	-407.0	1.6162 µg/L	1.6162 ppb	13:42:50
3	Ba 233.527†	18781.1	18703.6	166.82 µg/L	166.82 ppb	13:42:50
3	Be 313.107†	-1583.0	2099.7	-3.5138 µg/L	-3.5138 ppb	13:42:50
3	Cd 226.502†	38.3	217.7	0.4812 µg/L	0.4812 ppb	13:43:10
3	Co 228.616†	207.7	295.7	4.4643 µg/L	4.4643 ppb	13:43:10
3	Cr 267.716†	803.8	661.2	7.9082 µg/L	7.9082 ppb	13:43:10
3	Cu 324.752†	7717.9	1810.2	8.7045 µg/L	8.7045 ppb	13:42:50
3	Mn 257.610†	246152.6	241828.7	423.74 µg/L	423.74 ppb	13:42:50
3	Mo 202.031†	-40.3	-9.8	-0.2362 µg/L	-0.2362 ppb	13:43:10
3	Ni 231.604†	596.2	783.9	12.462 µg/L	12.462 ppb	13:43:10
3	P 214.914†	788.8	870.6	313.25 µg/L	313.25 ppb	13:43:10
3	Pb 220.353†	160.3	83.9	8.6885 µg/L	8.6885 ppb	13:43:10
3	S 181.975 Axial†	787.6	671.6	747.34 µg/L	747.34 ppb	13:43:10
3	Sb 206.836†	54.7	9.5	0.7791 µg/L	0.7791 ppb	13:43:10
3	Se 196.026†	-5.7	-13.6	-2.57 µg/L	-2.57 ppb	13:43:10
3	SiO2†	36313.4	32678.2	3616.7 µg/L	3616.7 ppb	13:42:50
3	Si 251.611†	101971.8	99659.1	1691.0 µg/L	1691.0 ppb	13:42:50
3	Sn 189.927†	-24.7	3.2	0.4306 µg/L	0.4306 ppb	13:43:10
3	Ti 334.940†	60246.6	60114.8	85.497 µg/L	85.497 ppb	13:42:50
3	Tl 190.801†	-84.3	3.2	1.1635 µg/L	1.1635 ppb	13:43:10
3	U 367.007†	50.9	334.2	-14.746 µg/L	-14.746 ppb	13:42:50
3	V 292.402†	3814.1	3646.1	17.045 µg/L	17.045 ppb	13:42:50
3	Zn 213.857†	6934.9	6770.8	37.183 µg/L	37.183 ppb	13:43:10

Mean Data: 409254020|1611117|20

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 361.383	1343039.8	100.89	%	1.290				1.28%
Sc RADIAL	72182.1	100	%	1.3				1.32%
Y 371.029	729793.0	100.74	%	1.264				1.25%
Ag 328.068†	20.0	0.6215	µg/L	0.39723	0.6215	ppb	0.39723	63.91%
Al 396.153Radial†	14710.7	5371.4	µg/L	94.09	5371.4	ppb	94.09	1.75%
As 188.979†	6.0	4.5969	µg/L	1.04790	4.5969	ppb	1.04790	22.80%
B 249.677†	-373.9	2.0759	µg/L	0.61672	2.0759	ppb	0.61672	29.71%
Ba 233.527†	18318.9	163.39	µg/L	3.270	163.39	ppb	3.270	2.00%

Be 313.107†	2091.6	-3.4288 µg/L	0.07512	-3.4288 ppb	0.07512	2.19%
Ca 317.933Radial†	51151.8	5694.2 µg/L	104.25	5694.2 ppb	104.25	1.83%
Cd 226.502†	215.9	0.4703 µg/L	0.03369	0.4703 ppb	0.03369	7.16%
Co 228.616†	291.7	4.4004 µg/L	0.05615	4.4004 ppb	0.05615	1.28%
Cr 267.716†	650.2	7.7723 µg/L	0.14908	7.7723 ppb	0.14908	1.92%
Cu 324.752†	1790.7	8.6226 µg/L	0.13903	8.6226 ppb	0.13903	1.61%
Fe 238.204 Radial†	107408.5	10160 µg/L	26.2	10160 ppb	26.2	0.26%
K 766.490 Radial†	1701.0	897.08 µg/L	31.459	897.08 ppb	31.459	3.51%
Mg 279.077 IEC†	4702.1	2538.4 µg/L	42.32	2538.4 ppb	42.32	1.67%
Mn 257.610†	237146.6	415.53 µg/L	8.850	415.53 ppb	8.850	2.13%
Mo 202.031†	-5.2	0.0021 µg/L	0.29475	0.0021 ppb	0.29475	>999.9%
Na 589.592 Radial†	4643.7	774.36 µg/L	17.463	774.36 ppb	17.463	2.26%
Ni 231.604†	784.3	12.469 µg/L	0.2972	12.469 ppb	0.2972	2.38%
P 214.914†	860.5	309.64 µg/L	4.969	309.64 ppb	4.969	1.60%
Pb 220.353†	80.6	8.3419 µg/L	0.66574	8.3419 ppb	0.66574	7.98%
S 181.975 Axial†	659.3	733.68 µg/L	19.507	733.68 ppb	19.507	2.66%
Sb 206.836†	3.3	-0.4251 µg/L	1.30868	-0.4251 ppb	1.30868	307.83%
Se 196.026†	-14.7	-3.11 µg/L	1.696	-3.11 ppb	1.696	54.63%
SiO2†	32053.6	3547.6 µg/L	76.83	3547.6 ppb	76.83	2.17%
Si 251.611†	97750.6	1658.6 µg/L	34.80	1658.6 ppb	34.80	2.10%
Sn 189.927†	3.0	0.4047 µg/L	0.52813	0.4047 ppb	0.52813	130.51%
Sr 421.552†	9803.0	28.245 µg/L	0.3301	28.245 ppb	0.3301	1.17%
Ti 334.940†	59137.0	84.102 µg/L	1.5833	84.102 ppb	1.5833	1.88%
Tl 190.801†	4.8	1.6448 µg/L	1.29142	1.6448 ppb	1.29142	78.52%
U 367.007†	397.6	-6.8135 µg/L	7.21275	-6.8135 ppb	7.21275	105.86%
V 292.402†	3599.1	16.836 µg/L	0.1812	16.836 ppb	0.1812	1.08%
Zn 213.857†	6696.7	36.768 µg/L	0.8901	36.768 ppb	0.8901	2.42%

Sequence No.: 2 **Autosampler Location:** 7
Sample ID: CCV **Date Collected:** 11/11/2016 13:43:18
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	70285.3	70285.3	97.6	%			13:43:47
1	Al 396.153Radial†	13510.3	13745.5	5018.9	µg/L	5018.9	ppb	13:43:47
1	Ca 317.933Radial†	43602.1	44346.2	4936.6	µg/L	4936.6	ppb	13:43:47
1	Fe 238.204 Radial†	51481.5	53283.3	5040.4	µg/L	5040.4	ppb	13:43:47
1	K 766.490 Radial†	10373.8	9562.3	5026.5	µg/L	5026.5	ppb	13:43:47
1	Mg 279.077 IEC†	8873.7	9068.2	4890.6	µg/L	4890.6	ppb	13:43:47
1	Na 589.592 Radial†	57468.4	58861.6	9815.5	µg/L	9815.5	ppb	13:43:45
1	Sr 421.552†	167361.3	171993.5	498.83	µg/L	498.83	ppb	13:43:45
1	Sc 361.383	1326968.0	1326968.0	99.682	%			13:43:59
1	Y 371.029	707559.8	707559.8	97.669	%			13:43:59
1	Ag 328.068†	92982.5	95170.1	491.12	µg/L	491.12	ppb	13:44:01
1	As 188.979†	896.4	929.3	509.98	µg/L	509.98	ppb	13:44:21
1	B 249.677†	35131.9	34359.2	497.83	µg/L	497.83	ppb	13:44:01
1	Ba 233.527†	54907.4	55323.5	493.33	µg/L	493.33	ppb	13:44:01
1	Be 313.107†	1793425.3	1802806.5	479.70	µg/L	479.70	ppb	13:43:59
1	Cd 226.502†	64437.8	64823.5	489.90	µg/L	489.90	ppb	13:44:01
1	Co 228.616†	33019.9	33216.9	493.95	µg/L	493.95	ppb	13:44:01
1	Cr 267.716†	42081.5	42086.9	494.59	µg/L	494.59	ppb	13:44:01
1	Cu 324.752†	117401.5	111999.4	495.01	µg/L	495.01	ppb	13:44:01
1	Mn 257.610†	281636.6	282383.7	494.73	µg/L	494.73	ppb	13:44:01
1	Mo 202.031†	9490.9	9551.0	496.56	µg/L	496.56	ppb	13:44:21
1	Ni 231.604†	30645.3	30940.9	491.90	µg/L	491.90	ppb	13:44:01
1	P 214.914†	6724.2	6840.8	2465.4	µg/L	2465.4	ppb	13:44:21
1	Pb 220.353†	4965.1	4907.2	495.99	µg/L	495.99	ppb	13:44:21
1	S 181.975 Axial†	961.6	862.0	961.05	µg/L	961.05	ppb	13:44:21
1	Sb 206.836†	2638.5	2602.7	494.77	µg/L	494.77	ppb	13:44:21
1	Se 196.026†	960.3	955.4	503	µg/L	503	ppb	13:44:21
1	SiO2†	51961.9	49108.0	5435.1	µg/L	5435.1	ppb	13:44:01
1	Si 251.611†	149830.6	149724.4	2539.2	µg/L	2539.2	ppb	13:44:01
1	Sn 189.927†	3832.4	3872.1	495.09	µg/L	495.09	ppb	13:44:21
1	Ti 334.940†	344877.7	346867.9	492.72	µg/L	492.72	ppb	13:43:59
1	Tl 190.801†	1517.6	1608.5	494.18	µg/L	494.18	ppb	13:44:21
1	U 367.007†	3596.1	3891.8	450.96	µg/L	450.96	ppb	13:44:01
1	V 292.402†	109621.5	109868.1	493.66	µg/L	493.66	ppb	13:44:01
1	Zn 213.857†	86921.4	87152.4	493.15	µg/L	493.15	ppb	13:44:01
2	Sc RADIAL	71743.8	71743.8	99.6	%			13:43:51
2	Al 396.153Radial†	13784.1	13738.9	5016.5	µg/L	5016.5	ppb	13:43:51
2	Ca 317.933Radial†	44780.4	44620.8	4967.2	µg/L	4967.2	ppb	13:43:51
2	Fe 238.204 Radial†	52589.0	53322.6	5044.1	µg/L	5044.1	ppb	13:43:51
2	K 766.490 Radial†	10759.1	9733.0	5116.2	µg/L	5116.2	ppb	13:43:51
2	Mg 279.077 IEC†	9079.5	9089.9	4902.3	µg/L	4902.3	ppb	13:43:51
2	Na 589.592 Radial†	57294.1	57489.2	9586.6	µg/L	9586.6	ppb	13:43:49
2	Sr 421.552†	166823.2	167966.1	487.15	µg/L	487.15	ppb	13:43:49
2	Sc 361.383	1338000.2	1338000.2	100.51	%			13:44:23
2	Y 371.029	711910.1	711910.1	98.270	%			13:44:23
2	Ag 328.068†	92229.1	93651.5	483.27	µg/L	483.27	ppb	13:44:26
2	As 188.979†	898.6	923.9	507.01	µg/L	507.01	ppb	13:44:46
2	B 249.677†	34978.8	33916.3	491.46	µg/L	491.46	ppb	13:44:26
2	Ba 233.527†	54720.2	54683.1	487.62	µg/L	487.62	ppb	13:44:26
2	Be 313.107†	1802240.4	1796742.5	478.19	µg/L	478.19	ppb	13:44:23
2	Cd 226.502†	63945.6	63800.9	482.17	µg/L	482.17	ppb	13:44:26
2	Co 228.616†	32748.1	32673.3	485.87	µg/L	485.87	ppb	13:44:26
2	Cr 267.716†	41637.2	41296.7	485.29	µg/L	485.29	ppb	13:44:26
2	Cu 324.752†	116481.0	110112.5	486.69	µg/L	486.69	ppb	13:44:26
2	Mn 257.610†	279783.3	278210.3	487.42	µg/L	487.42	ppb	13:44:26
2	Mo 202.031†	9518.1	9499.5	493.89	µg/L	493.89	ppb	13:44:46
2	Ni 231.604†	30368.4	30411.9	483.49	µg/L	483.49	ppb	13:44:26
2	P 214.914†	6769.9	6830.6	2461.8	µg/L	2461.8	ppb	13:44:46
2	Pb 220.353†	4990.4	4891.3	494.38	µg/L	494.38	ppb	13:44:46

2	S 181.975 Axial†	982.8	875.1	975.68 µg/L	975.68 ppb	13:44:46
2	Sb 206.836†	2620.3	2562.7	487.18 µg/L	487.18 ppb	13:44:46
2	Se 196.026†	960.1	947.3	499 µg/L	499 ppb	13:44:46
2	SiO2†	51680.0	48397.7	5356.5 µg/L	5356.5 ppb	13:44:26
2	Si 251.611†	148917.0	147576.2	2502.8 µg/L	2502.8 ppb	13:44:26
2	Sn 189.927†	3839.4	3847.4	491.93 µg/L	491.93 ppb	13:44:46
2	Ti 334.940†	347377.6	346502.5	492.20 µg/L	492.20 ppb	13:44:23
2	Tl 190.801†	1520.9	1599.2	491.32 µg/L	491.32 ppb	13:44:46
2	U 367.007†	3698.7	3964.1	459.84 µg/L	459.84 ppb	13:44:26
2	V 292.402†	108790.0	108134.1	485.88 µg/L	485.88 ppb	13:44:26
2	Zn 213.857†	86395.1	85909.8	486.11 µg/L	486.11 ppb	13:44:26
3	Sc RADIAL	72750.8	72750.8	101 %		13:43:55
3	Al 396.153Radial†	13987.9	13749.1	5020.2 µg/L	5020.2 ppb	13:43:55
3	Ca 317.933Radial†	45472.2	44683.4	4974.2 µg/L	4974.2 ppb	13:43:55
3	Fe 238.204 Radial†	53371.2	53366.2	5048.2 µg/L	5048.2 ppb	13:43:55
3	K 766.490 Radial†	10767.2	9591.5	5041.8 µg/L	5041.8 ppb	13:43:55
3	Mg 279.077 IEC†	9237.6	9120.3	4918.7 µg/L	4918.7 ppb	13:43:55
3	Na 589.592 Radial†	58280.7	57669.8	9616.7 µg/L	9616.7 ppb	13:43:53
3	Sr 421.552†	170078.1	168870.3	489.77 µg/L	489.77 ppb	13:43:53
3	Sc 361.383	1342592.1	1342592.1	100.86 %		13:44:48
3	Y 371.029	713731.1	713731.1	98.521 %		13:44:48
3	Ag 328.068†	94392.2	95482.4	492.72 µg/L	492.72 ppb	13:44:50
3	As 188.979†	888.8	911.3	500.20 µg/L	500.20 ppb	13:45:10
3	B 249.677†	35944.5	34754.8	503.52 µg/L	503.52 ppb	13:44:50
3	Ba 233.527†	55912.0	55678.5	496.49 µg/L	496.49 ppb	13:44:50
3	Be 313.107†	1804136.1	1792489.4	476.81 µg/L	476.81 ppb	13:44:48
3	Cd 226.502†	65750.2	65372.5	494.06 µg/L	494.06 ppb	13:44:50
3	Co 228.616†	33614.9	33421.3	496.99 µg/L	496.99 ppb	13:44:50
3	Cr 267.716†	42620.7	42130.2	495.09 µg/L	495.09 ppb	13:44:50
3	Cu 324.752†	119244.0	112455.7	497.03 µg/L	497.03 ppb	13:44:50
3	Mn 257.610†	286668.4	284084.9	497.71 µg/L	497.71 ppb	13:44:50
3	Mo 202.031†	9403.1	9353.1	486.28 µg/L	486.28 ppb	13:45:10
3	Ni 231.604†	31302.2	31234.5	496.57 µg/L	496.57 ppb	13:44:50
3	P 214.914†	6687.3	6725.7	2424.0 µg/L	2424.0 ppb	13:45:10
3	Pb 220.353†	4919.5	4804.0	485.54 µg/L	485.54 ppb	13:45:10
3	S 181.975 Axial†	971.8	860.9	959.79 µg/L	959.79 ppb	13:45:10
3	Sb 206.836†	2606.9	2540.5	482.76 µg/L	482.76 ppb	13:45:10
3	Se 196.026†	935.7	919.8	485 µg/L	485 ppb	13:45:10
3	SiO2†	53024.5	49555.0	5484.6 µg/L	5484.6 ppb	13:44:50
3	Si 251.611†	152506.2	150628.2	2554.5 µg/L	2554.5 ppb	13:44:50
3	Sn 189.927†	3809.0	3804.2	486.41 µg/L	486.41 ppb	13:45:10
3	Ti 334.940†	347578.7	345519.8	490.80 µg/L	490.80 ppb	13:44:48
3	Tl 190.801†	1512.7	1585.9	487.24 µg/L	487.24 ppb	13:45:10
3	U 367.007†	3734.7	3987.2	462.66 µg/L	462.66 ppb	13:44:50
3	V 292.402†	111366.2	110318.3	495.68 µg/L	495.68 ppb	13:44:50
3	Zn 213.857†	88649.8	87851.3	497.11 µg/L	497.11 ppb	13:44:50

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1335853.4	100.35	%	0.603				0.60%
Sc RADIAL	71593.3	99.4	%	1.72				1.73%
Y 371.029	711067.0	98.153	%	0.4377				0.45%
Ag 328.068†	94768.0	489.04	µg/L	5.055	489.04	ppb	5.055	1.03%
QC value within limits for Ag 328.068 Recovery = 97.81%								
Al 396.153Radial†	13744.5	5018.5	µg/L	1.89	5018.5	ppb	1.89	0.04%
QC value within limits for Al 396.153Radial Recovery = 100.37%								
As 188.979†	921.5	505.73	µg/L	5.012	505.73	ppb	5.012	0.99%
QC value within limits for As 188.979 Recovery = 101.15%								
B 249.677†	34343.4	497.60	µg/L	6.034	497.60	ppb	6.034	1.21%
QC value within limits for B 249.677 Recovery = 99.52%								
Ba 233.527†	55228.3	492.48	µg/L	4.498	492.48	ppb	4.498	0.91%
QC value within limits for Ba 233.527 Recovery = 98.50%								
Be 313.107†	1797346.1	478.23	µg/L	1.444	478.23	ppb	1.444	0.30%
QC value within limits for Be 313.107 Recovery = 95.65%								
Ca 317.933Radial†	44550.1	4959.3	µg/L	19.97	4959.3	ppb	19.97	0.40%
QC value within limits for Ca 317.933Radial Recovery = 99.19%								
Cd 226.502†	64665.6	488.71	µg/L	6.035	488.71	ppb	6.035	1.23%
QC value within limits for Cd 226.502 Recovery = 97.74%								
Co 228.616†	33103.8	492.27	µg/L	5.748	492.27	ppb	5.748	1.17%

QC value within limits for Co 228.616 Recovery = 98.45%

Cr 267.716†	41837.9	491.65 µg/L	5.519	491.65 ppb	5.519	1.12%

QC value within limits for Cr 267.716 Recovery = 98.33%

Cu 324.752†	111522.5	492.91 µg/L	5.482	492.91 ppb	5.482	1.11%

QC value within limits for Cu 324.752 Recovery = 98.58%

Fe 238.204 Radial†	53324.1	5044.2 µg/L	3.92	5044.2 ppb	3.92	0.08%

QC value within limits for Fe 238.204 Radial Recovery = 100.88%

K 766.490 Radial†	9628.9	5061.5 µg/L	47.99	5061.5 ppb	47.99	0.95%

QC value within limits for K 766.490 Radial Recovery = 101.23%

Mg 279.077 IEC†	9092.8	4903.9 µg/L	14.12	4903.9 ppb	14.12	0.29%

QC value within limits for Mg 279.077 IEC Recovery = 98.08%

Mn 257.610†	281559.6	493.29 µg/L	5.298	493.29 ppb	5.298	1.07%

QC value within limits for Mn 257.610 Recovery = 98.66%

Mo 202.031†	9467.9	492.24 µg/L	5.335	492.24 ppb	5.335	1.08%

QC value within limits for Mo 202.031 Recovery = 98.45%

Na 589.592 Radial†	58006.9	9672.9 µg/L	124.36	9672.9 ppb	124.36	1.29%

QC value within limits for Na 589.592 Radial Recovery = 96.73%

Ni 231.604†	30862.4	490.65 µg/L	6.627	490.65 ppb	6.627	1.35%

QC value within limits for Ni 231.604 Recovery = 98.13%

P 214.914†	6799.0	2450.4 µg/L	22.97	2450.4 ppb	22.97	0.94%

QC value within limits for P 214.914 Recovery = 98.02%

Pb 220.353†	4867.5	491.97 µg/L	5.627	491.97 ppb	5.627	1.14%

QC value within limits for Pb 220.353 Recovery = 98.39%

S 181.975 Axial†	866.0	965.51 µg/L	8.833	965.51 ppb	8.833	0.91%

QC value within limits for S 181.975 Axial Recovery = 96.55%

Sb 206.836†	2568.6	488.24 µg/L	6.076	488.24 ppb	6.076	1.24%

QC value within limits for Sb 206.836 Recovery = 97.65%

Se 196.026†	940.8	496 µg/L	9.8	496 ppb	9.8	1.97%

QC value within limits for Se 196.026 Recovery = 99.11%

SiO2†	49020.2	5425.4 µg/L	64.59	5425.4 ppb	64.59	1.19%

QC value within limits for SiO2 Recovery = 101.46%

Si 251.611†	149309.6	2532.2 µg/L	26.58	2532.2 ppb	26.58	1.05%

QC value within limits for Si 251.611 Recovery = 101.29%

Sn 189.927†	3841.2	491.15 µg/L	4.395	491.15 ppb	4.395	0.89%

QC value within limits for Sn 189.927 Recovery = 98.23%

Sr 421.552†	169609.9	491.92 µg/L	6.131	491.92 ppb	6.131	1.25%

QC value within limits for Sr 421.552 Recovery = 98.38%

Ti 334.940†	346296.7	491.90 µg/L	0.994	491.90 ppb	0.994	0.20%

QC value within limits for Ti 334.940 Recovery = 98.38%

Tl 190.801†	1597.9	490.91 µg/L	3.489	490.91 ppb	3.489	0.71%

QC value within limits for Tl 190.801 Recovery = 98.18%

U 367.007†	3947.7	457.82 µg/L	6.105	457.82 ppb	6.105	1.33%

QC value within limits for U 367.007 Recovery = 91.56%

V 292.402†	109440.1	491.74 µg/L	5.177	491.74 ppb	5.177	1.05%

QC value within limits for V 292.402 Recovery = 98.35%

Zn 213.857†	86971.2	492.12 µg/L	5.573	492.12 ppb	5.573	1.13%

QC value within limits for Zn 213.857 Recovery = 98.42%

All analyte(s) passed QC.

Sequence No.: 3 **Autosampler Location:** 101
Sample ID: PQL **Date Collected:** 11/11/2016 13:45:18
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71106.2	71106.2	98.7	%			13:45:44
1	Al 396.153Radial†	673.1	580.2	211.85	µg/L	211.85	ppb	13:46:04
1	Ca 317.933Radial†	2255.9	1942.3	216.22	µg/L	216.22	ppb	13:46:04
1	Fe 238.204 Radial†	637.6	1164.0	110.11	µg/L	110.11	ppb	13:46:04
1	K 766.490 Radial†	1251.7	197.9	104.02	µg/L	104.02	ppb	13:45:44
1	Mg 279.077 IEC†	568.9	549.6	296.34	µg/L	296.34	ppb	13:46:04
1	Na 589.592 Radial†	1961.1	1947.1	324.68	µg/L	324.68	ppb	13:45:44
1	Sr 421.552†	1317.3	1793.6	5.1963	µg/L	5.1963	ppb	13:46:04
1	Sc 361.383	1343792.6	1343792.6	100.95	%			13:46:52
1	Y 371.029	726577.5	726577.5	100.29	%			13:46:52
1	Ag 328.068†	-874.0	1025.0	5.2581	µg/L	5.2581	ppb	13:46:54
1	As 188.979†	29.3	59.0	32.119	µg/L	32.119	ppb	13:47:14
1	B 249.677†	4205.6	3281.3	47.270	µg/L	47.270	ppb	13:46:54
1	Ba 233.527†	345.6	583.1	5.1998	µg/L	5.1998	ppb	13:47:14
1	Be 313.107†	15771.2	19279.4	5.1529	µg/L	5.1529	ppb	13:46:54
1	Cd 226.502†	524.2	699.3	5.2787	µg/L	5.2787	ppb	13:47:14
1	Co 228.616†	251.9	341.1	5.0713	µg/L	5.0713	ppb	13:47:14
1	Cr 267.716†	587.6	453.1	5.2714	µg/L	5.2714	ppb	13:47:14
1	Cu 324.752†	7892.5	2041.7	9.0711	µg/L	9.0711	ppb	13:46:54
1	Mn 257.610†	6196.5	5986.5	10.481	µg/L	10.481	ppb	13:46:54
1	Mo 202.031†	168.7	196.8	10.236	µg/L	10.236	ppb	13:47:14
1	Ni 231.604†	159.0	355.3	5.6483	µg/L	5.6483	ppb	13:47:14
1	P 214.914†	321.7	413.8	149.14	µg/L	149.14	ppb	13:47:14
1	Pb 220.353†	183.7	108.2	10.883	µg/L	10.883	ppb	13:47:14
1	S 181.975 Axial†	175.6	71.2	79.503	µg/L	79.503	ppb	13:47:14
1	Sb 206.836†	116.9	71.5	13.716	µg/L	13.716	ppb	13:47:14
1	Se 196.026†	60.2	51.6	27.2	µg/L	27.2	ppb	13:47:14
1	SiO2†	4847.7	1782.5	197.28	µg/L	197.28	ppb	13:46:54
1	Si 251.611†	6147.8	5505.8	93.364	µg/L	93.364	ppb	13:46:54
1	Sn 189.927†	54.5	81.4	10.414	µg/L	10.414	ppb	13:47:14
1	Ti 334.940†	3005.8	3866.9	5.4646	µg/L	5.4646	ppb	13:46:54
1	Tl 190.801†	-6.3	79.8	24.510	µg/L	24.510	ppb	13:47:14
1	U 367.007†	232.7	514.7	62.705	µg/L	62.705	ppb	13:46:54
1	V 292.402†	1231.6	1116.8	5.0437	µg/L	5.0437	ppb	13:46:54
1	Zn 213.857†	1844.2	1780.5	10.065	µg/L	10.065	ppb	13:47:14
2	Sc RADIAL	72167.1	72167.1	100	%			13:46:07
2	Al 396.153Radial†	686.3	583.4	213.03	µg/L	213.03	ppb	13:46:27
2	Ca 317.933Radial†	2234.3	1887.1	210.08	µg/L	210.08	ppb	13:46:27
2	Fe 238.204 Radial†	645.3	1162.2	109.94	µg/L	109.94	ppb	13:46:27
2	K 766.490 Radial†	1229.8	157.3	82.705	µg/L	82.705	ppb	13:46:07
2	Mg 279.077 IEC†	590.3	562.5	303.29	µg/L	303.29	ppb	13:46:27
2	Na 589.592 Radial†	1952.4	1909.1	318.35	µg/L	318.35	ppb	13:46:07
2	Sr 421.552†	1335.3	1792.0	5.1918	µg/L	5.1918	ppb	13:46:27
2	Sc 361.383	1320339.5	1320339.5	99.184	%			13:47:16
2	Y 371.029	713769.4	713769.4	98.526	%			13:47:16
2	Ag 328.068†	-891.7	991.8	5.1013	µg/L	5.1013	ppb	13:47:18
2	As 188.979†	29.6	59.8	32.563	µg/L	32.563	ppb	13:47:38
2	B 249.677†	4187.3	3336.9	48.070	µg/L	48.070	ppb	13:47:18
2	Ba 233.527†	348.6	592.3	5.2818	µg/L	5.2818	ppb	13:47:38
2	Be 313.107†	15501.2	19284.7	5.1430	µg/L	5.1430	ppb	13:47:18
2	Cd 226.502†	535.3	719.7	5.4329	µg/L	5.4329	ppb	13:47:38
2	Co 228.616†	244.9	338.5	5.0326	µg/L	5.0326	ppb	13:47:38
2	Cr 267.716†	587.9	463.8	5.4202	µg/L	5.4202	ppb	13:47:38
2	Cu 324.752†	7783.9	2071.1	9.1804	µg/L	9.1804	ppb	13:47:18
2	Mn 257.610†	6130.5	6029.0	10.555	µg/L	10.555	ppb	13:47:18
2	Mo 202.031†	173.8	204.9	10.656	µg/L	10.656	ppb	13:47:38
2	Ni 231.604†	162.9	361.9	5.7539	µg/L	5.7539	ppb	13:47:38
2	P 214.914†	328.1	425.9	153.50	µg/L	153.50	ppb	13:47:38
2	Pb 220.353†	210.6	138.6	13.983	µg/L	13.983	ppb	13:47:38

2	S 181.975 Axial†	176.7	75.5	84.208 µg/L	84.208 ppb	13:47:38
2	Sb 206.836†	117.1	73.8	14.167 µg/L	14.167 ppb	13:47:38
2	Se 196.026†	60.1	52.6	27.6 µg/L	27.6 ppb	13:47:38
2	SiO2†	4675.1	1693.8	187.47 µg/L	187.47 ppb	13:47:18
2	Si 251.611†	6163.9	5630.1	95.473 µg/L	95.473 ppb	13:47:18
2	Sn 189.927†	50.2	78.1	9.9858 µg/L	9.9858 ppb	13:47:38
2	Ti 334.940†	2852.7	3765.5	5.3338 µg/L	5.3338 ppb	13:47:18
2	Tl 190.801†	-0.9	85.2	26.164 µg/L	26.164 ppb	13:47:38
2	U 367.007†	20.6	305.0	36.907 µg/L	36.907 ppb	13:47:18
2	V 292.402†	1329.0	1236.6	5.5714 µg/L	5.5714 ppb	13:47:18
2	Zn 213.857†	1835.2	1803.8	10.197 µg/L	10.197 ppb	13:47:38
3	Sc RADIAL	71811.1	71811.1	99.7 %		13:46:29
3	Al 396.153Radial†	690.0	590.5	215.63 µg/L	215.63 ppb	13:46:49
3	Ca 317.933Radial†	2214.8	1878.6	209.13 µg/L	209.13 ppb	13:46:49
3	Fe 238.204 Radial†	650.6	1170.7	110.74 µg/L	110.74 ppb	13:46:49
3	K 766.490 Radial†	1355.4	289.4	152.11 µg/L	152.11 ppb	13:46:29
3	Mg 279.077 IEC†	609.3	584.5	315.14 µg/L	315.14 ppb	13:46:49
3	Na 589.592 Radial†	1894.8	1861.0	310.33 µg/L	310.33 ppb	13:46:29
3	Sr 421.552†	1349.2	1812.5	5.2513 µg/L	5.2513 ppb	13:46:49
3	Sc 361.383	1299374.8	1299374.8	97.609 %		13:47:40
3	Y 371.029	703625.1	703625.1	97.126 %		13:47:40
3	Ag 328.068†	-1013.4	852.6	4.3797 µg/L	4.3797 ppb	13:47:42
3	As 188.979†	29.7	60.4	32.862 µg/L	32.862 ppb	13:48:02
3	B 249.677†	4349.2	3570.9	51.435 µg/L	51.435 ppb	13:47:42
3	Ba 233.527†	345.5	594.7	5.3032 µg/L	5.3032 ppb	13:48:02
3	Be 313.107†	15187.7	19215.7	5.1258 µg/L	5.1258 ppb	13:47:42
3	Cd 226.502†	532.1	725.1	5.4737 µg/L	5.4737 ppb	13:48:02
3	Co 228.616†	269.3	367.4	5.4633 µg/L	5.4633 ppb	13:48:02
3	Cr 267.716†	593.2	478.7	5.5911 µg/L	5.5911 ppb	13:48:02
3	Cu 324.752†	7662.6	2073.4	9.1958 µg/L	9.1958 ppb	13:47:42
3	Mn 257.610†	6055.3	6051.7	10.595 µg/L	10.595 ppb	13:47:42
3	Mo 202.031†	179.8	214.0	11.126 µg/L	11.126 ppb	13:48:02
3	Ni 231.604†	187.5	389.8	6.1974 µg/L	6.1974 ppb	13:48:02
3	P 214.914†	345.1	448.6	161.70 µg/L	161.70 ppb	13:48:02
3	Pb 220.353†	180.3	111.0	11.183 µg/L	11.183 ppb	13:48:02
3	S 181.975 Axial†	173.1	74.6	83.260 µg/L	83.260 ppb	13:48:02
3	Sb 206.836†	121.0	79.6	15.295 µg/L	15.295 ppb	13:48:02
3	Se 196.026†	63.3	56.8	29.9 µg/L	29.9 ppb	13:48:02
3	SiO2†	4639.2	1733.1	191.81 µg/L	191.81 ppb	13:47:42
3	Si 251.611†	5988.1	5550.3	94.119 µg/L	94.119 ppb	13:47:42
3	Sn 189.927†	53.8	82.6	10.566 µg/L	10.566 ppb	13:48:02
3	Ti 334.940†	3018.1	3981.3	5.6375 µg/L	5.6375 ppb	13:47:42
3	Tl 190.801†	-1.1	85.0	26.101 µg/L	26.101 ppb	13:48:02
3	U 367.007†	67.6	353.4	42.863 µg/L	42.863 ppb	13:47:42
3	V 292.402†	1308.3	1237.0	5.5756 µg/L	5.5756 ppb	13:47:42
3	Zn 213.857†	1851.1	1849.9	10.458 µg/L	10.458 ppb	13:48:02

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1321169.0	99.246	%	1.6692				1.68%
Sc RADIAL	71694.8	99.5	%	0.75				0.75%
Y 371.029	714657.4	98.649	%	1.5877				1.61%
Ag 328.068†	956.5	4.9131	µg/L	0.46850	4.9131	ppb	0.46850	9.54%
QC value within limits for Ag 328.068 Recovery = 98.26%								
Al 396.153Radial†	584.7	213.50	µg/L	1.932	213.50	ppb	1.932	0.90%
QC value within limits for Al 396.153Radial Recovery = 106.75%								
As 188.979†	59.7	32.515	µg/L	0.3739	32.515	ppb	0.3739	1.15%
QC value within limits for As 188.979 Recovery = 108.38%								
B 249.677†	3396.4	48.925	µg/L	2.2101	48.925	ppb	2.2101	4.52%
QC value within limits for B 249.677 Recovery = 97.85%								
Ba 233.527†	590.0	5.2616	µg/L	0.05454	5.2616	ppb	0.05454	1.04%
QC value within limits for Ba 233.527 Recovery = 105.23%								
Be 313.107†	19259.9	5.1405	µg/L	0.01370	5.1405	ppb	0.01370	0.27%
QC value within limits for Be 313.107 Recovery = 102.81%								
Ca 317.933Radial†	1902.7	211.81	µg/L	3.850	211.81	ppb	3.850	1.82%
QC value within limits for Ca 317.933Radial Recovery = 105.90%								
Cd 226.502†	714.7	5.3951	µg/L	0.10286	5.3951	ppb	0.10286	1.91%
QC value within limits for Cd 226.502 Recovery = 107.90%								
Co 228.616†	349.0	5.1891	µg/L	0.23823	5.1891	ppb	0.23823	4.59%

QC value within limits for Co 228.616 Recovery = 103.78%

Cr 267.716†	465.2	5.4276 µg/L	0.15994	5.4276 ppb	0.15994	2.95%

QC value within limits for Cr 267.716 Recovery = 108.55%

Cu 324.752†	2062.1	9.1491 µg/L	0.06797	9.1491 ppb	0.06797	0.74%

QC value within limits for Cu 324.752 Recovery = 91.49%

Fe 238.204 Radial†	1165.6	110.26 µg/L	0.423	110.26 ppb	0.423	0.38%

QC value within limits for Fe 238.204 Radial Recovery = 110.26%

K 766.490 Radial†	214.9	112.95 µg/L	35.554	112.95 ppb	35.554	31.48%

QC value within limits for K 766.490 Radial Recovery = 75.30%

Mg 279.077 IEC†	565.5	304.93 µg/L	9.506	304.93 ppb	9.506	3.12%

QC value within limits for Mg 279.077 IEC Recovery = 101.64%

Mn 257.610†	6022.4	10.544 µg/L	0.0577	10.544 ppb	0.0577	0.55%

QC value within limits for Mn 257.610 Recovery = 105.44%

Mo 202.031†	205.2	10.673 µg/L	0.4454	10.673 ppb	0.4454	4.17%

QC value within limits for Mo 202.031 Recovery = 106.73%

Na 589.592 Radial†	1905.7	317.79 µg/L	7.192	317.79 ppb	7.192	2.26%

QC value within limits for Na 589.592 Radial Recovery = 105.93%

Ni 231.604†	369.0	5.8665 µg/L	0.29138	5.8665 ppb	0.29138	4.97%

QC value within limits for Ni 231.604 Recovery = 117.33%

P 214.914†	429.4	154.78 µg/L	6.378	154.78 ppb	6.378	4.12%

QC value within limits for P 214.914 Recovery = 103.19%

Pb 220.353†	119.3	12.016 µg/L	1.7095	12.016 ppb	1.7095	14.23%

QC value within limits for Pb 220.353 Recovery = 120.16%

S 181.975 Axial†	73.8	82.323 µg/L	2.4882	82.323 ppb	2.4882	3.02%

QC value within limits for S 181.975 Axial Recovery = 82.32%

Sb 206.836†	75.0	14.393 µg/L	0.8129	14.393 ppb	0.8129	5.65%

QC value greater than the upper limit for Sb 206.836 Recovery = 143.93%

Se 196.026†	53.7	28.2 µg/L	1.45	28.2 ppb	1.45	5.15%

QC value within limits for Se 196.026 Recovery = 94.05%

SiO2†	1736.5	192.19 µg/L	4.916	192.19 ppb	4.916	2.56%

QC value within limits for SiO2 Recovery = 90.23%

Si 251.611†	5562.1	94.319 µg/L	1.0683	94.319 ppb	1.0683	1.13%

QC value within limits for Si 251.611 Recovery = 94.32%

Sn 189.927†	80.7	10.322 µg/L	0.3008	10.322 ppb	0.3008	2.91%

QC value within limits for Sn 189.927 Recovery = 103.22%

Sr 421.552†	1799.4	5.2131 µg/L	0.03310	5.2131 ppb	0.03310	0.64%

QC value within limits for Sr 421.552 Recovery = 104.26%

Ti 334.940†	3871.2	5.4786 µg/L	0.15231	5.4786 ppb	0.15231	2.78%

QC value within limits for Ti 334.940 Recovery = 109.57%

Tl 190.801†	83.3	25.592 µg/L	0.9372	25.592 ppb	0.9372	3.66%

QC value within limits for Tl 190.801 Recovery = 127.96%

U 367.007†	391.0	47.492 µg/L	13.5075	47.492 ppb	13.5075	28.44%

QC value within limits for U 367.007 Recovery = 94.98%

V 292.402†	1196.8	5.3969 µg/L	0.30589	5.3969 ppb	0.30589	5.67%

QC value within limits for V 292.402 Recovery = 107.94%

Zn 213.857†	1811.4	10.240 µg/L	0.1999	10.240 ppb	0.1999	1.95%

QC value within limits for Zn 213.857 Recovery = 102.40%

QC Failed. Continue with analysis.

Sequence No.: 4 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/11/2016 13:48:10**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	71686.7	71686.7	99.5	%			13:48:36
1	Al 396.153Radial†	124.3	23.2	8.4681	µg/L	8.4681	ppb	13:48:56
1	Ca 317.933Radial†	324.5	-17.1	-1.8981	µg/L	-1.8981	ppb	13:48:56
1	Fe 238.204 Radial†	-482.2	33.5	3.1686	µg/L	3.1686	ppb	13:48:56
1	K 766.490 Radial†	1035.4	-29.7	-15.609	µg/L	-15.609	ppb	13:48:36
1	Mg 279.077 IEC†	13.6	-13.2	-7.0991	µg/L	-7.0991	ppb	13:48:56
1	Na 589.592 Radial†	134.7	95.6	15.949	µg/L	15.949	ppb	13:48:36
1	Sr 421.552†	-445.0	11.9	0.0346	µg/L	0.0346	ppb	13:48:56
1	Sc 361.383	1322576.1	1322576.1	99.352	%			13:49:44
1	Y 371.029	714895.6	714895.6	98.682	%			13:49:44
1	Ag 328.068†	-1744.8	134.7	0.6945	µg/L	0.6945	ppb	13:49:46
1	As 188.979†	-33.7	-4.0	-2.1752	µg/L	-2.1752	ppb	13:50:06
1	B 249.677†	886.4	7.3	0.1069	µg/L	0.1069	ppb	13:49:46
1	Ba 233.527†	-239.8	-0.6	-0.0054	µg/L	-0.0054	ppb	13:50:06
1	Be 313.107†	-2952.4	684.2	0.1873	µg/L	0.1873	ppb	13:49:46
1	Cd 226.502†	-161.0	18.0	0.1358	µg/L	0.1358	ppb	13:50:06
1	Co 228.616†	-96.2	-5.3	-0.0782	µg/L	-0.0782	ppb	13:50:06
1	Cr 267.716†	101.2	-27.1	-0.3203	µg/L	-0.3203	ppb	13:50:06
1	Cu 324.752†	5386.8	-355.0	-1.5650	µg/L	-1.5650	ppb	13:49:46
1	Mn 257.610†	188.2	37.4	0.0658	µg/L	0.0658	ppb	13:50:06
1	Mo 202.031†	-29.6	-0.0	-0.0025	µg/L	-0.0025	ppb	13:50:06
1	Ni 231.604†	-167.4	29.3	0.4653	µg/L	0.4653	ppb	13:50:06
1	P 214.914†	-88.8	5.7	2.0543	µg/L	2.0543	ppb	13:50:06
1	Pb 220.353†	93.9	20.8	2.1010	µg/L	2.1010	ppb	13:50:06
1	S 181.975 Axial†	96.6	-5.5	-6.0909	µg/L	-6.0909	ppb	13:50:06
1	Sb 206.836†	56.9	13.0	2.5162	µg/L	2.5162	ppb	13:50:06
1	Se 196.026†	8.3	0.3	0.172	µg/L	0.172	ppb	13:50:06
1	SiO2†	2922.4	-78.3	-8.6629	µg/L	-8.6629	ppb	13:49:46
1	Si 251.611†	551.8	-29.1	-0.4927	µg/L	-0.4927	ppb	13:49:46
1	Sn 189.927†	-28.0	-0.7	-0.0886	µg/L	-0.0886	ppb	13:50:06
1	Ti 334.940†	-841.6	42.2	0.0592	µg/L	0.0592	ppb	13:49:46
1	Tl 190.801†	-80.3	5.3	1.6151	µg/L	1.6151	ppb	13:50:06
1	U 367.007†	-270.0	12.5	1.5172	µg/L	1.5172	ppb	13:49:46
1	V 292.402†	114.8	12.3	0.0552	µg/L	0.0552	ppb	13:49:46
1	Zn 213.857†	11.0	-35.5	-0.1995	µg/L	-0.1995	ppb	13:50:06
2	Sc RADIAL	71262.8	71262.8	98.9	%			13:48:58
2	Al 396.153Radial†	108.1	7.6	2.7739	µg/L	2.7739	ppb	13:49:18
2	Ca 317.933Radial†	329.1	-10.5	-1.1740	µg/L	-1.1740	ppb	13:49:18
2	Fe 238.204 Radial†	-477.9	35.0	3.3105	µg/L	3.3105	ppb	13:49:18
2	K 766.490 Radial†	1026.6	-32.5	-17.069	µg/L	-17.069	ppb	13:48:58
2	Mg 279.077 IEC†	24.3	-2.2	-1.2001	µg/L	-1.2001	ppb	13:49:18
2	Na 589.592 Radial†	114.7	76.2	12.711	µg/L	12.711	ppb	13:48:58
2	Sr 421.552†	-479.8	-26.0	-0.0753	µg/L	-0.0753	ppb	13:49:18
2	Sc 361.383	1317155.7	1317155.7	98.945	%			13:50:08
2	Y 371.029	711391.7	711391.7	98.198	%			13:50:08
2	Ag 328.068†	-1720.8	151.7	0.7865	µg/L	0.7865	ppb	13:50:10
2	As 188.979†	-27.9	1.7	0.9450	µg/L	0.9450	ppb	13:50:30
2	B 249.677†	776.7	-99.9	-1.4339	µg/L	-1.4339	ppb	13:50:10
2	Ba 233.527†	-229.1	9.2	0.0824	µg/L	0.0824	ppb	13:50:30
2	Be 313.107†	-2689.2	938.0	0.2516	µg/L	0.2516	ppb	13:50:10
2	Cd 226.502†	-166.4	11.9	0.0896	µg/L	0.0896	ppb	13:50:30
2	Co 228.616†	-80.2	10.5	0.1560	µg/L	0.1560	ppb	13:50:30
2	Cr 267.716†	108.3	-19.6	-0.2245	µg/L	-0.2245	ppb	13:50:30
2	Cu 324.752†	5473.2	-245.3	-1.0873	µg/L	-1.0873	ppb	13:50:10
2	Mn 257.610†	176.8	26.7	0.0468	µg/L	0.0468	ppb	13:50:30
2	Mo 202.031†	-35.5	-6.1	-0.3166	µg/L	-0.3166	ppb	13:50:30
2	Ni 231.604†	-172.2	23.7	0.3762	µg/L	0.3762	ppb	13:50:30
2	P 214.914†	-54.3	40.2	14.489	µg/L	14.489	ppb	13:50:30
2	Pb 220.353†	79.8	6.9	0.7093	µg/L	0.7093	ppb	13:50:30

2	S 181.975 Axial†	85.7	-16.1	-17.982 µg/L	-17.982 ppb		13:50:30
2	Sb 206.836†	48.4	4.6	0.8968 µg/L	0.8968 ppb		13:50:30
2	Se 196.026†	-4.1	-12.1	-6.36 µg/L	-6.36 ppb		13:50:30
2	SiO2†	2902.9	-85.9	-9.5074 µg/L	-9.5074 ppb		13:50:10
2	Si 251.611†	396.3	-183.9	-3.1175 µg/L	-3.1175 ppb		13:50:10
2	Sn 189.927†	-29.0	-1.9	-0.2370 µg/L	-0.2370 ppb		13:50:30
2	Ti 334.940†	-861.7	18.4	0.0293 µg/L	0.0293 ppb		13:50:10
2	Tl 190.801†	-79.2	6.0	1.8483 µg/L	1.8483 ppb		13:50:30
2	U 367.007†	-330.5	-49.8	-6.1402 µg/L	-6.1402 ppb		13:50:10
2	V 292.402†	97.0	-5.3	-0.0262 µg/L	-0.0262 ppb		13:50:10
2	Zn 213.857†	8.9	-37.5	-0.2119 µg/L	-0.2119 ppb		13:50:30
3	Sc RADIAL	70668.3	70668.3	98.1 %			13:49:20
3	Al 396.153Radial†	122.6	23.3	8.5136 µg/L	8.5136 ppb		13:49:40
3	Ca 317.933Radial†	354.1	17.8	1.9847 µg/L	1.9847 ppb		13:49:40
3	Fe 238.204 Radial†	-475.3	33.5	3.1726 µg/L	3.1726 ppb		13:49:40
3	K 766.490 Radial†	1036.4	-13.7	-7.2030 µg/L	-7.2030 ppb		13:49:20
3	Mg 279.077 IEC†	37.1	11.0	5.9121 µg/L	5.9121 ppb		13:49:40
3	Na 589.592 Radial†	62.5	23.9	3.9886 µg/L	3.9886 ppb		13:49:20
3	Sr 421.552†	-427.0	23.8	0.0690 µg/L	0.0690 ppb		13:49:40
3	Sc 361.383	1341832.4	1341832.4	100.80 %			13:50:32
3	Y 371.029	724225.9	724225.9	99.970 %			13:50:32
3	Ag 328.068†	-1908.6	-2.6	-0.0124 µg/L	-0.0124 ppb		13:50:34
3	As 188.979†	-39.7	-9.5	-5.1551 µg/L	-5.1551 ppb		13:50:54
3	B 249.677†	830.5	-60.9	-0.8736 µg/L	-0.8736 ppb		13:50:34
3	Ba 233.527†	-235.4	7.2	0.0646 µg/L	0.0646 ppb		13:50:54
3	Be 313.107†	-2904.8	774.1	0.2089 µg/L	0.2089 ppb		13:50:34
3	Cd 226.502†	-160.4	20.9	0.1580 µg/L	0.1580 ppb		13:50:54
3	Co 228.616†	-98.5	-6.2	-0.0916 µg/L	-0.0916 ppb		13:50:54
3	Cr 267.716†	90.7	-39.1	-0.4578 µg/L	-0.4578 ppb		13:50:54
3	Cu 324.752†	5563.8	-257.2	-1.1360 µg/L	-1.1360 ppb		13:50:34
3	Mn 257.610†	190.6	37.1	0.0649 µg/L	0.0649 ppb		13:50:54
3	Mo 202.031†	-49.8	-19.6	-1.0204 µg/L	-1.0204 ppb		13:50:54
3	Ni 231.604†	-160.8	38.3	0.6081 µg/L	0.6081 ppb		13:50:54
3	P 214.914†	-69.3	26.3	9.4934 µg/L	9.4934 ppb		13:50:54
3	Pb 220.353†	79.0	4.6	0.4719 µg/L	0.4719 ppb		13:50:54
3	S 181.975 Axial†	89.4	-14.0	-15.636 µg/L	-15.636 ppb		13:50:54
3	Sb 206.836†	72.9	28.0	5.4258 µg/L	5.4258 ppb		13:50:54
3	Se 196.026†	-8.7	-16.6	-8.70 µg/L	-8.70 ppb		13:50:54
3	SiO2†	2909.4	-133.4	-14.765 µg/L	-14.765 ppb		13:50:34
3	Si 251.611†	488.6	-99.7	-1.6900 µg/L	-1.6900 ppb		13:50:34
3	Sn 189.927†	-24.3	3.4	0.4317 µg/L	0.4317 ppb		13:50:54
3	Ti 334.940†	-862.7	33.4	0.0485 µg/L	0.0485 ppb		13:50:34
3	Tl 190.801†	-87.5	-0.7	-0.2173 µg/L	-0.2173 ppb		13:50:54
3	U 367.007†	-300.4	-13.8	-1.7126 µg/L	-1.7126 ppb		13:50:34
3	V 292.402†	88.5	-15.5	-0.0708 µg/L	-0.0708 ppb		13:50:34
3	Zn 213.857†	-21.0	-67.3	-0.3815 µg/L	-0.3815 ppb		13:50:54

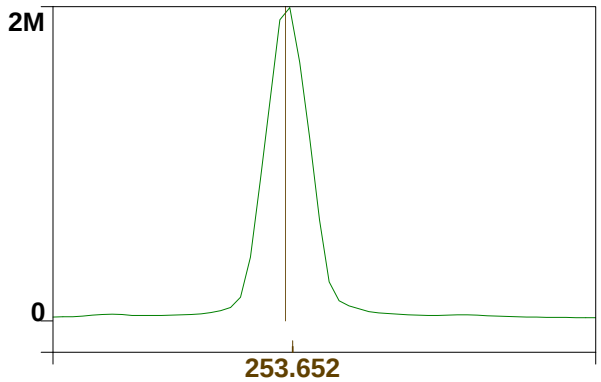
Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 361.383	1327188.1	99.698	%	0.9742				0.98%
Sc RADIAL	71205.9	98.8	%	0.71				0.72%
Y 371.029	716837.7	98.950	%	0.9157				0.93%
Ag 328.068†	94.6	0.4895	µg/L	0.43712	0.4895	ppb	0.43712	89.29%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	18.0	6.5852	µg/L	3.30077	6.5852	ppb	3.30077	50.12%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	-3.9	-2.1285	µg/L	3.05031	-2.1285	ppb	3.05031	143.31%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-51.2	-0.7336	µg/L	0.77986	-0.7336	ppb	0.77986	106.31%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	5.3	0.0472	µg/L	0.04641	0.0472	ppb	0.04641	98.29%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	798.8	0.2159	µg/L	0.03271	0.2159	ppb	0.03271	15.15%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-3.3	-0.3625	µg/L	2.06471	-0.3625	ppb	2.06471	569.62%
QC value within limits for Ca 317.933Radial Recovery = Not calculated								
Cd 226.502†	16.9	0.1278	µg/L	0.03492	0.1278	ppb	0.03492	27.33%
QC value within limits for Cd 226.502 Recovery = Not calculated								
Co 228.616†	-0.3	-0.0046	µg/L	0.13920	-0.0046	ppb	0.13920	>999.9%

```
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -28.6     -0.3342 µg/L       0.11726     -0.3342 ppb        0.11726  35.09%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -285.8     -1.2628 µg/L       0.26289     -1.2628 ppb        0.26289  20.82%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        34.0      3.2172 µg/L       0.08080      3.2172 ppb        0.08080   2.51%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        -25.3     -13.294 µg/L        5.3250     -13.294 ppb         5.3250  40.06%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           -1.5     -0.7957 µg/L       6.51503     -0.7957 ppb        6.51503 818.74%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               33.8      0.0592 µg/L       0.01070      0.0592 ppb        0.01070  18.08%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               -8.6     -0.4465 µg/L       0.52128     -0.4465 ppb        0.52128 116.75%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        65.3      10.883 µg/L        6.1862      10.883 ppb         6.1862  56.84%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               30.4      0.4832 µg/L       0.11698      0.4832 ppb        0.11698  24.21%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                24.1      8.6788 µg/L       6.25709      8.6788 ppb        6.25709  72.10%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               10.8      1.0941 µg/L       0.88010      1.0941 ppb        0.88010  80.44%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -11.9     -13.236 µg/L        6.2984     -13.236 ppb         6.2984  47.58%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               15.2      2.9462 µg/L       2.29491      2.9462 ppb        2.29491  77.89%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -9.5       -4.96 µg/L         4.600       -4.96 ppb          4.600  92.65%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -99.2     -10.978 µg/L        3.3063     -10.978 ppb         3.3063  30.12%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -104.2     -1.7667 µg/L       1.31410     -1.7667 ppb        1.31410  74.38%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                0.3      0.0354 µg/L       0.35117      0.0354 ppb        0.35117 992.18%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†                3.2      0.0094 µg/L       0.07538      0.0094 ppb        0.07538 801.72%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†               31.3      0.0457 µg/L       0.01514      0.0457 ppb        0.01514  33.14%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                3.5      1.0820 µg/L       1.13130      1.0820 ppb        1.13130 104.55%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -17.0     -2.1119 µg/L       3.84427     -2.1119 ppb        3.84427 182.03%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                -2.9     -0.0139 µg/L       0.06388     -0.0139 ppb        0.06388 458.60%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -46.8     -0.2643 µg/L       0.10169     -0.2643 ppb        0.10169  38.48%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Method: Hg_ReAlign **Sample ID: Hg_ReAlign**
Result: 110216

Hg 253.652 **Rep: 1**



Intensity: 1704735.2 cps
Conc:

1

11/2/2016 12:23:48 Hg ReAlign... Actual peak offset (nm): -0.005
Drift (nm): 0.000 Slit adjustment: 2

Analysis Begun

Start Time: 11/2/2016 12:25:08 **Plasma On Time: 10/24/2016 12:24:53**
Logged In Analyst: optima5 **Technique: ICP Continuous**
Spectrometer Model: Optima 7300 DV, S/N 077C0052701Autosampler Model: AS-93plus

Sample Information File: C:\pe\Administrator\Sample Information\110216.sif
Batch ID:
Results Data Set: 110216
Results Library: C:\pe\Administrator\Results\Results.mdb

Method Loaded
Method Name: Gen Eng fast_new SiU **Method Last Saved: 11/2/2016 9:08:13**
IEC File: 102616.iec **MSF File:**
Method Description:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Al 396.153Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
B 249.677	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Ba 233.527	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Be 313.107	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Ca 317.933Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Cd 226.502	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Cr 267.716	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Fe 238.204 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
K 766.490 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Mg 279.077 IEC	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Mn 257.610	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Na 589.592 Radial	Lin Thru 0	Peak Area	Radial	Sc RADIAL	No
Ni 231.604	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
P 214.914	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
S 181.975 Axial	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Sc	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Sc RADIAL	Lin, Calc Int	Peak Area	Radial	n/a	n/a
Se 196.026	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
SiO2	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Si 251.611	Lin Thru 0	Peak Area	Axial	Sc 357.253	No
Sn 189.927	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	Sc RADIAL	Yes
Ti 334.940	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
U 367.007	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Y 371.029	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Zn 213.857	Lin Thru 0	Peak Area	Axial	Sc 357.253	Yes
Sc 357.253	Lin, Calc Int	Peak Area	Axial	n/a	n/a

Sequence No.: 1 **Autosampler Location: 8**
Sample ID: S0 **Date Collected: 11/2/2016 12:25:10**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0

	Net	Corrected	Calib.	Analysis

Repl#	Analyte	Intensity	Intensity	Conc.	Units	Time
1	Sc RADIAL	4935.9	4935.9	0.000	%	12:25:40
1	Al 396.153Radial†	-85.7	-85.4	[0.00]	µg/L	12:25:40
1	Ca 317.933Radial†	62.7	62.5	[0.00]	µg/L	12:26:00
1	Fe 238.204 Radial†	35.5	35.3	[0.00]	µg/L	12:26:00
1	K 766.490 Radial†	10.8	10.8	[0.00]	µg/L	12:25:40
1	Mg 279.077 IEC†	-13.2	-13.2	[0.00]	µg/L	12:26:00
1	Na 589.592 Radial†	797.9	795.4	[0.00]	µg/L	12:25:40
1	Sr 421.552†	158.8	158.3	[0.00]	µg/L	12:25:40
1	Sc	399522.1	399522.1	0.000	%	12:26:48
1	Y 371.029	317573.1	317573.1	0.0000	%	12:26:48
1	Sc 357.253	255583.3	255583.3	0.000	%	12:26:48
1	Ag 328.068†	-461.8	-464.1	[0.00]	µg/L	12:26:48
1	As 188.979†	6.4	6.4	[0.00]	µg/L	12:27:08
1	B 249.677†	450.6	452.9	[0.00]	µg/L	12:26:48
1	Ba 233.527†	-42.3	-42.5	[0.00]	µg/L	12:27:08
1	Be 313.107†	-2238.8	-2250.2	[0.00]	µg/L	12:26:48
1	Cd 226.502†	-163.2	-164.0	[0.00]	µg/L	12:27:08
1	Co 228.616†	-57.9	-58.2	[0.00]	µg/L	12:27:08
1	Cr 267.716†	148.0	148.7	[0.00]	µg/L	12:26:48
1	Cu 324.752†	2233.2	2244.6	[0.00]	µg/L	12:26:48
1	Mn 257.610†	-151.6	-152.3	[0.00]	µg/L	12:27:08
1	Mo 202.031†	-43.0	-43.2	[0.00]	µg/L	12:27:08
1	Ni 231.604†	2.2	2.2	[0.00]	µg/L	12:27:08
1	P 214.914†	26.5	26.7	[0.00]	µg/L	12:27:08
1	Pb 220.353†	49.7	50.0	[0.00]	µg/L	12:27:08
1	S 181.975 Axial†	56.3	56.6	[0.00]	µg/L	12:27:08
1	Sb 206.836†	1.6	1.6	[0.00]	µg/L	12:27:08
1	Se 196.026†	4.5	4.6	[0.00]	µg/L	12:27:08
1	SiO2†	750.5	754.3	[0.00]	µg/L	12:26:48
1	Si 251.611†	279.7	281.2	[0.00]	µg/L	12:27:08
1	Sn 189.927†	-23.3	-23.5	[0.00]	µg/L	12:27:08
1	Ti 334.940†	-138.5	-139.3	[0.00]	µg/L	12:26:48
1	Tl 190.801†	4.9	4.9	[0.00]	µg/L	12:27:08
1	U 367.007†	-122.6	-123.2	[0.00]	µg/L	12:26:48
1	V 292.402†	49.8	50.0	[0.00]	µg/L	12:26:48
1	Zn 213.857†	254.8	256.1	[0.00]	µg/L	12:27:08
2	Sc RADIAL	4964.7	4964.7	0.000	%	12:26:02
2	Al 396.153Radial†	-86.1	-85.3	[0.00]	µg/L	12:26:02
2	Ca 317.933Radial†	60.3	59.7	[0.00]	µg/L	12:26:22
2	Fe 238.204 Radial†	37.3	37.0	[0.00]	µg/L	12:26:22
2	K 766.490 Radial†	-273.2	-270.7	[0.00]	µg/L	12:26:02
2	Mg 279.077 IEC†	-15.7	-15.5	[0.00]	µg/L	12:26:22
2	Na 589.592 Radial†	780.0	773.0	[0.00]	µg/L	12:26:02
2	Sr 421.552†	167.6	166.1	[0.00]	µg/L	12:26:02
2	Sc	402453.4	402453.4	0.000	%	12:27:10
2	Y 371.029	323242.2	323242.2	0.0000	%	12:27:10
2	Sc 357.253	257620.3	257620.3	0.000	%	12:27:10
2	Ag 328.068†	-464.8	-463.5	[0.00]	µg/L	12:27:10
2	As 188.979†	2.6	2.6	[0.00]	µg/L	12:27:30
2	B 249.677†	477.7	476.4	[0.00]	µg/L	12:27:10
2	Ba 233.527†	-62.9	-62.7	[0.00]	µg/L	12:27:30
2	Be 313.107†	-2181.7	-2175.5	[0.00]	µg/L	12:27:10
2	Cd 226.502†	-189.1	-188.5	[0.00]	µg/L	12:27:30
2	Co 228.616†	-51.5	-51.4	[0.00]	µg/L	12:27:30
2	Cr 267.716†	241.3	240.6	[0.00]	µg/L	12:27:10
2	Cu 324.752†	2044.3	2038.5	[0.00]	µg/L	12:27:10
2	Mn 257.610†	-140.5	-140.1	[0.00]	µg/L	12:27:30
2	Mo 202.031†	-38.5	-38.4	[0.00]	µg/L	12:27:30
2	Ni 231.604†	21.9	21.9	[0.00]	µg/L	12:27:30
2	P 214.914†	27.8	27.7	[0.00]	µg/L	12:27:30
2	Pb 220.353†	34.6	34.5	[0.00]	µg/L	12:27:30
2	S 181.975 Axial†	46.5	46.4	[0.00]	µg/L	12:27:30
2	Sb 206.836†	5.8	5.8	[0.00]	µg/L	12:27:30
2	Se 196.026†	5.8	5.8	[0.00]	µg/L	12:27:30
2	SiO2†	737.9	735.8	[0.00]	µg/L	12:27:10
2	Si 251.611†	278.8	278.0	[0.00]	µg/L	12:27:30
2	Sn 189.927†	-23.4	-23.3	[0.00]	µg/L	12:27:30
2	Ti 334.940†	-47.4	-47.3	[0.00]	µg/L	12:27:10
2	Tl 190.801†	5.1	5.1	[0.00]	µg/L	12:27:30
2	U 367.007†	-132.2	-131.8	[0.00]	µg/L	12:27:10

2	V 292.402†	184.9	184.4	[0.00] µg/L	12:27:10
2	Zn 213.857†	258.5	257.7	[0.00] µg/L	12:27:30
3	Sc RADIAL	4860.4	4860.4	0.000 %	12:26:24
3	Al 396.153Radial†	-119.9	-121.4	[0.00] µg/L	12:26:24
3	Ca 317.933Radial†	55.0	55.7	[0.00] µg/L	12:26:44
3	Fe 238.204 Radial†	36.9	37.4	[0.00] µg/L	12:26:44
3	K 766.490 Radial†	27.2	27.5	[0.00] µg/L	12:26:24
3	Mg 279.077 IEC†	-11.8	-12.0	[0.00] µg/L	12:26:44
3	Na 589.592 Radial†	688.7	697.2	[0.00] µg/L	12:26:24
3	Sr 421.552†	145.0	146.8	[0.00] µg/L	12:26:24
3	Sc	404270.3	404270.3	0.000 %	12:27:32
3	Y 371.029	318687.7	318687.7	0.0000 %	12:27:32
3	Sc 357.253	257459.5	257459.5	0.000 %	12:27:32
3	Ag 328.068†	-542.7	-541.5	[0.00] µg/L	12:27:32
3	As 188.979†	5.1	5.1	[0.00] µg/L	12:27:52
3	B 249.677†	599.3	598.0	[0.00] µg/L	12:27:32
3	Ba 233.527†	-55.1	-55.0	[0.00] µg/L	12:27:52
3	Be 313.107†	-2246.5	-2241.5	[0.00] µg/L	12:27:32
3	Cd 226.502†	-185.6	-185.2	[0.00] µg/L	12:27:52
3	Co 228.616†	-51.3	-51.2	[0.00] µg/L	12:27:52
3	Cr 267.716†	99.2	99.0	[0.00] µg/L	12:27:32
3	Cu 324.752†	2186.0	2181.1	[0.00] µg/L	12:27:32
3	Mn 257.610†	-138.9	-138.6	[0.00] µg/L	12:27:52
3	Mo 202.031†	-39.4	-39.3	[0.00] µg/L	12:27:52
3	Ni 231.604†	-2.4	-2.4	[0.00] µg/L	12:27:52
3	P 214.914†	28.3	28.2	[0.00] µg/L	12:27:52
3	Pb 220.353†	31.1	31.1	[0.00] µg/L	12:27:52
3	S 181.975 Axial†	47.4	47.3	[0.00] µg/L	12:27:52
3	Sb 206.836†	4.0	4.0	[0.00] µg/L	12:27:52
3	Se 196.026†	1.6	1.6	[0.00] µg/L	12:27:52
3	SiO2†	721.8	720.2	[0.00] µg/L	12:27:32
3	Si 251.611†	269.8	269.2	[0.00] µg/L	12:27:52
3	Sn 189.927†	-26.5	-26.5	[0.00] µg/L	12:27:52
3	Ti 334.940†	-110.4	-110.2	[0.00] µg/L	12:27:32
3	Tl 190.801†	5.6	5.6	[0.00] µg/L	12:27:52
3	U 367.007†	-147.2	-146.9	[0.00] µg/L	12:27:32
3	V 292.402†	189.9	189.4	[0.00] µg/L	12:27:32
3	Zn 213.857†	242.6	242.0	[0.00] µg/L	12:27:52

Mean Data: S0

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc	402081.9	2395.80	0.60%	0.000	%
Sc RADIAL	4920.3	53.84	1.09%	0.000	%
Y 371.029	319834.3	3003.44	0.94%	0.0000	%
Sc 357.253	256887.7	1132.51	0.44%	0.000	%
Ag 328.068†	-489.7	44.84	9.16%	[0.00]	µg/L
Al 396.153Radial†	-97.4	20.81	21.37%	[0.00]	µg/L
As 188.979†	4.7	1.93	41.02%	[0.00]	µg/L
B 249.677†	509.1	77.85	15.29%	[0.00]	µg/L
Ba 233.527†	-53.4	10.21	19.12%	[0.00]	µg/L
Be 313.107†	-2222.4	40.87	1.84%	[0.00]	µg/L
Ca 317.933Radial†	59.3	3.44	5.80%	[0.00]	µg/L
Cd 226.502†	-179.3	13.32	7.43%	[0.00]	µg/L
Co 228.616†	-53.6	4.00	7.46%	[0.00]	µg/L
Cr 267.716†	162.8	71.86	44.15%	[0.00]	µg/L
Cu 324.752†	2154.7	105.52	4.90%	[0.00]	µg/L
Fe 238.204 Radial†	36.6	1.07	2.94%	[0.00]	µg/L
K 766.490 Radial†	-77.5	167.58	216.32%	[0.00]	µg/L
Mg 279.077 IEC†	-13.6	1.80	13.27%	[0.00]	µg/L
Mn 257.610†	-143.7	7.54	5.24%	[0.00]	µg/L
Mo 202.031†	-40.3	2.59	6.42%	[0.00]	µg/L
Na 589.592 Radial†	755.2	51.44	6.81%	[0.00]	µg/L
Ni 231.604†	7.2	12.89	178.27%	[0.00]	µg/L
P 214.914†	27.5	0.79	2.88%	[0.00]	µg/L
Pb 220.353†	38.5	10.06	26.13%	[0.00]	µg/L
S 181.975 Axial†	50.1	5.67	11.32%	[0.00]	µg/L
Sb 206.836†	3.8	2.12	55.39%	[0.00]	µg/L
Se 196.026†	4.0	2.14	53.96%	[0.00]	µg/L
SiO2†	736.8	17.05	2.31%	[0.00]	µg/L

Si 251.611†	276.1	6.22	2.25%	[0.00] µg/L
Sn 189.927†	-24.4	1.78	7.28%	[0.00] µg/L
Sr 421.552†	157.1	9.73	6.20%	[0.00] µg/L
Ti 334.940†	-98.9	47.01	47.53%	[0.00] µg/L
Tl 190.801†	5.2	0.35	6.74%	[0.00] µg/L
U 367.007†	-134.0	11.97	8.94%	[0.00] µg/L
V 292.402†	141.3	79.05	55.95%	[0.00] µg/L
Zn 213.857†	251.9	8.62	3.42%	[0.00] µg/L

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Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.1 **Date Collected: 11/2/2016 12:28:01**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	5019.9	5019.9	102	%	12:28:31
1	K 766.490 Radial†	934.2	993.1	[1000]	µg/L	12:28:31
1	Sr 421.552†	9342.8	9000.4	[100]	µg/L	12:28:31
1	Sc	409171.7	409171.7	101.8	%	12:28:38
1	Y 371.029	316475.8	316475.8	98.950	%	12:28:38
1	Sc 357.253	258628.9	258628.9	100.7	%	12:28:38
1	Ag 328.068†	8716.8	9147.9	[100]	µg/L	12:28:38
1	As 188.979†	52.3	47.2	[100]	µg/L	12:28:58
1	B 249.677†	2833.4	2305.2	[100]	µg/L	12:28:58
1	Ba 233.527†	5326.6	5344.1	[100]	µg/L	12:28:58
1	Be 313.107†	151833.9	153034.1	[100]	µg/L	12:28:38
1	Cd 226.502†	8221.1	8345.0	[100]	µg/L	12:28:58
1	Co 228.616†	949.2	996.4	[100]	µg/L	12:28:58
1	Cr 267.716†	7370.4	7158.0	[100]	µg/L	12:28:38
1	Cu 324.752†	12210.9	9974.0	[100]	µg/L	12:28:38
1	Mn 257.610†	28161.5	28115.6	[100]	µg/L	12:28:38
1	Mo 202.031†	767.7	802.8	[100]	µg/L	12:28:58
1	Ni 231.604†	1504.5	1487.2	[100]	µg/L	12:28:58
1	P 214.914†	275.9	246.6	[500]	µg/L	12:28:58
1	Pb 220.353†	308.4	267.8	[100]	µg/L	12:28:58
1	S 181.975 Axial†	102.1	51.4	[200]	µg/L	12:28:58
1	Sb 206.836†	75.7	71.4	[100]	µg/L	12:28:58
1	Se 196.026†	43.7	39.5	[100]	µg/L	12:28:58
1	SiO2†	4261.5	3496.0	[1069.5]	µg/L	12:28:58
1	Si 251.611†	7079.8	6756.0	[500]	µg/L	12:28:58
1	Sn 189.927†	197.9	221.0	[100]	µg/L	12:28:58
1	Ti 334.940†	19804.2	19769.8	[100]	µg/L	12:28:38
1	Tl 190.801†	113.8	107.8	[100]	µg/L	12:28:58
1	U 367.007†	18.5	152.3	[100]	µg/L	12:28:38
1	V 292.402†	6285.8	6102.2	[100]	µg/L	12:28:38
1	Zn 213.857†	3167.0	2893.7	[100]	µg/L	12:28:58
2	Sc RADIAL	4941.6	4941.6	100	%	12:28:33
2	K 766.490 Radial†	1028.7	1101.7	[1000]	µg/L	12:28:33
2	Sr 421.552†	9245.3	9048.4	[100]	µg/L	12:28:33
2	Sc	403766.1	403766.1	100.4	%	12:29:00
2	Y 371.029	313774.8	313774.8	98.105	%	12:29:00
2	Sc 357.253	255948.3	255948.3	99.63	%	12:29:00
2	Ag 328.068†	8531.7	9052.7	[100]	µg/L	12:29:00
2	As 188.979†	52.9	48.4	[100]	µg/L	12:29:21
2	B 249.677†	2802.0	2303.1	[100]	µg/L	12:29:21
2	Ba 233.527†	5281.2	5353.9	[100]	µg/L	12:29:21
2	Be 313.107†	150180.6	152954.2	[100]	µg/L	12:29:00
2	Cd 226.502†	8181.3	8390.6	[100]	µg/L	12:29:21
2	Co 228.616†	936.1	993.2	[100]	µg/L	12:29:21
2	Cr 267.716†	7251.5	7115.3	[100]	µg/L	12:29:00
2	Cu 324.752†	11965.6	9854.7	[100]	µg/L	12:29:00
2	Mn 257.610†	27760.7	28006.2	[100]	µg/L	12:29:00
2	Mo 202.031†	747.2	790.2	[100]	µg/L	12:29:21
2	Ni 231.604†	1505.7	1504.0	[100]	µg/L	12:29:21
2	P 214.914†	267.8	241.3	[500]	µg/L	12:29:21
2	Pb 220.353†	297.3	259.9	[100]	µg/L	12:29:21
2	S 181.975 Axial†	106.1	56.4	[200]	µg/L	12:29:21
2	Sb 206.836†	68.2	64.6	[100]	µg/L	12:29:21
2	Se 196.026†	44.5	40.6	[100]	µg/L	12:29:21
2	SiO2†	4222.9	3501.6	[1069.5]	µg/L	12:29:21
2	Si 251.611†	7066.5	6816.3	[500]	µg/L	12:29:21
2	Sn 189.927†	199.0	224.2	[100]	µg/L	12:29:21
2	Ti 334.940†	19575.9	19746.7	[100]	µg/L	12:29:00
2	Tl 190.801†	98.9	94.0	[100]	µg/L	12:29:21

2	U 367.007†	-24.2	109.6	[100]	µg/L	12:29:00
2	V 292.402†	6296.8	6178.7	[100]	µg/L	12:29:00
2	Zn 213.857†	3138.9	2898.4	[100]	µg/L	12:29:21
3	Sc RADIAL	4976.4	4976.4	101	%	12:28:35
3	K 766.490 Radial†	875.6	943.2	[1000]	µg/L	12:28:35
3	Sr 421.552†	9255.9	8994.6	[100]	µg/L	12:28:35
3	Sc	407708.5	407708.5	101.4	%	12:29:23
3	Y 371.029	319450.7	319450.7	99.880	%	12:29:23
3	Sc 357.253	258071.7	258071.7	100.5	%	12:29:23
3	Ag 328.068†	8593.8	9044.1	[100]	µg/L	12:29:23
3	As 188.979†	52.0	47.0	[100]	µg/L	12:29:43
3	B 249.677†	2805.5	2283.5	[100]	µg/L	12:29:43
3	Ba 233.527†	5297.1	5326.2	[100]	µg/L	12:29:43
3	Be 313.107†	152852.1	154373.3	[100]	µg/L	12:29:23
3	Cd 226.502†	8239.0	8380.5	[100]	µg/L	12:29:43
3	Co 228.616†	948.7	997.9	[100]	µg/L	12:29:43
3	Cr 267.716†	7457.6	7260.6	[100]	µg/L	12:29:23
3	Cu 324.752†	12177.8	9967.2	[100]	µg/L	12:29:23
3	Mn 257.610†	28226.2	28240.4	[100]	µg/L	12:29:23
3	Mo 202.031†	765.2	802.0	[100]	µg/L	12:29:43
3	Ni 231.604†	1513.7	1499.5	[100]	µg/L	12:29:43
3	P 214.914†	272.4	243.7	[500]	µg/L	12:29:43
3	Pb 220.353†	307.7	267.8	[100]	µg/L	12:29:43
3	S 181.975 Axial†	101.6	51.0	[200]	µg/L	12:29:43
3	Sb 206.836†	67.0	62.8	[100]	µg/L	12:29:43
3	Se 196.026†	45.7	41.6	[100]	µg/L	12:29:43
3	SiO2†	4260.0	3503.7	[1069.5]	µg/L	12:29:43
3	Si 251.611†	7050.6	6742.2	[500]	µg/L	12:29:43
3	Sn 189.927†	210.0	233.4	[100]	µg/L	12:29:43
3	Ti 334.940†	19927.9	19935.4	[100]	µg/L	12:29:23
3	Tl 190.801†	107.6	101.9	[100]	µg/L	12:29:43
3	U 367.007†	-21.5	112.6	[100]	µg/L	12:29:23
3	V 292.402†	6266.6	6096.6	[100]	µg/L	12:29:23
3	Zn 213.857†	3173.2	2906.7	[100]	µg/L	12:29:43

Mean Data: S0.1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc	406882.1	2795.95	0.69%	101.2	%
Sc RADIAL	4979.3	39.23	0.79%	101	%
Y 371.029	316567.1	2839.03	0.90%	98.978	%
Sc 357.253	257549.6	1414.48	0.55%	100.3	%
Ag 328.068†	9081.6	57.58	0.63%	[100]	µg/L
As 188.979†	47.6	0.74	1.55%	[100]	µg/L
B 249.677†	2297.3	11.96	0.52%	[100]	µg/L
Ba 233.527†	5341.4	14.05	0.26%	[100]	µg/L
Be 313.107†	153453.8	797.24	0.52%	[100]	µg/L
Cd 226.502†	8372.0	23.97	0.29%	[100]	µg/L
Co 228.616†	995.8	2.44	0.24%	[100]	µg/L
Cr 267.716†	7178.0	74.67	1.04%	[100]	µg/L
Cu 324.752†	9932.0	66.96	0.67%	[100]	µg/L
K 766.490 Radial†	1012.7	81.06	8.00%	[1000]	µg/L
Mn 257.610†	28120.7	117.18	0.42%	[100]	µg/L
Mo 202.031†	798.3	7.06	0.88%	[100]	µg/L
Ni 231.604†	1496.9	8.71	0.58%	[100]	µg/L
P 214.914†	243.8	2.65	1.09%	[500]	µg/L
Pb 220.353†	265.2	4.54	1.71%	[100]	µg/L
S 181.975 Axial†	52.9	2.98	5.64%	[200]	µg/L
Sb 206.836†	66.3	4.53	6.84%	[100]	µg/L
Se 196.026†	40.6	1.05	2.58%	[100]	µg/L
SiO2†	3500.5	3.96	0.11%	[1069.5]	µg/L
Si 251.611†	6771.5	39.45	0.58%	[500]	µg/L
Sn 189.927†	226.2	6.46	2.85%	[100]	µg/L
Sr 421.552†	9014.5	29.53	0.33%	[100]	µg/L
Ti 334.940†	19817.3	102.92	0.52%	[100]	µg/L
Tl 190.801†	101.2	6.90	6.81%	[100]	µg/L
U 367.007†	124.9	23.84	19.10%	[100]	µg/L
V 292.402†	6125.8	45.85	0.75%	[100]	µg/L
Zn 213.857†	2899.6	6.56	0.23%	[100]	µg/L

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 11/2/2016 12:29:52**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S0.5

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	4833.8	4833.8	98.2	%	12:30:40
1	Al 396.153Radial†	2788.5	2935.8	[5000]	µg/L	12:30:40
1	Ca 317.933Radial†	6284.4	6337.5	[5000]	µg/L	12:30:40
1	K 766.490 Radial†	4662.6	4823.5	[5000]	µg/L	12:30:20
1	Mg 279.077 IEC†	503.6	526.2	[5000]	µg/L	12:30:40
1	Sr 421.552†	44928.6	45575.6	[500]	µg/L	12:30:20
1	Sc	413221.6	413221.6	102.8	%	12:31:28
1	Y 371.029	320521.3	320521.3	100.21	%	12:31:28
1	Sc 357.253	260749.2	260749.2	101.5	%	12:31:28
1	Ag 328.068†	43530.1	43375.2	[500]	µg/L	12:31:28
1	As 188.979†	238.8	230.5	[500]	µg/L	12:31:48
1	B 249.677†	12837.8	12138.6	[500]	µg/L	12:31:28
1	Ba 233.527†	26738.9	26396.3	[500]	µg/L	12:31:28
1	Be 313.107†	776243.1	766970.1	[500]	µg/L	12:31:28
1	Cd 226.502†	43092.5	42633.6	[500]	µg/L	12:31:28
1	Co 228.616†	4763.7	4746.8	[500]	µg/L	12:31:48
1	Cr 267.716†	35635.9	34945.4	[500]	µg/L	12:31:28
1	Cu 324.752†	51839.1	48916.7	[500]	µg/L	12:31:28
1	Mn 257.610†	136671.5	134791.2	[500]	µg/L	12:31:28
1	Mo 202.031†	3857.0	3840.2	[500]	µg/L	12:31:48
1	Ni 231.604†	7172.5	7059.1	[500]	µg/L	12:31:48
1	P 214.914†	1261.0	1214.8	[2500]	µg/L	12:31:48
1	Pb 220.353†	1322.4	1264.3	[500]	µg/L	12:31:48
1	S 181.975 Axial†	344.6	289.4	[1000]	µg/L	12:31:48
1	Sb 206.836†	309.8	301.4	[500]	µg/L	12:31:48
1	Se 196.026†	215.4	208.2	[500]	µg/L	12:31:48
1	SiO2†	19213.8	18192.5	[5347.5]	µg/L	12:31:28
1	Si 251.611†	35905.6	35097.7	[2500]	µg/L	12:31:28
1	Sn 189.927†	1050.9	1059.8	[500]	µg/L	12:31:48
1	Ti 334.940†	97416.6	96072.9	[500]	µg/L	12:31:28
1	Tl 190.801†	509.9	497.1	[500]	µg/L	12:31:48
1	U 367.007†	704.7	828.2	[500]	µg/L	12:31:28
1	V 292.402†	30915.7	30316.6	[500]	µg/L	12:31:28
1	Zn 213.857†	14375.7	13910.8	[500]	µg/L	12:31:48
2	Sc RADIAL	4803.1	4803.1	97.6	%	12:31:02
2	Al 396.153Radial†	2791.2	2956.7	[5000]	µg/L	12:31:02
2	Ca 317.933Radial†	6296.5	6390.8	[5000]	µg/L	12:31:02
2	K 766.490 Radial†	4454.5	4640.7	[5000]	µg/L	12:30:42
2	Mg 279.077 IEC†	510.7	536.7	[5000]	µg/L	12:31:02
2	Sr 421.552†	44626.0	45558.3	[500]	µg/L	12:30:42
2	Sc	407761.5	407761.5	101.4	%	12:31:51
2	Y 371.029	314435.2	314435.2	98.312	%	12:31:51
2	Sc 357.253	258080.6	258080.6	100.5	%	12:31:51
2	Ag 328.068†	42910.3	43201.7	[500]	µg/L	12:31:51
2	As 188.979†	238.5	232.7	[500]	µg/L	12:32:11
2	B 249.677†	12515.3	11948.4	[500]	µg/L	12:31:51
2	Ba 233.527†	26627.6	26557.9	[500]	µg/L	12:31:51
2	Be 313.107†	762608.7	761306.3	[500]	µg/L	12:31:51
2	Cd 226.502†	42110.0	42094.6	[500]	µg/L	12:31:51
2	Co 228.616†	4761.5	4793.1	[500]	µg/L	12:32:11
2	Cr 267.716†	35159.1	34833.8	[500]	µg/L	12:31:51
2	Cu 324.752†	50956.6	48566.3	[500]	µg/L	12:31:51
2	Mn 257.610†	135038.4	134557.9	[500]	µg/L	12:31:51
2	Mo 202.031†	3859.8	3882.3	[500]	µg/L	12:32:11
2	Ni 231.604†	7147.7	7107.5	[500]	µg/L	12:32:11
2	P 214.914†	1262.0	1228.6	[2500]	µg/L	12:32:11
2	Pb 220.353†	1312.4	1267.8	[500]	µg/L	12:32:11
2	S 181.975 Axial†	343.1	291.5	[1000]	µg/L	12:32:11
2	Sb 206.836†	306.9	301.7	[500]	µg/L	12:32:11

2	Se 196.026†	213.8	208.8	[500]	µg/L	12:32:11
2	SiO2†	19002.5	18177.9	[5347.5]	µg/L	12:31:51
2	Si 251.611†	35490.4	35050.2	[2500]	µg/L	12:31:51
2	Sn 189.927†	1045.1	1064.7	[500]	µg/L	12:32:11
2	Ti 334.940†	95492.2	95149.7	[500]	µg/L	12:31:51
2	Tl 190.801†	514.5	506.9	[500]	µg/L	12:32:11
2	U 367.007†	769.4	899.8	[500]	µg/L	12:31:51
2	V 292.402†	30377.0	30095.3	[500]	µg/L	12:31:51
2	Zn 213.857†	14342.8	14024.6	[500]	µg/L	12:32:11
3	Sc RADIAL	4822.3	4822.3	98.0	%	12:31:24
3	Al 396.153Radial†	2783.0	2937.0	[5000]	µg/L	12:31:24
3	Ca 317.933Radial†	6307.2	6376.1	[5000]	µg/L	12:31:24
3	K 766.490 Radial†	4441.1	4608.8	[5000]	µg/L	12:31:04
3	Mg 279.077 IEC†	505.9	529.7	[5000]	µg/L	12:31:24
3	Sr 421.552†	44493.9	45241.3	[500]	µg/L	12:31:04
3	Sc	411944.6	411944.6	102.5	%	12:32:13
3	Y 371.029	318989.1	318989.1	99.736	%	12:32:13
3	Sc 357.253	260407.6	260407.6	101.4	%	12:32:13
3	Ag 328.068†	43323.4	43227.5	[500]	µg/L	12:32:13
3	As 188.979†	238.3	230.4	[500]	µg/L	12:32:33
3	B 249.677†	12924.2	12240.4	[500]	µg/L	12:32:13
3	Ba 233.527†	26933.0	26622.4	[500]	µg/L	12:32:13
3	Be 313.107†	774780.7	766530.4	[500]	µg/L	12:32:13
3	Cd 226.502†	43245.7	42840.4	[500]	µg/L	12:32:13
3	Co 228.616†	4783.9	4772.9	[500]	µg/L	12:32:33
3	Cr 267.716†	35760.6	35114.5	[500]	µg/L	12:32:13
3	Cu 324.752†	51793.6	48938.8	[500]	µg/L	12:32:13
3	Mn 257.610†	136867.7	135161.3	[500]	µg/L	12:32:13
3	Mo 202.031†	3888.1	3875.8	[500]	µg/L	12:32:33
3	Ni 231.604†	7209.6	7104.9	[500]	µg/L	12:32:33
3	P 214.914†	1269.0	1224.3	[2500]	µg/L	12:32:33
3	Pb 220.353†	1346.8	1290.1	[500]	µg/L	12:32:33
3	S 181.975 Axial†	346.1	291.3	[1000]	µg/L	12:32:33
3	Sb 206.836†	302.5	294.6	[500]	µg/L	12:32:33
3	Se 196.026†	217.7	210.8	[500]	µg/L	12:32:33
3	SiO2†	19200.1	18203.8	[5347.5]	µg/L	12:32:13
3	Si 251.611†	35995.3	35232.6	[2500]	µg/L	12:32:13
3	Sn 189.927†	1069.4	1079.3	[500]	µg/L	12:32:33
3	Ti 334.940†	97004.0	95791.7	[500]	µg/L	12:32:13
3	Tl 190.801†	509.2	497.1	[500]	µg/L	12:32:33
3	U 367.007†	814.3	937.3	[500]	µg/L	12:32:13
3	V 292.402†	31019.6	30459.0	[500]	µg/L	12:32:13
3	Zn 213.857†	14488.1	14040.3	[500]	µg/L	12:32:33

Mean Data: S0.5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc	410975.9	2856.03	0.69%	102.2	%
Sc RADIAL	4819.7	15.53	0.32%	98.0	%
Y 371.029	317981.9	3165.60	1.00%	99.421	%
Sc 357.253	259745.8	1452.19	0.56%	101.1	%
Ag 328.068†	43268.1	93.61	0.22%	[500]	µg/L
Al 396.153Radial†	2943.2	11.75	0.40%	[5000]	µg/L
As 188.979†	231.2	1.30	0.56%	[500]	µg/L
B 249.677†	12109.1	148.22	1.22%	[500]	µg/L
Ba 233.527†	26525.5	116.46	0.44%	[500]	µg/L
Be 313.107†	764935.6	3150.76	0.41%	[500]	µg/L
Ca 317.933Radial†	6368.1	27.51	0.43%	[5000]	µg/L
Cd 226.502†	42522.9	385.03	0.91%	[500]	µg/L
Co 228.616†	4770.9	23.25	0.49%	[500]	µg/L
Cr 267.716†	34964.6	141.31	0.40%	[500]	µg/L
Cu 324.752†	48807.3	208.96	0.43%	[500]	µg/L
K 766.490 Radial†	4691.0	115.85	2.47%	[5000]	µg/L
Mg 279.077 IEC†	530.9	5.36	1.01%	[5000]	µg/L
Mn 257.610†	134836.8	304.28	0.23%	[500]	µg/L
Mo 202.031†	3866.1	22.68	0.59%	[500]	µg/L
Ni 231.604†	7090.5	27.23	0.38%	[500]	µg/L
P 214.914†	1222.6	7.09	0.58%	[2500]	µg/L
Pb 220.353†	1274.1	13.95	1.09%	[500]	µg/L
S 181.975 Axial†	290.7	1.15	0.40%	[1000]	µg/L

Sb 206.836†	299.2	3.99	1.33%	[500]	µg/L
Se 196.026†	209.3	1.34	0.64%	[500]	µg/L
SiO2†	18191.4	13.00	0.07%	[5347.5]	µg/L
Si 251.611†	35126.9	94.64	0.27%	[2500]	µg/L
Sn 189.927†	1067.9	10.17	0.95%	[500]	µg/L
Sr 421.552†	45458.4	188.21	0.41%	[500]	µg/L
Ti 334.940†	95671.4	473.18	0.49%	[500]	µg/L
Tl 190.801†	500.4	5.67	1.13%	[500]	µg/L
U 367.007†	888.4	55.42	6.24%	[500]	µg/L
V 292.402†	30290.3	183.28	0.61%	[500]	µg/L
Zn 213.857†	13991.9	70.65	0.50%	[500]	µg/L

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Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SCAL **Date Collected: 11/2/2016 12:32:42**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: SCAL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	4830.5	4830.5	98.2	%	12:33:31
1	Al 396.153Radial†	5788.1	5993.1	[10000]	µg/L	12:33:31
1	Ca 317.933Radial†	12941.7	13123.2	[10000]	µg/L	12:33:31
1	Fe 238.204 Radial†	4395.5	4440.8	[10000]	µg/L	12:33:31
1	K 766.490 Radial†	9639.5	9896.3	[10000]	µg/L	12:33:11
1	Mg 279.077 IEC†	1047.8	1080.8	[10000]	µg/L	12:33:31
1	Na 589.592 Radial†	27493.1	27249.4	[10000]	µg/L	12:33:11
1	Sr 421.552†	92428.7	93991.2	[1000]	µg/L	12:33:11
1	Sc	396679.9	396679.9	98.66	%	12:34:21
1	Y 371.029	305145.3	305145.3	95.407	%	12:34:21
1	Sc 357.253	253837.6	253837.6	98.81	%	12:34:21
1	Ag 328.068†	90202.1	91775.7	[1000]	µg/L	12:34:21
1	As 188.979†	486.0	487.1	[1000]	µg/L	12:34:41
1	B 249.677†	25385.5	25181.5	[1000]	µg/L	12:34:21
1	Ba 233.527†	54263.3	54968.7	[1000]	µg/L	12:34:21
1	Be 313.107†	1596605.6	1618012.8	[1000]	µg/L	12:34:18
1	Cd 226.502†	86289.7	87505.8	[1000]	µg/L	12:34:21
1	Co 228.616†	9650.0	9819.6	[1000]	µg/L	12:34:41
1	Cr 267.716†	71610.5	72308.2	[1000]	µg/L	12:34:21
1	Cu 324.752†	101394.8	100458.4	[1000]	µg/L	12:34:21
1	Mn 257.610†	271124.8	274526.3	[1000]	µg/L	12:34:21
1	Mo 202.031†	8149.7	8287.9	[1000]	µg/L	12:34:41
1	Ni 231.604†	15026.1	15199.4	[1000]	µg/L	12:34:21
1	P 214.914†	2563.7	2566.9	[5000]	µg/L	12:34:41
1	Pb 220.353†	2632.1	2625.2	[1000]	µg/L	12:34:41
1	S 181.975 Axial†	672.6	630.6	[2000]	µg/L	12:34:41
1	Sb 206.836†	630.1	633.8	[1000]	µg/L	12:34:41
1	Se 196.026†	429.9	431.1	[1000]	µg/L	12:34:41
1	SiO2†	37746.5	37463.3	[10695]	µg/L	12:34:21
1	Si 251.611†	71657.0	72241.9	[5000]	µg/L	12:34:21
1	Sn 189.927†	2224.4	2275.5	[1000]	µg/L	12:34:41
1	Ti 334.940†	199342.4	201836.6	[1000]	µg/L	12:34:21
1	Tl 190.801†	1043.4	1050.7	[1000]	µg/L	12:34:41
1	U 367.007†	1704.3	1858.7	[1000]	µg/L	12:34:21
1	V 292.402†	62274.4	62881.4	[1000]	µg/L	12:34:21
1	Zn 213.857†	29977.1	30085.4	[1000]	µg/L	12:34:21
2	Sc RADIAL	4854.8	4854.8	98.7	%	12:33:53
2	Al 396.153Radial†	5780.1	5955.6	[10000]	µg/L	12:33:53
2	Ca 317.933Radial†	12971.9	13087.8	[10000]	µg/L	12:33:53
2	Fe 238.204 Radial†	4395.7	4418.6	[10000]	µg/L	12:33:53
2	K 766.490 Radial†	9322.0	9525.3	[10000]	µg/L	12:33:33
2	Mg 279.077 IEC†	1044.4	1072.0	[10000]	µg/L	12:33:53
2	Na 589.592 Radial†	27154.5	26766.1	[10000]	µg/L	12:33:33
2	Sr 421.552†	91131.1	92205.0	[1000]	µg/L	12:33:33
2	Sc	401586.6	401586.6	99.88	%	12:34:45
2	Y 371.029	313694.6	313694.6	98.080	%	12:34:45
2	Sc 357.253	257235.1	257235.1	100.1	%	12:34:45
2	Ag 328.068†	91907.9	92273.5	[1000]	µg/L	12:34:45
2	As 188.979†	487.7	482.3	[1000]	µg/L	12:35:05
2	B 249.677†	25865.2	25321.2	[1000]	µg/L	12:34:45
2	Ba 233.527†	55412.7	55391.2	[1000]	µg/L	12:34:45
2	Be 313.107†	1591717.1	1591789.8	[1000]	µg/L	12:34:43
2	Cd 226.502†	88447.8	88507.6	[1000]	µg/L	12:34:45
2	Co 228.616†	9730.8	9771.3	[1000]	µg/L	12:35:05
2	Cr 267.716†	73187.5	72925.9	[1000]	µg/L	12:34:45
2	Cu 324.752†	103312.6	101018.4	[1000]	µg/L	12:34:45
2	Mn 257.610†	276723.3	276493.3	[1000]	µg/L	12:34:45
2	Mo 202.031†	8204.9	8234.1	[1000]	µg/L	12:35:05
2	Ni 231.604†	15203.6	15175.9	[1000]	µg/L	12:34:45

2	P 214.914†	2558.1	2527.1	[5000]	µg/L	12:35:05
2	Pb 220.353†	2654.3	2612.2	[1000]	µg/L	12:35:05
2	S 181.975 Axial†	678.1	627.1	[2000]	µg/L	12:35:05
2	Sb 206.836†	642.3	637.6	[1000]	µg/L	12:35:05
2	Se 196.026†	427.9	423.3	[1000]	µg/L	12:35:05
2	SiO2†	38515.8	37727.0	[10695]	µg/L	12:34:45
2	Si 251.611†	73279.4	72904.3	[5000]	µg/L	12:34:45
2	Sn 189.927†	2258.3	2279.6	[1000]	µg/L	12:35:05
2	Ti 334.940†	203462.5	203286.6	[1000]	µg/L	12:34:45
2	Tl 190.801†	1038.9	1032.3	[1000]	µg/L	12:35:05
2	U 367.007†	1723.9	1855.5	[1000]	µg/L	12:34:45
2	V 292.402†	63759.6	63532.2	[1000]	µg/L	12:34:45
2	Zn 213.857†	30507.5	30214.3	[1000]	µg/L	12:34:45
3	Sc RADIAL	4860.6	4860.6	98.8	%	12:34:15
3	Al 396.153Radial†	5768.8	5937.1	[10000]	µg/L	12:34:15
3	Ca 317.933Radial†	12950.1	13049.9	[10000]	µg/L	12:34:15
3	Fe 238.204 Radial†	4417.2	4434.9	[10000]	µg/L	12:34:15
3	K 766.490 Radial†	9291.8	9483.4	[10000]	µg/L	12:33:55
3	Mg 279.077 IEC†	1044.5	1070.9	[10000]	µg/L	12:34:15
3	Na 589.592 Radial†	27251.2	26830.7	[10000]	µg/L	12:33:55
3	Sr 421.552†	91758.5	92728.6	[1000]	µg/L	12:33:55
3	Sc	402770.0	402770.0	100.2	%	12:35:09
3	Y 371.029	314437.0	314437.0	98.312	%	12:35:09
3	Sc 357.253	257309.1	257309.1	100.2	%	12:35:09
3	Ag 328.068†	91826.1	92165.4	[1000]	µg/L	12:35:09
3	As 188.979†	491.4	485.9	[1000]	µg/L	12:35:29
3	B 249.677†	25974.6	25423.0	[1000]	µg/L	12:35:09
3	Ba 233.527†	55620.1	55582.4	[1000]	µg/L	12:35:09
3	Be 313.107†	1596700.1	1596307.9	[1000]	µg/L	12:35:07
3	Cd 226.502†	88866.5	88900.2	[1000]	µg/L	12:35:09
3	Co 228.616†	9793.4	9830.9	[1000]	µg/L	12:35:29
3	Cr 267.716†	73043.5	72761.2	[1000]	µg/L	12:35:09
3	Cu 324.752†	103385.5	101061.4	[1000]	µg/L	12:35:09
3	Mn 257.610†	277639.8	277328.8	[1000]	µg/L	12:35:09
3	Mo 202.031†	8273.2	8299.9	[1000]	µg/L	12:35:29
3	Ni 231.604†	15264.6	15232.4	[1000]	µg/L	12:35:09
3	P 214.914†	2591.9	2560.1	[5000]	µg/L	12:35:29
3	Pb 220.353†	2689.0	2646.1	[1000]	µg/L	12:35:29
3	S 181.975 Axial†	695.7	644.4	[2000]	µg/L	12:35:29
3	Sb 206.836†	649.1	644.3	[1000]	µg/L	12:35:29
3	Se 196.026†	443.0	438.3	[1000]	µg/L	12:35:29
3	SiO2†	38709.1	37908.9	[10695]	µg/L	12:35:09
3	Si 251.611†	73462.9	73066.5	[5000]	µg/L	12:35:09
3	Sn 189.927†	2285.3	2306.0	[1000]	µg/L	12:35:29
3	Ti 334.940†	203875.4	203640.5	[1000]	µg/L	12:35:09
3	Tl 190.801†	1056.3	1049.4	[1000]	µg/L	12:35:29
3	U 367.007†	1746.5	1877.6	[1000]	µg/L	12:35:09
3	V 292.402†	63413.2	63168.0	[1000]	µg/L	12:35:09
3	Zn 213.857†	30821.0	30518.6	[1000]	µg/L	12:35:09

Mean Data: SCAL

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc	400345.5	3229.16	0.81%	99.57	%
Sc RADIAL	4848.6	15.99	0.33%	98.5	%
Y 371.029	311092.3	5163.63	1.66%	97.267	%
Sc 357.253	256127.3	1983.25	0.77%	99.70	%
Ag 328.068†	92071.5	261.83	0.28%	[1000]	µg/L
Al 396.153Radial†	5961.9	28.56	0.48%	[10000]	µg/L
As 188.979†	485.1	2.52	0.52%	[1000]	µg/L
B 249.677†	25308.6	121.27	0.48%	[1000]	µg/L
Ba 233.527†	55314.1	314.07	0.57%	[1000]	µg/L
Be 313.107†	1602036.9	14018.81	0.88%	[1000]	µg/L
Ca 317.933Radial†	13087.0	36.67	0.28%	[10000]	µg/L
Cd 226.502†	88304.6	719.03	0.81%	[1000]	µg/L
Co 228.616†	9807.3	31.68	0.32%	[1000]	µg/L
Cr 267.716†	72665.1	319.84	0.44%	[1000]	µg/L
Cu 324.752†	100846.1	336.42	0.33%	[1000]	µg/L
Fe 238.204 Radial†	4431.4	11.51	0.26%	[10000]	µg/L
K 766.490 Radial†	9635.0	227.27	2.36%	[10000]	µg/L

Mg 279.077 IEC†	1074.6	5.45	0.51%	[10000]	µg/L
Mn 257.610†	276116.1	1438.82	0.52%	[1000]	µg/L
Mo 202.031†	8274.0	35.04	0.42%	[1000]	µg/L
Na 589.592 Radial†	26948.7	262.36	0.97%	[10000]	µg/L
Ni 231.604†	15202.6	28.41	0.19%	[1000]	µg/L
P 214.914†	2551.4	21.29	0.83%	[5000]	µg/L
Pb 220.353†	2627.9	17.10	0.65%	[1000]	µg/L
S 181.975 Axial†	634.0	9.18	1.45%	[2000]	µg/L
Sb 206.836†	638.5	5.30	0.83%	[1000]	µg/L
Se 196.026†	430.9	7.49	1.74%	[1000]	µg/L
SiO2†	37699.7	224.07	0.59%	[10695]	µg/L
Si 251.611†	72737.6	436.83	0.60%	[5000]	µg/L
Sn 189.927†	2287.0	16.55	0.72%	[1000]	µg/L
Sr 421.552†	92974.9	918.26	0.99%	[1000]	µg/L
Ti 334.940†	202921.2	955.84	0.47%	[1000]	µg/L
Tl 190.801†	1044.1	10.28	0.98%	[1000]	µg/L
U 367.007†	1864.0	11.94	0.64%	[1000]	µg/L
V 292.402†	63193.9	326.19	0.52%	[1000]	µg/L
Zn 213.857†	30272.8	222.42	0.73%	[1000]	µg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S10 **Date Collected: 11/2/2016 12:35:37**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: S10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Analysis Time
1	Sc RADIAL	4896.2	4896.2	99.5	%	12:36:08
1	Al 396.153Radial†	28778.0	29017.3	[50000]	µg/L	12:36:06
1	Ca 317.933Radial†	61619.9	61864.4	[50000]	µg/L	12:36:08
1	Fe 238.204 Radial†	8354.9	8359.5	[20000]	µg/L	12:36:08
1	Mg 279.077 IEC†	5136.0	5174.9	[50000]	µg/L	12:36:08
1	Na 589.592 Radial†	52970.2	52476.2	[20000]	µg/L	12:36:06
1	Sc	412076.8	412076.8	102.5	%	12:36:20
1	Y 371.029	317688.3	317688.3	99.329	%	12:36:20
1	Sc 357.253	259908.8	259908.8	101.2	%	12:36:20
2	Sc RADIAL	4952.0	4952.0	101	%	12:36:12
2	Al 396.153Radial†	28796.2	28709.4	[50000]	µg/L	12:36:10
2	Ca 317.933Radial†	62542.4	62083.2	[50000]	µg/L	12:36:12
2	Fe 238.204 Radial†	8426.6	8336.2	[20000]	µg/L	12:36:12
2	Mg 279.077 IEC†	5245.8	5225.8	[50000]	µg/L	12:36:12
2	Na 589.592 Radial†	52998.7	51904.6	[20000]	µg/L	12:36:10
2	Sc	409361.8	409361.8	101.8	%	12:36:22
2	Y 371.029	315967.0	315967.0	98.791	%	12:36:22
2	Sc 357.253	258711.7	258711.7	100.7	%	12:36:22
3	Sc RADIAL	4785.4	4785.4	97.3	%	12:36:16
3	Al 396.153Radial†	28813.7	29723.7	[50000]	µg/L	12:36:14
3	Ca 317.933Radial†	60573.1	62222.1	[50000]	µg/L	12:36:16
3	Fe 238.204 Radial†	8282.9	8480.0	[20000]	µg/L	12:36:16
3	Mg 279.077 IEC†	4923.1	5075.5	[50000]	µg/L	12:36:16
3	Na 589.592 Radial†	52959.2	53697.6	[20000]	µg/L	12:36:14
3	Sc	408674.5	408674.5	101.6	%	12:36:24
3	Y 371.029	318285.3	318285.3	99.516	%	12:36:24
3	Sc 357.253	258494.0	258494.0	100.6	%	12:36:24

Mean Data: S10

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sc	410037.7	1799.05	0.44%	102.0	%
Sc RADIAL	4877.9	84.81	1.74%	99.1	%
Y 371.029	317313.5	1203.71	0.38%	99.212	%
Sc 357.253	259038.2	761.79	0.29%	100.8	%
Al 396.153Radial†	29150.1	520.05	1.78%	[50000]	µg/L
Ca 317.933Radial†	62056.6	180.35	0.29%	[50000]	µg/L
Fe 238.204 Radial†	8391.9	77.15	0.92%	[20000]	µg/L
Mg 279.077 IEC†	5158.8	76.46	1.48%	[50000]	µg/L
Na 589.592 Radial†	52692.8	915.92	1.74%	[20000]	µg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	3	Lin Thru 0	0.0	90.96	0.00000	0.999706	
Al 396.153Radial	3	Lin Thru 0	0.0	0.5836	0.00000	0.999990	
As 188.979	3	Lin Thru 0	0.0	0.4805	0.00000	0.999823	
B 249.677	3	Lin Thru 0	0.0	25.07	0.00000	0.999822	
Ba 233.527	3	Lin Thru 0	0.0	54.85	0.00000	0.999862	
Be 313.107	3	Lin Thru 0	0.0	1587	0.00000	0.999832	
Ca 317.933Radial	3	Lin Thru 0	0.0	1.244	0.00000	0.999943	
Cd 226.502	3	Lin Thru 0	0.0	87.62	0.00000	0.999882	
Co 228.616	3	Lin Thru 0	0.0	9.756	0.00000	0.999940	
Cr 267.716	3	Lin Thru 0	0.0	72.12	0.00000	0.999886	
Cu 324.752	3	Lin Thru 0	0.0	100.2	0.00000	0.999917	
Fe 238.204 Radia	2	Lin Thru 0	0.0	0.4243	0.00000	0.999754	
K 766.490 Radial	3	Lin Thru 0	0.0	0.9589	0.00000	0.999932	

Mg 279.077 IEC	3	Lin Thru 0	0.0	0.1034	0.00000	0.999965
Mn 257.610	3	Lin Thru 0	0.0	274.9	0.00000	0.999954
Mo 202.031	3	Lin Thru 0	0.0	8.164	0.00000	0.999649
Na 589.592 Radia	2	Lin Thru 0	0.0	2.647	0.00000	0.999959
Ni 231.604	3	Lin Thru 0	0.0	15.00	0.00000	0.999632
P 214.914	3	Lin Thru 0	0.0	0.5059	0.00000	0.999855
Pb 220.353	3	Lin Thru 0	0.0	2.612	0.00000	0.999925
S 181.975 Axial	3	Lin Thru 0	0.0	0.3114	0.00000	0.999344
Sb 206.836	3	Lin Thru 0	0.0	0.6308	0.00000	0.999670
Se 196.026	3	Lin Thru 0	0.0	0.4283	0.00000	0.999923
SiO2	3	Lin Thru 0	0.0	3.499	0.00000	0.999885
Si 251.611	3	Lin Thru 0	0.0	14.44	0.00000	0.999891
Sn 189.927	3	Lin Thru 0	0.0	2.257	0.00000	0.999644
Sr 421.552	3	Lin Thru 0	0.0	92.54	0.00000	0.999958
Ti 334.940	3	Lin Thru 0	0.0	200.6	0.00000	0.999735
Tl 190.801	3	Lin Thru 0	0.0	1.035	0.00000	0.999859
U 367.007	3	Lin Thru 0	0.0	1.842	0.00000	0.999408
V 292.402	3	Lin Thru 0	0.0	62.66	0.00000	0.999860
Zn 213.857	3	Lin Thru 0	0.0	29.81	0.00000	0.999529

Sequence No.: 6 **Autosampler Location:** 9
Sample ID: ICV **Date Collected:** 11/2/2016 12:36:33
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4915.4	4915.4	99.9	%			12:37:27
1	Al 396.153Radial†	2846.6	2946.8	5049.7	µg/L	5049.7	ppb	12:37:27
1	Ca 317.933Radial†	6524.6	6471.8	5202.4	µg/L	5202.4	ppb	12:37:27
1	Fe 238.204 Radial†	2242.8	2208.5	5204.9	µg/L	5204.9	ppb	12:37:27
1	K 766.490 Radial†	2263.3	2343.0	2440.2	µg/L	2440.2	ppb	12:37:07
1	Mg 279.077 IEC†	528.2	542.3	5246.5	µg/L	5246.5	ppb	12:37:27
1	Na 589.592 Radial†	7458.3	6710.5	2535.5	µg/L	2535.5	ppb	12:37:07
1	Sr 421.552†	45540.0	45428.4	490.54	µg/L	490.54	ppb	12:37:07
1	Sc	416793.4	416793.4	103.7	%			12:38:14
1	Y 371.029	325388.6	325388.6	101.74	%			12:38:14
1	Sc 357.253	263493.4	263493.4	102.6	%			12:38:14
1	Ag 328.068†	23144.3	23053.8	253.51	µg/L	253.51	ppb	12:38:14
1	As 188.979†	241.0	230.2	482.93	µg/L	482.93	ppb	12:38:34
1	B 249.677†	13024.6	12189.0	484.96	µg/L	484.96	ppb	12:38:14
1	Ba 233.527†	27750.1	27107.8	494.63	µg/L	494.63	ppb	12:38:14
1	Be 313.107†	400403.9	392588.4	248.20	µg/L	248.20	ppb	12:38:14
1	Cd 226.502†	44478.7	43542.9	496.27	µg/L	496.27	ppb	12:38:14
1	Co 228.616†	4855.9	4787.8	490.94	µg/L	490.94	ppb	12:38:34
1	Cr 267.716†	36755.7	35671.5	494.99	µg/L	494.99	ppb	12:38:14
1	Cu 324.752†	53766.9	50264.2	502.29	µg/L	502.29	ppb	12:38:14
1	Mn 257.610†	140931.3	137541.9	500.30	µg/L	500.30	ppb	12:38:14
1	Mo 202.031†	3997.1	3937.2	482.65	µg/L	482.65	ppb	12:38:34
1	Ni 231.604†	7266.4	7077.0	471.71	µg/L	471.71	ppb	12:38:34
1	P 214.914†	1257.1	1198.1	2360.4	µg/L	2360.4	ppb	12:38:34
1	Pb 220.353†	1381.7	1308.5	501.57	µg/L	501.57	ppb	12:38:34
1	S 181.975 Axial†	835.8	764.8	2460.0	µg/L	2460.0	ppb	12:38:34
1	Sb 206.836†	327.6	315.6	500.04	µg/L	500.04	ppb	12:38:34
1	Se 196.026†	1074.6	1043.6	2440	µg/L	2440	ppb	12:38:34
1	SiO2†	37684.0	36002.5	10296	µg/L	10296	ppb	12:38:14
1	Si 251.611†	71512.2	69443.3	4808.8	µg/L	4808.8	ppb	12:38:14
1	Sn 189.927†	1122.0	1118.3	497.09	µg/L	497.09	ppb	12:38:34
1	Ti 334.940†	101064.8	98630.0	491.63	µg/L	491.63	ppb	12:38:14
1	Tl 190.801†	536.3	517.6	503.36	µg/L	503.36	ppb	12:38:34
1	U 367.007†	703.4	819.7	414.51	µg/L	414.51	ppb	12:38:14
1	V 292.402†	31957.9	31015.5	498.27	µg/L	498.27	ppb	12:38:14
1	Zn 213.857†	14722.8	14101.8	468.67	µg/L	468.67	ppb	12:38:34
2	Sc RADIAL	4926.6	4926.6	100	%			12:37:49
2	Al 396.153Radial†	2845.3	2939.1	5036.5	µg/L	5036.5	ppb	12:37:49
2	Ca 317.933Radial†	6531.4	6463.8	5196.0	µg/L	5196.0	ppb	12:37:49
2	Fe 238.204 Radial†	2250.1	2210.7	5210.1	µg/L	5210.1	ppb	12:37:49
2	K 766.490 Radial†	2271.9	2346.5	2443.9	µg/L	2443.9	ppb	12:37:29
2	Mg 279.077 IEC†	537.2	550.1	5321.5	µg/L	5321.5	ppb	12:37:49
2	Na 589.592 Radial†	7701.8	6936.9	2621.0	µg/L	2621.0	ppb	12:37:29
2	Sr 421.552†	45963.9	45748.8	494.00	µg/L	494.00	ppb	12:37:29
2	Sc	414314.4	414314.4	103.0	%			12:38:37
2	Y 371.029	321151.0	321151.0	100.41	%			12:38:37
2	Sc 357.253	262732.4	262732.4	102.3	%			12:38:37
2	Ag 328.068†	22780.7	22763.7	250.28	µg/L	250.28	ppb	12:38:37
2	As 188.979†	240.5	230.5	483.40	µg/L	483.40	ppb	12:38:57
2	B 249.677†	12923.0	12126.4	482.46	µg/L	482.46	ppb	12:38:37
2	Ba 233.527†	27577.1	27017.0	492.97	µg/L	492.97	ppb	12:38:37
2	Be 313.107†	394327.4	387777.6	245.17	µg/L	245.17	ppb	12:38:37
2	Cd 226.502†	44186.8	43383.1	494.45	µg/L	494.45	ppb	12:38:37
2	Co 228.616†	4876.0	4821.1	494.35	µg/L	494.35	ppb	12:38:57
2	Cr 267.716†	36056.4	35091.5	486.94	µg/L	486.94	ppb	12:38:37
2	Cu 324.752†	53436.5	50093.0	500.60	µg/L	500.60	ppb	12:38:37
2	Mn 257.610†	140313.1	137335.4	499.54	µg/L	499.54	ppb	12:38:37
2	Mo 202.031†	4007.5	3958.6	485.28	µg/L	485.28	ppb	12:38:57
2	Ni 231.604†	7262.5	7093.7	472.82	µg/L	472.82	ppb	12:38:57

2	P 214.914†	1260.2	1204.6	2373.3 µg/L	2373.3 ppb	12:38:57
2	Pb 220.353†	1365.9	1297.0	497.13 µg/L	497.13 ppb	12:38:57
2	S 181.975 Axial†	830.6	762.1	2451.2 µg/L	2451.2 ppb	12:38:57
2	Sb 206.836†	330.6	319.4	506.21 µg/L	506.21 ppb	12:38:57
2	Se 196.026†	1077.1	1049.2	2450 µg/L	2450 ppb	12:38:57
2	SiO2†	37571.5	35998.9	10294 µg/L	10294 ppb	12:38:37
2	Si 251.611†	71031.8	69175.5	4790.2 µg/L	4790.2 ppb	12:38:37
2	Sn 189.927†	1112.8	1112.4	494.48 µg/L	494.48 ppb	12:38:57
2	Ti 334.940†	100442.9	98307.4	490.02 µg/L	490.02 ppb	12:38:37
2	Tl 190.801†	524.8	507.9	494.00 µg/L	494.00 ppb	12:38:57
2	U 367.007†	748.6	866.0	439.58 µg/L	439.58 ppb	12:38:37
2	V 292.402†	31342.4	30503.8	490.12 µg/L	490.12 ppb	12:38:37
2	Zn 213.857†	14771.8	14191.2	471.66 µg/L	471.66 ppb	12:38:57
3	Sc RADIAL	4863.0	4863.0	98.8 %		12:38:11
3	Al 396.153Radial†	2847.9	2978.8	5104.6 µg/L	5104.6 ppb	12:38:11
3	Ca 317.933Radial†	6451.3	6468.1	5199.4 µg/L	5199.4 ppb	12:38:11
3	Fe 238.204 Radial†	2229.6	2219.4	5230.7 µg/L	5230.7 ppb	12:38:11
3	K 766.490 Radial†	2310.3	2415.1	2515.4 µg/L	2515.4 ppb	12:37:51
3	Mg 279.077 IEC†	521.3	541.0	5233.7 µg/L	5233.7 ppb	12:38:11
3	Na 589.592 Radial†	7513.7	6847.1	2587.1 µg/L	2587.1 ppb	12:37:51
3	Sr 421.552†	45914.0	46298.6	499.94 µg/L	499.94 ppb	12:37:51
3	Sc	413640.2	413640.2	102.9 %		12:38:59
3	Y 371.029	319929.6	319929.6	100.03 %		12:38:59
3	Sc 357.253	262736.1	262736.1	102.3 %		12:38:59
3	Ag 328.068†	22747.5	22730.9	249.95 µg/L	249.95 ppb	12:38:59
3	As 188.979†	234.4	224.5	470.96 µg/L	470.96 ppb	12:39:19
3	B 249.677†	12920.8	12124.1	482.36 µg/L	482.36 ppb	12:38:59
3	Ba 233.527†	27630.1	27068.5	493.90 µg/L	493.90 ppb	12:38:59
3	Be 313.107†	394485.5	387926.9	245.27 µg/L	245.27 ppb	12:38:59
3	Cd 226.502†	44185.0	43380.7	494.42 µg/L	494.42 ppb	12:38:59
3	Co 228.616†	4832.5	4778.5	489.99 µg/L	489.99 ppb	12:39:19
3	Cr 267.716†	36118.8	35152.0	487.78 µg/L	487.78 ppb	12:38:59
3	Cu 324.752†	53265.6	49925.2	498.90 µg/L	498.90 ppb	12:38:59
3	Mn 257.610†	140506.6	137522.6	500.23 µg/L	500.23 ppb	12:38:59
3	Mo 202.031†	4013.0	3964.0	485.94 µg/L	485.94 ppb	12:39:19
3	Ni 231.604†	7292.5	7122.9	474.77 µg/L	474.77 ppb	12:39:19
3	P 214.914†	1252.0	1196.6	2357.5 µg/L	2357.5 ppb	12:39:19
3	Pb 220.353†	1375.6	1306.5	500.81 µg/L	500.81 ppb	12:39:19
3	S 181.975 Axial†	826.5	758.0	2438.1 µg/L	2438.1 ppb	12:39:19
3	Sb 206.836†	321.2	310.3	491.67 µg/L	491.67 ppb	12:39:19
3	Se 196.026†	1068.3	1040.6	2430 µg/L	2430 ppb	12:39:19
3	SiO2†	37697.5	36121.6	10329 µg/L	10329 ppb	12:38:59
3	Si 251.611†	71344.2	69480.0	4811.3 µg/L	4811.3 ppb	12:38:59
3	Sn 189.927†	1131.3	1130.5	502.51 µg/L	502.51 ppb	12:39:19
3	Ti 334.940†	100718.0	98574.9	491.36 µg/L	491.36 ppb	12:38:59
3	Tl 190.801†	536.6	519.4	505.09 µg/L	505.09 ppb	12:39:19
3	U 367.007†	696.9	815.4	412.01 µg/L	412.01 ppb	12:38:59
3	V 292.402†	31131.0	30296.7	486.81 µg/L	486.81 ppb	12:38:59
3	Zn 213.857†	14798.3	14217.0	472.51 µg/L	472.51 ppb	12:39:19

Mean Data: ICV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	414916.0	103.2	%	0.41				0.40%
Sc RADIAL	4901.6	99.6	%	0.69				0.69%
Y 371.029	322156.4	100.73	%	0.896				0.89%
Sc 357.253	262987.3	102.4	%	0.17				0.17%
Ag 328.068†	22849.5	251.25	µg/L	1.963	251.25	ppb	1.963	0.78%
QC value within limits for Ag 328.068 Recovery = 100.50%								
Al 396.153Radial†	2954.9	5063.6	µg/L	36.14	5063.6	ppb	36.14	0.71%
QC value within limits for Al 396.153Radial Recovery = 101.27%								
As 188.979†	228.4	479.10	µg/L	7.050	479.10	ppb	7.050	1.47%
QC value within limits for As 188.979 Recovery = 95.82%								
B 249.677†	12146.5	483.26	µg/L	1.470	483.26	ppb	1.470	0.30%
QC value within limits for B 249.677 Recovery = 96.65%								
Ba 233.527†	27064.4	493.83	µg/L	0.833	493.83	ppb	0.833	0.17%
QC value within limits for Ba 233.527 Recovery = 98.77%								
Be 313.107†	389431.0	246.21	µg/L	1.724	246.21	ppb	1.724	0.70%
QC value within limits for Be 313.107 Recovery = 98.49%								
Ca 317.933Radial†	6467.9	5199.2	µg/L	3.21	5199.2	ppb	3.21	0.06%

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   QC value within limits for Ca 317.933Radial  Recovery = 103.98%
Cd 226.502†          43435.6      495.05 µg/L         1.063      495.05 ppb          1.063   0.21%
   QC value within limits for Cd 226.502  Recovery = 99.01%
Co 228.616†           4795.8      491.76 µg/L         2.296      491.76 ppb          2.296   0.47%
   QC value within limits for Co 228.616  Recovery = 98.35%
Cr 267.716†          35305.0      489.91 µg/L         4.425      489.91 ppb          4.425   0.90%
   QC value within limits for Cr 267.716  Recovery = 97.98%
Cu 324.752†          50094.2      500.59 µg/L         1.692      500.59 ppb          1.692   0.34%
   QC value within limits for Cu 324.752  Recovery = 100.12%
Fe 238.204 Radial†    2212.8      5215.2 µg/L         13.62      5215.2 ppb          13.62   0.26%
   QC value within limits for Fe 238.204 Radial  Recovery = 104.30%
K 766.490 Radial†     2368.2      2466.5 µg/L         42.38      2466.5 ppb          42.38   1.72%
   QC value within limits for K 766.490 Radial  Recovery = 98.66%
Mg 279.077 IEC†        544.5      5267.2 µg/L         47.41      5267.2 ppb          47.41   0.90%
   QC value within limits for Mg 279.077 IEC  Recovery = 105.34%
Mn 257.610†         137466.6      500.02 µg/L         0.416      500.02 ppb          0.416   0.08%
   QC value within limits for Mn 257.610  Recovery = 100.00%
Mo 202.031†          3953.3      484.63 µg/L         1.740      484.63 ppb          1.740   0.36%
   QC value within limits for Mo 202.031  Recovery = 96.93%
Na 589.592 Radial†    6831.5      2581.2 µg/L         43.06      2581.2 ppb          43.06   1.67%
   QC value within limits for Na 589.592 Radial  Recovery = 103.25%
Ni 231.604†          7097.9      473.10 µg/L         1.551      473.10 ppb          1.551   0.33%
   QC value within limits for Ni 231.604  Recovery = 94.62%
P 214.914†           1199.8      2363.7 µg/L          8.42      2363.7 ppb           8.42   0.36%
   QC value within limits for P 214.914  Recovery = 94.55%
Pb 220.353†          1304.0      499.84 µg/L         2.375      499.84 ppb          2.375   0.48%
   QC value within limits for Pb 220.353  Recovery = 99.97%
S 181.975 Axial†      761.6      2449.8 µg/L         11.00      2449.8 ppb          11.00   0.45%
   QC value within limits for S 181.975 Axial  Recovery = 97.99%
Sb 206.836†           315.1      499.31 µg/L         7.296      499.31 ppb          7.296   1.46%
   QC value within limits for Sb 206.836  Recovery = 99.86%
Se 196.026†          1044.5       2440 µg/L          10.2        2440 ppb           10.2   0.42%
   QC value within limits for Se 196.026  Recovery = 97.54%
SiO2†               36041.0       10306 µg/L          19.9       10306 ppb           19.9   0.19%
   QC value within limits for SiO2  Recovery = 96.37%
Si 251.611†          69366.3      4803.4 µg/L         11.51      4803.4 ppb          11.51   0.24%
   QC value within limits for Si 251.611  Recovery = 96.07%
Sn 189.927†          1120.4      498.03 µg/L         4.096      498.03 ppb          4.096   0.82%
   QC value within limits for Sn 189.927  Recovery = 99.61%
Sr 421.552†          45825.3      494.82 µg/L         4.755      494.82 ppb          4.755   0.96%
   QC value within limits for Sr 421.552  Recovery = 98.96%
Ti 334.940†          98504.1      491.00 µg/L         0.859      491.00 ppb          0.859   0.18%
   QC value within limits for Ti 334.940  Recovery = 98.20%
Tl 190.801†           515.0      500.82 µg/L         5.966      500.82 ppb          5.966   1.19%
   QC value within limits for Tl 190.801  Recovery = 100.16%
U 367.007†            833.7      422.03 µg/L        15.248      422.03 ppb         15.248   3.61%
   QC value less than the lower limit for U 367.007  Recovery = 84.41%
V 292.402†           30605.4      491.73 µg/L         5.900      491.73 ppb          5.900   1.20%
   QC value within limits for V 292.402  Recovery = 98.35%
Zn 213.857†          14170.0      470.95 µg/L         2.019      470.95 ppb          2.019   0.43%
   QC value within limits for Zn 213.857  Recovery = 94.19%
QC Failed.  Continue with analysis.
```

Sequence No.: 7 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 11/2/2016 12:39:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	5068.8	5068.8	103	%			12:39:56
1	Al 396.153Radial†	-115.3	-14.5	-24.833	µg/L	-24.833	ppb	12:39:56
1	Ca 317.933Radial†	38.9	-21.6	-17.353	µg/L	-17.353	ppb	12:40:16
1	Fe 238.204 Radial†	37.7	-0.0	-0.0294	µg/L	-0.0294	ppb	12:40:16
1	K 766.490 Radial†	13.1	90.1	94.005	µg/L	94.005	ppb	12:39:56
1	Mg 279.077 IEC†	-13.4	0.6	5.3853	µg/L	5.3853	ppb	12:40:16
1	Na 589.592 Radial†	806.5	27.7	10.458	µg/L	10.458	ppb	12:39:56
1	Sr 421.552†	235.2	71.2	0.7701	µg/L	0.7701	ppb	12:39:56
1	Sc	410511.4	410511.4	102.1	%			12:41:04
1	Y 371.029	324571.7	324571.7	101.48	%			12:41:04
1	Sc 357.253	260515.5	260515.5	101.4	%			12:41:04
1	Ag 328.068†	-403.4	91.9	1.0095	µg/L	1.0095	ppb	12:41:04
1	As 188.979†	6.4	1.6	3.3177	µg/L	3.3177	ppb	12:41:24
1	B 249.677†	599.5	82.0	3.2710	µg/L	3.2710	ppb	12:41:04
1	Ba 233.527†	-41.5	12.4	0.2282	µg/L	0.2282	ppb	12:41:24
1	Be 313.107†	-2215.8	37.4	0.0238	µg/L	0.0238	ppb	12:41:04
1	Cd 226.502†	-168.5	13.1	0.1487	µg/L	0.1487	ppb	12:41:24
1	Co 228.616†	-56.5	-2.1	-0.2200	µg/L	-0.2200	ppb	12:41:24
1	Cr 267.716†	93.4	-70.7	-0.9784	µg/L	-0.9784	ppb	12:41:04
1	Cu 324.752†	2079.4	-104.3	-1.0394	µg/L	-1.0394	ppb	12:41:04
1	Mn 257.610†	-129.0	16.5	0.0598	µg/L	0.0598	ppb	12:41:24
1	Mo 202.031†	-40.6	0.3	0.0346	µg/L	0.0346	ppb	12:41:24
1	Ni 231.604†	23.6	16.0	1.0688	µg/L	1.0688	ppb	12:41:24
1	P 214.914†	16.2	-11.6	-22.837	µg/L	-22.837	ppb	12:41:24
1	Pb 220.353†	38.8	-0.3	-0.1129	µg/L	-0.1129	ppb	12:41:24
1	S 181.975 Axial†	43.1	-7.6	-24.441	µg/L	-24.441	ppb	12:41:24
1	Sb 206.836†	6.8	2.9	4.5305	µg/L	4.5305	ppb	12:41:24
1	Se 196.026†	3.7	-0.3	-0.692	µg/L	-0.692	ppb	12:41:24
1	SiO2†	790.9	43.1	12.313	µg/L	12.313	ppb	12:41:04
1	Si 251.611†	291.2	11.1	0.7655	µg/L	0.7655	ppb	12:41:24
1	Sn 189.927†	-14.0	10.6	4.7003	µg/L	4.7003	ppb	12:41:24
1	Ti 334.940†	-75.0	25.0	0.1247	µg/L	0.1247	ppb	12:41:04
1	Tl 190.801†	7.8	2.5	2.3930	µg/L	2.3930	ppb	12:41:24
1	U 367.007†	-131.4	4.4	2.3699	µg/L	2.3699	ppb	12:41:04
1	V 292.402†	261.2	116.3	1.8558	µg/L	1.8558	ppb	12:41:04
1	Zn 213.857†	190.9	-63.7	-2.1432	µg/L	-2.1432	ppb	12:41:24
2	Sc RADIAL	4952.2	4952.2	101	%			12:40:18
2	Al 396.153Radial†	-100.8	-2.7	-4.7057	µg/L	-4.7057	ppb	12:40:18
2	Ca 317.933Radial†	48.5	-11.2	-8.9846	µg/L	-8.9846	ppb	12:40:38
2	Fe 238.204 Radial†	31.3	-5.4	-12.829	µg/L	-12.829	ppb	12:40:38
2	K 766.490 Radial†	-170.0	-91.5	-95.389	µg/L	-95.389	ppb	12:40:18
2	Mg 279.077 IEC†	-13.4	0.2	2.0539	µg/L	2.0539	ppb	12:40:38
2	Na 589.592 Radial†	604.4	-154.7	-58.456	µg/L	-58.456	ppb	12:40:18
2	Sr 421.552†	197.7	39.4	0.4264	µg/L	0.4264	ppb	12:40:18
2	Sc	406240.3	406240.3	101.0	%			12:41:26
2	Y 371.029	320877.9	320877.9	100.33	%			12:41:26
2	Sc 357.253	258474.9	258474.9	100.6	%			12:41:26
2	Ag 328.068†	-463.1	29.5	0.3258	µg/L	0.3258	ppb	12:41:26
2	As 188.979†	6.8	2.0	4.1618	µg/L	4.1618	ppb	12:41:46
2	B 249.677†	548.4	36.0	1.4371	µg/L	1.4371	ppb	12:41:26
2	Ba 233.527†	-47.9	5.8	0.1067	µg/L	0.1067	ppb	12:41:46
2	Be 313.107†	-2263.8	-27.5	-0.0178	µg/L	-0.0178	ppb	12:41:26
2	Cd 226.502†	-178.0	2.3	0.0272	µg/L	0.0272	ppb	12:41:46
2	Co 228.616†	-55.3	-1.4	-0.1379	µg/L	-0.1379	ppb	12:41:46
2	Cr 267.716†	167.9	4.1	0.0580	µg/L	0.0580	ppb	12:41:26
2	Cu 324.752†	2192.0	23.8	0.2358	µg/L	0.2358	ppb	12:41:26
2	Mn 257.610†	-123.2	21.2	0.0769	µg/L	0.0769	ppb	12:41:46
2	Mo 202.031†	-41.6	-1.1	-0.1354	µg/L	-0.1354	ppb	12:41:46
2	Ni 231.604†	16.4	9.1	0.6075	µg/L	0.6075	ppb	12:41:46

2	P 214.914†	16.8	-10.8	-21.356 µg/L	-21.356 ppb		12:41:46
2	Pb 220.353†	34.2	-4.6	-1.7418 µg/L	-1.7418 ppb		12:41:46
2	S 181.975 Axial†	47.6	-2.8	-8.8792 µg/L	-8.8792 ppb		12:41:46
2	Sb 206.836†	9.8	6.0	9.4422 µg/L	9.4422 ppb		12:41:46
2	Se 196.026†	2.6	-1.3	-3.13 µg/L	-3.13 ppb		12:41:46
2	SiO2†	716.2	-24.9	-7.1237 µg/L	-7.1237 ppb		12:41:26
2	Si 251.611†	269.9	-7.9	-0.5463 µg/L	-0.5463 ppb		12:41:46
2	Sn 189.927†	-20.1	4.4	1.9493 µg/L	1.9493 ppb		12:41:46
2	Ti 334.940†	-151.1	-51.3	-0.2559 µg/L	-0.2559 ppb		12:41:26
2	Tl 190.801†	-0.0	-5.2	-5.0624 µg/L	-5.0624 ppb		12:41:46
2	U 367.007†	-136.7	-1.9	-0.9398 µg/L	-0.9398 ppb		12:41:26
2	V 292.402†	246.2	103.4	1.6498 µg/L	1.6498 ppb		12:41:26
2	Zn 213.857†	183.8	-69.3	-2.3261 µg/L	-2.3261 ppb		12:41:46
3	Sc RADIAL	4947.1	4947.1	101 %			12:40:40
3	Al 396.153Radial†	-109.5	-11.6	-19.794 µg/L	-19.794 ppb		12:40:40
3	Ca 317.933Radial†	53.0	-6.6	-5.3029 µg/L	-5.3029 ppb		12:41:00
3	Fe 238.204 Radial†	39.4	2.7	6.2874 µg/L	6.2874 ppb		12:41:00
3	K 766.490 Radial†	36.2	113.5	118.36 µg/L	118.36 ppb		12:40:40
3	Mg 279.077 IEC†	-12.6	1.0	9.8834 µg/L	9.8834 ppb		12:41:00
3	Na 589.592 Radial†	883.1	123.1	46.525 µg/L	46.525 ppb		12:40:40
3	Sr 421.552†	201.0	42.8	0.4625 µg/L	0.4625 ppb		12:40:40
3	Sc	403649.9	403649.9	100.4 %			12:41:48
3	Y 371.029	315449.4	315449.4	98.629 %			12:41:48
3	Sc 357.253	256075.0	256075.0	99.68 %			12:41:48
3	Ag 328.068†	-372.7	115.8	1.2816 µg/L	1.2816 ppb		12:41:48
3	As 188.979†	4.0	-0.7	-1.4378 µg/L	-1.4378 ppb		12:42:08
3	B 249.677†	595.9	88.7	3.5343 µg/L	3.5343 ppb		12:41:48
3	Ba 233.527†	-55.4	-2.2	-0.0394 µg/L	-0.0394 ppb		12:42:08
3	Be 313.107†	-2413.9	-199.1	-0.1262 µg/L	-0.1262 ppb		12:41:48
3	Cd 226.502†	-180.3	-1.7	-0.0193 µg/L	-0.0193 ppb		12:42:08
3	Co 228.616†	-61.7	-8.3	-0.8557 µg/L	-0.8557 ppb		12:42:08
3	Cr 267.716†	167.5	5.3	0.0745 µg/L	0.0745 ppb		12:41:48
3	Cu 324.752†	2190.4	42.6	0.4205 µg/L	0.4205 ppb		12:41:48
3	Mn 257.610†	-116.4	26.9	0.0977 µg/L	0.0977 ppb		12:42:08
3	Mo 202.031†	-43.1	-3.0	-0.3630 µg/L	-0.3630 ppb		12:42:08
3	Ni 231.604†	7.6	0.4	0.0259 µg/L	0.0259 ppb		12:42:08
3	P 214.914†	13.4	-14.1	-27.818 µg/L	-27.818 ppb		12:42:08
3	Pb 220.353†	39.0	0.6	0.2242 µg/L	0.2242 ppb		12:42:08
3	S 181.975 Axial†	50.9	0.9	2.9795 µg/L	2.9795 ppb		12:42:08
3	Sb 206.836†	-3.2	-7.0	-11.106 µg/L	-11.106 ppb		12:42:08
3	Se 196.026†	4.0	0.1	0.192 µg/L	0.192 ppb		12:42:08
3	SiO2†	687.5	-47.1	-13.459 µg/L	-13.459 ppb		12:41:48
3	Si 251.611†	335.6	60.6	4.1956 µg/L	4.1956 ppb		12:42:08
3	Sn 189.927†	-18.9	5.4	2.4084 µg/L	2.4084 ppb		12:42:08
3	Ti 334.940†	-185.5	-87.1	-0.4345 µg/L	-0.4345 ppb		12:41:48
3	Tl 190.801†	1.4	-3.8	-3.7013 µg/L	-3.7013 ppb		12:42:08
3	U 367.007†	-146.2	-12.7	-6.9428 µg/L	-6.9428 ppb		12:41:48
3	V 292.402†	228.1	87.6	1.3921 µg/L	1.3921 ppb		12:41:48
3	Zn 213.857†	182.9	-68.5	-2.2986 µg/L	-2.2986 ppb		12:42:08

Mean Data: ICB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	406800.5	101.2	%	0.86				0.85%
Sc RADIAL	4989.4	101	%	1.4				1.38%
Y 371.029	320299.7	100.15	%	1.435				1.43%
Sc 357.253	258355.2	100.6	%	0.87				0.86%
Ag 328.068†	79.1	0.8723	µg/L	0.49246	0.8723	ppb	0.49246	56.46%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-9.6	-16.444	µg/L	10.4733	-16.444	ppb	10.4733	63.69%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	1.0	2.0139	µg/L	3.01890	2.0139	ppb	3.01890	149.91%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	68.9	2.7474	µg/L	1.14243	2.7474	ppb	1.14243	41.58%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	5.3	0.0985	µg/L	0.13400	0.0985	ppb	0.13400	136.01%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-63.0	-0.0401	µg/L	0.07745	-0.0401	ppb	0.07745	193.39%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-13.1	-10.547	µg/L	6.1749	-10.547	ppb	6.1749	58.55%

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   QC value within limits for Ca 317.933Radial  Recovery = Not calculated
Cd 226.502†                4.6      0.0522 µg/L       0.08673      0.0522 ppb        0.08673 166.18%
   QC value within limits for Cd 226.502  Recovery = Not calculated
Co 228.616†               -3.9     -0.4045 µg/L       0.39285     -0.4045 ppb        0.39285  97.12%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†              -20.4     -0.2820 µg/L       0.60317     -0.2820 ppb        0.60317 213.91%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -12.7     -0.1277 µg/L       0.79493     -0.1277 ppb        0.79493 622.34%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        -0.9     -2.1904 µg/L       9.73978     -2.1904 ppb        9.73978 444.66%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         37.4      38.991 µg/L      117.0119      38.991 ppb       117.0119 300.10%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            0.6      5.7742 µg/L       3.92921      5.7742 ppb        3.92921  68.05%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               21.5      0.0781 µg/L       0.01902      0.0781 ppb        0.01902  24.34%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               -1.3     -0.1546 µg/L       0.19953     -0.1546 ppb        0.19953 129.06%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        -1.3     -0.4908 µg/L      53.34005     -0.4908 ppb       53.34005 >999.9%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†                8.5      0.5674 µg/L       0.52261      0.5674 ppb        0.52261  92.11%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -12.1     -24.004 µg/L        3.3853     -24.004 ppb         3.3853  14.10%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               -1.4     -0.5435 µg/L       1.05135     -0.5435 ppb        1.05135 193.45%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -3.1     -10.114 µg/L       13.7521     -10.114 ppb        13.7521 135.97%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†                0.6      0.9555 µg/L      10.73059      0.9555 ppb       10.73059 >999.9%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†               -0.5       -1.21 µg/L         1.718       -1.21 ppb          1.718 142.16%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     -9.6     -2.7568 µg/L      13.42960     -2.7568 ppb       13.42960 487.15%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               21.3      1.4716 µg/L       2.44851      1.4716 ppb        2.44851 166.39%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                6.8      3.0193 µg/L       1.47373      3.0193 ppb        1.47373  48.81%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               51.2      0.5530 µg/L       0.18887      0.5530 ppb        0.18887  34.15%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              -37.8     -0.1886 µg/L       0.28561     -0.1886 ppb        0.28561 151.44%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               -2.2     -2.1236 µg/L       3.97018     -2.1236 ppb        3.97018 186.96%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†                -3.4     -1.8376 µg/L       4.72082     -1.8376 ppb        4.72082 256.91%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               102.4      1.6325 µg/L       0.23235      1.6325 ppb        0.23235  14.23%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -67.1     -2.2560 µg/L       0.09860     -2.2560 ppb        0.09860   4.37%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 8 **Autosampler Location: 101**
Sample ID: PQL **Date Collected: 11/2/2016 12:42:18**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4911.3	4911.3	99.8	%			12:42:47
1	Al 396.153Radial†	41.5	138.9	238.04	µg/L	238.04	ppb	12:42:47
1	Ca 317.933Radial†	323.9	265.2	213.19	µg/L	213.19	ppb	12:43:07
1	Fe 238.204 Radial†	83.1	46.7	109.99	µg/L	109.99	ppb	12:43:07
1	K 766.490 Radial†	57.0	134.6	140.32	µg/L	140.32	ppb	12:42:47
1	Mg 279.077 IEC†	19.0	32.6	314.97	µg/L	314.97	ppb	12:43:07
1	Na 589.592 Radial†	1507.0	754.5	285.08	µg/L	285.08	ppb	12:42:47
1	Sr 421.552†	634.5	478.6	5.1633	µg/L	5.1633	ppb	12:42:47
1	Sc	398722.7	398722.7	99.16	%			12:43:54
1	Y 371.029	317125.7	317125.7	99.153	%			12:43:54
1	Sc 357.253	254413.6	254413.6	99.04	%			12:43:54
1	Ag 328.068†	-7.6	482.0	5.2822	µg/L	5.2822	ppb	12:43:54
1	As 188.979†	19.3	14.8	30.864	µg/L	30.864	ppb	12:44:15
1	B 249.677†	1749.3	1257.2	50.117	µg/L	50.117	ppb	12:43:54
1	Ba 233.527†	210.9	266.3	4.8595	µg/L	4.8595	ppb	12:44:15
1	Be 313.107†	5558.1	7834.5	4.9441	µg/L	4.9441	ppb	12:43:54
1	Cd 226.502†	255.0	436.7	4.9732	µg/L	4.9732	ppb	12:44:15
1	Co 228.616†	-10.4	43.1	4.4146	µg/L	4.4146	ppb	12:44:15
1	Cr 267.716†	584.4	427.4	5.9292	µg/L	5.9292	ppb	12:43:54
1	Cu 324.752†	3124.4	1000.1	10.004	µg/L	10.004	ppb	12:43:54
1	Mn 257.610†	2650.5	2819.9	10.250	µg/L	10.250	ppb	12:43:54
1	Mo 202.031†	31.8	72.4	8.8716	µg/L	8.8716	ppb	12:44:15
1	Ni 231.604†	95.9	89.6	5.9715	µg/L	5.9715	ppb	12:44:15
1	P 214.914†	101.8	75.2	148.55	µg/L	148.55	ppb	12:44:15
1	Pb 220.353†	61.8	23.8	9.1300	µg/L	9.1300	ppb	12:44:15
1	S 181.975 Axial†	76.4	27.0	86.904	µg/L	86.904	ppb	12:44:15
1	Sb 206.836†	15.1	11.5	18.202	µg/L	18.202	ppb	12:44:15
1	Se 196.026†	17.4	13.6	31.7	µg/L	31.7	ppb	12:44:15
1	SiO2†	1456.5	733.8	209.82	µg/L	209.82	ppb	12:43:54
1	Si 251.611†	1596.6	1336.0	92.513	µg/L	92.513	ppb	12:44:15
1	Sn 189.927†	4.1	28.6	12.684	µg/L	12.684	ppb	12:44:15
1	Ti 334.940†	813.9	920.7	4.5919	µg/L	4.5919	ppb	12:43:54
1	Tl 190.801†	33.7	28.8	27.842	µg/L	27.842	ppb	12:44:15
1	U 367.007†	-89.6	43.5	22.953	µg/L	22.953	ppb	12:43:54
1	V 292.402†	471.3	334.6	5.4029	µg/L	5.4029	ppb	12:43:54
1	Zn 213.857†	580.4	334.1	11.128	µg/L	11.128	ppb	12:44:15
2	Sc RADIAL	4951.8	4951.8	101	%			12:43:09
2	Al 396.153Radial†	48.2	145.2	248.90	µg/L	248.90	ppb	12:43:09
2	Ca 317.933Radial†	322.5	261.1	209.92	µg/L	209.92	ppb	12:43:29
2	Fe 238.204 Radial†	81.8	44.8	105.49	µg/L	105.49	ppb	12:43:29
2	K 766.490 Radial†	93.7	170.6	177.85	µg/L	177.85	ppb	12:43:09
2	Mg 279.077 IEC†	16.5	30.0	290.27	µg/L	290.27	ppb	12:43:29
2	Na 589.592 Radial†	1570.2	805.0	304.14	µg/L	304.14	ppb	12:43:09
2	Sr 421.552†	629.0	468.0	5.0488	µg/L	5.0488	ppb	12:43:09
2	Sc	398397.8	398397.8	99.08	%			12:44:17
2	Y 371.029	314736.1	314736.1	98.406	%			12:44:17
2	Sc 357.253	255722.0	255722.0	99.55	%			12:44:17
2	Ag 328.068†	57.7	547.7	6.0561	µg/L	6.0561	ppb	12:44:17
2	As 188.979†	18.8	14.2	29.496	µg/L	29.496	ppb	12:44:37
2	B 249.677†	1693.9	1192.6	47.539	µg/L	47.539	ppb	12:44:17
2	Ba 233.527†	216.7	271.1	4.9465	µg/L	4.9465	ppb	12:44:37
2	Be 313.107†	5617.3	7865.3	4.9634	µg/L	4.9634	ppb	12:44:17
2	Cd 226.502†	262.2	442.6	5.0409	µg/L	5.0409	ppb	12:44:37
2	Co 228.616†	10.2	63.8	6.5391	µg/L	6.5391	ppb	12:44:37
2	Cr 267.716†	548.6	388.3	5.3884	µg/L	5.3884	ppb	12:44:17
2	Cu 324.752†	3166.7	1026.4	10.233	µg/L	10.233	ppb	12:44:17
2	Mn 257.610†	2661.0	2816.8	10.240	µg/L	10.240	ppb	12:44:17
2	Mo 202.031†	28.8	69.3	8.4934	µg/L	8.4934	ppb	12:44:37
2	Ni 231.604†	85.9	79.1	5.2695	µg/L	5.2695	ppb	12:44:37

2	P 214.914†	99.8	72.7	143.52 µg/L	143.52 ppb		12:44:37
2	Pb 220.353†	56.6	18.3	7.0673 µg/L	7.0673 ppb		12:44:37
2	S 181.975 Axial†	68.6	18.8	60.608 µg/L	60.608 ppb		12:44:37
2	Sb 206.836†	14.9	11.1	17.689 µg/L	17.689 ppb		12:44:37
2	Se 196.026†	16.0	12.1	28.2 µg/L	28.2 ppb		12:44:37
2	SiO2†	1379.4	648.9	185.52 µg/L	185.52 ppb		12:44:17
2	Si 251.611†	1586.4	1317.5	91.235 µg/L	91.235 ppb		12:44:37
2	Sn 189.927†	-4.9	19.5	8.6563 µg/L	8.6563 ppb		12:44:37
2	Ti 334.940†	808.9	911.5	4.5462 µg/L	4.5462 ppb		12:44:17
2	Tl 190.801†	25.7	20.7	19.973 µg/L	19.973 ppb		12:44:37
2	U 367.007†	-178.2	-45.0	-25.065 µg/L	-25.065 ppb		12:44:17
2	V 292.402†	531.7	392.9	6.3070 µg/L	6.3070 ppb		12:44:17
2	Zn 213.857†	579.6	330.3	11.006 µg/L	11.006 ppb		12:44:37
3	Sc RADIAL	5054.5	5054.5	103 %			12:43:31
3	Al 396.153Radial†	-4.5	93.0	159.29 µg/L	159.29 ppb		12:43:31
3	Ca 317.933Radial†	322.4	254.5	204.57 µg/L	204.57 ppb		12:43:51
3	Fe 238.204 Radial†	81.5	42.7	100.75 µg/L	100.75 ppb		12:43:51
3	K 766.490 Radial†	45.4	121.6	126.78 µg/L	126.78 ppb		12:43:31
3	Mg 279.077 IEC†	26.6	39.5	382.03 µg/L	382.03 ppb		12:43:51
3	Na 589.592 Radial†	1559.0	762.4	288.07 µg/L	288.07 ppb		12:43:31
3	Sr 421.552†	602.5	429.4	4.6325 µg/L	4.6325 ppb		12:43:31
3	Sc	402027.4	402027.4	99.99 %			12:44:39
3	Y 371.029	319346.8	319346.8	99.848 %			12:44:39
3	Sc 357.253	258797.9	258797.9	100.7 %			12:44:39
3	Ag 328.068†	-10.2	479.6	5.3091 µg/L	5.3091 ppb		12:44:39
3	As 188.979†	18.8	14.0	29.100 µg/L	29.100 ppb		12:44:59
3	B 249.677†	1722.3	1200.5	47.858 µg/L	47.858 ppb		12:44:39
3	Ba 233.527†	209.1	260.9	4.7615 µg/L	4.7615 ppb		12:44:59
3	Be 313.107†	5489.5	7671.4	4.8407 µg/L	4.8407 ppb		12:44:39
3	Cd 226.502†	267.9	445.2	5.0702 µg/L	5.0702 ppb		12:44:59
3	Co 228.616†	-3.4	50.2	5.1434 µg/L	5.1434 ppb		12:44:59
3	Cr 267.716†	572.8	405.8	5.6314 µg/L	5.6314 ppb		12:44:39
3	Cu 324.752†	3290.1	1111.1	11.076 µg/L	11.076 ppb		12:44:39
3	Mn 257.610†	2705.8	2829.5	10.283 µg/L	10.283 ppb		12:44:39
3	Mo 202.031†	35.0	75.1	9.2022 µg/L	9.2022 ppb		12:44:59
3	Ni 231.604†	96.9	88.9	5.9256 µg/L	5.9256 ppb		12:44:59
3	P 214.914†	97.1	68.8	135.87 µg/L	135.87 ppb		12:44:59
3	Pb 220.353†	73.2	34.1	13.103 µg/L	13.103 ppb		12:44:59
3	S 181.975 Axial†	70.4	19.8	63.716 µg/L	63.716 ppb		12:44:59
3	Sb 206.836†	8.0	4.1	6.5207 µg/L	6.5207 ppb		12:44:59
3	Se 196.026†	18.0	13.9	32.4 µg/L	32.4 ppb		12:44:59
3	SiO2†	1434.8	687.4	196.55 µg/L	196.55 ppb		12:44:39
3	Si 251.611†	1621.8	1333.7	92.357 µg/L	92.357 ppb		12:44:59
3	Sn 189.927†	1.9	26.3	11.647 µg/L	11.647 ppb		12:44:59
3	Ti 334.940†	751.2	844.5	4.2122 µg/L	4.2122 ppb		12:44:39
3	Tl 190.801†	24.3	18.9	18.258 µg/L	18.258 ppb		12:44:59
3	U 367.007†	-185.2	-49.9	-27.674 µg/L	-27.674 ppb		12:44:39
3	V 292.402†	519.8	374.7	6.0203 µg/L	6.0203 ppb		12:44:39
3	Zn 213.857†	582.1	325.8	10.846 µg/L	10.846 ppb		12:44:59

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc	399715.9	99.41	%	0.499				0.50%
Sc RADIAL	4972.5	101	%	1.5				1.49%
Y 371.029	317069.5	99.136	%	0.7209				0.73%
Sc 357.253	256311.2	99.78	%	0.876				0.88%
Ag 328.068†	503.1	5.5491	µg/L	0.43923	5.5491	ppb	0.43923	7.92%
QC value within limits for Ag 328.068 Recovery = 110.98%								
Al 396.153Radial†	125.7	215.41	µg/L	48.902	215.41	ppb	48.902	22.70%
QC value within limits for Al 396.153Radial Recovery = 107.71%								
As 188.979†	14.3	29.820	µg/L	0.9255	29.820	ppb	0.9255	3.10%
QC value within limits for As 188.979 Recovery = 99.40%								
B 249.677†	1216.8	48.504	µg/L	1.4052	48.504	ppb	1.4052	2.90%
QC value within limits for B 249.677 Recovery = 97.01%								
Ba 233.527†	266.1	4.8558	µg/L	0.09259	4.8558	ppb	0.09259	1.91%
QC value within limits for Ba 233.527 Recovery = 97.12%								
Be 313.107†	7790.4	4.9160	µg/L	0.06599	4.9160	ppb	0.06599	1.34%
QC value within limits for Be 313.107 Recovery = 98.32%								
Ca 317.933Radial†	260.3	209.23	µg/L	4.349	209.23	ppb	4.349	2.08%

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   QC value within limits for Ca 317.933Radial  Recovery = 104.61%
Cd 226.502†              441.5      5.0281 µg/L       0.04977      5.0281 ppb        0.04977   0.99%
   QC value within limits for Cd 226.502  Recovery = 100.56%
Co 228.616†               52.4      5.3657 µg/L       1.07957      5.3657 ppb        1.07957  20.12%
   QC value within limits for Co 228.616  Recovery = 107.31%
Cr 267.716†              407.2      5.6497 µg/L       0.27087      5.6497 ppb        0.27087   4.79%
   QC value within limits for Cr 267.716  Recovery = 112.99%
Cu 324.752†             1045.8      10.438 µg/L        0.5646      10.438 ppb         0.5646   5.41%
   QC value within limits for Cu 324.752  Recovery = 104.38%
Fe 238.204 Radial†        44.7      105.41 µg/L         4.619      105.41 ppb          4.619   4.38%
   QC value within limits for Fe 238.204 Radial  Recovery = 105.41%
K 766.490 Radial†        142.3      148.32 µg/L        26.455      148.32 ppb         26.455  17.84%
   QC value within limits for K 766.490 Radial  Recovery = 98.88%
Mg 279.077 IEC†           34.0      329.09 µg/L        47.482      329.09 ppb         47.482  14.43%
   QC value within limits for Mg 279.077 IEC  Recovery = 109.70%
Mn 257.610†             2822.1      10.258 µg/L        0.0224      10.258 ppb         0.0224   0.22%
   QC value within limits for Mn 257.610  Recovery = 102.58%
Mo 202.031†               72.2      8.8557 µg/L       0.35467      8.8557 ppb        0.35467   4.00%
   QC value within limits for Mo 202.031  Recovery = 88.56%
Na 589.592 Radial†       774.0      292.43 µg/L        10.252      292.43 ppb         10.252   3.51%
   QC value within limits for Na 589.592 Radial  Recovery = 97.48%
Ni 231.604†               85.9      5.7222 µg/L       0.39274      5.7222 ppb        0.39274   6.86%
   QC value within limits for Ni 231.604  Recovery = 114.44%
P 214.914†                72.2      142.65 µg/L         6.388      142.65 ppb          6.388   4.48%
   QC value within limits for P 214.914  Recovery = 95.10%
Pb 220.353†               25.4      9.7669 µg/L       3.06803      9.7669 ppb        3.06803  31.41%
   QC value within limits for Pb 220.353  Recovery = 97.67%
S 181.975 Axial†          21.9      70.409 µg/L       14.3689      70.409 ppb        14.3689  20.41%
   QC value within limits for S 181.975 Axial  Recovery = 70.41%
Sb 206.836†                8.9      14.137 µg/L        6.6010      14.137 ppb         6.6010  46.69%
   QC value greater than the upper limit for Sb 206.836  Recovery = 141.37%
Se 196.026†               13.2        30.8 µg/L          2.22        30.8 ppb           2.22   7.20%
   QC value within limits for Se 196.026  Recovery = 102.56%
SiO2†                    690.1      197.29 µg/L        12.164      197.29 ppb         12.164   6.17%
   QC value within limits for SiO2  Recovery = 92.63%
Si 251.611†             1329.1      92.035 µg/L        0.6975      92.035 ppb         0.6975   0.76%
   QC value within limits for Si 251.611  Recovery = 92.03%
Sn 189.927†               24.8      10.996 µg/L        2.0914      10.996 ppb         2.0914  19.02%
   QC value within limits for Sn 189.927  Recovery = 109.96%
Sr 421.552†              458.7      4.9482 µg/L       0.27930      4.9482 ppb        0.27930   5.64%
   QC value within limits for Sr 421.552  Recovery = 98.96%
Ti 334.940†              892.2      4.4501 µg/L       0.20728      4.4501 ppb        0.20728   4.66%
   QC value within limits for Ti 334.940  Recovery = 89.00%
Tl 190.801†               22.8      22.024 µg/L        5.1109      22.024 ppb         5.1109  23.21%
   QC value within limits for Tl 190.801  Recovery = 110.12%
U 367.007†               -17.1     -9.9288 µg/L      28.50636     -9.9288 ppb       28.50636 287.11%
   QC value less than the lower limit for U 367.007  Recovery = -19.86%
V 292.402†               367.4      5.9101 µg/L       0.46201      5.9101 ppb        0.46201   7.82%
   QC value within limits for V 292.402  Recovery = 118.20%
Zn 213.857†              330.1      10.993 µg/L        0.1415      10.993 ppb         0.1415   1.29%
   QC value within limits for Zn 213.857  Recovery = 109.93%
QC Failed.  Continue with analysis.
```

Sequence No.: 9 **Autosampler Location:** 103
Sample ID: ICSA **Date Collected:** 11/2/2016 12:45:07
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4558.3	4558.3	92.6	%			12:45:39
1	Al 396.153Radial†	260963.4	281786.4	482880	µg/L	482880	ppb	12:45:37
1	Ca 317.933Radial†	559332.0	603694.5	485280	µg/L	485280	ppb	12:45:37
1	Fe 238.204 Radial†	76245.5	82264.3	193880	µg/L	193880	ppb	12:45:37
1	K 766.490 Radial†	-95.5	-25.6	-148.75	µg/L	-148.75	ppb	12:45:39
1	Mg 279.077 IEC†	44369.3	47906.6	463460	µg/L	463460	ppb	12:45:39
1	Na 589.592 Radial†	782.9	89.8	33.945	µg/L	33.945	ppb	12:45:39
1	Sr 421.552†	1517.4	1480.9	0.2105	µg/L	0.2105	ppb	12:45:39
1	Sc	360085.3	360085.3	89.56	%			12:45:51
1	Y 371.029	276399.4	276399.4	86.420	%			12:45:51
1	Sc 357.253	231021.4	231021.4	89.93	%			12:45:51
1	Ag 328.068†	-710.8	-300.7	4.0084	µg/L	4.0084	ppb	12:45:51
1	As 188.979†	8.4	4.6	4.8304	µg/L	4.8304	ppb	12:46:11
1	B 249.677†	1339.3	980.2	-4.4930	µg/L	-4.4930	ppb	12:45:51
1	Ba 233.527†	200.8	276.6	2.4851	µg/L	2.4851	ppb	12:46:11
1	Be 313.107†	-2288.9	-322.8	-0.2235	µg/L	-0.2235	ppb	12:45:51
1	Cd 226.502†	794.8	1063.1	-0.0431	µg/L	-0.0431	ppb	12:46:11
1	Co 228.616†	92.6	156.6	-1.6656	µg/L	-1.6656	ppb	12:46:11
1	Cr 267.716†	314.7	187.1	0.8440	µg/L	0.8440	ppb	12:46:11
1	Cu 324.752†	-194.8	-2371.4	-11.629	µg/L	-11.629	ppb	12:46:11
1	Mn 257.610†	2847.9	3310.4	0.2449	µg/L	0.2449	ppb	12:45:51
1	Mo 202.031†	-143.9	-119.7	0.3619	µg/L	0.3619	ppb	12:46:11
1	Ni 231.604†	107.7	112.6	1.8873	µg/L	1.8873	ppb	12:46:11
1	P 214.914†	81.1	62.6	17.875	µg/L	17.875	ppb	12:46:11
1	Pb 220.353†	-3.9	-42.9	11.025	µg/L	11.025	ppb	12:46:11
1	S 181.975 Axial†	24.4	-23.0	-6.2176	µg/L	-6.2176	ppb	12:46:11
1	Sb 206.836†	1.1	-2.6	-5.4052	µg/L	-5.4052	ppb	12:46:11
1	Se 196.026†	6.2	2.9	-2.59	µg/L	-2.59	ppb	12:46:11
1	SiO2†	904.7	269.2	76.972	µg/L	76.972	ppb	12:46:11
1	Si 251.611†	686.1	486.8	33.708	µg/L	33.708	ppb	12:46:11
1	Sn 189.927†	-27.5	-6.2	1.5201	µg/L	1.5201	ppb	12:46:11
1	Ti 334.940†	-2179.6	-2324.8	-2.3686	µg/L	-2.3686	ppb	12:46:11
1	Tl 190.801†	17.8	14.6	-5.1241	µg/L	-5.1241	ppb	12:46:11
1	U 367.007†	1851.2	2192.5	52.182	µg/L	52.182	ppb	12:45:51
1	V 292.402†	974.6	942.5	1.0396	µg/L	1.0396	ppb	12:46:11
1	Zn 213.857†	1324.2	1220.5	-18.552	µg/L	-18.552	ppb	12:46:11
2	Sc RADIAL	4624.6	4624.6	94.0	%			12:45:43
2	Al 396.153Radial†	264331.9	281331.6	482100	µg/L	482100	ppb	12:45:41
2	Ca 317.933Radial†	568191.9	604464.8	485900	µg/L	485900	ppb	12:45:41
2	Fe 238.204 Radial†	77760.5	82696.2	194900	µg/L	194900	ppb	12:45:41
2	K 766.490 Radial†	-181.3	-115.4	-243.01	µg/L	-243.01	ppb	12:45:43
2	Mg 279.077 IEC†	44644.7	47513.0	459650	µg/L	459650	ppb	12:45:43
2	Na 589.592 Radial†	737.5	29.4	11.120	µg/L	11.120	ppb	12:45:43
2	Sr 421.552†	1550.6	1492.7	0.2747	µg/L	0.2747	ppb	12:45:43
2	Sc	362441.4	362441.4	90.14	%			12:46:13
2	Y 371.029	278854.7	278854.7	87.187	%			12:46:13
2	Sc 357.253	232724.2	232724.2	90.59	%			12:46:13
2	Ag 328.068†	-622.3	-197.2	5.1749	µg/L	5.1749	ppb	12:46:13
2	As 188.979†	11.6	8.1	12.046	µg/L	12.046	ppb	12:46:33
2	B 249.677†	1676.9	1341.9	9.7067	µg/L	9.7067	ppb	12:46:13
2	Ba 233.527†	165.8	236.4	1.7374	µg/L	1.7374	ppb	12:46:33
2	Be 313.107†	-2435.5	-466.0	-0.3138	µg/L	-0.3138	ppb	12:46:13
2	Cd 226.502†	774.9	1034.6	-0.4316	µg/L	-0.4316	ppb	12:46:33
2	Co 228.616†	92.4	155.6	-1.8603	µg/L	-1.8603	ppb	12:46:33
2	Cr 267.716†	314.7	184.6	0.7997	µg/L	0.7997	ppb	12:46:33
2	Cu 324.752†	239.3	-1890.6	-6.7673	µg/L	-6.7673	ppb	12:46:33
2	Mn 257.610†	2912.3	3358.3	0.5652	µg/L	0.5652	ppb	12:46:13
2	Mo 202.031†	-137.5	-111.5	1.4523	µg/L	1.4523	ppb	12:46:33
2	Ni 231.604†	103.5	107.1	1.4908	µg/L	1.4908	ppb	12:46:33

2	P 214.914†	75.7	56.0	4.1346 µg/L	4.1346 ppb		12:46:33
2	Pb 220.353†	18.1	-18.5	20.291 µg/L	20.291 ppb		12:46:33
2	S 181.975 Axial†	13.4	-35.3	-45.252 µg/L	-45.252 ppb		12:46:33
2	Sb 206.836†	-4.5	-8.8	-15.322 µg/L	-15.322 ppb		12:46:33
2	Se 196.026†	3.8	0.2	-8.87 µg/L	-8.87 ppb		12:46:33
2	SiO2†	902.4	259.3	74.134 µg/L	74.134 ppb		12:46:33
2	Si 251.611†	700.5	497.1	34.423 µg/L	34.423 ppb		12:46:33
2	Sn 189.927†	-27.8	-6.3	1.4844 µg/L	1.4844 ppb		12:46:33
2	Ti 334.940†	-2205.1	-2335.2	-2.4087 µg/L	-2.4087 ppb		12:46:33
2	Tl 190.801†	14.5	10.7	-8.9208 µg/L	-8.9208 ppb		12:46:33
2	U 367.007†	1874.5	2203.1	51.964 µg/L	51.964 ppb		12:46:13
2	V 292.402†	976.0	936.1	0.8693 µg/L	0.8693 ppb		12:46:33
2	Zn 213.857†	1351.4	1239.8	-17.792 µg/L	-17.792 ppb		12:46:33
3	Sc RADIAL	4578.7	4578.7	93.1 %			12:45:48
3	Al 396.153Radial†	260712.6	280264.7	480270 µg/L	480270 ppb		12:45:45
3	Ca 317.933Radial†	558417.8	600028.3	482330 µg/L	482330 ppb		12:45:45
3	Fe 238.204 Radial†	76741.3	82431.2	194270 µg/L	194270 ppb		12:45:45
3	K 766.490 Radial†	-172.1	-107.4	-234.31 µg/L	-234.31 ppb		12:45:48
3	Mg 279.077 IEC†	44489.7	47823.2	462650 µg/L	462650 ppb		12:45:48
3	Na 589.592 Radial†	728.1	27.2	10.269 µg/L	10.269 ppb		12:45:48
3	Sr 421.552†	1519.8	1476.2	0.1665 µg/L	0.1665 ppb		12:45:48
3	Sc	366421.5	366421.5	91.13 %			12:46:35
3	Y 371.029	282943.4	282943.4	88.466 %			12:46:35
3	Sc 357.253	235599.7	235599.7	91.71 %			12:46:35
3	Ag 328.068†	-726.3	-302.2	3.9778 µg/L	3.9778 ppb		12:46:35
3	As 188.979†	12.2	8.6	13.168 µg/L	13.168 ppb		12:46:56
3	B 249.677†	1538.3	1168.2	2.9182 µg/L	2.9182 ppb		12:46:35
3	Ba 233.527†	195.5	266.6	2.2943 µg/L	2.2943 ppb		12:46:56
3	Be 313.107†	-2250.4	-231.3	-0.1660 µg/L	-0.1660 ppb		12:46:35
3	Cd 226.502†	811.4	1064.0	-0.0591 µg/L	-0.0591 ppb		12:46:56
3	Co 228.616†	79.7	140.5	-3.3471 µg/L	-3.3471 ppb		12:46:56
3	Cr 267.716†	301.8	166.3	0.5497 µg/L	0.5497 ppb		12:46:56
3	Cu 324.752†	-115.8	-2281.0	-10.698 µg/L	-10.698 ppb		12:46:56
3	Mn 257.610†	2991.1	3405.1	0.6235 µg/L	0.6235 ppb		12:46:35
3	Mo 202.031†	-130.9	-102.4	2.5138 µg/L	2.5138 ppb		12:46:56
3	Ni 231.604†	132.9	137.7	3.5489 µg/L	3.5489 ppb		12:46:56
3	P 214.914†	67.3	45.8	-15.618 µg/L	-15.618 ppb		12:46:56
3	Pb 220.353†	-1.8	-40.5	11.766 µg/L	11.766 ppb		12:46:56
3	S 181.975 Axial†	25.8	-21.9	-2.6127 µg/L	-2.6127 ppb		12:46:56
3	Sb 206.836†	5.7	2.4	2.5145 µg/L	2.5145 ppb		12:46:56
3	Se 196.026†	3.1	-0.6	-10.7 µg/L	-10.7 ppb		12:46:56
3	SiO2†	890.7	234.4	67.013 µg/L	67.013 ppb		12:46:56
3	Si 251.611†	680.5	465.8	32.258 µg/L	32.258 ppb		12:46:56
3	Sn 189.927†	-21.0	1.6	4.9293 µg/L	4.9293 ppb		12:46:56
3	Ti 334.940†	-2230.8	-2333.5	-2.4678 µg/L	-2.4678 ppb		12:46:56
3	Tl 190.801†	14.8	10.9	-8.6800 µg/L	-8.6800 ppb		12:46:56
3	U 367.007†	1902.7	2208.6	58.633 µg/L	58.633 ppb		12:46:35
3	V 292.402†	883.7	822.3	-0.8926 µg/L	-0.8926 ppb		12:46:56
3	Zn 213.857†	1342.4	1211.8	-18.858 µg/L	-18.858 ppb		12:46:56

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	362982.8	90.28	%	0.796				0.88%
Sc RADIAL	4587.2	93.2	%	0.69				0.74%
Y 371.029	279399.2	87.357	%	1.0336				1.18%
Sc 357.253	233115.1	90.75	%	0.901				0.99%
Ag 328.068†	-266.7	4.3870	µg/L	0.68251	4.3870	ppb	0.68251	15.56%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	281127.5	481750	µg/L	1338.5	481750	ppb	1338.5	0.28%
QC value within limits for Al 396.153Radial Recovery = 96.35%								
As 188.979†	7.1	10.015	µg/L	4.5248	10.015	ppb	4.5248	45.18%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	1163.4	2.7106	µg/L	7.10214	2.7106	ppb	7.10214	262.01%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	259.9	2.1722	µg/L	0.38849	2.1722	ppb	0.38849	17.88%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-340.0	-0.2344	µg/L	0.07454	-0.2344	ppb	0.07454	31.80%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	602729.2	484500	µg/L	1905.5	484500	ppb	1905.5	0.39%

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   QC value within limits for Ca 317.933Radial  Recovery = 96.90%
Cd 226.502†            1053.9     -0.1779 µg/L       0.21986     -0.1779 ppb        0.21986 123.57%
   QC value within limits for Cd 226.502  Recovery = Not calculated
Co 228.616†             150.9     -2.2910 µg/L       0.91977     -2.2910 ppb        0.91977  40.15%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†             179.3      0.7311 µg/L       0.15867      0.7311 ppb        0.15867  21.70%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -2181.0     -9.6981 µg/L       2.58045     -9.6981 ppb        2.58045  26.61%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†     82463.9      194350 µg/L         513.3      194350 ppb          513.3   0.26%
   QC value within limits for Fe 238.204 Radial  Recovery = 97.18%
K 766.490 Radial†        -82.8     -208.69 µg/L        52.094     -208.69 ppb         52.094  24.96%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†        47747.6      461920 µg/L        2006.3      461920 ppb         2006.3   0.43%
   QC value within limits for Mg 279.077 IEC  Recovery = 92.38%
Mn 257.610†            3357.9      0.4779 µg/L       0.20387      0.4779 ppb        0.20387  42.66%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†            -111.2      1.4427 µg/L       1.07597      1.4427 ppb        1.07597  74.58%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      48.8      18.444 µg/L       13.4302      18.444 ppb        13.4302  72.81%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†             119.1      2.3090 µg/L       1.09197      2.3090 ppb        1.09197  47.29%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               54.8      2.1304 µg/L      16.83627      2.1304 ppb       16.83627 790.28%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†            -34.0       14.360 µg/L        5.1492      14.360 ppb         5.1492  35.86%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†       -26.7      -18.027 µg/L       23.6458     -18.027 ppb        23.6458 131.17%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†             -3.0      -6.0710 µg/L       8.93700     -6.0710 ppb        8.93700 147.21%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†              0.8       -7.38 µg/L         4.246       -7.38 ppb          4.246  57.52%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                  254.3      72.706 µg/L        5.1309      72.706 ppb         5.1309   7.06%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†            483.2      33.463 µg/L        1.1032      33.463 ppb         1.1032   3.30%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†             -3.6      2.6446 µg/L       1.97871      2.6446 ppb        1.97871  74.82%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†            1483.3      0.2172 µg/L       0.05441      0.2172 ppb        0.05441  25.05%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -2331.1     -2.4150 µg/L       0.04993     -2.4150 ppb        0.04993   2.07%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†             12.1      -7.5750 µg/L       2.12591     -7.5750 ppb        2.12591  28.06%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†             2201.4      54.260 µg/L        3.7887      54.260 ppb         3.7887   6.98%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              900.3      0.3388 µg/L       1.06976      0.3388 ppb        1.06976 315.76%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†            1224.0     -18.400 µg/L        0.5490     -18.400 ppb         0.5490   2.98%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 10 **Autosampler Location:** 104
Sample ID: ICSAB **Date Collected:** 11/2/2016 12:47:05
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4529.5	4529.5	92.1	%			12:47:35
1	Al 396.153Radial†	258219.5	280600.5	480840	µg/L	480840	ppb	12:47:33
1	Ca 317.933Radial†	555067.0	602908.4	484650	µg/L	484650	ppb	12:47:33
1	Fe 238.204 Radial†	73793.1	80124.6	188840	µg/L	188840	ppb	12:47:33
1	K 766.490 Radial†	4555.6	5026.3	5123.0	µg/L	5123.0	ppb	12:47:35
1	Mg 279.077 IEC†	44378.0	48221.3	466510	µg/L	466510	ppb	12:47:35
1	Na 589.592 Radial†	13611.4	14030.8	5301.3	µg/L	5301.3	ppb	12:47:33
1	Sr 421.552†	43526.9	47126.1	493.73	µg/L	493.73	ppb	12:47:33
1	Sc	372611.6	372611.6	92.67	%			12:47:47
1	Y 371.029	291463.1	291463.1	91.129	%			12:47:47
1	Sc 357.253	238797.6	238797.6	92.96	%			12:47:47
1	Ag 328.068†	20554.9	22601.7	255.56	µg/L	255.56	ppb	12:47:47
1	As 188.979†	221.9	234.0	486.01	µg/L	486.01	ppb	12:48:07
1	B 249.677†	12562.2	13004.7	476.21	µg/L	476.21	ppb	12:47:47
1	Ba 233.527†	23532.5	25368.6	460.48	µg/L	460.48	ppb	12:48:07
1	Be 313.107†	343418.8	371657.0	234.98	µg/L	234.98	ppb	12:47:47
1	Cd 226.502†	37274.1	40277.1	447.51	µg/L	447.51	ppb	12:47:47
1	Co 228.616†	3983.5	4338.9	428.10	µg/L	428.10	ppb	12:48:07
1	Cr 267.716†	31045.7	33234.8	459.54	µg/L	459.54	ppb	12:47:47
1	Cu 324.752†	47604.1	49055.6	501.63	µg/L	501.63	ppb	12:47:47
1	Mn 257.610†	119711.5	128923.9	457.03	µg/L	457.03	ppb	12:47:47
1	Mo 202.031†	3484.0	3788.2	478.64	µg/L	478.64	ppb	12:48:07
1	Ni 231.604†	5924.2	6365.7	418.97	µg/L	418.97	ppb	12:48:07
1	P 214.914†	1199.9	1263.3	2388.8	µg/L	2388.8	ppb	12:48:07
1	Pb 220.353†	1110.6	1156.2	470.32	µg/L	470.32	ppb	12:48:07
1	S 181.975 Axial†	740.8	746.9	2466.4	µg/L	2466.4	ppb	12:48:07
1	Sb 206.836†	287.4	305.3	482.84	µg/L	482.84	ppb	12:48:07
1	Se 196.026†	898.1	962.2	2240	µg/L	2240	ppb	12:48:07
1	SiO2†	33381.3	35173.4	10058	µg/L	10058	ppb	12:47:47
1	Si 251.611†	63502.7	68037.3	4711.4	µg/L	4711.4	ppb	12:47:47
1	Sn 189.927†	929.2	1024.0	459.50	µg/L	459.50	ppb	12:48:07
1	Ti 334.940†	87986.6	94750.9	481.41	µg/L	481.41	ppb	12:47:47
1	Tl 190.801†	445.9	474.4	443.40	µg/L	443.40	ppb	12:48:07
1	U 367.007†	2567.9	2896.5	464.01	µg/L	464.01	ppb	12:47:47
1	V 292.402†	29004.3	31060.2	485.65	µg/L	485.65	ppb	12:47:47
1	Zn 213.857†	13667.4	14450.9	422.84	µg/L	422.84	ppb	12:48:07
2	Sc RADIAL	4523.5	4523.5	91.9	%			12:47:39
2	Al 396.153Radial†	260449.7	283393.7	485630	µg/L	485630	ppb	12:47:37
2	Ca 317.933Radial†	556104.9	604826.9	486190	µg/L	486190	ppb	12:47:37
2	Fe 238.204 Radial†	74500.7	80999.3	190900	µg/L	190900	ppb	12:47:37
2	K 766.490 Radial†	4548.1	5024.6	5119.9	µg/L	5119.9	ppb	12:47:39
2	Mg 279.077 IEC†	43947.8	47816.5	462590	µg/L	462590	ppb	12:47:39
2	Na 589.592 Radial†	13810.7	14266.9	5390.5	µg/L	5390.5	ppb	12:47:37
2	Sr 421.552†	43997.4	47699.8	499.80	µg/L	499.80	ppb	12:47:37
2	Sc	365534.7	365534.7	90.91	%			12:48:09
2	Y 371.029	285308.1	285308.1	89.205	%			12:48:09
2	Sc 357.253	235589.2	235589.2	91.71	%			12:48:09
2	Ag 328.068†	20406.1	22740.6	257.16	µg/L	257.16	ppb	12:48:09
2	As 188.979†	222.3	237.7	493.72	µg/L	493.72	ppb	12:48:30
2	B 249.677†	12424.3	13038.4	477.09	µg/L	477.09	ppb	12:48:09
2	Ba 233.527†	23385.8	25553.4	463.83	µg/L	463.83	ppb	12:48:30
2	Be 313.107†	337115.8	369815.3	233.82	µg/L	233.82	ppb	12:48:09
2	Cd 226.502†	37100.4	40633.8	451.45	µg/L	451.45	ppb	12:48:09
2	Co 228.616†	3964.1	4376.1	431.73	µg/L	431.73	ppb	12:48:30
2	Cr 267.716†	30502.6	33097.4	457.61	µg/L	457.61	ppb	12:48:09
2	Cu 324.752†	47266.4	49384.8	505.03	µg/L	505.03	ppb	12:48:09
2	Mn 257.610†	118091.8	128911.6	457.15	µg/L	457.15	ppb	12:48:09
2	Mo 202.031†	3484.0	3839.3	485.05	µg/L	485.05	ppb	12:48:30
2	Ni 231.604†	5878.0	6402.2	421.33	µg/L	421.33	ppb	12:48:30

2	P 214.914†	1198.1	1278.9	2418.5 µg/L	2418.5 ppb		12:48:30
2	Pb 220.353†	1101.8	1162.9	473.18 µg/L	473.18 ppb		12:48:30
2	S 181.975 Axial†	723.7	739.0	2442.0 µg/L	2442.0 ppb		12:48:30
2	Sb 206.836†	283.0	304.8	482.06 µg/L	482.06 ppb		12:48:30
2	Se 196.026†	902.1	979.7	2280 µg/L	2280 ppb		12:48:30
2	SiO2†	33059.2	35311.1	10098 µg/L	10098 ppb		12:48:09
2	Si 251.611†	62603.0	67986.5	4707.9 µg/L	4707.9 ppb		12:48:09
2	Sn 189.927†	918.7	1026.1	460.46 µg/L	460.46 ppb		12:48:30
2	Ti 334.940†	86985.5	94948.3	482.43 µg/L	482.43 ppb		12:48:09
2	Tl 190.801†	419.6	452.3	421.83 µg/L	421.83 ppb		12:48:30
2	U 367.007†	2525.6	2887.9	447.27 µg/L	447.27 ppb		12:48:09
2	V 292.402†	28643.3	31091.5	486.02 µg/L	486.02 ppb		12:48:09
2	Zn 213.857†	13575.9	14551.3	426.16 µg/L	426.16 ppb		12:48:30
3	Sc RADIAL	4644.3	4644.3	94.4 %			12:47:44
3	Al 396.153Radial†	257978.4	273410.1	468520 µg/L	468520 ppb		12:47:42
3	Ca 317.933Radial†	550613.2	583282.3	468870 µg/L	468870 ppb		12:47:42
3	Fe 238.204 Radial†	73105.1	77413.9	182450 µg/L	182450 ppb		12:47:42
3	K 766.490 Radial†	4671.8	5027.0	5127.7 µg/L	5127.7 ppb		12:47:44
3	Mg 279.077 IEC†	45073.1	47765.8	462100 µg/L	462100 ppb		12:47:44
3	Na 589.592 Radial†	13772.5	13836.0	5227.7 µg/L	5227.7 ppb		12:47:42
3	Sr 421.552†	43418.1	45841.8	480.37 µg/L	480.37 ppb		12:47:42
3	Sc	368961.9	368961.9	91.76 %			12:48:32
3	Y 371.029	286147.5	286147.5	89.467 %			12:48:32
3	Sc 357.253	236788.5	236788.5	92.18 %			12:48:32
3	Ag 328.068†	20509.9	22740.5	256.75 µg/L	256.75 ppb		12:48:32
3	As 188.979†	223.3	237.6	493.61 µg/L	493.61 ppb		12:48:52
3	B 249.677†	12458.5	13006.9	477.73 µg/L	477.73 ppb		12:48:32
3	Ba 233.527†	23453.1	25497.2	462.92 µg/L	462.92 ppb		12:48:52
3	Be 313.107†	338833.1	369816.5	233.82 µg/L	233.82 ppb		12:48:32
3	Cd 226.502†	37357.5	40707.8	452.82 µg/L	452.82 ppb		12:48:32
3	Co 228.616†	3986.2	4378.1	432.71 µg/L	432.71 ppb		12:48:52
3	Cr 267.716†	30715.3	33159.7	458.55 µg/L	458.55 ppb		12:48:32
3	Cu 324.752†	47373.4	49239.9	503.13 µg/L	503.13 ppb		12:48:32
3	Mn 257.610†	118644.3	128858.8	456.82 µg/L	456.82 ppb		12:48:32
3	Mo 202.031†	3480.8	3816.5	481.61 µg/L	481.61 ppb		12:48:52
3	Ni 231.604†	5899.9	6393.5	421.00 µg/L	421.00 ppb		12:48:52
3	P 214.914†	1198.4	1272.6	2410.7 µg/L	2410.7 ppb		12:48:52
3	Pb 220.353†	1117.9	1174.3	476.49 µg/L	476.49 ppb		12:48:52
3	S 181.975 Axial†	729.3	741.2	2445.9 µg/L	2445.9 ppb		12:48:52
3	Sb 206.836†	295.9	317.2	501.64 µg/L	501.64 ppb		12:48:52
3	Se 196.026†	888.0	959.4	2230 µg/L	2230 ppb		12:48:52
3	SiO2†	33069.4	35139.6	10049 µg/L	10049 ppb		12:48:32
3	Si 251.611†	63105.8	68186.3	4721.7 µg/L	4721.7 ppb		12:48:32
3	Sn 189.927†	930.9	1034.3	463.93 µg/L	463.93 ppb		12:48:52
3	Ti 334.940†	87245.2	94749.7	481.11 µg/L	481.11 ppb		12:48:32
3	Tl 190.801†	440.9	473.2	442.79 µg/L	442.79 ppb		12:48:52
3	U 367.007†	2627.0	2984.0	549.04 µg/L	549.04 ppb		12:48:32
3	V 292.402†	28805.4	31109.2	486.95 µg/L	486.95 ppb		12:48:32
3	Zn 213.857†	13665.2	14573.2	428.15 µg/L	428.15 ppb		12:48:52

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	369036.1	91.78	%	0.880				0.96%
Sc RADIAL	4565.8	92.8	%	1.38				1.49%
Y 371.029	287639.5	89.934	%	1.0436				1.16%
Sc 357.253	237058.4	92.28	%	0.631				0.68%
Ag 328.068†	22694.3	256.49	µg/L	0.834	256.49	ppb	0.834	0.33%
QC value within limits for Ag 328.068 Recovery = 102.60%								
Al 396.153Radial†	279134.8	478330	µg/L	8826.3	478330	ppb	8826.3	1.85%
QC value within limits for Al 396.153Radial Recovery = 95.67%								
As 188.979†	236.4	491.11	µg/L	4.421	491.11	ppb	4.421	0.90%
QC value within limits for As 188.979 Recovery = 98.22%								
B 249.677†	13016.7	477.01	µg/L	0.765	477.01	ppb	0.765	0.16%
QC value within limits for B 249.677 Recovery = 95.40%								
Ba 233.527†	25473.1	462.41	µg/L	1.728	462.41	ppb	1.728	0.37%
QC value within limits for Ba 233.527 Recovery = 92.48%								
Be 313.107†	370429.6	234.21	µg/L	0.669	234.21	ppb	0.669	0.29%
QC value within limits for Be 313.107 Recovery = 93.68%								
Ca 317.933Radial†	597005.9	479900	µg/L	9584.8	479900	ppb	9584.8	2.00%

QC value within limits for Ca 317.933Radial Recovery = 95.98%

Cd 226.502†	40539.5	450.59 µg/L	2.759	450.59 ppb	2.759	0.61%
QC value within limits for Cd 226.502 Recovery = 90.12%						
Co 228.616†	4364.4	430.85 µg/L	2.429	430.85 ppb	2.429	0.56%
QC value within limits for Co 228.616 Recovery = 86.17%						
Cr 267.716†	33164.0	458.57 µg/L	0.962	458.57 ppb	0.962	0.21%
QC value within limits for Cr 267.716 Recovery = 91.71%						
Cu 324.752†	49226.7	503.26 µg/L	1.705	503.26 ppb	1.705	0.34%
QC value within limits for Cu 324.752 Recovery = 100.65%						
Fe 238.204 Radial†	79512.6	187400 µg/L	4405.9	187400 ppb	4405.9	2.35%
QC value within limits for Fe 238.204 Radial Recovery = 93.70%						
K 766.490 Radial†	5025.9	5123.6 µg/L	3.94	5123.6 ppb	3.94	0.08%
QC value within limits for K 766.490 Radial Recovery = 102.47%						
Mg 279.077 IEC†	47934.5	463730 µg/L	2415.0	463730 ppb	2415.0	0.52%
QC value within limits for Mg 279.077 IEC Recovery = 92.75%						
Mn 257.610†	128898.1	457.00 µg/L	0.169	457.00 ppb	0.169	0.04%
QC value within limits for Mn 257.610 Recovery = 91.40%						
Mo 202.031†	3814.7	481.77 µg/L	3.210	481.77 ppb	3.210	0.67%
QC value within limits for Mo 202.031 Recovery = 96.35%						
Na 589.592 Radial†	14044.6	5306.5 µg/L	81.54	5306.5 ppb	81.54	1.54%
QC value within limits for Na 589.592 Radial Recovery = 106.13%						
Ni 231.604†	6387.1	420.43 µg/L	1.282	420.43 ppb	1.282	0.31%
QC value within limits for Ni 231.604 Recovery = 84.09%						
P 214.914†	1271.6	2406.0 µg/L	15.41	2406.0 ppb	15.41	0.64%
QC value within limits for P 214.914 Recovery = 96.24%						
Pb 220.353†	1164.4	473.33 µg/L	3.089	473.33 ppb	3.089	0.65%
QC value within limits for Pb 220.353 Recovery = 94.67%						
S 181.975 Axial†	742.4	2451.4 µg/L	13.13	2451.4 ppb	13.13	0.54%
QC value within limits for S 181.975 Axial Recovery = 98.06%						
Sb 206.836†	309.1	488.85 µg/L	11.083	488.85 ppb	11.083	2.27%
QC value within limits for Sb 206.836 Recovery = 97.77%						
Se 196.026†	967.1	2250 µg/L	25.6	2250 ppb	25.6	1.14%
QC value within limits for Se 196.026 Recovery = 89.97%						
SiO2†	35208.0	10068 µg/L	26.0	10068 ppb	26.0	0.26%
QC value within limits for SiO2 Recovery = 94.14%						
Si 251.611†	68070.0	4713.7 µg/L	7.19	4713.7 ppb	7.19	0.15%
QC value within limits for Si 251.611 Recovery = 94.27%						
Sn 189.927†	1028.2	461.30 µg/L	2.332	461.30 ppb	2.332	0.51%
QC value within limits for Sn 189.927 Recovery = 92.26%						
Sr 421.552†	46889.2	491.30 µg/L	9.939	491.30 ppb	9.939	2.02%
QC value within limits for Sr 421.552 Recovery = 98.26%						
Ti 334.940†	94816.3	481.65 µg/L	0.691	481.65 ppb	0.691	0.14%
QC value within limits for Ti 334.940 Recovery = 96.33%						
Tl 190.801†	466.6	436.01 µg/L	12.280	436.01 ppb	12.280	2.82%
QC value within limits for Tl 190.801 Recovery = 87.20%						
U 367.007†	2922.8	486.77 µg/L	54.573	486.77 ppb	54.573	11.21%
QC value within limits for U 367.007 Recovery = 97.35%						
V 292.402†	31087.0	486.21 µg/L	0.669	486.21 ppb	0.669	0.14%
QC value within limits for V 292.402 Recovery = 97.24%						
Zn 213.857†	14525.1	425.72 µg/L	2.681	425.72 ppb	2.681	0.63%
QC value within limits for Zn 213.857 Recovery = 85.14%						

All analyte(s) passed QC.

Sequence No.: 11 **Autosampler Location:** 105
Sample ID: LR1 **Date Collected:** 11/2/2016 12:49:00
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4526.3	4526.3	92.0	%			12:49:32
1	Al 396.153Radial†	260013.4	282745.2	484520	µg/L	484520	ppb	12:49:30
1	Ca 317.933Radial†	570514.7	620119.2	498480	µg/L	498480	ppb	12:49:30
1	Fe 238.204 Radial†	187461.0	203743.1	480180	µg/L	480180	ppb	12:49:30
1	K 766.490 Radial†	277312.4	301530.2	314160	µg/L	314160	ppb	12:49:30
1	Mg 279.077 IEC†	43290.3	47072.3	455390	µg/L	455390	ppb	12:49:32
1	Na 589.592 Radial†	1149411.1	1248713.2	471800	µg/L	471800	ppb	12:49:30
1	Sr 421.552†	4339.9	4560.6	17.093	µg/L	17.093	ppb	12:49:32
1	Sc	357555.4	357555.4	88.93	%			12:49:44
1	Y 371.029	279729.7	279729.7	87.461	%			12:49:44
1	Sc 357.253	230944.7	230944.7	89.90	%			12:49:44
1	Ag 328.068†	2119.1	2846.9	31.150	µg/L	31.150	ppb	12:49:44
1	As 188.979†	6.0	2.0	-7.7031	µg/L	-7.7031	ppb	12:50:04
1	B 249.677†	2573.5	2353.5	-14.081	µg/L	-14.081	ppb	12:49:44
1	Ba 233.527†	494.7	603.6	4.6568	µg/L	4.6568	ppb	12:50:04
1	Be 313.107†	-3937.2	-2157.1	-1.3702	µg/L	-1.3702	ppb	12:49:44
1	Cd 226.502†	2130.0	2548.6	-1.0675	µg/L	-1.0675	ppb	12:50:04
1	Co 228.616†	280.5	365.6	-6.4082	µg/L	-6.4082	ppb	12:50:04
1	Cr 267.716†	372.3	251.3	-0.8606	µg/L	-0.8606	ppb	12:50:04
1	Cu 324.752†	-4120.2	-6737.8	-27.823	µg/L	-27.823	ppb	12:49:44
1	Mn 257.610†	2108.1	2488.6	2.9122	µg/L	2.9122	ppb	12:49:44
1	Mo 202.031†	-168.8	-147.5	19.144	µg/L	19.144	ppb	12:50:04
1	Ni 231.604†	222.4	240.2	2.1003	µg/L	2.1003	ppb	12:50:04
1	P 214.914†	163.9	154.8	43.723	µg/L	43.723	ppb	12:50:04
1	Pb 220.353†	27.1	-8.3	9.8312	µg/L	9.8312	ppb	12:50:04
1	S 181.975 Axial†	14306.4	15863.4	51111	µg/L	51111	ppb	12:50:04
1	Sb 206.836†	12.1	9.6	12.230	µg/L	12.230	ppb	12:50:04
1	Se 196.026†	-1.3	-5.4	-35.7	µg/L	-35.7	ppb	12:50:04
1	SiO2†	952.9	323.1	92.392	µg/L	92.392	ppb	12:50:04
1	Si 251.611†	582.0	371.3	25.709	µg/L	25.709	ppb	12:50:04
1	Sn 189.927†	-24.0	-2.3	3.3625	µg/L	3.3625	ppb	12:50:04
1	Ti 334.940†	-1243.3	-1284.0	3.0705	µg/L	3.0705	ppb	12:50:04
1	Tl 190.801†	9.9	5.7	-41.823	µg/L	-41.823	ppb	12:50:04
1	U 367.007†	27602.3	30837.0	13924	µg/L	13924	ppb	12:49:44
1	V 292.402†	1544.7	1577.0	-2.8794	µg/L	-2.8794	ppb	12:50:04
1	Zn 213.857†	2157.9	2148.4	-27.884	µg/L	-27.884	ppb	12:50:04
2	Sc RADIAL	4477.0	4477.0	91.0	%			12:49:36
2	Al 396.153Radial†	258329.3	284008.7	486680	µg/L	486680	ppb	12:49:34
2	Ca 317.933Radial†	565922.1	621905.4	499920	µg/L	499920	ppb	12:49:34
2	Fe 238.204 Radial†	185041.9	203329.8	479210	µg/L	479210	ppb	12:49:34
2	K 766.490 Radial†	277106.8	304625.8	317390	µg/L	317390	ppb	12:49:34
2	Mg 279.077 IEC†	43062.1	47340.0	457980	µg/L	457980	ppb	12:49:36
2	Na 589.592 Radial†	1145839.8	1258555.8	475520	µg/L	475520	ppb	12:49:34
2	Sr 421.552†	4296.0	4564.4	17.174	µg/L	17.174	ppb	12:49:36
2	Sc	359973.4	359973.4	89.53	%			12:50:06
2	Y 371.029	281515.5	281515.5	88.019	%			12:50:06
2	Sc 357.253	232883.6	232883.6	90.66	%			12:50:06
2	Ag 328.068†	2284.8	3010.0	32.999	µg/L	32.999	ppb	12:50:06
2	As 188.979†	2.7	-1.7	-15.368	µg/L	-15.368	ppb	12:50:26
2	B 249.677†	3101.1	2911.7	8.3997	µg/L	8.3997	ppb	12:50:06
2	Ba 233.527†	473.7	576.0	4.1606	µg/L	4.1606	ppb	12:50:26
2	Be 313.107†	-3862.4	-2038.1	-1.2948	µg/L	-1.2948	ppb	12:50:06
2	Cd 226.502†	2112.3	2509.3	-1.4545	µg/L	-1.4545	ppb	12:50:26
2	Co 228.616†	273.5	355.3	-7.3735	µg/L	-7.3735	ppb	12:50:26
2	Cr 267.716†	347.6	220.7	-1.2799	µg/L	-1.2799	ppb	12:50:26
2	Cu 324.752†	-4690.6	-7328.8	-33.833	µg/L	-33.833	ppb	12:50:06
2	Mn 257.610†	2092.1	2451.4	2.6723	µg/L	2.6723	ppb	12:50:06
2	Mo 202.031†	-153.8	-129.3	21.294	µg/L	21.294	ppb	12:50:26
2	Ni 231.604†	226.2	242.3	2.2664	µg/L	2.2664	ppb	12:50:26

2	P 214.914†	167.1	156.8	48.239 µg/L	48.239 ppb		12:50:26
2	Pb 220.353†	56.5	23.8	22.329 µg/L	22.329 ppb		12:50:26
2	S 181.975 Axial†	14203.3	15617.2	50321 µg/L	50321 ppb		12:50:26
2	Sb 206.836†	8.3	5.3	5.4162 µg/L	5.4162 ppb		12:50:26
2	Se 196.026†	-0.3	-4.3	-33.1 µg/L	-33.1 ppb		12:50:26
2	SiO2†	938.2	298.1	85.232 µg/L	85.232 ppb		12:50:26
2	Si 251.611†	592.1	377.0	26.103 µg/L	26.103 ppb		12:50:26
2	Sn 189.927†	-28.8	-7.4	1.1338 µg/L	1.1338 ppb		12:50:26
2	Ti 334.940†	-1208.9	-1234.6	3.3444 µg/L	3.3444 ppb		12:50:26
2	Tl 190.801†	6.0	1.4	-45.970 µg/L	-45.970 ppb		12:50:26
2	U 367.007†	27704.8	30694.4	13852 µg/L	13852 ppb		12:50:06
2	V 292.402†	1301.7	1294.6	-7.3375 µg/L	-7.3375 ppb		12:50:26
2	Zn 213.857†	2196.8	2171.3	-27.149 µg/L	-27.149 ppb		12:50:26
3	Sc RADIAL	4489.5	4489.5	91.2 %			12:49:40
3	Al 396.153Radial†	258239.6	283121.9	485160 µg/L	485160 ppb		12:49:38
3	Ca 317.933Radial†	563867.3	617925.8	496720 µg/L	496720 ppb		12:49:38
3	Fe 238.204 Radial†	186488.6	204350.5	481610 µg/L	481610 ppb		12:49:38
3	K 766.490 Radial†	277942.4	304695.8	317460 µg/L	317460 ppb		12:49:38
3	Mg 279.077 IEC†	42778.1	46897.3	453700 µg/L	453700 ppb		12:49:40
3	Na 589.592 Radial†	1144125.8	1253179.5	473490 µg/L	473490 ppb		12:49:38
3	Sr 421.552†	4232.0	4481.1	16.170 µg/L	16.170 ppb		12:49:40
3	Sc	354291.9	354291.9	88.11 %			12:50:28
3	Y 371.029	277238.8	277238.8	86.682 %			12:50:28
3	Sc 357.253	229847.9	229847.9	89.47 %			12:50:28
3	Ag 328.068†	2227.1	2978.8	32.790 µg/L	32.790 ppb		12:50:28
3	As 188.979†	2.4	-2.0	-16.016 µg/L	-16.016 ppb		12:50:48
3	B 249.677†	3144.4	3005.2	11.589 µg/L	11.589 ppb		12:50:28
3	Ba 233.527†	524.0	639.0	5.2790 µg/L	5.2790 ppb		12:50:48
3	Be 313.107†	-3823.3	-2050.7	-1.3026 µg/L	-1.3026 ppb		12:50:28
3	Cd 226.502†	2113.1	2541.0	-1.2445 µg/L	-1.2445 ppb		12:50:48
3	Co 228.616†	277.3	363.5	-6.7527 µg/L	-6.7527 ppb		12:50:48
3	Cr 267.716†	386.3	269.0	-0.6321 µg/L	-0.6321 ppb		12:50:48
3	Cu 324.752†	-4294.4	-6954.3	-30.004 µg/L	-30.004 ppb		12:50:28
3	Mn 257.610†	2046.3	2430.8	2.7853 µg/L	2.7853 ppb		12:50:28
3	Mo 202.031†	-167.8	-147.2	19.289 µg/L	19.289 ppb		12:50:48
3	Ni 231.604†	231.2	251.2	2.7917 µg/L	2.7917 ppb		12:50:48
3	P 214.914†	161.4	152.9	39.127 µg/L	39.127 ppb		12:50:48
3	Pb 220.353†	26.2	-9.3	9.6539 µg/L	9.6539 ppb		12:50:48
3	S 181.975 Axial†	14274.0	15903.1	51240 µg/L	51240 ppb		12:50:48
3	Sb 206.836†	-0.8	-4.7	-10.475 µg/L	-10.475 ppb		12:50:48
3	Se 196.026†	2.7	-1.0	-25.4 µg/L	-25.4 ppb		12:50:48
3	SiO2†	949.1	324.0	92.647 µg/L	92.647 ppb		12:50:48
3	Si 251.611†	587.0	380.0	26.313 µg/L	26.313 ppb		12:50:48
3	Sn 189.927†	-41.0	-21.4	-5.0972 µg/L	-5.0972 ppb		12:50:48
3	Ti 334.940†	-1179.5	-1219.4	3.3591 µg/L	3.3591 ppb		12:50:48
3	Tl 190.801†	-4.8	-10.5	-57.693 µg/L	-57.693 ppb		12:50:48
3	U 367.007†	27228.0	30565.2	13768 µg/L	13768 ppb		12:50:28
3	V 292.402†	1337.8	1353.9	-6.6162 µg/L	-6.6162 ppb		12:50:48
3	Zn 213.857†	2217.5	2226.5	-25.356 µg/L	-25.356 ppb		12:50:48

Mean Data: LR1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	357273.5	88.86	%	0.709				0.80%
Sc RADIAL	4497.6	91.4	%	0.52				0.57%
Y 371.029	279494.7	87.387	%	0.6716				0.77%
Sc 357.253	231225.4	90.01	%	0.598				0.66%
Ag 328.068†	2945.2	32.313	µg/L	1.0124	32.313	ppb	1.0124	3.13%
Al 396.153Radial†	283291.9	485460	µg/L	1111.6	485460	ppb	1111.6	0.23%
QC value within limits for Al 396.153Radial Recovery = 97.09%								
As 188.979†	-0.6	-13.029	µg/L	4.6239	-13.029	ppb	4.6239	35.49%
B 249.677†	2756.8	1.9692	µg/L	13.99137	1.9692	ppb	13.99137	710.50%
Ba 233.527†	606.2	4.6988	µg/L	0.56039	4.6988	ppb	0.56039	11.93%
Be 313.107†	-2082.0	-1.3225	µg/L	0.04147	-1.3225	ppb	0.04147	3.14%
Ca 317.933Radial†	619983.5	498370	µg/L	1602.3	498370	ppb	1602.3	0.32%
QC value within limits for Ca 317.933Radial Recovery = 99.67%								
Cd 226.502†	2533.0	-1.2555	µg/L	0.19373	-1.2555	ppb	0.19373	15.43%
Co 228.616†	361.4	-6.8448	µg/L	0.48923	-6.8448	ppb	0.48923	7.15%
Cr 267.716†	247.0	-0.9242	µg/L	0.32856	-0.9242	ppb	0.32856	35.55%
Cu 324.752†	-7007.0	-30.553	µg/L	3.0420	-30.553	ppb	3.0420	9.96%

Fe 238.204 Radial†	203807.8	480330 µg/L	1210.0	480330 ppb	1210.0	0.25%
QC value within limits for Fe 238.204 Radial Recovery = 96.07%						
K 766.490 Radial†	303617.2	316340 µg/L	1885.2	316340 ppb	1885.2	0.60%
QC value within limits for K 766.490 Radial Recovery = 105.45%						
Mg 279.077 IEC†	47103.2	455690 µg/L	2156.9	455690 ppb	2156.9	0.47%
QC value within limits for Mg 279.077 IEC Recovery = 91.14%						
Mn 257.610†	2456.9	2.7899 µg/L	0.12002	2.7899 ppb	0.12002	4.30%
Mo 202.031†	-141.4	19.909 µg/L	1.2019	19.909 ppb	1.2019	6.04%
Na 589.592 Radial†	1253482.8	473600 µg/L	1862.1	473600 ppb	1862.1	0.39%
QC value within limits for Na 589.592 Radial Recovery = 94.72%						
Ni 231.604†	244.6	2.3862 µg/L	0.36094	2.3862 ppb	0.36094	15.13%
P 214.914†	154.8	43.696 µg/L	4.5559	43.696 ppb	4.5559	10.43%
Pb 220.353†	2.1	13.938 µg/L	7.2671	13.938 ppb	7.2671	52.14%
S 181.975 Axial†	15794.6	50891 µg/L	497.8	50891 ppb	497.8	0.98%
QC value within limits for S 181.975 Axial Recovery = 101.78%						
Sb 206.836†	3.4	2.3903 µg/L	11.65104	2.3903 ppb	11.65104	487.42%
Se 196.026†	-3.6	-31.4 µg/L	5.34	-31.4 ppb	5.34	16.99%
SiO2†	315.1	90.090 µg/L	4.2094	90.090 ppb	4.2094	4.67%
Si 251.611†	376.1	26.042 µg/L	0.3067	26.042 ppb	0.3067	1.18%
Sn 189.927†	-10.4	-0.2003 µg/L	4.38481	-0.2003 ppb	4.38481	>999.9%
Sr 421.552†	4535.4	16.812 µg/L	0.5577	16.812 ppb	0.5577	3.32%
Ti 334.940†	-1246.0	3.2580 µg/L	0.16253	3.2580 ppb	0.16253	4.99%
Tl 190.801†	-1.1	-48.495 µg/L	8.2305	-48.495 ppb	8.2305	16.97%
U 367.007†	30698.8	13848 µg/L	78.1	13848 ppb	78.1	0.56%
QC value within limits for U 367.007 Recovery = 92.32%						
V 292.402†	1408.5	-5.6110 µg/L	2.39299	-5.6110 ppb	2.39299	42.65%
Zn 213.857†	2182.0	-26.796 µg/L	1.3005	-26.796 ppb	1.3005	4.85%

All analyte(s) passed QC.

Sequence No.: 12 **Autosampler Location: 108**
Sample ID: LR2 **Date Collected: 11/2/2016 12:50:57**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: LR2

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4804.4	4804.4	97.6	%			12:51:50
1	Al 396.153Radial†	212.0	314.5	539.81	µg/L	539.81	ppb	12:51:30
1	Ca 317.933Radial†	117.7	61.3	49.240	µg/L	49.240	ppb	12:51:50
1	Fe 238.204 Radial†	42.9	7.4	17.337	µg/L	17.337	ppb	12:51:50
1	K 766.490 Radial†	-97.7	-22.6	-23.535	µg/L	-23.535	ppb	12:51:30
1	Mg 279.077 IEC†	-16.3	-3.2	-30.750	µg/L	-30.750	ppb	12:51:50
1	Na 589.592 Radial†	984.3	252.8	95.528	µg/L	95.528	ppb	12:51:30
1	Sr 421.552†	901208.5	922792.4	9971.4	µg/L	9971.4	ppb	12:51:28
1	Sc	398391.4	398391.4	99.08	%			12:52:45
1	Y 371.029	318039.6	318039.6	99.439	%			12:52:45
1	Sc 357.253	256522.2	256522.2	99.86	%			12:52:45
1	Ag 328.068†	-502.1	-13.1	6.8018	µg/L	6.8018	ppb	12:52:45
1	As 188.979†	4449.1	4450.7	9415.2	µg/L	9415.2	ppb	12:53:05
1	B 249.677†	123137.2	122803.6	4897.7	µg/L	4897.7	ppb	12:52:45
1	Ba 233.527†	815044.4	816259.3	14891	µg/L	14891	ppb	12:52:43
1	Be 313.107†	4653852.1	4662706.4	2954.8	µg/L	2954.8	ppb	12:52:43
1	Cd 226.502†	858269.1	859671.4	9803.9	µg/L	9803.9	ppb	12:52:43
1	Co 228.616†	98033.5	98226.8	10088	µg/L	10088	ppb	12:52:45
1	Cr 267.716†	1770388.5	1772748.6	24590	µg/L	24590	ppb	12:52:43
1	Cu 324.752†	2086806.0	2087625.0	20836	µg/L	20836	ppb	12:52:43
1	Mn 257.610†	2718671.9	2722689.8	9905.1	µg/L	9905.1	ppb	12:52:43
1	Mo 202.031†	80983.7	81139.4	9938.5	µg/L	9938.5	ppb	12:52:45
1	Ni 231.604†	150129.3	150336.0	10024	µg/L	10024	ppb	12:52:45
1	P 214.914†	7479.2	7462.3	14541	µg/L	14541	ppb	12:52:45
1	Pb 220.353†	68278.7	68337.5	26176	µg/L	26176	ppb	12:52:45
1	S 181.975 Axial†	76.8	26.9	128.84	µg/L	128.84	ppb	12:53:05
1	Sb 206.836†	6241.5	6246.6	9745.5	µg/L	9745.5	ppb	12:53:05
1	Se 196.026†	4065.5	4067.3	9500	µg/L	9500	ppb	12:53:05
1	SiO2†	334343.9	334083.6	95733	µg/L	95733	ppb	12:52:45
1	Si 251.611†	666252.1	666925.4	46183	µg/L	46183	ppb	12:52:43
1	Sn 189.927†	22671.7	22728.4	10101	µg/L	10101	ppb	12:52:45
1	Ti 334.940†	1965279.3	1968178.8	9803.2	µg/L	9803.2	ppb	12:52:43
1	Tl 190.801†	10218.7	10228.1	9957.3	µg/L	9957.3	ppb	12:53:05
1	U 367.007†	-232.7	-99.1	-53.904	µg/L	-53.904	ppb	12:52:45
1	V 292.402†	614957.2	615692.3	9917.6	µg/L	9917.6	ppb	12:52:43
1	Zn 213.857†	411000.3	411334.0	13722	µg/L	13722	ppb	12:52:45
2	Sc RADIAL	4795.6	4795.6	97.5	%			12:52:14
2	Al 396.153Radial†	170.6	272.4	467.79	µg/L	467.79	ppb	12:51:54
2	Ca 317.933Radial†	99.5	42.8	34.378	µg/L	34.378	ppb	12:52:14
2	Fe 238.204 Radial†	41.7	6.2	14.552	µg/L	14.552	ppb	12:52:14
2	K 766.490 Radial†	-303.5	-234.0	-244.02	µg/L	-244.02	ppb	12:51:54
2	Mg 279.077 IEC†	-15.3	-2.1	-20.461	µg/L	-20.461	ppb	12:52:14
2	Na 589.592 Radial†	1051.6	323.8	122.33	µg/L	122.33	ppb	12:51:54
2	Sr 421.552†	895743.8	918879.8	9929.1	µg/L	9929.1	ppb	12:51:52
2	Sc	397402.9	397402.9	98.84	%			12:53:11
2	Y 371.029	315348.9	315348.9	98.598	%			12:53:11
2	Sc 357.253	256550.2	256550.2	99.87	%			12:53:11
2	Ag 328.068†	-526.4	-37.3	6.6065	µg/L	6.6065	ppb	12:53:11
2	As 188.979†	4492.6	4493.8	9506.3	µg/L	9506.3	ppb	12:53:31
2	B 249.677†	121949.0	121600.4	4849.7	µg/L	4849.7	ppb	12:53:11
2	Ba 233.527†	817289.8	818418.2	14931	µg/L	14931	ppb	12:53:09
2	Be 313.107†	4646375.6	4654709.8	2949.9	µg/L	2949.9	ppb	12:53:09
2	Cd 226.502†	866671.1	867990.4	9898.9	µg/L	9898.9	ppb	12:53:09
2	Co 228.616†	98600.3	98783.6	10145	µg/L	10145	ppb	12:53:11
2	Cr 267.716†	1786097.6	1788284.3	24806	µg/L	24806	ppb	12:53:09
2	Cu 324.752†	2111563.3	2112186.2	21081	µg/L	21081	ppb	12:53:09
2	Mn 257.610†	2728227.9	2731960.3	9938.8	µg/L	9938.8	ppb	12:53:09
2	Mo 202.031†	80530.2	80676.4	9881.8	µg/L	9881.8	ppb	12:53:11
2	Ni 231.604†	148683.8	148872.2	9926.1	µg/L	9926.1	ppb	12:53:11

2	P 214.914†	7469.4	7451.7	14518 µg/L	14518 ppb		12:53:11
2	Pb 220.353†	67411.8	67462.0	25841 µg/L	25841 ppb		12:53:11
2	S 181.975 Axial†	68.5	18.5	101.90 µg/L	101.90 ppb		12:53:31
2	Sb 206.836†	6231.3	6235.7	9725.7 µg/L	9725.7 ppb		12:53:31
2	Se 196.026†	4052.7	4054.0	9470 µg/L	9470 ppb		12:53:31
2	SiO2†	334833.4	334537.0	95865 µg/L	95865 ppb		12:53:11
2	Si 251.611†	667618.2	668220.3	46273 µg/L	46273 ppb		12:53:09
2	Sn 189.927†	22534.7	22588.7	10040 µg/L	10040 ppb		12:53:11
2	Ti 334.940†	1983666.1	1986374.4	9893.9 µg/L	9893.9 ppb		12:53:09
2	Tl 190.801†	10190.8	10199.0	9930.0 µg/L	9930.0 ppb		12:53:31
2	U 367.007†	-179.8	-46.1	-25.103 µg/L	-25.103 ppb		12:53:11
2	V 292.402†	624131.8	624811.5	10063 µg/L	10063 ppb		12:53:09
2	Zn 213.857†	408386.7	408671.9	13634 µg/L	13634 ppb		12:53:11
3	Sc RADIAL	4813.1	4813.1	97.8 %			12:52:38
3	Al 396.153Radial†	234.8	337.4	579.07 µg/L	579.07 ppb		12:52:18
3	Ca 317.933Radial†	92.7	35.4	28.453 µg/L	28.453 ppb		12:52:38
3	Fe 238.204 Radial†	41.8	6.2	14.643 µg/L	14.643 ppb		12:52:38
3	K 766.490 Radial†	-65.0	11.0	11.504 µg/L	11.504 ppb		12:52:18
3	Mg 279.077 IEC†	-8.2	5.2	50.402 µg/L	50.402 ppb		12:52:38
3	Na 589.592 Radial†	917.2	182.5	68.941 µg/L	68.941 ppb		12:52:18
3	Sr 421.552†	901500.2	921425.3	9956.6 µg/L	9956.6 ppb		12:52:16
3	Sc	397789.3	397789.3	98.93 %			12:53:36
3	Y 371.029	314450.4	314450.4	98.317 %			12:53:36
3	Sc 357.253	254478.3	254478.3	99.06 %			12:53:36
3	Ag 328.068†	-691.8	-208.6	4.6692 µg/L	4.6692 ppb		12:53:36
3	As 188.979†	4471.3	4508.9	9536.2 µg/L	9536.2 ppb		12:53:56
3	B 249.677†	118786.0	119401.6	4762.0 µg/L	4762.0 ppb		12:53:36
3	Ba 233.527†	801572.4	809215.2	14763 µg/L	14763 ppb		12:53:34
3	Be 313.107†	4589709.7	4635388.2	2937.6 µg/L	2937.6 ppb		12:53:34
3	Cd 226.502†	850825.1	859060.1	9797.1 µg/L	9797.1 ppb		12:53:34
3	Co 228.616†	97616.6	98594.5	10126 µg/L	10126 ppb		12:53:36
3	Cr 267.716†	1752771.6	1769204.3	24541 µg/L	24541 ppb		12:53:34
3	Cu 324.752†	2086299.5	2103898.2	20998 µg/L	20998 ppb		12:53:34
3	Mn 257.610†	2683651.8	2709204.8	9856.0 µg/L	9856.0 ppb		12:53:34
3	Mo 202.031†	78739.8	79525.7	9740.8 µg/L	9740.8 ppb		12:53:36
3	Ni 231.604†	145762.3	147135.2	9810.3 µg/L	9810.3 ppb		12:53:36
3	P 214.914†	7421.0	7463.8	14543 µg/L	14543 ppb		12:53:36
3	Pb 220.353†	66506.0	67097.1	25701 µg/L	25701 ppb		12:53:36
3	S 181.975 Axial†	71.6	22.2	113.13 µg/L	113.13 ppb		12:53:56
3	Sb 206.836†	6199.1	6253.9	9756.2 µg/L	9756.2 ppb		12:53:56
3	Se 196.026†	4057.1	4091.5	9550 µg/L	9550 ppb		12:53:56
3	SiO2†	331819.0	334224.0	95773 µg/L	95773 ppb		12:53:36
3	Si 251.611†	656944.0	662887.9	45903 µg/L	45903 ppb		12:53:34
3	Sn 189.927†	21944.3	22176.5	9857.0 µg/L	9857.0 ppb		12:53:36
3	Ti 334.940†	1954996.1	1973605.2	9830.3 µg/L	9830.3 ppb		12:53:34
3	Tl 190.801†	10149.7	10240.5	9969.6 µg/L	9969.6 ppb		12:53:56
3	U 367.007†	-267.6	-136.1	-74.007 µg/L	-74.007 ppb		12:53:36
3	V 292.402†	609697.5	615328.9	9910.6 µg/L	9910.6 ppb		12:53:34
3	Zn 213.857†	410073.4	413704.1	13803 µg/L	13803 ppb		12:53:36

Mean Data: LR2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	397861.2	98.95	%	0.124				0.13%
Sc RADIAL	4804.4	97.6	%	0.18				0.18%
Y 371.029	315946.3	98.784	%	0.5839				0.59%
Sc 357.253	255850.2	99.60	%	0.463				0.46%
Ag 328.068†	-86.4	6.0259	µg/L	1.17895	6.0259	ppb	1.17895	19.56%
Al 396.153Radial†	308.1	528.89	µg/L	56.441	528.89	ppb	56.441	10.67%
As 188.979†	4484.5	9485.9	µg/L	63.02	9485.9	ppb	63.02	0.66%
QC value within limits for As 188.979 Recovery = 94.86%								
B 249.677†	121268.5	4836.5	µg/L	68.80	4836.5	ppb	68.80	1.42%
QC value within limits for B 249.677 Recovery = 96.73%								
Ba 233.527†	814630.9	14862	µg/L	87.8	14862	ppb	87.8	0.59%
QC value within limits for Ba 233.527 Recovery = 99.08%								
Be 313.107†	4650934.8	2947.4	µg/L	8.84	2947.4	ppb	8.84	0.30%
QC value within limits for Be 313.107 Recovery = 98.25%								
Ca 317.933Radial†	46.5	37.357	µg/L	10.7085	37.357	ppb	10.7085	28.67%
Cd 226.502†	862240.6	9833.3	µg/L	56.93	9833.3	ppb	56.93	0.58%
QC value within limits for Cd 226.502 Recovery = 98.33%								

Co 228.616†	98535.0	10120 µg/L	29.0	10120 ppb	29.0	0.29%
QC value within limits for Co 228.616 Recovery = 101.20%						
Cr 267.716†	1776745.7	24645 µg/L	140.8	24645 ppb	140.8	0.57%
QC value within limits for Cr 267.716 Recovery = 98.58%						
Cu 324.752†	2101236.5	20972 µg/L	124.7	20972 ppb	124.7	0.59%
QC value within limits for Cu 324.752 Recovery = 104.86%						
Fe 238.204 Radial†	6.6	15.511 µg/L	1.5820	15.511 ppb	1.5820	10.20%
K 766.490 Radial†	-81.8	-85.349 µg/L	138.5217	-85.349 ppb	138.5217	162.30%
Mg 279.077 IEC†	-0.0	-0.2696 µg/L	44.18385	-0.2696 ppb	44.18385	>999.9%
Mn 257.610†	2721284.9	9900.0 µg/L	41.63	9900.0 ppb	41.63	0.42%
QC value within limits for Mn 257.610 Recovery = 99.00%						
Mo 202.031†	80447.1	9853.7 µg/L	101.78	9853.7 ppb	101.78	1.03%
QC value within limits for Mo 202.031 Recovery = 98.54%						
Na 589.592 Radial†	253.0	95.600 µg/L	26.6952	95.600 ppb	26.6952	27.92%
Ni 231.604†	148781.1	9920.0 µg/L	106.84	9920.0 ppb	106.84	1.08%
QC value within limits for Ni 231.604 Recovery = 99.20%						
P 214.914†	7459.2	14534 µg/L	13.9	14534 ppb	13.9	0.10%
QC value within limits for P 214.914 Recovery = 96.89%						
Pb 220.353†	67632.2	25906 µg/L	244.2	25906 ppb	244.2	0.94%
QC value within limits for Pb 220.353 Recovery = 103.63%						
S 181.975 Axial†	22.5	114.62 µg/L	13.532	114.62 ppb	13.532	11.81%
Sb 206.836†	6245.4	9742.5 µg/L	15.47	9742.5 ppb	15.47	0.16%
QC value within limits for Sb 206.836 Recovery = 97.42%						
Se 196.026†	4071.0	9510 µg/L	44.4	9510 ppb	44.4	0.47%
QC value within limits for Se 196.026 Recovery = 95.06%						
SiO2†	334281.5	95790 µg/L	67.6	95790 ppb	67.6	0.07%
QC value less than the lower limit for SiO2 Recovery = 89.52%						
Si 251.611†	666011.2	46120 µg/L	192.6	46120 ppb	192.6	0.42%
QC value within limits for Si 251.611 Recovery = 92.24%						
Sn 189.927†	22497.9	9999.4 µg/L	127.15	9999.4 ppb	127.15	1.27%
QC value within limits for Sn 189.927 Recovery = 99.99%						
Sr 421.552†	921032.5	9952.4 µg/L	21.46	9952.4 ppb	21.46	0.22%
QC value within limits for Sr 421.552 Recovery = 99.52%						
Ti 334.940†	1976052.8	9842.5 µg/L	46.53	9842.5 ppb	46.53	0.47%
QC value within limits for Ti 334.940 Recovery = 98.42%						
Tl 190.801†	10222.5	9952.3 µg/L	20.27	9952.3 ppb	20.27	0.20%
QC value within limits for Tl 190.801 Recovery = 99.52%						
U 367.007†	-93.8	-51.005 µg/L	24.5807	-51.005 ppb	24.5807	48.19%
V 292.402†	618610.9	9963.8 µg/L	86.12	9963.8 ppb	86.12	0.86%
QC value within limits for V 292.402 Recovery = 99.64%						
Zn 213.857†	411236.7	13720 µg/L	84.8	13720 ppb	84.8	0.62%
QC value within limits for Zn 213.857 Recovery = 91.46%						

QC Failed. Continue with analysis.

Sequence No.: 13 **Autosampler Location:** 7
Sample ID: CCV **Date Collected:** 11/2/2016 12:54:04
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4829.0	4829.0	98.1	%			12:54:55
1	Al 396.153Radial†	2779.5	2929.5	5020.1	µg/L	5020.1	ppb	12:54:55
1	Ca 317.933Radial†	6285.9	6345.4	5100.8	µg/L	5100.8	ppb	12:54:55
1	Fe 238.204 Radial†	2161.4	2165.7	5104.2	µg/L	5104.2	ppb	12:54:55
1	K 766.490 Radial†	4615.8	4780.6	4982.4	µg/L	4982.4	ppb	12:54:35
1	Mg 279.077 IEC†	506.8	530.0	5127.1	µg/L	5127.1	ppb	12:54:55
1	Na 589.592 Radial†	25877.0	25611.2	9676.7	µg/L	9676.7	ppb	12:54:35
1	Sr 421.552†	44546.5	45232.0	488.42	µg/L	488.42	ppb	12:54:35
1	Sc	407290.5	407290.5	101.3	%			12:55:43
1	Y 371.029	315981.1	315981.1	98.795	%			12:55:43
1	Sc 357.253	257864.2	257864.2	100.4	%			12:55:43
1	Ag 328.068†	42813.9	43141.4	474.29	µg/L	474.29	ppb	12:55:43
1	As 188.979†	239.7	234.1	490.93	µg/L	490.93	ppb	12:56:03
1	B 249.677†	12716.7	12159.5	483.80	µg/L	483.80	ppb	12:55:43
1	Ba 233.527†	26651.0	26603.4	485.42	µg/L	485.42	ppb	12:55:43
1	Be 313.107†	763206.3	762538.5	481.26	µg/L	481.26	ppb	12:55:43
1	Cd 226.502†	41998.4	42018.6	478.88	µg/L	478.88	ppb	12:55:43
1	Co 228.616†	4690.9	4726.7	484.68	µg/L	484.68	ppb	12:56:03
1	Cr 267.716†	35154.9	34859.0	483.72	µg/L	483.72	ppb	12:55:43
1	Cu 324.752†	51052.3	48704.2	486.73	µg/L	486.73	ppb	12:55:43
1	Mn 257.610†	135178.4	134810.2	490.36	µg/L	490.36	ppb	12:55:43
1	Mo 202.031†	3834.9	3860.7	473.28	µg/L	473.28	ppb	12:56:03
1	Ni 231.604†	7141.6	7107.3	473.73	µg/L	473.73	ppb	12:56:03
1	P 214.914†	1236.1	1203.9	2372.1	µg/L	2372.1	ppb	12:56:03
1	Pb 220.353†	1325.7	1282.1	491.43	µg/L	491.43	ppb	12:56:03
1	S 181.975 Axial†	339.2	287.8	927.97	µg/L	927.97	ppb	12:56:03
1	Sb 206.836†	302.4	297.4	471.18	µg/L	471.18	ppb	12:56:03
1	Se 196.026†	212.3	207.6	484	µg/L	484	ppb	12:56:03
1	SiO2†	19055.5	18246.6	5220.2	µg/L	5220.2	ppb	12:55:43
1	Si 251.611†	35615.0	35204.0	2437.8	µg/L	2437.8	ppb	12:55:43
1	Sn 189.927†	1053.3	1073.7	477.30	µg/L	477.30	ppb	12:56:03
1	Ti 334.940†	95438.2	95175.7	474.41	µg/L	474.41	ppb	12:55:43
1	Tl 190.801†	518.0	510.8	496.66	µg/L	496.66	ppb	12:56:03
1	U 367.007†	749.6	880.7	448.20	µg/L	448.20	ppb	12:55:43
1	V 292.402†	30541.8	30284.8	486.56	µg/L	486.56	ppb	12:55:43
1	Zn 213.857†	14396.4	14090.0	468.29	µg/L	468.29	ppb	12:56:03
2	Sc RADIAL	4792.8	4792.8	97.4	%			12:55:17
2	Al 396.153Radial†	2769.3	2940.4	5038.8	µg/L	5038.8	ppb	12:55:17
2	Ca 317.933Radial†	6278.0	6385.7	5133.1	µg/L	5133.1	ppb	12:55:17
2	Fe 238.204 Radial†	2157.5	2178.3	5133.9	µg/L	5133.9	ppb	12:55:17
2	K 766.490 Radial†	4424.3	4619.5	4814.4	µg/L	4814.4	ppb	12:54:57
2	Mg 279.077 IEC†	513.8	541.0	5233.6	µg/L	5233.6	ppb	12:55:17
2	Na 589.592 Radial†	25970.2	25906.0	9788.1	µg/L	9788.1	ppb	12:54:57
2	Sr 421.552†	44401.8	45426.3	490.52	µg/L	490.52	ppb	12:54:57
2	Sc	408490.8	408490.8	101.6	%			12:56:06
2	Y 371.029	314897.2	314897.2	98.456	%			12:56:06
2	Sc 357.253	258968.5	258968.5	100.8	%			12:56:06
2	Ag 328.068†	42680.5	42827.3	470.89	µg/L	470.89	ppb	12:56:06
2	As 188.979†	237.5	230.9	484.24	µg/L	484.24	ppb	12:56:26
2	B 249.677†	12780.4	12168.6	484.16	µg/L	484.16	ppb	12:56:06
2	Ba 233.527†	26610.9	26450.5	482.63	µg/L	482.63	ppb	12:56:06
2	Be 313.107†	762149.6	758248.2	478.56	µg/L	478.56	ppb	12:56:06
2	Cd 226.502†	42410.2	42248.7	481.51	µg/L	481.51	ppb	12:56:06
2	Co 228.616†	4730.6	4746.1	486.66	µg/L	486.66	ppb	12:56:26
2	Cr 267.716†	35267.1	34820.9	483.19	µg/L	483.19	ppb	12:56:06
2	Cu 324.752†	51314.1	48747.1	487.13	µg/L	487.13	ppb	12:56:06
2	Mn 257.610†	135370.5	134426.5	488.96	µg/L	488.96	ppb	12:56:06
2	Mo 202.031†	3839.8	3849.3	471.88	µg/L	471.88	ppb	12:56:26
2	Ni 231.604†	7147.7	7083.0	472.11	µg/L	472.11	ppb	12:56:26

2	P 214.914†	1237.4	1199.9	2364.2 µg/L	2364.2 ppb		12:56:26
2	Pb 220.353†	1323.3	1274.2	488.42 µg/L	488.42 ppb		12:56:26
2	S 181.975 Axial†	341.2	288.3	929.75 µg/L	929.75 ppb		12:56:26
2	Sb 206.836†	300.0	293.8	465.46 µg/L	465.46 ppb		12:56:26
2	Se 196.026†	219.1	213.4	498 µg/L	498 ppb		12:56:26
2	SiO2†	18930.3	18041.4	5161.6 µg/L	5161.6 ppb		12:56:06
2	Si 251.611†	35554.1	34992.3	2423.1 µg/L	2423.1 ppb		12:56:06
2	Sn 189.927†	1047.1	1063.1	472.57 µg/L	472.57 ppb		12:56:26
2	Ti 334.940†	96209.2	95535.1	476.20 µg/L	476.20 ppb		12:56:06
2	Tl 190.801†	507.9	498.6	484.90 µg/L	484.90 ppb		12:56:26
2	U 367.007†	657.3	786.0	396.60 µg/L	396.60 ppb		12:56:06
2	V 292.402†	30590.4	30203.4	485.23 µg/L	485.23 ppb		12:56:06
2	Zn 213.857†	14423.7	14055.9	467.15 µg/L	467.15 ppb		12:56:26
3	Sc RADIAL	4821.8	4821.8	98.0 %			12:55:39
3	Al 396.153Radial†	2798.6	2953.2	5060.6 µg/L	5060.6 ppb		12:55:39
3	Ca 317.933Radial†	6303.8	6373.4	5123.2 µg/L	5123.2 ppb		12:55:39
3	Fe 238.204 Radial†	2153.1	2160.6	5092.0 µg/L	5092.0 ppb		12:55:39
3	K 766.490 Radial†	4389.5	4556.7	4749.0 µg/L	4749.0 ppb		12:55:19
3	Mg 279.077 IEC†	514.0	538.0	5205.1 µg/L	5205.1 ppb		12:55:39
3	Na 589.592 Radial†	25832.6	25605.4	9674.5 µg/L	9674.5 ppb		12:55:19
3	Sr 421.552†	44547.0	45300.6	489.16 µg/L	489.16 ppb		12:55:19
3	Sc	415179.6	415179.6	103.3 %			12:56:28
3	Y 371.029	319969.5	319969.5	100.04 %			12:56:28
3	Sc 357.253	262269.3	262269.3	102.1 %			12:56:28
3	Ag 328.068†	43742.8	43334.9	476.42 µg/L	476.42 ppb		12:56:28
3	As 188.979†	245.4	235.6	494.09 µg/L	494.09 ppb		12:56:48
3	B 249.677†	13047.6	12270.8	488.24 µg/L	488.24 ppb		12:56:28
3	Ba 233.527†	27161.6	26657.7	486.42 µg/L	486.42 ppb		12:56:28
3	Be 313.107†	778595.8	764841.8	482.71 µg/L	482.71 ppb		12:56:28
3	Cd 226.502†	43334.2	42624.2	485.80 µg/L	485.80 ppb		12:56:28
3	Co 228.616†	4743.0	4699.3	481.87 µg/L	481.87 ppb		12:56:48
3	Cr 267.716†	36040.1	35137.8	487.59 µg/L	487.59 ppb		12:56:28
3	Cu 324.752†	52172.1	48946.8	489.15 µg/L	489.15 ppb		12:56:28
3	Mn 257.610†	137834.8	135150.1	491.60 µg/L	491.60 ppb		12:56:28
3	Mo 202.031†	3867.2	3828.2	469.30 µg/L	469.30 ppb		12:56:48
3	Ni 231.604†	7154.2	7000.2	466.59 µg/L	466.59 ppb		12:56:48
3	P 214.914†	1242.4	1189.4	2343.3 µg/L	2343.3 ppb		12:56:48
3	Pb 220.353†	1330.9	1265.1	484.88 µg/L	484.88 ppb		12:56:48
3	S 181.975 Axial†	348.0	290.8	937.68 µg/L	937.68 ppb		12:56:48
3	Sb 206.836†	308.3	298.2	472.35 µg/L	472.35 ppb		12:56:48
3	Se 196.026†	219.1	210.6	492 µg/L	492 ppb		12:56:48
3	SiO2†	19314.0	18181.0	5201.5 µg/L	5201.5 ppb		12:56:28
3	Si 251.611†	36198.6	35179.7	2436.1 µg/L	2436.1 ppb		12:56:28
3	Sn 189.927†	1064.4	1067.0	474.30 µg/L	474.30 ppb		12:56:48
3	Ti 334.940†	97437.0	95536.5	476.21 µg/L	476.21 ppb		12:56:28
3	Tl 190.801†	523.2	507.3	493.25 µg/L	493.25 ppb		12:56:48
3	U 367.007†	758.0	876.4	445.96 µg/L	445.96 ppb		12:56:28
3	V 292.402†	31324.1	30540.1	490.62 µg/L	490.62 ppb		12:56:28
3	Zn 213.857†	14473.2	13924.3	462.77 µg/L	462.77 ppb		12:56:48

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	410320.3	102.0	%	1.06				1.04%
Sc RADIAL	4814.5	97.8	%	0.39				0.40%
Y 371.029	316949.3	99.098	%	0.8352				0.84%
Sc 357.253	259700.7	101.1	%	0.89				0.88%
Ag 328.068†	43101.2	473.87	µg/L	2.789	473.87	ppb	2.789	0.59%
QC value within limits for Ag 328.068 Recovery = 94.77%								
Al 396.153Radial†	2941.0	5039.8	µg/L	20.30	5039.8	ppb	20.30	0.40%
QC value within limits for Al 396.153Radial Recovery = 100.80%								
As 188.979†	233.5	489.76	µg/L	5.029	489.76	ppb	5.029	1.03%
QC value within limits for As 188.979 Recovery = 97.95%								
B 249.677†	12199.6	485.40	µg/L	2.467	485.40	ppb	2.467	0.51%
QC value within limits for B 249.677 Recovery = 97.08%								
Ba 233.527†	26570.5	484.83	µg/L	1.961	484.83	ppb	1.961	0.40%
QC value within limits for Ba 233.527 Recovery = 96.97%								
Be 313.107†	761876.2	480.84	µg/L	2.108	480.84	ppb	2.108	0.44%
QC value within limits for Be 313.107 Recovery = 96.17%								
Ca 317.933Radial†	6368.2	5119.0	µg/L	16.58	5119.0	ppb	16.58	0.32%

```
   QC value within limits for Ca 317.933Radial  Recovery = 102.38%
Cd 226.502†            42297.2      482.06 µg/L          3.492      482.06 ppb          3.492   0.72%
   QC value within limits for Cd 226.502  Recovery = 96.41%
Co 228.616†             4724.1      484.40 µg/L          2.407      484.40 ppb          2.407   0.50%
   QC value within limits for Co 228.616  Recovery = 96.88%
Cr 267.716†            34939.2      484.83 µg/L          2.401      484.83 ppb          2.401   0.50%
   QC value within limits for Cr 267.716  Recovery = 96.97%
Cu 324.752†            48799.4      487.67 µg/L          1.298      487.67 ppb          1.298   0.27%
   QC value within limits for Cu 324.752  Recovery = 97.53%
Fe 238.204 Radial†      2168.2      5110.1 µg/L          21.54      5110.1 ppb          21.54   0.42%
   QC value within limits for Fe 238.204 Radial  Recovery = 102.20%
K 766.490 Radial†       4652.3      4848.6 µg/L         120.41      4848.6 ppb         120.41   2.48%
   QC value within limits for K 766.490 Radial  Recovery = 96.97%
Mg 279.077 IEC†          536.3      5188.6 µg/L          55.13      5188.6 ppb          55.13   1.06%
   QC value within limits for Mg 279.077 IEC  Recovery = 103.77%
Mn 257.610†           134795.6      490.31 µg/L          1.317      490.31 ppb          1.317   0.27%
   QC value within limits for Mn 257.610  Recovery = 98.06%
Mo 202.031†             3846.0      471.48 µg/L          2.020      471.48 ppb          2.020   0.43%
   QC value within limits for Mo 202.031  Recovery = 94.30%
Na 589.592 Radial†     25707.6      9713.1 µg/L          64.95      9713.1 ppb          64.95   0.67%
   QC value within limits for Na 589.592 Radial  Recovery = 97.13%
Ni 231.604†             7063.5      470.81 µg/L          3.745      470.81 ppb          3.745   0.80%
   QC value within limits for Ni 231.604  Recovery = 94.16%
P 214.914†              1197.7      2359.9 µg/L          14.88      2359.9 ppb          14.88   0.63%
   QC value within limits for P 214.914  Recovery = 94.40%
Pb 220.353†             1273.8      488.24 µg/L          3.276      488.24 ppb          3.276   0.67%
   QC value within limits for Pb 220.353  Recovery = 97.65%
S 181.975 Axial†         289.0      931.80 µg/L          5.168      931.80 ppb          5.168   0.55%
   QC value within limits for S 181.975 Axial  Recovery = 93.18%
Sb 206.836†              296.5      469.66 µg/L          3.688      469.66 ppb          3.688   0.79%
   QC value within limits for Sb 206.836  Recovery = 93.93%
Se 196.026†              210.5         491 µg/L            6.8         491 ppb            6.8   1.38%
   QC value within limits for Se 196.026  Recovery = 98.25%
SiO2†                  18156.3      5194.4 µg/L          29.96      5194.4 ppb          29.96   0.58%
   QC value within limits for SiO2  Recovery = 97.14%
Si 251.611†            35125.4      2432.3 µg/L           8.02      2432.3 ppb           8.02   0.33%
   QC value within limits for Si 251.611  Recovery = 97.29%
Sn 189.927†             1067.9      474.72 µg/L          2.392      474.72 ppb          2.392   0.50%
   QC value within limits for Sn 189.927  Recovery = 94.94%
Sr 421.552†            45319.6      489.37 µg/L          1.063      489.37 ppb          1.063   0.22%
   QC value within limits for Sr 421.552  Recovery = 97.87%
Ti 334.940†            95415.8      475.61 µg/L          1.036      475.61 ppb          1.036   0.22%
   QC value within limits for Ti 334.940  Recovery = 95.12%
Tl 190.801†              505.6      491.60 µg/L          6.047      491.60 ppb          6.047   1.23%
   QC value within limits for Tl 190.801  Recovery = 98.32%
U 367.007†               847.7      430.25 µg/L         29.168      430.25 ppb         29.168   6.78%
   QC value less than the lower limit for U 367.007  Recovery = 86.05%
V 292.402†             30342.8      487.47 µg/L          2.808      487.47 ppb          2.808   0.58%
   QC value within limits for V 292.402  Recovery = 97.49%
Zn 213.857†            14023.4      466.07 µg/L          2.912      466.07 ppb          2.912   0.62%
   QC value within limits for Zn 213.857  Recovery = 93.21%
QC Failed.  Continue with analysis.
```

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/2/2016 12:56:57**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4944.0	4944.0	100	%			12:57:26
1	Al 396.153Radial†	-77.9	19.8	33.965	µg/L	33.965	ppb	12:57:26
1	Ca 317.933Radial†	65.7	6.0	4.8408	µg/L	4.8408	ppb	12:57:46
1	Fe 238.204 Radial†	37.0	0.3	0.6689	µg/L	0.6689	ppb	12:57:46
1	K 766.490 Radial†	29.1	106.5	111.03	µg/L	111.03	ppb	12:57:26
1	Mg 279.077 IEC†	-10.9	2.7	26.129	µg/L	26.129	ppb	12:57:46
1	Na 589.592 Radial†	736.1	-22.6	-8.5444	µg/L	-8.5444	ppb	12:57:26
1	Sr 421.552†	197.2	39.2	0.4234	µg/L	0.4234	ppb	12:57:26
1	Sc	394854.8	394854.8	98.20	%			12:58:34
1	Y 371.029	315228.5	315228.5	98.560	%			12:58:34
1	Sc 357.253	251072.1	251072.1	97.74	%			12:58:34
1	Ag 328.068†	-356.6	124.9	1.4313	µg/L	1.4313	ppb	12:58:34
1	As 188.979†	6.6	2.0	4.1464	µg/L	4.1464	ppb	12:58:54
1	B 249.677†	553.8	57.5	2.2931	µg/L	2.2931	ppb	12:58:34
1	Ba 233.527†	-53.0	-0.9	-0.0130	µg/L	-0.0130	ppb	12:58:54
1	Be 313.107†	-2181.3	-9.4	-0.0054	µg/L	-0.0054	ppb	12:58:34
1	Cd 226.502†	-121.7	54.8	0.6250	µg/L	0.6250	ppb	12:58:54
1	Co 228.616†	-47.1	5.4	0.5556	µg/L	0.5556	ppb	12:58:54
1	Cr 267.716†	260.2	103.5	1.4366	µg/L	1.4366	ppb	12:58:34
1	Cu 324.752†	2144.0	38.9	0.3511	µg/L	0.3511	ppb	12:58:34
1	Mn 257.610†	-121.7	19.1	0.0687	µg/L	0.0687	ppb	12:58:54
1	Mo 202.031†	-34.3	5.2	0.6380	µg/L	0.6380	ppb	12:58:54
1	Ni 231.604†	8.2	1.2	0.0785	µg/L	0.0785	ppb	12:58:54
1	P 214.914†	18.0	-9.1	-17.961	µg/L	-17.961	ppb	12:58:54
1	Pb 220.353†	32.3	-5.4	-2.0221	µg/L	-2.0221	ppb	12:58:54
1	S 181.975 Axial†	50.8	1.9	6.0218	µg/L	6.0218	ppb	12:58:54
1	Sb 206.836†	2.4	-1.3	-2.1431	µg/L	-2.1431	ppb	12:58:54
1	Se 196.026†	3.3	-0.6	-1.49	µg/L	-1.49	ppb	12:58:54
1	SiO2†	744.1	24.6	7.0379	µg/L	7.0379	ppb	12:58:34
1	Si 251.611†	299.2	30.0	2.0787	µg/L	2.0787	ppb	12:58:54
1	Sn 189.927†	-11.9	12.3	5.4307	µg/L	5.4307	ppb	12:58:54
1	Ti 334.940†	-40.1	57.8	0.2880	µg/L	0.2880	ppb	12:58:34
1	Tl 190.801†	5.4	0.3	0.3383	µg/L	0.3383	ppb	12:58:54
1	U 367.007†	-227.5	-98.8	-53.649	µg/L	-53.649	ppb	12:58:34
1	V 292.402†	295.9	161.5	2.5576	µg/L	2.5576	ppb	12:58:34
1	Zn 213.857†	275.8	30.2	1.0108	µg/L	1.0108	ppb	12:58:54
2	Sc RADIAL	4949.9	4949.9	101	%			12:57:48
2	Al 396.153Radial†	-104.2	-6.2	-10.696	µg/L	-10.696	ppb	12:57:48
2	Ca 317.933Radial†	62.7	3.0	2.4078	µg/L	2.4078	ppb	12:58:08
2	Fe 238.204 Radial†	39.9	3.1	7.2688	µg/L	7.2688	ppb	12:58:08
2	K 766.490 Radial†	-8.8	68.7	71.689	µg/L	71.689	ppb	12:57:48
2	Mg 279.077 IEC†	-10.6	3.0	28.964	µg/L	28.964	ppb	12:58:08
2	Na 589.592 Radial†	665.2	-94.0	-35.526	µg/L	-35.526	ppb	12:57:48
2	Sr 421.552†	182.8	24.7	0.2660	µg/L	0.2660	ppb	12:57:48
2	Sc	396214.6	396214.6	98.54	%			12:58:56
2	Y 371.029	311797.1	311797.1	97.487	%			12:58:56
2	Sc 357.253	253360.3	253360.3	98.63	%			12:58:56
2	Ag 328.068†	-409.8	74.2	0.8130	µg/L	0.8130	ppb	12:58:56
2	As 188.979†	10.6	6.0	12.555	µg/L	12.555	ppb	12:59:16
2	B 249.677†	559.1	57.8	2.3039	µg/L	2.3039	ppb	12:58:56
2	Ba 233.527†	-58.7	-6.1	-0.1103	µg/L	-0.1103	ppb	12:59:16
2	Be 313.107†	-1978.9	215.9	0.1378	µg/L	0.1378	ppb	12:58:56
2	Cd 226.502†	-136.8	40.5	0.4611	µg/L	0.4611	ppb	12:59:16
2	Co 228.616†	-55.8	-3.0	-0.3040	µg/L	-0.3040	ppb	12:59:16
2	Cr 267.716†	180.6	20.4	0.2835	µg/L	0.2835	ppb	12:58:56
2	Cu 324.752†	2067.8	-58.2	-0.5780	µg/L	-0.5780	ppb	12:58:56
2	Mn 257.610†	-115.7	26.4	0.0951	µg/L	0.0951	ppb	12:59:16
2	Mo 202.031†	-34.9	4.9	0.6014	µg/L	0.6014	ppb	12:59:16
2	Ni 231.604†	23.2	16.3	1.0839	µg/L	1.0839	ppb	12:59:16

2	P 214.914†	15.3	-12.0	-23.805 µg/L	-23.805 ppb		12:59:16
2	Pb 220.353†	38.0	-0.0	-0.0086 µg/L	-0.0086 ppb		12:59:16
2	S 181.975 Axial†	52.6	3.2	10.442 µg/L	10.442 ppb		12:59:16
2	Sb 206.836†	11.5	7.8	12.356 µg/L	12.356 ppb		12:59:16
2	Se 196.026†	2.7	-1.3	-2.97 µg/L	-2.97 ppb		12:59:16
2	SiO2†	755.4	29.1	8.3211 µg/L	8.3211 ppb		12:58:56
2	Si 251.611†	282.4	10.2	0.7097 µg/L	0.7097 ppb		12:59:16
2	Sn 189.927†	-21.1	3.0	1.3472 µg/L	1.3472 ppb		12:59:16
2	Ti 334.940†	102.1	202.5	1.0093 µg/L	1.0093 ppb		12:58:56
2	Tl 190.801†	7.1	2.0	1.9044 µg/L	1.9044 ppb		12:59:16
2	U 367.007†	-126.0	6.3	3.3571 µg/L	3.3571 ppb		12:58:56
2	V 292.402†	231.1	93.0	1.4891 µg/L	1.4891 ppb		12:58:56
2	Zn 213.857†	264.1	15.8	0.5207 µg/L	0.5207 ppb		12:59:16
3	Sc RADIAL	4867.6	4867.6	98.9 %			12:58:10
3	Al 396.153Radial†	-75.7	20.8	35.681 µg/L	35.681 ppb		12:58:10
3	Ca 317.933Radial†	59.2	0.6	0.4487 µg/L	0.4487 ppb		12:58:30
3	Fe 238.204 Radial†	39.8	3.6	8.5755 µg/L	8.5755 ppb		12:58:30
3	K 766.490 Radial†	-208.4	-133.2	-138.88 µg/L	-138.88 ppb		12:58:10
3	Mg 279.077 IEC†	-16.6	-3.2	-31.240 µg/L	-31.240 ppb		12:58:30
3	Na 589.592 Radial†	773.0	26.2	9.8952 µg/L	9.8952 ppb		12:58:10
3	Sr 421.552†	166.7	11.5	0.1235 µg/L	0.1235 ppb		12:58:10
3	Sc	400914.7	400914.7	99.71 %			12:59:18
3	Y 371.029	309858.6	309858.6	96.881 %			12:59:18
3	Sc 357.253	255245.3	255245.3	99.36 %			12:59:18
3	Ag 328.068†	-374.6	112.7	1.2821 µg/L	1.2821 ppb		12:59:18
3	As 188.979†	9.3	4.7	9.7428 µg/L	9.7428 ppb		12:59:38
3	B 249.677†	602.5	97.3	3.8770 µg/L	3.8770 ppb		12:59:18
3	Ba 233.527†	-57.8	-4.8	-0.0872 µg/L	-0.0872 ppb		12:59:38
3	Be 313.107†	-2260.7	-52.8	-0.0322 µg/L	-0.0322 ppb		12:59:18
3	Cd 226.502†	-133.8	44.6	0.5081 µg/L	0.5081 ppb		12:59:38
3	Co 228.616†	-63.1	-9.9	-1.0129 µg/L	-1.0129 ppb		12:59:38
3	Cr 267.716†	93.2	-69.0	-0.9566 µg/L	-0.9566 ppb		12:59:18
3	Cu 324.752†	2065.5	-76.0	-0.7856 µg/L	-0.7856 ppb		12:59:18
3	Mn 257.610†	-133.8	9.1	0.0341 µg/L	0.0341 ppb		12:59:38
3	Mo 202.031†	-42.2	-2.2	-0.2669 µg/L	-0.2669 ppb		12:59:38
3	Ni 231.604†	19.3	12.2	0.8129 µg/L	0.8129 ppb		12:59:38
3	P 214.914†	20.9	-6.5	-12.857 µg/L	-12.857 ppb		12:59:38
3	Pb 220.353†	34.5	-3.8	-1.4106 µg/L	-1.4106 ppb		12:59:38
3	S 181.975 Axial†	46.3	-3.5	-11.358 µg/L	-11.358 ppb		12:59:38
3	Sb 206.836†	16.6	12.9	20.474 µg/L	20.474 ppb		12:59:38
3	Se 196.026†	8.5	4.6	10.6 µg/L	10.6 ppb		12:59:38
3	SiO2†	732.8	0.7	0.2024 µg/L	0.2024 ppb		12:59:18
3	Si 251.611†	310.1	35.9	2.4874 µg/L	2.4874 ppb		12:59:38
3	Sn 189.927†	-18.7	5.6	2.4919 µg/L	2.4919 ppb		12:59:38
3	Ti 334.940†	29.6	128.7	0.6418 µg/L	0.6418 ppb		12:59:18
3	Tl 190.801†	10.3	5.1	4.9484 µg/L	4.9484 ppb		12:59:38
3	U 367.007†	-206.4	-73.8	-40.094 µg/L	-40.094 ppb		12:59:18
3	V 292.402†	163.0	22.8	0.3412 µg/L	0.3412 ppb		12:59:18
3	Zn 213.857†	272.5	22.4	0.7465 µg/L	0.7465 ppb		12:59:38

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc	397328.0	98.82	%	0.791				0.80%
Sc RADIAL	4920.5	100	%	0.9				0.93%
Y 371.029	312294.7	97.643	%	0.8502				0.87%
Sc 357.253	253225.9	98.57	%	0.814				0.83%
Ag 328.068†	103.9	1.1755	µg/L	0.32265	1.1755	ppb	0.32265	27.45%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	11.5	19.650	µg/L	26.2943	19.650	ppb	26.2943	133.81%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	4.2	8.8148	µg/L	4.28042	8.8148	ppb	4.28042	48.56%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	70.9	2.8247	µg/L	0.91137	2.8247	ppb	0.91137	32.26%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-3.9	-0.0702	µg/L	0.05079	-0.0702	ppb	0.05079	72.40%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	51.2	0.0334	µg/L	0.09140	0.0334	ppb	0.09140	273.71%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	3.2	2.5658	µg/L	2.20031	2.5658	ppb	2.20031	85.76%

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   QC value within limits for Ca 317.933Radial  Recovery = Not calculated
Cd 226.502†               46.6      0.5314 µg/L       0.08441      0.5314 ppb        0.08441  15.88%
   QC value within limits for Cd 226.502  Recovery = Not calculated
Co 228.616†               -2.5     -0.2538 µg/L       0.78542     -0.2538 ppb        0.78542 309.51%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†               18.3      0.2545 µg/L       1.19684      0.2545 ppb        1.19684 470.29%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -31.7     -0.3375 µg/L       0.60529     -0.3375 ppb        0.60529 179.36%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†         2.3      5.5044 µg/L       4.23833      5.5044 ppb        4.23833  77.00%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†         14.0      14.613 µg/L      134.3763      14.613 ppb       134.3763 919.59%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            0.8      7.9509 µg/L      33.97017      7.9509 ppb       33.97017 427.25%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               18.2      0.0660 µg/L       0.03056      0.0660 ppb        0.03056  46.31%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†                2.6      0.3242 µg/L       0.51218      0.3242 ppb        0.51218 158.00%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -30.2     -11.392 µg/L       22.8440     -11.392 ppb        22.8440 200.53%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†                9.9      0.6584 µg/L       0.52022      0.6584 ppb        0.52022  79.01%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -9.2     -18.208 µg/L        5.4783     -18.208 ppb         5.4783  30.09%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†               -3.1     -1.1471 µg/L       1.03226     -1.1471 ppb        1.03226  89.99%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†           0.5      1.7018 µg/L      11.52424      1.7018 ppb       11.52424 677.17%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†                6.5      10.229 µg/L       11.4576      10.229 ppb        11.4576 112.01%
   QC value greater than the upper limit for Sb 206.836  Recovery = Not calculated
Se 196.026†                0.9        2.06 µg/L         7.464        2.06 ppb          7.464 363.11%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     18.1      5.1871 µg/L       4.36435      5.1871 ppb        4.36435  84.14%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†               25.4      1.7586 µg/L       0.93107      1.7586 ppb        0.93107  52.94%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                7.0      3.0900 µg/L       2.10641      3.0900 ppb        2.10641  68.17%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               25.1      0.2710 µg/L       0.15000      0.2710 ppb        0.15000  55.36%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              129.7      0.6464 µg/L       0.36068      0.6464 ppb        0.36068  55.80%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†                2.5      2.3971 µg/L       2.34416      2.3971 ppb        2.34416  97.79%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -55.4     -30.129 µg/L       29.7810     -30.129 ppb        29.7810  98.85%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                92.4      1.4626 µg/L       1.10842      1.4626 ppb        1.10842  75.78%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†               22.8      0.7594 µg/L       0.24530      0.7594 ppb        0.24530  32.30%
   QC value within limits for Zn 213.857  Recovery = Not calculated
QC Failed.  Continue with analysis.
```

Sequence No.: 41 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 11/2/2016 15:03:26**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4621.4	4621.4	93.9	%			15:03:59
1	Al 396.153Radial†	261663.2	278684.1	477560	µg/L	477560	ppb	15:03:57
1	Ca 317.933Radial†	556836.4	592791.5	476510	µg/L	476510	ppb	15:03:57
1	Fe 238.204 Radial†	76171.7	81061.7	191050	µg/L	191050	ppb	15:03:57
1	K 766.490 Radial†	-65.0	8.2	-111.65	µg/L	-111.65	ppb	15:03:59
1	Mg 279.077 IEC†	43448.9	46272.6	447650	µg/L	447650	ppb	15:03:59
1	Na 589.592 Radial†	816.1	113.6	42.929	µg/L	42.929	ppb	15:03:59
1	Sr 421.552†	1545.7	1488.6	0.5409	µg/L	0.5409	ppb	15:03:59
1	Sc	372979.2	372979.2	92.76	%			15:04:10
1	Y 371.029	289992.5	289992.5	90.670	%			15:04:10
1	Sc 357.253	239027.4	239027.4	93.05	%			15:04:10
1	Ag 328.068†	-734.2	-299.3	3.8924	µg/L	3.8924	ppb	15:04:10
1	As 188.979†	9.7	5.7	7.1326	µg/L	7.1326	ppb	15:04:30
1	B 249.677†	1557.8	1165.1	3.5186	µg/L	3.5186	ppb	15:04:10
1	Ba 233.527†	256.3	328.9	3.4753	µg/L	3.4753	ppb	15:04:30
1	Be 313.107†	-2169.2	-108.9	-0.0884	µg/L	-0.0884	ppb	15:04:10
1	Cd 226.502†	801.3	1040.4	-0.1245	µg/L	-0.1245	ppb	15:04:30
1	Co 228.616†	91.6	152.1	-1.8686	µg/L	-1.8686	ppb	15:04:30
1	Cr 267.716†	370.9	235.9	1.5460	µg/L	1.5460	ppb	15:04:30
1	Cu 324.752†	-480.4	-2671.0	-14.785	µg/L	-14.785	ppb	15:04:30
1	Mn 257.610†	2784.1	3135.8	0.0831	µg/L	0.0831	ppb	15:04:10
1	Mo 202.031†	-135.3	-105.1	1.9362	µg/L	1.9362	ppb	15:04:30
1	Ni 231.604†	130.7	133.3	3.3499	µg/L	3.3499	ppb	15:04:30
1	P 214.914†	70.9	48.7	-8.1075	µg/L	-8.1075	ppb	15:04:30
1	Pb 220.353†	15.6	-21.7	18.816	µg/L	18.816	ppb	15:04:30
1	S 181.975 Axial†	24.1	-24.2	-10.925	µg/L	-10.925	ppb	15:04:30
1	Sb 206.836†	1.5	-2.2	-4.7853	µg/L	-4.7853	ppb	15:04:30
1	Se 196.026†	4.6	1.0	-6.82	µg/L	-6.82	ppb	15:04:30
1	SiO2†	894.1	224.2	64.112	µg/L	64.112	ppb	15:04:30
1	Si 251.611†	679.2	453.8	31.428	µg/L	31.428	ppb	15:04:30
1	Sn 189.927†	-25.3	-2.8	2.9576	µg/L	2.9576	ppb	15:04:30
1	Ti 334.940†	-2217.5	-2284.3	-2.3337	µg/L	-2.3337	ppb	15:04:30
1	Tl 190.801†	22.0	18.4	-1.1644	µg/L	-1.1644	ppb	15:04:30
1	U 367.007†	1911.2	2188.0	66.371	µg/L	66.371	ppb	15:04:10
1	V 292.402†	1046.7	983.7	1.9184	µg/L	1.9184	ppb	15:04:30
1	Zn 213.857†	1277.3	1120.8	-20.416	µg/L	-20.416	ppb	15:04:30
2	Sc RADIAL	4640.3	4640.3	94.3	%			15:04:03
2	Al 396.153Radial†	262655.4	278606.4	477430	µg/L	477430	ppb	15:04:01
2	Ca 317.933Radial†	558066.8	591691.9	475630	µg/L	475630	ppb	15:04:01
2	Fe 238.204 Radial†	76369.2	80942.2	190760	µg/L	190760	ppb	15:04:01
2	K 766.490 Radial†	28.7	107.9	-7.4951	µg/L	-7.4951	ppb	15:04:03
2	Mg 279.077 IEC†	44070.2	46743.8	452210	µg/L	452210	ppb	15:04:03
2	Na 589.592 Radial†	741.2	30.7	11.593	µg/L	11.593	ppb	15:04:03
2	Sr 421.552†	1563.8	1501.2	0.7018	µg/L	0.7018	ppb	15:04:03
2	Sc	371559.4	371559.4	92.41	%			15:04:32
2	Y 371.029	292785.8	292785.8	91.543	%			15:04:32
2	Sc 357.253	238866.9	238866.9	92.98	%			15:04:32
2	Ag 328.068†	-802.9	-373.7	3.1020	µg/L	3.1020	ppb	15:04:32
2	As 188.979†	12.4	8.6	13.297	µg/L	13.297	ppb	15:04:53
2	B 249.677†	1500.4	1104.5	1.1663	µg/L	1.1663	ppb	15:04:32
2	Ba 233.527†	249.6	321.8	3.3490	µg/L	3.3490	ppb	15:04:53
2	Be 313.107†	-2064.3	2.4	-0.0184	µg/L	-0.0184	ppb	15:04:32
2	Cd 226.502†	826.6	1068.2	0.2106	µg/L	0.2106	ppb	15:04:53
2	Co 228.616†	88.3	148.6	-2.1978	µg/L	-2.1978	ppb	15:04:53
2	Cr 267.716†	322.4	184.0	0.8286	µg/L	0.8286	ppb	15:04:53
2	Cu 324.752†	-335.0	-2515.0	-13.271	µg/L	-13.271	ppb	15:04:53
2	Mn 257.610†	2871.1	3231.4	0.2736	µg/L	0.2736	ppb	15:04:32
2	Mo 202.031†	-123.7	-92.7	3.4228	µg/L	3.4228	ppb	15:04:53
2	Ni 231.604†	121.9	123.9	2.7310	µg/L	2.7310	ppb	15:04:53

2	P 214.914†	73.8	51.9	-1.6909 µg/L	-1.6909 ppb		15:04:53
2	Pb 220.353†	22.9	-13.8	21.854 µg/L	21.854 ppb		15:04:53
2	S 181.975 Axial†	29.3	-18.6	6.8222 µg/L	6.8222 ppb		15:04:53
2	Sb 206.836†	-2.9	-7.0	-12.345 µg/L	-12.345 ppb		15:04:53
2	Se 196.026†	10.5	7.4	8.00 µg/L	8.00 ppb		15:04:53
2	SiO2†	903.7	235.1	67.219 µg/L	67.219 ppb		15:04:53
2	Si 251.611†	683.5	458.9	31.778 µg/L	31.778 ppb		15:04:53
2	Sn 189.927†	-36.0	-14.3	-2.1723 µg/L	-2.1723 ppb		15:04:53
2	Ti 334.940†	-2229.2	-2298.4	-2.4207 µg/L	-2.4207 ppb		15:04:53
2	Tl 190.801†	16.3	12.4	-6.9591 µg/L	-6.9591 ppb		15:04:53
2	U 367.007†	1842.8	2115.8	28.844 µg/L	28.844 ppb		15:04:32
2	V 292.402†	996.5	930.4	1.0786 µg/L	1.0786 ppb		15:04:53
2	Zn 213.857†	1298.1	1144.1	-19.905 µg/L	-19.905 ppb		15:04:53
3	Sc RADIAL	4592.6	4592.6	93.3 %			15:04:07
3	Al 396.153Radial†	257858.9	276357.3	473570 µg/L	473570 ppb		15:04:05
3	Ca 317.933Radial†	548097.5	587150.9	471980 µg/L	471980 ppb		15:04:05
3	Fe 238.204 Radial†	74927.6	80238.0	189100 µg/L	189100 ppb		15:04:05
3	K 766.490 Radial†	-168.9	-103.5	-226.98 µg/L	-226.98 ppb		15:04:07
3	Mg 279.077 IEC†	43400.4	46511.0	449960 µg/L	449960 ppb		15:04:07
3	Na 589.592 Radial†	837.0	141.5	53.467 µg/L	53.467 ppb		15:04:07
3	Sr 421.552†	1567.6	1522.4	1.0613 µg/L	1.0613 ppb		15:04:07
3	Sc	367090.0	367090.0	91.30 %			15:04:55
3	Y 371.029	289149.3	289149.3	90.406 %			15:04:55
3	Sc 357.253	235694.0	235694.0	91.75 %			15:04:55
3	Ag 328.068†	-696.0	-268.9	4.1609 µg/L	4.1609 ppb		15:04:55
3	As 188.979†	10.1	6.3	8.5060 µg/L	8.5060 ppb		15:05:15
3	B 249.677†	1668.8	1309.7	9.7240 µg/L	9.7240 ppb		15:04:55
3	Ba 233.527†	229.0	303.0	3.0291 µg/L	3.0291 ppb		15:05:15
3	Be 313.107†	-2171.7	-144.6	-0.1112 µg/L	-0.1112 ppb		15:04:55
3	Cd 226.502†	808.9	1060.9	0.2302 µg/L	0.2302 ppb		15:05:15
3	Co 228.616†	99.9	162.4	-0.6304 µg/L	-0.6304 ppb		15:05:15
3	Cr 267.716†	328.1	194.8	0.9948 µg/L	0.9948 ppb		15:05:15
3	Cu 324.752†	-498.3	-2697.8	-15.176 µg/L	-15.176 ppb		15:05:15
3	Mn 257.610†	2790.4	3185.0	0.1486 µg/L	0.1486 ppb		15:04:55
3	Mo 202.031†	-123.1	-93.9	3.1529 µg/L	3.1529 ppb		15:05:15
3	Ni 231.604†	130.8	135.3	3.5429 µg/L	3.5429 ppb		15:05:15
3	P 214.914†	83.3	63.3	21.847 µg/L	21.847 ppb		15:05:15
3	Pb 220.353†	12.0	-25.4	17.187 µg/L	17.187 ppb		15:05:15
3	S 181.975 Axial†	30.3	-17.0	11.319 µg/L	11.319 ppb		15:05:15
3	Sb 206.836†	9.8	6.9	9.6826 µg/L	9.6826 ppb		15:05:15
3	Se 196.026†	2.5	-1.2	-12.0 µg/L	-12.0 ppb		15:05:15
3	SiO2†	875.5	217.4	62.171 µg/L	62.171 ppb		15:05:15
3	Si 251.611†	683.3	468.6	32.450 µg/L	32.450 ppb		15:05:15
3	Sn 189.927†	-20.5	2.0	5.0403 µg/L	5.0403 ppb		15:05:15
3	Ti 334.940†	-2218.7	-2319.3	-2.5943 µg/L	-2.5943 ppb		15:05:15
3	Tl 190.801†	15.6	11.7	-7.3847 µg/L	-7.3847 ppb		15:05:15
3	U 367.007†	1856.2	2157.1	60.997 µg/L	60.997 ppb		15:04:55
3	V 292.402†	1022.3	972.9	1.8909 µg/L	1.8909 ppb		15:05:15
3	Zn 213.857†	1286.7	1150.5	-19.301 µg/L	-19.301 ppb		15:05:15

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	370542.9	92.16	%	0.764				0.83%
Sc RADIAL	4618.1	93.9	%	0.49				0.52%
Y 371.029	290642.5	90.873	%	0.5951				0.65%
Sc 357.253	237862.8	92.59	%	0.732				0.79%
Ag 328.068†	-314.0	3.7184	µg/L	0.55044	3.7184	ppb	0.55044	14.80%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	277882.6	476190	µg/L	2264.6	476190	ppb	2264.6	0.48%
QC value within limits for Al 396.153Radial Recovery = 95.24%								
As 188.979†	6.9	9.6452	µg/L	3.23618	9.6452	ppb	3.23618	33.55%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	1193.1	4.8030	µg/L	4.42105	4.8030	ppb	4.42105	92.05%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	317.9	3.2845	µg/L	0.22999	3.2845	ppb	0.22999	7.00%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-83.7	-0.0726	µg/L	0.04835	-0.0726	ppb	0.04835	66.55%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	590544.8	474710	µg/L	2403.6	474710	ppb	2403.6	0.51%

QC value within limits for Ca 317.933Radial Recovery = 94.94%
Cd 226.502† 1056.5 0.1054 µg/L 0.19936 0.1054 ppb 0.19936 189.06%
QC value within limits for Cd 226.502 Recovery = Not calculated
Co 228.616† 154.4 -1.5656 µg/L 0.82646 -1.5656 ppb 0.82646 52.79%
QC value within limits for Co 228.616 Recovery = Not calculated
Cr 267.716† 204.9 1.1232 µg/L 0.37555 1.1232 ppb 0.37555 33.44%
QC value within limits for Cr 267.716 Recovery = Not calculated
Cu 324.752† -2627.9 -14.411 µg/L 1.0062 -14.411 ppb 1.0062 6.98%
QC value within limits for Cu 324.752 Recovery = Not calculated
Fe 238.204 Radial† 80747.3 190310 µg/L 1049.1 190310 ppb 1049.1 0.55%
QC value within limits for Fe 238.204 Radial Recovery = 95.15%
K 766.490 Radial† 4.2 -115.38 µg/L 109.790 -115.38 ppb 109.790 95.16%
QC value within limits for K 766.490 Radial Recovery = Not calculated
Mg 279.077 IEC† 46509.1 449940 µg/L 2279.4 449940 ppb 2279.4 0.51%
QC value within limits for Mg 279.077 IEC Recovery = 89.99%
Mn 257.610† 3184.0 0.1684 µg/L 0.09675 0.1684 ppb 0.09675 57.44%
QC value within limits for Mn 257.610 Recovery = Not calculated
Mo 202.031† -97.2 2.8373 µg/L 0.79194 2.8373 ppb 0.79194 27.91%
QC value within limits for Mo 202.031 Recovery = Not calculated
Na 589.592 Radial† 95.3 35.996 µg/L 21.7807 35.996 ppb 21.7807 60.51%
QC value within limits for Na 589.592 Radial Recovery = Not calculated
Ni 231.604† 130.8 3.2079 µg/L 0.42415 3.2079 ppb 0.42415 13.22%
QC value within limits for Ni 231.604 Recovery = Not calculated
P 214.914† 54.6 4.0162 µg/L 15.77172 4.0162 ppb 15.77172 392.70%
QC value within limits for P 214.914 Recovery = Not calculated
Pb 220.353† -20.3 19.285 µg/L 2.3687 19.285 ppb 2.3687 12.28%
QC value within limits for Pb 220.353 Recovery = Not calculated
S 181.975 Axial† -19.9 2.4052 µg/L 11.76157 2.4052 ppb 11.76157 489.00%
QC value within limits for S 181.975 Axial Recovery = Not calculated
Sb 206.836† -0.8 -2.4825 µg/L 11.19283 -2.4825 ppb 11.19283 450.86%
QC value within limits for Sb 206.836 Recovery = Not calculated
Se 196.026† 2.4 -3.59 µg/L 10.368 -3.59 ppb 10.368 288.40%
QC value within limits for Se 196.026 Recovery = Not calculated
SiO2† 225.6 64.501 µg/L 2.5466 64.501 ppb 2.5466 3.95%
QC value within limits for SiO2 Recovery = Not calculated
Si 251.611† 460.5 31.885 µg/L 0.5197 31.885 ppb 0.5197 1.63%
QC value within limits for Si 251.611 Recovery = Not calculated
Sn 189.927† -5.0 1.9419 µg/L 3.71207 1.9419 ppb 3.71207 191.16%
QC value within limits for Sn 189.927 Recovery = Not calculated
Sr 421.552† 1504.1 0.7680 µg/L 0.26642 0.7680 ppb 0.26642 34.69%
QC value within limits for Sr 421.552 Recovery = Not calculated
Ti 334.940† -2300.7 -2.4496 µg/L 0.13267 -2.4496 ppb 0.13267 5.42%
QC value within limits for Ti 334.940 Recovery = Not calculated
Tl 190.801† 14.2 -5.1694 µg/L 3.47495 -5.1694 ppb 3.47495 67.22%
QC value within limits for Tl 190.801 Recovery = Not calculated
U 367.007† 2153.6 52.071 µg/L 20.2933 52.071 ppb 20.2933 38.97%
QC value within limits for U 367.007 Recovery = Not calculated
V 292.402† 962.3 1.6293 µg/L 0.47713 1.6293 ppb 0.47713 29.28%
QC value within limits for V 292.402 Recovery = Not calculated
Zn 213.857† 1138.4 -19.874 µg/L 0.5582 -19.874 ppb 0.5582 2.81%
QC value within limits for Zn 213.857 Recovery = Not calculated
All analyte(s) passed QC.

Sequence No.: 42 **Autosampler Location: 104**
Sample ID: ICSAB **Date Collected: 11/2/2016 15:05:25**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4600.5	4600.5	93.5	%			15:05:56
1	Al 396.153Radial†	258079.7	276121.2	473170	µg/L	473170	ppb	15:05:54
1	Ca 317.933Radial†	543294.3	581010.0	467040	µg/L	467040	ppb	15:05:54
1	Fe 238.204 Radial†	73441.6	78511.4	185040	µg/L	185040	ppb	15:05:54
1	K 766.490 Radial†	4670.9	5073.1	5174.3	µg/L	5174.3	ppb	15:05:56
1	Mg 279.077 IEC†	43092.6	46102.4	446010	µg/L	446010	ppb	15:05:56
1	Na 589.592 Radial†	13664.6	13859.5	5236.5	µg/L	5236.5	ppb	15:05:54
1	Sr 421.552†	43303.2	46157.0	483.65	µg/L	483.65	ppb	15:05:54
1	Sc	368816.7	368816.7	91.73	%			15:06:08
1	Y 371.029	289384.3	289384.3	90.479	%			15:06:08
1	Sc 357.253	237980.7	237980.7	92.64	%			15:06:08
1	Ag 328.068†	20061.9	22145.5	250.31	µg/L	250.31	ppb	15:06:08
1	As 188.979†	207.9	219.7	456.33	µg/L	456.33	ppb	15:06:28
1	B 249.677†	12239.1	12702.3	465.00	µg/L	465.00	ppb	15:06:08
1	Ba 233.527†	23348.3	25256.7	458.48	µg/L	458.48	ppb	15:06:28
1	Be 313.107†	332392.6	361022.8	228.27	µg/L	228.27	ppb	15:06:08
1	Cd 226.502†	35927.2	38960.8	432.73	µg/L	432.73	ppb	15:06:08
1	Co 228.616†	3947.6	4314.8	425.97	µg/L	425.97	ppb	15:06:28
1	Cr 267.716†	30036.1	32259.6	446.04	µg/L	446.04	ppb	15:06:08
1	Cu 324.752†	46452.9	47988.8	490.76	µg/L	490.76	ppb	15:06:08
1	Mn 257.610†	116491.0	125889.6	446.60	µg/L	446.60	ppb	15:06:08
1	Mo 202.031†	3498.8	3817.1	481.88	µg/L	481.88	ppb	15:06:28
1	Ni 231.604†	5833.5	6289.7	414.01	µg/L	414.01	ppb	15:06:28
1	P 214.914†	1184.3	1250.9	2366.5	µg/L	2366.5	ppb	15:06:28
1	Pb 220.353†	1087.7	1135.6	461.99	µg/L	461.99	ppb	15:06:28
1	S 181.975 Axial†	727.7	735.4	2428.2	µg/L	2428.2	ppb	15:06:28
1	Sb 206.836†	276.2	294.3	465.51	µg/L	465.51	ppb	15:06:28
1	Se 196.026†	880.1	946.1	2200	µg/L	2200	ppb	15:06:28
1	SiO2†	32742.5	34607.0	9896.2	µg/L	9896.2	ppb	15:06:08
1	Si 251.611†	62258.9	66929.1	4634.7	µg/L	4634.7	ppb	15:06:08
1	Sn 189.927†	906.5	1002.9	449.96	µg/L	449.96	ppb	15:06:28
1	Ti 334.940†	86023.5	92956.8	472.14	µg/L	472.14	ppb	15:06:08
1	Tl 190.801†	450.7	481.2	450.28	µg/L	450.28	ppb	15:06:28
1	U 367.007†	2572.0	2910.3	493.85	µg/L	493.85	ppb	15:06:08
1	V 292.402†	28148.5	30243.5	472.90	µg/L	472.90	ppb	15:06:08
1	Zn 213.857†	13356.4	14165.6	415.26	µg/L	415.26	ppb	15:06:28
2	Sc RADIAL	4605.4	4605.4	93.6	%			15:06:00
2	Al 396.153Radial†	257298.2	274991.0	471230	µg/L	471230	ppb	15:05:58
2	Ca 317.933Radial†	546614.9	583936.0	469400	µg/L	469400	ppb	15:05:58
2	Fe 238.204 Radial†	72910.7	77860.1	183500	µg/L	183500	ppb	15:05:58
2	K 766.490 Radial†	4523.2	4909.9	5005.1	µg/L	5005.1	ppb	15:06:00
2	Mg 279.077 IEC†	44243.9	47283.1	457430	µg/L	457430	ppb	15:06:00
2	Na 589.592 Radial†	13697.5	13879.0	5243.9	µg/L	5243.9	ppb	15:05:58
2	Sr 421.552†	43360.5	46168.6	483.84	µg/L	483.84	ppb	15:05:58
2	Sc	373879.7	373879.7	92.99	%			15:06:30
2	Y 371.029	293095.7	293095.7	91.640	%			15:06:30
2	Sc 357.253	240217.4	240217.4	93.51	%			15:06:30
2	Ag 328.068†	20489.0	22400.5	253.09	µg/L	253.09	ppb	15:06:30
2	As 188.979†	208.7	218.5	453.75	µg/L	453.75	ppb	15:06:50
2	B 249.677†	12271.3	12613.8	461.82	µg/L	461.82	ppb	15:06:30
2	Ba 233.527†	23344.4	25017.8	454.15	µg/L	454.15	ppb	15:06:50
2	Be 313.107†	336813.8	362410.0	229.14	µg/L	229.14	ppb	15:06:30
2	Cd 226.502†	36431.2	39138.6	434.86	µg/L	434.86	ppb	15:06:30
2	Co 228.616†	3941.4	4268.5	421.37	µg/L	421.37	ppb	15:06:50
2	Cr 267.716†	30065.3	31989.0	442.30	µg/L	442.30	ppb	15:06:30
2	Cu 324.752†	46983.8	48089.5	491.67	µg/L	491.67	ppb	15:06:30
2	Mn 257.610†	117985.6	126317.1	447.75	µg/L	447.75	ppb	15:06:30
2	Mo 202.031†	3476.5	3758.1	474.53	µg/L	474.53	ppb	15:06:50
2	Ni 231.604†	5835.5	6233.2	410.29	µg/L	410.29	ppb	15:06:50

2	P 214.914†	1190.2	1245.3	2356.2 µg/L	2356.2 ppb		15:06:50
2	Pb 220.353†	1083.3	1120.0	455.88 µg/L	455.88 ppb		15:06:50
2	S 181.975 Axial†	740.4	741.7	2448.0 µg/L	2448.0 ppb		15:06:50
2	Sb 206.836†	280.6	296.2	468.55 µg/L	468.55 ppb		15:06:50
2	Se 196.026†	883.3	940.6	2190 µg/L	2190 ppb		15:06:50
2	SiO2†	33143.3	34706.5	9924.6 µg/L	9924.6 ppb		15:06:30
2	Si 251.611†	62673.0	66746.2	4622.0 µg/L	4622.0 ppb		15:06:30
2	Sn 189.927†	912.0	999.7	448.59 µg/L	448.59 ppb		15:06:50
2	Ti 334.940†	86948.0	93080.8	472.80 µg/L	472.80 ppb		15:06:30
2	Tl 190.801†	432.8	457.6	427.64 µg/L	427.64 ppb		15:06:50
2	U 367.007†	2580.0	2893.0	493.47 µg/L	493.47 ppb		15:06:30
2	V 292.402†	28460.9	30294.7	473.78 µg/L	473.78 ppb		15:06:30
2	Zn 213.857†	13406.6	14085.1	412.02 µg/L	412.02 ppb		15:06:50
3	Sc RADIAL	4632.9	4632.9	94.2 %			15:06:04
3	Al 396.153Radial†	261367.2	277681.1	475840 µg/L	475840 ppb		15:06:02
3	Ca 317.933Radial†	556259.3	590713.2	474840 µg/L	474840 ppb		15:06:02
3	Fe 238.204 Radial†	74717.3	79316.6	186930 µg/L	186930 ppb		15:06:02
3	K 766.490 Radial†	4580.4	4942.1	5036.4 µg/L	5036.4 ppb		15:06:04
3	Mg 279.077 IEC†	43380.9	46086.1	445850 µg/L	445850 ppb		15:06:04
3	Na 589.592 Radial†	13822.3	13924.6	5261.2 µg/L	5261.2 ppb		15:06:02
3	Sr 421.552†	44038.7	46614.1	488.40 µg/L	488.40 ppb		15:06:02
3	Sc	370863.4	370863.4	92.24 %			15:06:53
3	Y 371.029	290204.2	290204.2	90.736 %			15:06:53
3	Sc 357.253	238516.0	238516.0	92.85 %			15:06:53
3	Ag 328.068†	20291.2	22343.9	252.63 µg/L	252.63 ppb		15:06:53
3	As 188.979†	210.1	221.5	460.04 µg/L	460.04 ppb		15:07:13
3	B 249.677†	12311.5	12750.7	466.51 µg/L	466.51 ppb		15:06:53
3	Ba 233.527†	23334.2	25184.9	457.14 µg/L	457.14 ppb		15:07:13
3	Be 313.107†	331174.1	358905.1	226.93 µg/L	226.93 ppb		15:06:53
3	Cd 226.502†	36167.8	39132.8	434.57 µg/L	434.57 ppb		15:06:53
3	Co 228.616†	3938.1	4295.1	423.78 µg/L	423.78 ppb		15:07:13
3	Cr 267.716†	29872.9	32011.1	442.57 µg/L	442.57 ppb		15:06:53
3	Cu 324.752†	47033.9	48501.9	495.97 µg/L	495.97 ppb		15:06:53
3	Mn 257.610†	116680.3	125811.3	446.36 µg/L	446.36 ppb		15:06:53
3	Mo 202.031†	3480.0	3788.4	478.51 µg/L	478.51 ppb		15:07:13
3	Ni 231.604†	5823.8	6265.2	412.32 µg/L	412.32 ppb		15:07:13
3	P 214.914†	1184.0	1247.6	2359.0 µg/L	2359.0 ppb		15:07:13
3	Pb 220.353†	1085.9	1131.1	460.43 µg/L	460.43 ppb		15:07:13
3	S 181.975 Axial†	741.5	748.6	2471.2 µg/L	2471.2 ppb		15:07:13
3	Sb 206.836†	282.6	300.6	475.41 µg/L	475.41 ppb		15:07:13
3	Se 196.026†	875.8	939.3	2180 µg/L	2180 ppb		15:07:13
3	SiO2†	32763.1	34550.0	9879.8 µg/L	9879.8 ppb		15:06:53
3	Si 251.611†	62185.4	66699.1	4618.7 µg/L	4618.7 ppb		15:06:53
3	Sn 189.927†	897.1	990.6	444.57 µg/L	444.57 ppb		15:07:13
3	Ti 334.940†	86121.2	92853.5	471.77 µg/L	471.77 ppb		15:06:53
3	Tl 190.801†	445.3	474.4	443.45 µg/L	443.45 ppb		15:07:13
3	U 367.007†	2517.8	2845.7	447.66 µg/L	447.66 ppb		15:06:53
3	V 292.402†	27973.1	29986.5	468.62 µg/L	468.62 ppb		15:06:53
3	Zn 213.857†	13387.3	14166.5	415.03 µg/L	415.03 ppb		15:07:13

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	371186.6	92.32	%	0.633				0.69%
Sc RADIAL	4612.9	93.8	%	0.36				0.38%
Y 371.029	290894.7	90.952	%	0.6096				0.67%
Sc 357.253	238904.7	93.00	%	0.455				0.49%
Ag 328.068†	22296.6	252.01	µg/L	1.488	252.01	ppb	1.488	0.59%
QC value within limits for Ag 328.068 Recovery = 100.80%								
Al 396.153Radial†	276264.5	473410	µg/L	2314.7	473410	ppb	2314.7	0.49%
QC value within limits for Al 396.153Radial Recovery = 94.68%								
As 188.979†	219.9	456.70	µg/L	3.163	456.70	ppb	3.163	0.69%
QC value within limits for As 188.979 Recovery = 91.34%								
B 249.677†	12688.9	464.44	µg/L	2.394	464.44	ppb	2.394	0.52%
QC value within limits for B 249.677 Recovery = 92.89%								
Ba 233.527†	25153.1	456.59	µg/L	2.219	456.59	ppb	2.219	0.49%
QC value within limits for Ba 233.527 Recovery = 91.32%								
Be 313.107†	360779.3	228.11	µg/L	1.113	228.11	ppb	1.113	0.49%
QC value within limits for Be 313.107 Recovery = 91.25%								
Ca 317.933Radial†	585219.7	470430	µg/L	4001.1	470430	ppb	4001.1	0.85%

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   QC value within limits for Ca 317.933Radial  Recovery = 94.09%
Cd 226.502†            39077.4      434.05 µg/L         1.156      434.05 ppb          1.156   0.27%
   QC value within limits for Cd 226.502  Recovery = 86.81%
Co 228.616†             4292.8      423.71 µg/L         2.305      423.71 ppb          2.305   0.54%
   QC value within limits for Co 228.616  Recovery = 84.74%
Cr 267.716†            32086.6      443.64 µg/L         2.084      443.64 ppb          2.084   0.47%
   QC value within limits for Cr 267.716  Recovery = 88.73%
Cu 324.752†            48193.4      492.80 µg/L         2.781      492.80 ppb          2.781   0.56%
   QC value within limits for Cu 324.752  Recovery = 98.56%
Fe 238.204 Radial†     78562.7      185160 µg/L        1719.4      185160 ppb         1719.4   0.93%
   QC value within limits for Fe 238.204 Radial  Recovery = 92.58%
K 766.490 Radial†       4975.0      5071.9 µg/L         90.01      5071.9 ppb          90.01   1.77%
   QC value within limits for K 766.490 Radial  Recovery = 101.44%
Mg 279.077 IEC†        46490.5      449760 µg/L        6641.1      449760 ppb         6641.1   1.48%
   QC value within limits for Mg 279.077 IEC  Recovery = 89.95%
Mn 257.610†           126006.0      446.90 µg/L         0.742      446.90 ppb          0.742   0.17%
   QC value within limits for Mn 257.610  Recovery = 89.38%
Mo 202.031†             3787.8      478.31 µg/L         3.681      478.31 ppb          3.681   0.77%
   QC value within limits for Mo 202.031  Recovery = 95.66%
Na 589.592 Radial†     13887.7      5247.2 µg/L         12.64      5247.2 ppb          12.64   0.24%
   QC value within limits for Na 589.592 Radial  Recovery = 104.94%
Ni 231.604†             6262.7      412.20 µg/L         1.863      412.20 ppb          1.863   0.45%
   QC value within limits for Ni 231.604  Recovery = 82.44%
P 214.914†              1247.9      2360.6 µg/L          5.31      2360.6 ppb           5.31   0.22%
   QC value within limits for P 214.914  Recovery = 94.42%
Pb 220.353†             1128.9      459.43 µg/L         3.173      459.43 ppb          3.173   0.69%
   QC value within limits for Pb 220.353  Recovery = 91.89%
S 181.975 Axial†         741.9      2449.2 µg/L         21.49      2449.2 ppb          21.49   0.88%
   QC value within limits for S 181.975 Axial  Recovery = 97.97%
Sb 206.836†              297.0      469.82 µg/L         5.075      469.82 ppb          5.075   1.08%
   QC value within limits for Sb 206.836  Recovery = 93.96%
Se 196.026†              942.0       2190 µg/L           8.4       2190 ppb            8.4   0.38%
   QC value within limits for Se 196.026  Recovery = 87.63%
SiO2†                  34621.2      9900.2 µg/L         22.65      9900.2 ppb          22.65   0.23%
   QC value within limits for SiO2  Recovery = 92.57%
Si 251.611†            66791.5      4625.1 µg/L          8.41      4625.1 ppb           8.41   0.18%
   QC value within limits for Si 251.611  Recovery = 92.50%
Sn 189.927†              997.7      447.71 µg/L         2.798      447.71 ppb          2.798   0.62%
   QC value within limits for Sn 189.927  Recovery = 89.54%
Sr 421.552†            46313.2      485.30 µg/L         2.692      485.30 ppb          2.692   0.55%
   QC value within limits for Sr 421.552  Recovery = 97.06%
Ti 334.940†            92963.7      472.24 µg/L         0.522      472.24 ppb          0.522   0.11%
   QC value within limits for Ti 334.940  Recovery = 94.45%
Tl 190.801†              471.1      440.46 µg/L        11.611      440.46 ppb         11.611   2.64%
   QC value within limits for Tl 190.801  Recovery = 88.09%
U 367.007†              2883.0      478.33 µg/L        26.561      478.33 ppb         26.561   5.55%
   QC value within limits for U 367.007  Recovery = 95.67%
V 292.402†             30174.9      471.77 µg/L         2.764      471.77 ppb          2.764   0.59%
   QC value within limits for V 292.402  Recovery = 94.35%
Zn 213.857†            14139.1      414.10 µg/L         1.809      414.10 ppb          1.809   0.44%
   QC value within limits for Zn 213.857  Recovery = 82.82%
All analyte(s) passed QC.
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Sequence No.: 52 **Autosampler Location: 103**
Sample ID: ICSA **Date Collected: 11/2/2016 15:33:01**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSA

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4549.8	4549.8	92.5	%			15:33:34
1	Al 396.153Radial†	256878.7	277893.9	476210	µg/L	476210	ppb	15:33:32
1	Ca 317.933Radial†	545776.1	590159.7	474400	µg/L	474400	ppb	15:33:32
1	Fe 238.204 Radial†	75447.5	81554.7	192210	µg/L	192210	ppb	15:33:32
1	K 766.490 Radial†	-95.0	-25.3	-147.32	µg/L	-147.32	ppb	15:33:34
1	Mg 279.077 IEC†	42747.7	46242.2	447360	µg/L	447360	ppb	15:33:34
1	Na 589.592 Radial†	823.9	135.8	51.296	µg/L	51.296	ppb	15:33:34
1	Sr 421.552†	1571.7	1542.6	1.0795	µg/L	1.0795	ppb	15:33:34
1	Sc	365838.2	365838.2	90.99	%			15:33:46
1	Y 371.029	288533.3	288533.3	90.213	%			15:33:46
1	Sc 357.253	234920.1	234920.1	91.45	%			15:33:46
1	Ag 328.068†	-785.2	-369.0	3.1639	µg/L	3.1639	ppb	15:33:46
1	As 188.979†	8.0	4.0	3.6180	µg/L	3.6180	ppb	15:34:06
1	B 249.677†	1737.7	1391.1	12.271	µg/L	12.271	ppb	15:33:46
1	Ba 233.527†	247.5	324.0	3.3744	µg/L	3.3744	ppb	15:34:06
1	Be 313.107†	-2150.9	-129.6	-0.1014	µg/L	-0.1014	ppb	15:33:46
1	Cd 226.502†	813.4	1068.7	0.1256	µg/L	0.1256	ppb	15:34:06
1	Co 228.616†	84.3	145.8	-2.6202	µg/L	-2.6202	ppb	15:34:06
1	Cr 267.716†	343.2	212.6	1.2143	µg/L	1.2143	ppb	15:34:06
1	Cu 324.752†	-489.8	-2690.3	-14.917	µg/L	-14.917	ppb	15:34:06
1	Mn 257.610†	2787.4	3191.7	0.3183	µg/L	0.3183	ppb	15:33:46
1	Mo 202.031†	-126.5	-98.0	2.8862	µg/L	2.8862	ppb	15:34:06
1	Ni 231.604†	121.5	125.6	2.8028	µg/L	2.8028	ppb	15:34:06
1	P 214.914†	84.3	64.7	22.877	µg/L	22.877	ppb	15:34:06
1	Pb 220.353†	11.5	-26.0	17.104	µg/L	17.104	ppb	15:34:06
1	S 181.975 Axial†	28.7	-18.8	6.8362	µg/L	6.8362	ppb	15:34:06
1	Sb 206.836†	2.3	-1.4	-3.4389	µg/L	-3.4389	ppb	15:34:06
1	Se 196.026†	5.8	2.3	-3.81	µg/L	-3.81	ppb	15:34:06
1	SiO2†	870.8	215.4	61.601	µg/L	61.601	ppb	15:34:06
1	Si 251.611†	657.9	443.3	30.697	µg/L	30.697	ppb	15:34:06
1	Sn 189.927†	-27.5	-5.6	1.6684	µg/L	1.6684	ppb	15:34:06
1	Ti 334.940†	-2175.8	-2280.4	-2.3543	µg/L	-2.3543	ppb	15:34:06
1	Tl 190.801†	9.4	5.1	-14.152	µg/L	-14.152	ppb	15:34:06
1	U 367.007†	1862.7	2170.8	50.235	µg/L	50.235	ppb	15:33:46
1	V 292.402†	1168.6	1136.6	4.2730	µg/L	4.2730	ppb	15:34:06
1	Zn 213.857†	1244.0	1108.4	-20.977	µg/L	-20.977	ppb	15:34:06
2	Sc RADIAL	4609.2	4609.2	93.7	%			15:33:38
2	Al 396.153Radial†	258565.7	276117.6	473160	µg/L	473160	ppb	15:33:36
2	Ca 317.933Radial†	548066.2	585004.3	470260	µg/L	470260	ppb	15:33:36
2	Fe 238.204 Radial†	75506.7	80567.3	189880	µg/L	189880	ppb	15:33:36
2	K 766.490 Radial†	-238.9	-177.6	-304.70	µg/L	-304.70	ppb	15:33:38
2	Mg 279.077 IEC†	42633.8	45525.4	440430	µg/L	440430	ppb	15:33:38
2	Na 589.592 Radial†	674.4	-35.3	-13.335	µg/L	-13.335	ppb	15:33:38
2	Sr 421.552†	1499.1	1443.2	0.1789	µg/L	0.1789	ppb	15:33:38
2	Sc	365887.9	365887.9	91.00	%			15:34:08
2	Y 371.029	284991.7	284991.7	89.106	%			15:34:08
2	Sc 357.253	235092.0	235092.0	91.52	%			15:34:08
2	Ag 328.068†	-744.9	-324.2	3.5817	µg/L	3.5817	ppb	15:34:08
2	As 188.979†	9.5	5.6	7.0633	µg/L	7.0633	ppb	15:34:28
2	B 249.677†	1621.8	1263.1	7.6888	µg/L	7.6888	ppb	15:34:08
2	Ba 233.527†	215.7	289.1	2.7670	µg/L	2.7670	ppb	15:34:28
2	Be 313.107†	-2074.3	-44.2	-0.0478	µg/L	-0.0478	ppb	15:34:08
2	Cd 226.502†	802.8	1056.5	0.1328	µg/L	0.1328	ppb	15:34:28
2	Co 228.616†	85.9	147.5	-2.2314	µg/L	-2.2314	ppb	15:34:28
2	Cr 267.716†	344.1	213.2	1.2431	µg/L	1.2431	ppb	15:34:28
2	Cu 324.752†	-356.4	-2544.2	-13.607	µg/L	-13.607	ppb	15:34:28
2	Mn 257.610†	2675.0	3066.7	0.0508	µg/L	0.0508	ppb	15:34:08
2	Mo 202.031†	-114.3	-84.6	4.3532	µg/L	4.3532	ppb	15:34:28
2	Ni 231.604†	115.5	118.9	2.4278	µg/L	2.4278	ppb	15:34:28

2	P 214.914†	71.0	50.1	-4.7416 µg/L	-4.7416 ppb		15:34:28
2	Pb 220.353†	12.6	-24.7	17.429 µg/L	17.429 ppb		15:34:28
2	S 181.975 Axial†	27.1	-20.5	0.5716 µg/L	0.5716 ppb		15:34:28
2	Sb 206.836†	2.4	-1.2	-3.2208 µg/L	-3.2208 ppb		15:34:28
2	Se 196.026†	7.7	4.5	1.28 µg/L	1.28 ppb		15:34:28
2	SiO2†	912.1	259.9	74.314 µg/L	74.314 ppb		15:34:28
2	Si 251.611†	638.9	422.0	29.220 µg/L	29.220 ppb		15:34:28
2	Sn 189.927†	-8.9	14.7	10.655 µg/L	10.655 ppb		15:34:28
2	Ti 334.940†	-2196.5	-2301.2	-2.5370 µg/L	-2.5370 ppb		15:34:28
2	Tl 190.801†	7.6	3.0	-15.870 µg/L	-15.870 ppb		15:34:28
2	U 367.007†	1830.8	2134.5	44.170 µg/L	44.170 ppb		15:34:08
2	V 292.402†	1074.4	1032.8	2.7894 µg/L	2.7894 ppb		15:34:28
2	Zn 213.857†	1266.4	1131.9	-19.377 µg/L	-19.377 ppb		15:34:28
3	Sc RADIAL	4571.8	4571.8	92.9 %			15:33:42
3	Al 396.153Radial†	260360.1	280305.9	480340 µg/L	480340 ppb		15:33:40
3	Ca 317.933Radial†	552700.0	594775.5	478110 µg/L	478110 ppb		15:33:40
3	Fe 238.204 Radial†	75994.6	81751.5	192670 µg/L	192670 ppb		15:33:40
3	K 766.490 Radial†	31.9	111.9	-4.5959 µg/L	-4.5959 ppb		15:33:42
3	Mg 279.077 IEC†	42930.9	46217.2	447120 µg/L	447120 ppb		15:33:42
3	Na 589.592 Radial†	763.4	66.4	25.081 µg/L	25.081 ppb		15:33:42
3	Sr 421.552†	1576.4	1539.6	0.9839 µg/L	0.9839 ppb		15:33:42
3	Sc	363908.5	363908.5	90.51 %			15:34:30
3	Y 371.029	287575.8	287575.8	89.914 %			15:34:30
3	Sc 357.253	233750.3	233750.3	90.99 %			15:34:30
3	Ag 328.068†	-755.2	-340.2	3.5197 µg/L	3.5197 ppb		15:34:30
3	As 188.979†	7.3	3.3	2.0728 µg/L	2.0728 ppb		15:34:50
3	B 249.677†	1713.4	1373.9	11.481 µg/L	11.481 ppb		15:34:30
3	Ba 233.527†	240.3	317.5	3.2474 µg/L	3.2474 ppb		15:34:50
3	Be 313.107†	-2234.9	-233.8	-0.1675 µg/L	-0.1675 ppb		15:34:30
3	Cd 226.502†	789.2	1046.6	-0.1557 µg/L	-0.1557 ppb		15:34:50
3	Co 228.616†	80.7	142.3	-3.0183 µg/L	-3.0183 ppb		15:34:50
3	Cr 267.716†	375.4	249.8	1.7255 µg/L	1.7255 ppb		15:34:50
3	Cu 324.752†	-566.3	-2777.1	-15.761 µg/L	-15.761 ppb		15:34:50
3	Mn 257.610†	2716.0	3128.6	0.1053 µg/L	0.1053 ppb		15:34:30
3	Mo 202.031†	-130.3	-102.9	2.3216 µg/L	2.3216 ppb		15:34:50
3	Ni 231.604†	111.1	114.8	2.0739 µg/L	2.0739 ppb		15:34:50
3	P 214.914†	81.1	61.6	16.504 µg/L	16.504 ppb		15:34:50
3	Pb 220.353†	2.0	-36.3	13.420 µg/L	13.420 ppb		15:34:50
3	S 181.975 Axial†	19.9	-28.2	-23.442 µg/L	-23.442 ppb		15:34:50
3	Sb 206.836†	3.6	0.1	-1.0755 µg/L	-1.0755 ppb		15:34:50
3	Se 196.026†	-1.1	-5.1	-21.2 µg/L	-21.2 ppb		15:34:50
3	SiO2†	896.3	248.2	70.978 µg/L	70.978 ppb		15:34:50
3	Si 251.611†	683.7	475.2	32.908 µg/L	32.908 ppb		15:34:50
3	Sn 189.927†	-27.3	-5.6	1.7416 µg/L	1.7416 ppb		15:34:50
3	Ti 334.940†	-2215.4	-2335.8	-2.5600 µg/L	-2.5600 ppb		15:34:50
3	Tl 190.801†	15.4	11.7	-7.7450 µg/L	-7.7450 ppb		15:34:50
3	U 367.007†	1841.7	2158.0	40.559 µg/L	40.559 ppb		15:34:30
3	V 292.402†	1090.1	1056.7	2.9564 µg/L	2.9564 ppb		15:34:50
3	Zn 213.857†	1283.4	1158.5	-19.339 µg/L	-19.339 ppb		15:34:50

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	365211.5	90.83	%	0.281				0.31%
Sc RADIAL	4576.9	93.0	%	0.61				0.66%
Y 371.029	287033.6	89.744	%	0.5728				0.64%
Sc 357.253	234587.5	91.32	%	0.284				0.31%
Ag 328.068†	-344.5	3.4218	µg/L	0.22543	3.4218	ppb	0.22543	6.59%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	278105.8	476570	µg/L	3602.3	476570	ppb	3602.3	0.76%
QC value within limits for Al 396.153Radial Recovery = 95.31%								
As 188.979†	4.3	4.2513	µg/L	2.55485	4.2513	ppb	2.55485	60.10%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	1342.7	10.480	µg/L	2.4495	10.480	ppb	2.4495	23.37%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	310.2	3.1296	µg/L	0.32036	3.1296	ppb	0.32036	10.24%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	-135.9	-0.1056	µg/L	0.05997	-0.1056	ppb	0.05997	56.80%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	589979.8	474250	µg/L	3929.3	474250	ppb	3929.3	0.83%

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   QC value within limits for Ca 317.933Radial  Recovery = 94.85%
Cd 226.502†            1057.3      0.0343 µg/L       0.16452      0.0343 ppb        0.16452 480.08%
   QC value within limits for Cd 226.502  Recovery = Not calculated
Co 228.616†             145.2     -2.6233 µg/L       0.39348     -2.6233 ppb        0.39348  15.00%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†             225.2      1.3943 µg/L       0.28723      1.3943 ppb        0.28723  20.60%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -2670.5     -14.762 µg/L        1.0854     -14.762 ppb         1.0854   7.35%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†     81291.1      191590 µg/L        1495.5      191590 ppb         1495.5   0.78%
   QC value within limits for Fe 238.204 Radial  Recovery = 95.79%
K 766.490 Radial†        -30.3     -152.20 µg/L       150.110     -152.20 ppb        150.110  98.63%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†        45995.0      444970 µg/L        3935.9      444970 ppb         3935.9   0.88%
   QC value within limits for Mg 279.077 IEC  Recovery = 88.99%
Mn 257.610†             3129.0      0.1581 µg/L       0.14132      0.1581 ppb        0.14132  89.37%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†              -95.2      3.1870 µg/L       1.04868      3.1870 ppb        1.04868  32.90%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†        55.6      21.014 µg/L       32.5066      21.014 ppb        32.5066 154.69%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†              119.8      2.4349 µg/L       0.36451      2.4349 ppb        0.36451  14.97%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                58.8      11.546 µg/L       14.4611      11.546 ppb        14.4611 125.25%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              -29.0      15.984 µg/L        2.2265      15.984 ppb         2.2265  13.93%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†         -22.5     -5.3448 µg/L      15.98271     -5.3448 ppb       15.98271 299.03%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               -0.8     -2.5784 µg/L       1.30610     -2.5784 ppb        1.30610  50.66%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                0.5       -7.93 µg/L        11.814       -7.93 ppb         11.814 148.99%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   241.2      68.964 µg/L        6.5912      68.964 ppb         6.5912   9.56%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              446.8      30.942 µg/L        1.8563      30.942 ppb         1.8563   6.00%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†               1.2      4.6883 µg/L       5.16734      4.6883 ppb        5.16734 110.22%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†             1508.5      0.7474 µg/L       0.49466      0.7474 ppb        0.49466  66.18%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†            -2305.8     -2.4837 µg/L       0.11273     -2.4837 ppb        0.11273   4.54%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               6.6     -12.589 µg/L        4.2822     -12.589 ppb         4.2822  34.02%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              2154.4      44.988 µg/L        4.8898      44.988 ppb         4.8898  10.87%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              1075.4      3.3396 µg/L       0.81266      3.3396 ppb        0.81266  24.33%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             1132.9     -19.898 µg/L        0.9349     -19.898 ppb         0.9349   4.70%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 53 **Autosampler Location:** 104
Sample ID: ICSAB **Date Collected:** 11/2/2016 15:35:00
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICSAB

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4555.4	4555.4	92.6	%			15:35:31
1	Al 396.153Radial†	258115.6	278890.1	477910	µg/L	477910	ppb	15:35:29
1	Ca 317.933Radial†	546416.9	590130.1	474380	µg/L	474380	ppb	15:35:29
1	Fe 238.204 Radial†	73297.7	79132.9	186500	µg/L	186500	ppb	15:35:29
1	K 766.490 Radial†	4767.3	5226.7	5333.5	µg/L	5333.5	ppb	15:35:31
1	Mg 279.077 IEC†	42682.8	46115.6	446140	µg/L	446140	ppb	15:35:31
1	Na 589.592 Radial†	12803.4	13073.9	4939.7	µg/L	4939.7	ppb	15:35:31
1	Sr 421.552†	43402.7	46722.6	489.60	µg/L	489.60	ppb	15:35:29
1	Sc	370040.9	370040.9	92.03	%			15:35:43
1	Y 371.029	287656.7	287656.7	89.939	%			15:35:43
1	Sc 357.253	236926.2	236926.2	92.23	%			15:35:43
1	Ag 328.068†	20082.7	22264.4	251.67	µg/L	251.67	ppb	15:35:43
1	As 188.979†	211.4	224.5	466.17	µg/L	466.17	ppb	15:36:03
1	B 249.677†	12196.1	12714.5	465.16	µg/L	465.16	ppb	15:35:43
1	Ba 233.527†	23143.4	25146.7	456.46	µg/L	456.46	ppb	15:36:03
1	Be 313.107†	330554.5	360626.8	228.02	µg/L	228.02	ppb	15:35:43
1	Cd 226.502†	36055.6	39272.7	436.20	µg/L	436.20	ppb	15:35:43
1	Co 228.616†	3905.6	4288.2	423.11	µg/L	423.11	ppb	15:36:03
1	Cr 267.716†	29992.6	32356.8	447.37	µg/L	447.37	ppb	15:35:43
1	Cu 324.752†	46235.1	47975.7	490.74	µg/L	490.74	ppb	15:35:43
1	Mn 257.610†	115717.3	125610.5	445.61	µg/L	445.61	ppb	15:35:43
1	Mo 202.031†	3445.1	3775.7	476.93	µg/L	476.93	ppb	15:36:03
1	Ni 231.604†	5782.9	6262.9	412.18	µg/L	412.18	ppb	15:36:03
1	P 214.914†	1178.4	1250.2	2364.3	µg/L	2364.3	ppb	15:36:03
1	Pb 220.353†	1077.6	1129.8	460.02	µg/L	460.02	ppb	15:36:03
1	S 181.975 Axial†	721.8	732.5	2419.6	µg/L	2419.6	ppb	15:36:03
1	Sb 206.836†	282.5	302.5	478.45	µg/L	478.45	ppb	15:36:03
1	Se 196.026†	872.0	941.5	2190	µg/L	2190	ppb	15:36:03
1	SiO2†	32518.9	34521.9	9871.9	µg/L	9871.9	ppb	15:35:43
1	Si 251.611†	61583.9	66496.4	4604.7	µg/L	4604.7	ppb	15:35:43
1	Sn 189.927†	898.8	999.0	448.29	µg/L	448.29	ppb	15:36:03
1	Ti 334.940†	85727.5	93049.1	472.74	µg/L	472.74	ppb	15:35:43
1	Tl 190.801†	417.6	447.5	417.59	µg/L	417.59	ppb	15:36:03
1	U 367.007†	2614.4	2968.6	516.93	µg/L	516.93	ppb	15:35:43
1	V 292.402†	28079.5	30304.0	473.75	µg/L	473.75	ppb	15:35:43
1	Zn 213.857†	13240.3	14103.9	412.98	µg/L	412.98	ppb	15:36:03
2	Sc RADIAL	4638.0	4638.0	94.3	%			15:35:35
2	Al 396.153Radial†	254559.4	270154.4	462940	µg/L	462940	ppb	15:35:33
2	Ca 317.933Radial†	539058.4	571817.0	459650	µg/L	459650	ppb	15:35:33
2	Fe 238.204 Radial†	72009.2	76356.5	179960	µg/L	179960	ppb	15:35:33
2	K 766.490 Radial†	4538.3	4892.0	4988.6	µg/L	4988.6	ppb	15:35:35
2	Mg 279.077 IEC†	43578.3	46244.9	447390	µg/L	447390	ppb	15:35:35
2	Na 589.592 Radial†	12897.2	12927.1	4884.3	µg/L	4884.3	ppb	15:35:35
2	Sr 421.552†	42783.7	45231.4	474.01	µg/L	474.01	ppb	15:35:33
2	Sc	369185.4	369185.4	91.82	%			15:36:05
2	Y 371.029	289182.9	289182.9	90.416	%			15:36:05
2	Sc 357.253	237826.6	237826.6	92.58	%			15:36:05
2	Ag 328.068†	20088.4	22188.2	250.62	µg/L	250.62	ppb	15:36:05
2	As 188.979†	213.1	225.5	468.46	µg/L	468.46	ppb	15:36:25
2	B 249.677†	12121.8	12584.3	461.44	µg/L	461.44	ppb	15:36:05
2	Ba 233.527†	23138.5	25046.4	454.72	µg/L	454.72	ppb	15:36:25
2	Be 313.107†	330942.2	359688.6	227.42	µg/L	227.42	ppb	15:36:05
2	Cd 226.502†	35760.9	38806.2	431.29	µg/L	431.29	ppb	15:36:05
2	Co 228.616†	3884.9	4249.9	419.78	µg/L	419.78	ppb	15:36:25
2	Cr 267.716†	30041.4	32286.3	446.46	µg/L	446.46	ppb	15:36:05
2	Cu 324.752†	46633.5	48216.3	492.72	µg/L	492.72	ppb	15:36:05
2	Mn 257.610†	116024.0	125466.6	444.92	µg/L	444.92	ppb	15:36:05
2	Mo 202.031†	3420.5	3735.0	471.43	µg/L	471.43	ppb	15:36:25
2	Ni 231.604†	5733.2	6185.4	407.20	µg/L	407.20	ppb	15:36:25

2	P 214.914†	1155.3	1220.4	2308.9 µg/L	2308.9 ppb		15:36:25
2	Pb 220.353†	1063.4	1110.1	451.65 µg/L	451.65 ppb		15:36:25
2	S 181.975 Axial†	737.4	746.4	2461.7 µg/L	2461.7 ppb		15:36:25
2	Sb 206.836†	279.6	298.2	471.56 µg/L	471.56 ppb		15:36:25
2	Se 196.026†	865.7	931.1	2170 µg/L	2170 ppb		15:36:25
2	SiO2†	32737.8	34624.8	9901.3 µg/L	9901.3 ppb		15:36:05
2	Si 251.611†	61873.1	66556.0	4608.8 µg/L	4608.8 ppb		15:36:05
2	Sn 189.927†	884.2	979.4	439.50 µg/L	439.50 ppb		15:36:25
2	Ti 334.940†	85602.1	92561.8	470.03 µg/L	470.03 ppb		15:36:05
2	Tl 190.801†	430.6	459.9	430.19 µg/L	430.19 ppb		15:36:25
2	U 367.007†	2512.9	2848.3	489.99 µg/L	489.99 ppb		15:36:05
2	V 292.402†	28265.5	30389.6	475.54 µg/L	475.54 ppb		15:36:05
2	Zn 213.857†	13179.5	13983.9	409.84 µg/L	409.84 ppb		15:36:25
3	Sc RADIAL	4555.1	4555.1	92.6 %			15:35:39
3	Al 396.153Radial†	257574.0	278321.9	476940 µg/L	476940 ppb		15:35:37
3	Ca 317.933Radial†	543145.2	586631.5	471560 µg/L	471560 ppb		15:35:37
3	Fe 238.204 Radial†	73324.7	79166.8	186580 µg/L	186580 ppb		15:35:37
3	K 766.490 Radial†	4404.6	4835.2	4925.2 µg/L	4925.2 ppb		15:35:39
3	Mg 279.077 IEC†	43041.4	46505.8	449910 µg/L	449910 ppb		15:35:39
3	Na 589.592 Radial†	12827.0	13100.2	4949.7 µg/L	4949.7 ppb		15:35:39
3	Sr 421.552†	43474.6	46803.0	490.50 µg/L	490.50 ppb		15:35:37
3	Sc	368414.9	368414.9	91.63 %			15:36:28
3	Y 371.029	288521.2	288521.2	90.210 %			15:36:28
3	Sc 357.253	236307.3	236307.3	91.99 %			15:36:28
3	Ag 328.068†	20353.1	22615.4	255.55 µg/L	255.55 ppb		15:36:28
3	As 188.979†	207.3	220.7	458.30 µg/L	458.30 ppb		15:36:48
3	B 249.677†	12224.1	12779.7	467.74 µg/L	467.74 ppb		15:36:28
3	Ba 233.527†	23007.5	25064.6	454.97 µg/L	454.97 ppb		15:36:48
3	Be 313.107†	331043.2	362096.7	228.95 µg/L	228.95 ppb		15:36:28
3	Cd 226.502†	36060.7	39380.6	437.42 µg/L	437.42 ppb		15:36:28
3	Co 228.616†	3867.7	4258.1	420.02 µg/L	420.02 ppb		15:36:48
3	Cr 267.716†	29972.6	32420.2	448.26 µg/L	448.26 ppb		15:36:28
3	Cu 324.752†	46224.8	48095.8	491.92 µg/L	491.92 ppb		15:36:28
3	Mn 257.610†	115862.5	126096.8	447.25 µg/L	447.25 ppb		15:36:28
3	Mo 202.031†	3421.1	3759.4	474.93 µg/L	474.93 ppb		15:36:48
3	Ni 231.604†	5759.5	6253.9	411.57 µg/L	411.57 ppb		15:36:48
3	P 214.914†	1159.3	1232.7	2329.7 µg/L	2329.7 ppb		15:36:48
3	Pb 220.353†	1069.0	1123.6	457.59 µg/L	457.59 ppb		15:36:48
3	S 181.975 Axial†	720.6	733.3	2422.0 µg/L	2422.0 ppb		15:36:48
3	Sb 206.836†	280.0	300.6	475.42 µg/L	475.42 ppb		15:36:48
3	Se 196.026†	860.1	931.1	2170 µg/L	2170 ppb		15:36:48
3	SiO2†	32589.1	34690.6	9920.1 µg/L	9920.1 ppb		15:36:28
3	Si 251.611†	61930.3	67047.8	4642.9 µg/L	4642.9 ppb		15:36:28
3	Sn 189.927†	897.7	1000.3	448.88 µg/L	448.88 ppb		15:36:48
3	Ti 334.940†	85842.4	93417.5	474.52 µg/L	474.52 ppb		15:36:28
3	Tl 190.801†	423.7	455.4	425.19 µg/L	425.19 ppb		15:36:48
3	U 367.007†	2560.2	2917.1	488.47 µg/L	488.47 ppb		15:36:28
3	V 292.402†	28331.9	30658.1	479.37 µg/L	479.37 ppb		15:36:28
3	Zn 213.857†	13213.2	14112.0	412.98 µg/L	412.98 ppb		15:36:48

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	369213.8	91.83	%	0.202				0.22%
Sc RADIAL	4582.8	93.1	%	0.97				1.04%
Y 371.029	288453.6	90.188	%	0.2393				0.27%
Sc 357.253	237020.0	92.27	%	0.297				0.32%
Ag 328.068†	22356.0	252.62	µg/L	2.596	252.62	ppb	2.596	1.03%
QC value within limits for Ag 328.068 Recovery = 101.05%								
Al 396.153Radial†	275788.8	472600	µg/L	8375.9	472600	ppb	8375.9	1.77%
QC value within limits for Al 396.153Radial Recovery = 94.52%								
As 188.979†	223.5	464.31	µg/L	5.330	464.31	ppb	5.330	1.15%
QC value within limits for As 188.979 Recovery = 92.86%								
B 249.677†	12692.8	464.78	µg/L	3.169	464.78	ppb	3.169	0.68%
QC value within limits for B 249.677 Recovery = 92.96%								
Ba 233.527†	25085.9	455.38	µg/L	0.942	455.38	ppb	0.942	0.21%
QC value within limits for Ba 233.527 Recovery = 91.08%								
Be 313.107†	360804.1	228.13	µg/L	0.768	228.13	ppb	0.768	0.34%
QC value within limits for Be 313.107 Recovery = 91.25%								
Ca 317.933Radial†	582859.5	468530	µg/L	7814.8	468530	ppb	7814.8	1.67%

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   QC value within limits for Ca 317.933Radial  Recovery = 93.71%
Cd 226.502†          39153.2      434.97 µg/L         3.247      434.97 ppb          3.247   0.75%
   QC value within limits for Cd 226.502  Recovery = 86.99%
Co 228.616†           4265.4      420.97 µg/L         1.858      420.97 ppb          1.858   0.44%
   QC value within limits for Co 228.616  Recovery = 84.19%
Cr 267.716†          32354.4      447.36 µg/L         0.900      447.36 ppb          0.900   0.20%
   QC value within limits for Cr 267.716  Recovery = 89.47%
Cu 324.752†          48096.0      491.79 µg/L         0.995      491.79 ppb          0.995   0.20%
   QC value within limits for Cu 324.752  Recovery = 98.36%
Fe 238.204 Radial†   78218.7      184350 µg/L        3801.1      184350 ppb         3801.1   2.06%
   QC value within limits for Fe 238.204 Radial  Recovery = 92.17%
K 766.490 Radial†     4984.7      5082.4 µg/L         219.74      5082.4 ppb          219.74   4.32%
   QC value within limits for K 766.490 Radial  Recovery = 101.65%
Mg 279.077 IEC†      46288.7      447810 µg/L        1922.8      447810 ppb         1922.8   0.43%
   QC value within limits for Mg 279.077 IEC  Recovery = 89.56%
Mn 257.610†         125724.6      445.93 µg/L         1.199      445.93 ppb          1.199   0.27%
   QC value within limits for Mn 257.610  Recovery = 89.19%
Mo 202.031†           3756.7      474.43 µg/L         2.783      474.43 ppb          2.783   0.59%
   QC value within limits for Mo 202.031  Recovery = 94.89%
Na 589.592 Radial†   13033.7      4924.5 µg/L         35.23      4924.5 ppb          35.23   0.72%
   QC value within limits for Na 589.592 Radial  Recovery = 98.49%
Ni 231.604†           6234.1      410.32 µg/L         2.716      410.32 ppb          2.716   0.66%
   QC value within limits for Ni 231.604  Recovery = 82.06%
P 214.914†            1234.4      2334.3 µg/L         27.98      2334.3 ppb          27.98   1.20%
   QC value within limits for P 214.914  Recovery = 93.37%
Pb 220.353†           1121.2      456.42 µg/L         4.306      456.42 ppb          4.306   0.94%
   QC value within limits for Pb 220.353  Recovery = 91.28%
S 181.975 Axial†       737.4      2434.4 µg/L         23.63      2434.4 ppb          23.63   0.97%
   QC value within limits for S 181.975 Axial  Recovery = 97.38%
Sb 206.836†           300.4      475.15 µg/L         3.452      475.15 ppb          3.452   0.73%
   QC value within limits for Sb 206.836  Recovery = 95.03%
Se 196.026†           934.6       2170 µg/L          13.9       2170 ppb           13.9   0.64%
   QC value within limits for Se 196.026  Recovery = 86.93%
SiO2†                34612.5      9897.8 µg/L         24.30      9897.8 ppb          24.30   0.25%
   QC value within limits for SiO2  Recovery = 92.55%
Si 251.611†          66700.0      4618.8 µg/L         20.96      4618.8 ppb          20.96   0.45%
   QC value within limits for Si 251.611  Recovery = 92.38%
Sn 189.927†           992.9      445.55 µg/L         5.254      445.55 ppb          5.254   1.18%
   QC value within limits for Sn 189.927  Recovery = 89.11%
Sr 421.552†          46252.3      484.70 µg/L         9.273      484.70 ppb          9.273   1.91%
   QC value within limits for Sr 421.552  Recovery = 96.94%
Ti 334.940†          93009.5      472.43 µg/L         2.262      472.43 ppb          2.262   0.48%
   QC value within limits for Ti 334.940  Recovery = 94.49%
Tl 190.801†           454.3      424.32 µg/L         6.347      424.32 ppb          6.347   1.50%
   QC value within limits for Tl 190.801  Recovery = 84.86%
U 367.007†           2911.3      498.46 µg/L        16.009      498.46 ppb         16.009   3.21%
   QC value within limits for U 367.007  Recovery = 99.69%
V 292.402†           30450.6      476.22 µg/L         2.871      476.22 ppb          2.871   0.60%
   QC value within limits for V 292.402  Recovery = 95.24%
Zn 213.857†          14066.6      411.93 µg/L         1.817      411.93 ppb          1.817   0.44%
   QC value within limits for Zn 213.857  Recovery = 82.39%
All analyte(s) passed QC.
```

Sequence No.: 54 **Autosampler Location: 1**
Sample ID: CCV **Date Collected: 11/2/2016 15:36:56**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4881.3	4881.3	99.2	%			15:37:47
1	Al 396.153Radial†	2797.6	2917.4	4999.3	µg/L	4999.3	ppb	15:37:47
1	Ca 317.933Radial†	6304.3	6295.4	5060.5	µg/L	5060.5	ppb	15:37:47
1	Fe 238.204 Radial†	2156.8	2137.4	5037.5	µg/L	5037.5	ppb	15:37:47
1	K 766.490 Radial†	4463.6	4576.7	4769.9	µg/L	4769.9	ppb	15:37:27
1	Mg 279.077 IEC†	510.9	528.5	5112.8	µg/L	5112.8	ppb	15:37:47
1	Na 589.592 Radial†	25901.0	25352.7	9579.0	µg/L	9579.0	ppb	15:37:27
1	Sr 421.552†	44297.1	44493.8	480.45	µg/L	480.45	ppb	15:37:27
1	Sc	422093.4	422093.4	105.0	%			15:38:35
1	Y 371.029	324800.3	324800.3	101.55	%			15:38:35
1	Sc 357.253	265415.4	265415.4	103.3	%			15:38:35
1	Ag 328.068†	43575.7	42665.4	469.02	µg/L	469.02	ppb	15:38:35
1	As 188.979†	230.1	218.0	457.27	µg/L	457.27	ppb	15:38:55
1	B 249.677†	12726.1	11808.1	469.80	µg/L	469.80	ppb	15:38:35
1	Ba 233.527†	26727.9	25922.5	473.01	µg/L	473.01	ppb	15:38:35
1	Be 313.107†	767874.5	745425.6	470.46	µg/L	470.46	ppb	15:38:35
1	Cd 226.502†	42454.8	41270.0	470.36	µg/L	470.36	ppb	15:38:35
1	Co 228.616†	4668.4	4572.0	468.80	µg/L	468.80	ppb	15:38:55
1	Cr 267.716†	35515.4	34211.6	474.74	µg/L	474.74	ppb	15:38:35
1	Cu 324.752†	51450.9	47643.1	476.16	µg/L	476.16	ppb	15:38:35
1	Mn 257.610†	135886.8	131664.5	478.92	µg/L	478.92	ppb	15:38:35
1	Mo 202.031†	3823.0	3740.4	458.54	µg/L	458.54	ppb	15:38:55
1	Ni 231.604†	7061.8	6827.7	455.09	µg/L	455.09	ppb	15:38:55
1	P 214.914†	1234.0	1166.8	2299.0	µg/L	2299.0	ppb	15:38:55
1	Pb 220.353†	1278.2	1198.6	459.38	µg/L	459.38	ppb	15:38:55
1	S 181.975 Axial†	342.2	281.1	906.40	µg/L	906.40	ppb	15:38:55
1	Sb 206.836†	296.1	282.8	447.96	µg/L	447.96	ppb	15:38:55
1	Se 196.026†	211.1	200.3	468	µg/L	468	ppb	15:38:55
1	SiO2†	19087.1	17737.1	5074.5	µg/L	5074.5	ppb	15:38:35
1	Si 251.611†	35579.8	34160.6	2365.5	µg/L	2365.5	ppb	15:38:35
1	Sn 189.927†	1027.0	1018.4	452.75	µg/L	452.75	ppb	15:38:55
1	Ti 334.940†	96715.4	93706.9	467.09	µg/L	467.09	ppb	15:38:35
1	Tl 190.801†	503.8	482.4	469.19	µg/L	469.19	ppb	15:38:55
1	U 367.007†	832.9	940.1	480.86	µg/L	480.86	ppb	15:38:35
1	V 292.402†	31101.4	29960.9	481.32	µg/L	481.32	ppb	15:38:35
1	Zn 213.857†	14150.1	13443.6	446.74	µg/L	446.74	ppb	15:38:55
2	Sc RADIAL	4886.6	4886.6	99.3	%			15:38:09
2	Al 396.153Radial†	2804.8	2921.5	5006.4	µg/L	5006.4	ppb	15:38:09
2	Ca 317.933Radial†	6261.9	6245.8	5020.7	µg/L	5020.7	ppb	15:38:09
2	Fe 238.204 Radial†	2155.6	2133.9	5029.1	µg/L	5029.1	ppb	15:38:09
2	K 766.490 Radial†	4505.1	4613.6	4808.4	µg/L	4808.4	ppb	15:37:49
2	Mg 279.077 IEC†	499.7	516.7	4998.8	µg/L	4998.8	ppb	15:38:09
2	Na 589.592 Radial†	26016.8	25441.0	9612.4	µg/L	9612.4	ppb	15:37:49
2	Sr 421.552†	44337.9	44486.6	480.37	µg/L	480.37	ppb	15:37:49
2	Sc	415536.0	415536.0	103.3	%			15:38:57
2	Y 371.029	322801.7	322801.7	100.93	%			15:38:57
2	Sc 357.253	263982.1	263982.1	102.8	%			15:38:57
2	Ag 328.068†	42540.0	41886.5	460.51	µg/L	460.51	ppb	15:38:57
2	As 188.979†	231.4	220.5	462.50	µg/L	462.50	ppb	15:39:17
2	B 249.677†	12523.7	11678.1	464.62	µg/L	464.62	ppb	15:38:57
2	Ba 233.527†	26757.8	26092.1	476.08	µg/L	476.08	ppb	15:38:57
2	Be 313.107†	758875.6	740703.6	467.49	µg/L	467.49	ppb	15:38:57
2	Cd 226.502†	41839.1	40894.0	466.06	µg/L	466.06	ppb	15:38:57
2	Co 228.616†	4710.4	4637.5	475.52	µg/L	475.52	ppb	15:39:17
2	Cr 267.716†	34786.5	33688.8	467.48	µg/L	467.48	ppb	15:38:57
2	Cu 324.752†	50947.6	47423.7	473.93	µg/L	473.93	ppb	15:38:57
2	Mn 257.610†	135887.8	132379.6	481.52	µg/L	481.52	ppb	15:38:57
2	Mo 202.031†	3841.8	3778.8	463.25	µg/L	463.25	ppb	15:39:17
2	Ni 231.604†	7098.3	6900.3	459.93	µg/L	459.93	ppb	15:39:17

2	P 214.914†	1237.5	1176.7	2318.6 µg/L	2318.6 ppb		15:39:17
2	Pb 220.353†	1300.6	1227.1	470.36 µg/L	470.36 ppb		15:39:17
2	S 181.975 Axial†	338.8	279.6	901.56 µg/L	901.56 ppb		15:39:17
2	Sb 206.836†	304.3	292.3	463.23 µg/L	463.23 ppb		15:39:17
2	Se 196.026†	211.1	201.4	470 µg/L	470 ppb		15:39:17
2	SiO2†	19044.3	17795.8	5091.2 µg/L	5091.2 ppb		15:38:57
2	Si 251.611†	35711.5	34475.6	2387.3 µg/L	2387.3 ppb		15:38:57
2	Sn 189.927†	1035.8	1032.4	458.94 µg/L	458.94 ppb		15:39:17
2	Ti 334.940†	96396.0	93904.3	468.08 µg/L	468.08 ppb		15:38:57
2	Tl 190.801†	512.8	493.8	480.15 µg/L	480.15 ppb		15:39:17
2	U 367.007†	710.1	825.0	418.40 µg/L	418.40 ppb		15:38:57
2	V 292.402†	29861.8	28918.0	464.66 µg/L	464.66 ppb		15:38:57
2	Zn 213.857†	14217.4	13583.4	451.41 µg/L	451.41 ppb		15:39:17
3	Sc RADIAL	4846.8	4846.8	98.5 %			15:38:31
3	Al 396.153Radial†	2745.4	2884.5	4942.9 µg/L	4942.9 ppb		15:38:31
3	Ca 317.933Radial†	6196.0	6230.7	5008.6 µg/L	5008.6 ppb		15:38:31
3	Fe 238.204 Radial†	2138.0	2133.8	5029.0 µg/L	5029.0 ppb		15:38:31
3	K 766.490 Radial†	4430.0	4574.7	4767.8 µg/L	4767.8 ppb		15:38:11
3	Mg 279.077 IEC†	495.1	516.2	4994.0 µg/L	4994.0 ppb		15:38:31
3	Na 589.592 Radial†	25978.4	25617.5	9679.1 µg/L	9679.1 ppb		15:38:11
3	Sr 421.552†	44507.9	45026.5	486.21 µg/L	486.21 ppb		15:38:11
3	Sc	418968.1	418968.1	104.2 %			15:39:20
3	Y 371.029	328966.2	328966.2	102.86 %			15:39:20
3	Sc 357.253	264185.2	264185.2	102.8 %			15:39:20
3	Ag 328.068†	43009.1	42310.8	465.18 µg/L	465.18 ppb		15:39:20
3	As 188.979†	235.9	224.7	471.26 µg/L	471.26 ppb		15:39:40
3	B 249.677†	12570.6	11714.2	466.06 µg/L	466.06 ppb		15:39:20
3	Ba 233.527†	26611.9	25930.2	473.14 µg/L	473.14 ppb		15:39:20
3	Be 313.107†	774032.4	754874.1	476.42 µg/L	476.42 ppb		15:39:20
3	Cd 226.502†	42043.2	41061.1	467.97 µg/L	467.97 ppb		15:39:20
3	Co 228.616†	4709.6	4633.1	475.08 µg/L	475.08 ppb		15:39:40
3	Cr 267.716†	35247.3	34110.9	473.34 µg/L	473.34 ppb		15:39:20
3	Cu 324.752†	51045.4	47480.7	474.50 µg/L	474.50 ppb		15:39:20
3	Mn 257.610†	135193.9	131603.2	478.70 µg/L	478.70 ppb		15:39:20
3	Mo 202.031†	3850.6	3784.5	463.94 µg/L	463.94 ppb		15:39:40
3	Ni 231.604†	7088.5	6885.4	458.94 µg/L	458.94 ppb		15:39:40
3	P 214.914†	1229.9	1168.4	2302.0 µg/L	2302.0 ppb		15:39:40
3	Pb 220.353†	1301.9	1227.4	470.48 µg/L	470.48 ppb		15:39:40
3	S 181.975 Axial†	339.4	279.9	902.61 µg/L	902.61 ppb		15:39:40
3	Sb 206.836†	304.8	292.6	463.58 µg/L	463.58 ppb		15:39:40
3	Se 196.026†	214.5	204.6	478 µg/L	478 ppb		15:39:40
3	SiO2†	19141.5	17876.0	5114.2 µg/L	5114.2 ppb		15:39:20
3	Si 251.611†	35426.5	34171.8	2366.3 µg/L	2366.3 ppb		15:39:20
3	Sn 189.927†	1036.7	1032.5	458.99 µg/L	458.99 ppb		15:39:40
3	Ti 334.940†	96306.4	93745.0	467.28 µg/L	467.28 ppb		15:39:20
3	Tl 190.801†	496.4	477.5	464.42 µg/L	464.42 ppb		15:39:40
3	U 367.007†	725.7	839.6	426.32 µg/L	426.32 ppb		15:39:20
3	V 292.402†	30869.2	29875.3	479.95 µg/L	479.95 ppb		15:39:20
3	Zn 213.857†	14252.3	13606.7	452.20 µg/L	452.20 ppb		15:39:40

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	418865.9	104.2	%	0.82				0.78%
Sc RADIAL	4871.6	99.0	%	0.44				0.44%
Y 371.029	325522.7	101.78	%	0.983				0.97%
Sc 357.253	264527.5	103.0	%	0.30				0.29%
Ag 328.068†	42287.5	464.90	µg/L	4.261	464.90	ppb	4.261	0.92%
QC value within limits for Ag 328.068 Recovery = 92.98%								
Al 396.153Radial†	2907.8	4982.9	µg/L	34.81	4982.9	ppb	34.81	0.70%
QC value within limits for Al 396.153Radial Recovery = 99.66%								
As 188.979†	221.1	463.68	µg/L	7.073	463.68	ppb	7.073	1.53%
QC value within limits for As 188.979 Recovery = 92.74%								
B 249.677†	11733.5	466.83	µg/L	2.676	466.83	ppb	2.676	0.57%
QC value within limits for B 249.677 Recovery = 93.37%								
Ba 233.527†	25981.6	474.08	µg/L	1.737	474.08	ppb	1.737	0.37%
QC value within limits for Ba 233.527 Recovery = 94.82%								
Be 313.107†	747001.1	471.46	µg/L	4.545	471.46	ppb	4.545	0.96%
QC value within limits for Be 313.107 Recovery = 94.29%								
Ca 317.933Radial†	6257.3	5029.9	µg/L	27.18	5029.9	ppb	27.18	0.54%

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   QC value within limits for Ca 317.933Radial  Recovery = 100.60%
Cd 226.502†            41075.0      468.13 µg/L          2.152      468.13 ppb          2.152   0.46%
   QC value within limits for Cd 226.502  Recovery = 93.63%
Co 228.616†             4614.2      473.13 µg/L          3.756      473.13 ppb          3.756   0.79%
   QC value within limits for Co 228.616  Recovery = 94.63%
Cr 267.716†            34003.8      471.85 µg/L          3.853      471.85 ppb          3.853   0.82%
   QC value within limits for Cr 267.716  Recovery = 94.37%
Cu 324.752†            47515.8      474.86 µg/L          1.160      474.86 ppb          1.160   0.24%
   QC value within limits for Cu 324.752  Recovery = 94.97%
Fe 238.204 Radial†      2135.1      5031.9 µg/L           4.89      5031.9 ppb           4.89   0.10%
   QC value within limits for Fe 238.204 Radial  Recovery = 100.64%
K 766.490 Radial†       4588.4      4782.0 µg/L          22.85      4782.0 ppb          22.85   0.48%
   QC value within limits for K 766.490 Radial  Recovery = 95.64%
Mg 279.077 IEC†          520.5      5035.2 µg/L          67.24      5035.2 ppb          67.24   1.34%
   QC value within limits for Mg 279.077 IEC  Recovery = 100.70%
Mn 257.610†           131882.4      479.71 µg/L          1.571      479.71 ppb          1.571   0.33%
   QC value within limits for Mn 257.610  Recovery = 95.94%
Mo 202.031†             3767.9      461.91 µg/L          2.935      461.91 ppb          2.935   0.64%
   QC value within limits for Mo 202.031  Recovery = 92.38%
Na 589.592 Radial†     25470.4      9623.5 µg/L          50.94      9623.5 ppb          50.94   0.53%
   QC value within limits for Na 589.592 Radial  Recovery = 96.23%
Ni 231.604†             6871.1      457.99 µg/L          2.556      457.99 ppb          2.556   0.56%
   QC value within limits for Ni 231.604  Recovery = 91.60%
P 214.914†              1170.6      2306.5 µg/L          10.53      2306.5 ppb          10.53   0.46%
   QC value within limits for P 214.914  Recovery = 92.26%
Pb 220.353†             1217.7      466.74 µg/L          6.375      466.74 ppb          6.375   1.37%
   QC value within limits for Pb 220.353  Recovery = 93.35%
S 181.975 Axial†         280.2      903.52 µg/L          2.548      903.52 ppb          2.548   0.28%
   QC value within limits for S 181.975 Axial  Recovery = 90.35%
Sb 206.836†              289.2      458.25 µg/L          8.919      458.25 ppb          8.919   1.95%
   QC value within limits for Sb 206.836  Recovery = 91.65%
Se 196.026†              202.1         472 µg/L            5.2         472 ppb            5.2   1.10%
   QC value within limits for Se 196.026  Recovery = 94.34%
SiO2†                  17802.9      5093.3 µg/L          19.93      5093.3 ppb          19.93   0.39%
   QC value within limits for SiO2  Recovery = 95.25%
Si 251.611†            34269.3      2373.1 µg/L          12.38      2373.1 ppb          12.38   0.52%
   QC value within limits for Si 251.611  Recovery = 94.92%
Sn 189.927†             1027.8      456.89 µg/L          3.591      456.89 ppb          3.591   0.79%
   QC value within limits for Sn 189.927  Recovery = 91.38%
Sr 421.552†            44669.0      482.34 µg/L          3.346      482.34 ppb          3.346   0.69%
   QC value within limits for Sr 421.552  Recovery = 96.47%
Ti 334.940†            93785.4      467.48 µg/L          0.523      467.48 ppb          0.523   0.11%
   QC value within limits for Ti 334.940  Recovery = 93.50%
Tl 190.801†              484.6      471.25 µg/L          8.063      471.25 ppb          8.063   1.71%
   QC value within limits for Tl 190.801  Recovery = 94.25%
U 367.007†               868.2      441.86 µg/L         34.004      441.86 ppb         34.004   7.70%
   QC value less than the lower limit for U 367.007  Recovery = 88.37%
V 292.402†             29584.7      475.31 µg/L          9.248      475.31 ppb          9.248   1.95%
   QC value within limits for V 292.402  Recovery = 95.06%
Zn 213.857†            13544.5      450.12 µg/L          2.950      450.12 ppb          2.950   0.66%
   QC value within limits for Zn 213.857  Recovery = 90.02%
QC Failed.  Continue with analysis.
```

Sequence No.: 55 **Autosampler Location: 6**
Sample ID: CCB **Date Collected: 11/2/2016 15:39:49**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4978.2	4978.2	101	%			15:40:19
1	Al 396.153Radial†	-140.2	-41.2	-70.570	µg/L	-70.570	ppb	15:40:19
1	Ca 317.933Radial†	62.5	2.5	1.9923	µg/L	1.9923	ppb	15:40:39
1	Fe 238.204 Radial†	38.5	1.5	3.4383	µg/L	3.4383	ppb	15:40:39
1	K 766.490 Radial†	-111.4	-32.6	-34.044	µg/L	-34.044	ppb	15:40:19
1	Mg 279.077 IEC†	-13.2	0.5	5.1225	µg/L	5.1225	ppb	15:40:39
1	Na 589.592 Radial†	655.3	-107.5	-40.632	µg/L	-40.632	ppb	15:40:19
1	Sr 421.552†	187.3	28.1	0.3033	µg/L	0.3033	ppb	15:40:19
1	Sc	408907.2	408907.2	101.7	%			15:41:27
1	Y 371.029	322454.7	322454.7	100.82	%			15:41:27
1	Sc 357.253	259475.7	259475.7	101.0	%			15:41:27
1	Ag 328.068†	-367.4	125.9	1.3826	µg/L	1.3826	ppb	15:41:27
1	As 188.979†	7.3	2.5	5.2945	µg/L	5.2945	ppb	15:41:47
1	B 249.677†	561.9	47.2	1.8808	µg/L	1.8808	ppb	15:41:27
1	Ba 233.527†	-48.0	5.9	0.1085	µg/L	0.1085	ppb	15:41:47
1	Be 313.107†	-2051.1	191.8	0.1213	µg/L	0.1213	ppb	15:41:27
1	Cd 226.502†	-175.6	5.4	0.0616	µg/L	0.0616	ppb	15:41:47
1	Co 228.616†	-51.8	2.3	0.2332	µg/L	0.2332	ppb	15:41:47
1	Cr 267.716†	180.3	15.8	0.2193	µg/L	0.2193	ppb	15:41:27
1	Cu 324.752†	2138.4	-37.6	-0.3737	µg/L	-0.3737	ppb	15:41:27
1	Mn 257.610†	-116.5	28.3	0.1030	µg/L	0.1030	ppb	15:41:47
1	Mo 202.031†	-43.9	-3.1	-0.3831	µg/L	-0.3831	ppb	15:41:47
1	Ni 231.604†	9.9	2.6	0.1735	µg/L	0.1735	ppb	15:41:47
1	P 214.914†	27.2	-0.6	-1.1456	µg/L	-1.1456	ppb	15:41:47
1	Pb 220.353†	42.3	3.4	1.2915	µg/L	1.2915	ppb	15:41:47
1	S 181.975 Axial†	44.4	-6.1	-19.601	µg/L	-19.601	ppb	15:41:47
1	Sb 206.836†	11.8	7.8	12.415	µg/L	12.415	ppb	15:41:47
1	Se 196.026†	4.7	0.6	1.48	µg/L	1.48	ppb	15:41:47
1	SiO2†	815.3	70.4	20.124	µg/L	20.124	ppb	15:41:27
1	Si 251.611†	262.6	-16.1	-1.1180	µg/L	-1.1180	ppb	15:41:47
1	Sn 189.927†	-22.9	1.7	0.7670	µg/L	0.7670	ppb	15:41:47
1	Ti 334.940†	-50.6	48.8	0.2433	µg/L	0.2433	ppb	15:41:27
1	Tl 190.801†	7.4	2.2	2.0879	µg/L	2.0879	ppb	15:41:47
1	U 367.007†	-130.5	4.8	2.5802	µg/L	2.5802	ppb	15:41:27
1	V 292.402†	202.0	58.7	0.9362	µg/L	0.9362	ppb	15:41:27
1	Zn 213.857†	237.3	-17.0	-0.5733	µg/L	-0.5733	ppb	15:41:47
2	Sc RADIAL	5029.5	5029.5	102	%			15:40:41
2	Al 396.153Radial†	-117.3	-17.4	-29.771	µg/L	-29.771	ppb	15:40:41
2	Ca 317.933Radial†	62.8	2.1	1.6861	µg/L	1.6861	ppb	15:41:02
2	Fe 238.204 Radial†	33.6	-3.7	-8.7582	µg/L	-8.7582	ppb	15:41:02
2	K 766.490 Radial†	-81.9	-2.6	-2.7341	µg/L	-2.7341	ppb	15:40:41
2	Mg 279.077 IEC†	-12.3	1.6	15.081	µg/L	15.081	ppb	15:41:02
2	Na 589.592 Radial†	750.4	-21.1	-7.9645	µg/L	-7.9645	ppb	15:40:41
2	Sr 421.552†	126.7	-33.1	-0.3570	µg/L	-0.3570	ppb	15:40:41
2	Sc	410043.8	410043.8	102.0	%			15:41:49
2	Y 371.029	326738.8	326738.8	102.16	%			15:41:49
2	Sc 357.253	259386.2	259386.2	101.0	%			15:41:49
2	Ag 328.068†	-460.4	33.8	0.4182	µg/L	0.4182	ppb	15:41:49
2	As 188.979†	7.4	2.6	5.4265	µg/L	5.4265	ppb	15:42:09
2	B 249.677†	642.5	127.3	5.0770	µg/L	5.0770	ppb	15:41:49
2	Ba 233.527†	-59.1	-5.1	-0.0914	µg/L	-0.0914	ppb	15:42:09
2	Be 313.107†	-2186.4	57.1	0.0364	µg/L	0.0364	ppb	15:41:49
2	Cd 226.502†	-165.1	15.7	0.1799	µg/L	0.1799	ppb	15:42:09
2	Co 228.616†	-51.7	2.3	0.2411	µg/L	0.2411	ppb	15:42:09
2	Cr 267.716†	137.5	-26.6	-0.3673	µg/L	-0.3673	ppb	15:41:49
2	Cu 324.752†	1926.3	-247.0	-2.4963	µg/L	-2.4963	ppb	15:41:49
2	Mn 257.610†	-116.7	28.1	0.1016	µg/L	0.1016	ppb	15:42:09
2	Mo 202.031†	-35.7	5.0	0.6069	µg/L	0.6069	ppb	15:42:09
2	Ni 231.604†	5.9	-1.4	-0.0954	µg/L	-0.0954	ppb	15:42:09

2	P 214.914†	18.9	-8.9	-17.469 µg/L	-17.469 ppb		15:42:09
2	Pb 220.353†	42.7	3.7	1.4743 µg/L	1.4743 ppb		15:42:09
2	S 181.975 Axial†	43.0	-7.5	-23.968 µg/L	-23.968 ppb		15:42:09
2	Sb 206.836†	9.1	5.2	8.2844 µg/L	8.2844 ppb		15:42:09
2	Se 196.026†	3.7	-0.3	-0.602 µg/L	-0.602 ppb		15:42:09
2	SiO2†	713.1	-30.5	-8.7237 µg/L	-8.7237 ppb		15:41:49
2	Si 251.611†	238.4	-40.0	-2.7683 µg/L	-2.7683 ppb		15:42:09
2	Sn 189.927†	-23.1	1.5	0.6675 µg/L	0.6675 ppb		15:42:09
2	Ti 334.940†	-43.4	55.9	0.2788 µg/L	0.2788 ppb		15:41:49
2	Tl 190.801†	-0.3	-5.5	-5.3142 µg/L	-5.3142 ppb		15:42:09
2	U 367.007†	-215.9	-79.9	-43.305 µg/L	-43.305 ppb		15:41:49
2	V 292.402†	254.1	110.4	1.7452 µg/L	1.7452 ppb		15:41:49
2	Zn 213.857†	239.7	-14.5	-0.4840 µg/L	-0.4840 ppb		15:42:09
3	Sc RADIAL	4980.3	4980.3	101 %			15:41:04
3	Al 396.153Radial†	-115.7	-17.0	-29.057 µg/L	-29.057 ppb		15:41:04
3	Ca 317.933Radial†	54.5	-5.5	-4.4199 µg/L	-4.4199 ppb		15:41:24
3	Fe 238.204 Radial†	37.3	0.3	0.6687 µg/L	0.6687 ppb		15:41:24
3	K 766.490 Radial†	-266.2	-185.5	-193.51 µg/L	-193.51 ppb		15:41:04
3	Mg 279.077 IEC†	-13.2	0.5	5.1599 µg/L	5.1599 ppb		15:41:24
3	Na 589.592 Radial†	564.2	-197.8	-74.728 µg/L	-74.728 ppb		15:41:04
3	Sr 421.552†	137.7	-21.0	-0.2273 µg/L	-0.2273 ppb		15:41:04
3	Sc	406161.0	406161.0	101.0 %			15:42:11
3	Y 371.029	323179.5	323179.5	101.05 %			15:42:11
3	Sc 357.253	260994.5	260994.5	101.6 %			15:42:11
3	Ag 328.068†	-563.1	-64.5	-0.6432 µg/L	-0.6432 ppb		15:42:11
3	As 188.979†	7.9	3.1	6.3679 µg/L	6.3679 ppb		15:42:31
3	B 249.677†	461.0	-55.4	-2.2079 µg/L	-2.2079 ppb		15:42:11
3	Ba 233.527†	-47.5	6.6	0.1232 µg/L	0.1232 ppb		15:42:31
3	Be 313.107†	-2169.5	87.0	0.0551 µg/L	0.0551 ppb		15:42:11
3	Cd 226.502†	-175.1	6.9	0.0787 µg/L	0.0787 ppb		15:42:31
3	Co 228.616†	-50.0	4.4	0.4462 µg/L	0.4462 ppb		15:42:31
3	Cr 267.716†	194.0	28.2	0.3925 µg/L	0.3925 ppb		15:42:11
3	Cu 324.752†	2105.9	-82.0	-0.8604 µg/L	-0.8604 ppb		15:42:11
3	Mn 257.610†	-132.7	13.1	0.0474 µg/L	0.0474 ppb		15:42:31
3	Mo 202.031†	-45.4	-4.3	-0.5321 µg/L	-0.5321 ppb		15:42:31
3	Ni 231.604†	10.0	2.6	0.1717 µg/L	0.1717 ppb		15:42:31
3	P 214.914†	16.7	-11.1	-21.841 µg/L	-21.841 ppb		15:42:31
3	Pb 220.353†	43.2	4.0	1.5935 µg/L	1.5935 ppb		15:42:31
3	S 181.975 Axial†	46.0	-4.8	-15.506 µg/L	-15.506 ppb		15:42:31
3	Sb 206.836†	9.3	5.3	8.4057 µg/L	8.4057 ppb		15:42:31
3	Se 196.026†	8.4	4.3	10.1 µg/L	10.1 ppb		15:42:31
3	SiO2†	761.8	13.0	3.7266 µg/L	3.7266 ppb		15:42:11
3	Si 251.611†	259.0	-21.2	-1.4658 µg/L	-1.4658 ppb		15:42:31
3	Sn 189.927†	-19.8	4.9	2.1877 µg/L	2.1877 ppb		15:42:31
3	Ti 334.940†	-75.1	25.0	0.1245 µg/L	0.1245 ppb		15:42:11
3	Tl 190.801†	0.6	-4.6	-4.4238 µg/L	-4.4238 ppb		15:42:31
3	U 367.007†	-249.9	-112.0	-60.796 µg/L	-60.796 ppb		15:42:11
3	V 292.402†	313.5	167.3	2.6378 µg/L	2.6378 ppb		15:42:11
3	Zn 213.857†	240.1	-15.6	-0.5247 µg/L	-0.5247 ppb		15:42:31

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	408370.7	101.6	%	0.50				0.49%
Sc RADIAL	4996.0	102	%	0.6				0.58%
Y 371.029	324124.4	101.34	%	0.717				0.71%
Sc 357.253	259952.1	101.2	%	0.35				0.35%
Ag 328.068†	31.7	0.3859	µg/L	1.01326	0.3859	ppb	1.01326	262.59%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-25.2	-43.133	µg/L	23.7643	-43.133	ppb	23.7643	55.10%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	2.7	5.6963	µg/L	0.58535	5.6963	ppb	0.58535	10.28%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	39.7	1.5833	µg/L	3.65157	1.5833	ppb	3.65157	230.63%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	2.5	0.0468	µg/L	0.11990	0.0468	ppb	0.11990	256.23%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	112.0	0.0709	µg/L	0.04459	0.0709	ppb	0.04459	62.87%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	-0.3	-0.2472	µg/L	3.61691	-0.2472	ppb	3.61691	>999.9%

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   QC value within limits for Ca 317.933Radial  Recovery = Not calculated
Cd 226.502†                9.4      0.1068 µg/L       0.06394      0.1068 ppb        0.06394  59.89%
   QC value within limits for Cd 226.502  Recovery = Not calculated
Co 228.616†                3.0      0.3068 µg/L       0.12074      0.3068 ppb        0.12074  39.35%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†                5.8      0.0815 µg/L       0.39819      0.0815 ppb        0.39819 488.52%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†             -122.2     -1.2435 µg/L       1.11194     -1.2435 ppb        1.11194  89.42%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        -0.7     -1.5504 µg/L       6.39390     -1.5504 ppb        6.39390 412.40%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        -73.6     -76.761 µg/L      102.3088     -76.761 ppb       102.3088 133.28%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            0.9      8.4545 µg/L       5.73884      8.4545 ppb        5.73884  67.88%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               23.2      0.0840 µg/L       0.03175      0.0840 ppb        0.03175  37.79%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               -0.8     -0.1028 µg/L       0.61909     -0.1028 ppb        0.61909 602.43%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -108.8     -41.108 µg/L       33.3842     -41.108 ppb        33.3842  81.21%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†                1.2      0.0833 µg/L       0.15472      0.0833 ppb        0.15472 185.83%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -6.8     -13.485 µg/L       10.9077     -13.485 ppb        10.9077  80.89%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                3.7      1.4531 µg/L       0.15213      1.4531 ppb        0.15213  10.47%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -6.1     -19.692 µg/L        4.2316     -19.692 ppb         4.2316  21.49%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†                6.1      9.7017 µg/L       2.35062      9.7017 ppb        2.35062  24.23%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                1.6       3.67 µg/L         5.684        3.67 ppb          5.684 155.05%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                     17.6      5.0422 µg/L      14.46853      5.0422 ppb       14.46853 286.95%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†             -25.8     -1.7840 µg/L       0.86997     -1.7840 ppb        0.86997  48.76%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                2.7      1.2074 µg/L       0.85040      1.2074 ppb        0.85040  70.43%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†               -8.7     -0.0937 µg/L       0.34988     -0.0937 ppb        0.34988 373.53%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†               43.2      0.2156 µg/L       0.08080      0.2156 ppb        0.08080  37.49%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               -2.6     -2.5500 µg/L       4.04119     -2.5500 ppb        4.04119 158.48%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†              -62.3     -33.840 µg/L       32.7312     -33.840 ppb        32.7312  96.72%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†              112.1      1.7731 µg/L       0.85117      1.7731 ppb        0.85117  48.01%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†             -15.7     -0.5273 µg/L       0.04470     -0.5273 ppb        0.04470   8.48%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 56 **Autosampler Location: 331**
Sample ID: 1203658086|1611348|1| **Date Collected: 11/2/2016 15:42:41**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203658086|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	5031.6	5031.6	102	%			15:43:12
1	Al 396.153Radial†	-45.3	53.1	90.973	µg/L	90.973	ppb	15:43:12
1	Ca 317.933Radial†	63.4	2.7	2.1920	µg/L	2.1920	ppb	15:43:32
1	Fe 238.204 Radial†	38.6	1.1	2.6769	µg/L	2.6769	ppb	15:43:32
1	K 766.490 Radial†	-235.2	-152.5	-159.06	µg/L	-159.06	ppb	15:43:12
1	Mg 279.077 IEC†	-14.6	-0.7	-7.2306	µg/L	-7.2306	ppb	15:43:32
1	Na 589.592 Radial†	752.5	-19.3	-7.3047	µg/L	-7.3047	ppb	15:43:12
1	Sr 421.552†	119.3	-40.4	-0.4369	µg/L	-0.4369	ppb	15:43:12
1	Sc	417926.7	417926.7	103.9	%			15:44:19
1	Y 371.029	332321.5	332321.5	103.90	%			15:44:19
1	Sc 357.253	269009.3	269009.3	104.7	%			15:44:19
1	Ag 328.068†	-493.4	18.6	0.2757	µg/L	0.2757	ppb	15:44:19
1	As 188.979†	3.7	-1.2	-2.4731	µg/L	-2.4731	ppb	15:44:39
1	B 249.677†	580.4	45.2	1.8013	µg/L	1.8013	ppb	15:44:19
1	Ba 233.527†	-52.8	3.0	0.0559	µg/L	0.0559	ppb	15:44:39
1	Be 313.107†	-2103.3	213.9	0.1360	µg/L	0.1360	ppb	15:44:19
1	Cd 226.502†	-169.7	17.2	0.1966	µg/L	0.1966	ppb	15:44:39
1	Co 228.616†	-59.1	-2.9	-0.2945	µg/L	-0.2945	ppb	15:44:39
1	Cr 267.716†	147.9	-21.5	-0.2974	µg/L	-0.2974	ppb	15:44:19
1	Cu 324.752†	2066.3	-181.5	-1.8578	µg/L	-1.8578	ppb	15:44:19
1	Mn 257.610†	-130.7	18.9	0.0689	µg/L	0.0689	ppb	15:44:39
1	Mo 202.031†	-52.8	-10.1	-1.2417	µg/L	-1.2417	ppb	15:44:39
1	Ni 231.604†	-6.6	-13.5	-0.9001	µg/L	-0.9001	ppb	15:44:39
1	P 214.914†	18.4	-9.9	-19.577	µg/L	-19.577	ppb	15:44:39
1	Pb 220.353†	40.7	0.4	0.2036	µg/L	0.2036	ppb	15:44:39
1	S 181.975 Axial†	44.4	-7.7	-24.788	µg/L	-24.788	ppb	15:44:39
1	Sb 206.836†	2.6	-1.4	-2.1929	µg/L	-2.1929	ppb	15:44:39
1	Se 196.026†	6.6	2.3	5.43	µg/L	5.43	ppb	15:44:39
1	SiO2†	774.5	2.8	0.7941	µg/L	0.7941	ppb	15:44:19
1	Si 251.611†	329.7	38.8	2.6836	µg/L	2.6836	ppb	15:44:39
1	Sn 189.927†	-19.9	5.4	2.3974	µg/L	2.3974	ppb	15:44:39
1	Ti 334.940†	44.6	141.5	0.7056	µg/L	0.7056	ppb	15:44:19
1	Tl 190.801†	-0.3	-5.5	-5.3477	µg/L	-5.3477	ppb	15:44:39
1	U 367.007†	-268.2	-122.2	-66.350	µg/L	-66.350	ppb	15:44:19
1	V 292.402†	238.1	86.1	1.3348	µg/L	1.3348	ppb	15:44:19
1	Zn 213.857†	199.1	-61.8	-2.0667	µg/L	-2.0667	ppb	15:44:39
2	Sc RADIAL	5155.4	5155.4	105	%			15:43:34
2	Al 396.153Radial†	-118.3	-15.5	-26.546	µg/L	-26.546	ppb	15:43:34
2	Ca 317.933Radial†	68.4	5.9	4.7726	µg/L	4.7726	ppb	15:43:54
2	Fe 238.204 Radial†	41.3	2.9	6.7937	µg/L	6.7937	ppb	15:43:54
2	K 766.490 Radial†	-305.0	-213.6	-222.80	µg/L	-222.80	ppb	15:43:34
2	Mg 279.077 IEC†	-10.3	3.7	35.896	µg/L	35.896	ppb	15:43:54
2	Na 589.592 Radial†	907.1	110.5	41.746	µg/L	41.746	ppb	15:43:34
2	Sr 421.552†	155.1	-9.0	-0.0981	µg/L	-0.0981	ppb	15:43:34
2	Sc	416927.7	416927.7	103.7	%			15:44:41
2	Y 371.029	334464.1	334464.1	104.57	%			15:44:41
2	Sc 357.253	267452.7	267452.7	104.1	%			15:44:41
2	Ag 328.068†	-451.9	55.7	0.6313	µg/L	0.6313	ppb	15:44:41
2	As 188.979†	8.9	3.8	7.9331	µg/L	7.9331	ppb	15:45:01
2	B 249.677†	591.5	59.1	2.3548	µg/L	2.3548	ppb	15:44:41
2	Ba 233.527†	-36.4	18.4	0.3376	µg/L	0.3376	ppb	15:45:01
2	Be 313.107†	-2211.3	98.5	0.0621	µg/L	0.0621	ppb	15:44:41
2	Cd 226.502†	-188.7	-2.0	-0.0233	µg/L	-0.0233	ppb	15:45:01
2	Co 228.616†	-52.0	3.6	0.3721	µg/L	0.3721	ppb	15:45:01
2	Cr 267.716†	180.7	10.8	0.1509	µg/L	0.1509	ppb	15:44:41
2	Cu 324.752†	2144.3	-95.1	-0.9602	µg/L	-0.9602	ppb	15:44:41
2	Mn 257.610†	-119.9	28.5	0.1027	µg/L	0.1027	ppb	15:45:01
2	Mo 202.031†	-38.4	3.4	0.4161	µg/L	0.4161	ppb	15:45:01
2	Ni 231.604†	10.9	3.2	0.2139	µg/L	0.2139	ppb	15:45:01

2	P 214.914†	28.4	-0.3	-0.5148	µg/L	-0.5148 ppb	15:45:01
2	Pb 220.353†	40.7	0.5	0.2234	µg/L	0.2234 ppb	15:45:01
2	S 181.975 Axial†	47.3	-4.6	-14.833	µg/L	-14.833 ppb	15:45:01
2	Sb 206.836†	8.4	4.3	6.7864	µg/L	6.7864 ppb	15:45:01
2	Se 196.026†	5.3	1.2	2.71	µg/L	2.71 ppb	15:45:01
2	SiO2†	781.0	13.4	3.8315	µg/L	3.8315 ppb	15:44:41
2	Si 251.611†	303.6	15.5	1.0736	µg/L	1.0736 ppb	15:45:01
2	Sn 189.927†	-21.6	3.6	1.6119	µg/L	1.6119 ppb	15:45:01
2	Ti 334.940†	-93.4	9.2	0.0457	µg/L	0.0457 ppb	15:44:41
2	Tl 190.801†	0.9	-4.3	-4.1697	µg/L	-4.1697 ppb	15:45:01
2	U 367.007†	-170.7	-30.0	-16.317	µg/L	-16.317 ppb	15:44:41
2	V 292.402†	302.3	149.1	2.3737	µg/L	2.3737 ppb	15:44:41
2	Zn 213.857†	188.9	-70.5	-2.3676	µg/L	-2.3676 ppb	15:45:01
3	Sc RADIAL	5057.3	5057.3	103	%		15:43:56
3	Al 396.153Radial†	-56.3	42.6	72.939	µg/L	72.939 ppb	15:43:56
3	Ca 317.933Radial†	64.0	3.0	2.4068	µg/L	2.4068 ppb	15:44:16
3	Fe 238.204 Radial†	30.0	-7.3	-17.295	µg/L	-17.295 ppb	15:44:16
3	K 766.490 Radial†	-208.6	-125.5	-130.89	µg/L	-130.89 ppb	15:43:56
3	Mg 279.077 IEC†	-12.6	1.3	12.483	µg/L	12.483 ppb	15:44:16
3	Na 589.592 Radial†	919.8	139.6	52.759	µg/L	52.759 ppb	15:43:56
3	Sr 421.552†	167.9	6.3	0.0685	µg/L	0.0685 ppb	15:43:56
3	Sc	416339.0	416339.0	103.5	%		15:45:04
3	Y 371.029	331622.6	331622.6	103.69	%		15:45:04
3	Sc 357.253	266867.7	266867.7	103.9	%		15:45:04
3	Ag 328.068†	-504.1	4.5	0.0497	µg/L	0.0497 ppb	15:45:04
3	As 188.979†	3.9	-0.9	-1.9288	µg/L	-1.9288 ppb	15:45:24
3	B 249.677†	485.4	-41.8	-1.6633	µg/L	-1.6633 ppb	15:45:04
3	Ba 233.527†	-55.6	-0.1	-0.0013	µg/L	-0.0013 ppb	15:45:24
3	Be 313.107†	-2241.6	64.6	0.0404	µg/L	0.0404 ppb	15:45:04
3	Cd 226.502†	-183.9	2.2	0.0265	µg/L	0.0265 ppb	15:45:24
3	Co 228.616†	-45.8	9.5	0.9759	µg/L	0.9759 ppb	15:45:24
3	Cr 267.716†	276.0	102.9	1.4283	µg/L	1.4283 ppb	15:45:04
3	Cu 324.752†	2055.0	-176.6	-1.7638	µg/L	-1.7638 ppb	15:45:04
3	Mn 257.610†	-107.4	40.3	0.1458	µg/L	0.1458 ppb	15:45:24
3	Mo 202.031†	-54.3	-12.0	-1.4654	µg/L	-1.4654 ppb	15:45:24
3	Ni 231.604†	7.8	0.3	0.0178	µg/L	0.0178 ppb	15:45:24
3	P 214.914†	25.7	-2.8	-5.5538	µg/L	-5.5538 ppb	15:45:24
3	Pb 220.353†	41.0	0.9	0.3517	µg/L	0.3517 ppb	15:45:24
3	S 181.975 Axial†	45.9	-5.9	-19.042	µg/L	-19.042 ppb	15:45:24
3	Sb 206.836†	9.2	5.0	7.9175	µg/L	7.9175 ppb	15:45:24
3	Se 196.026†	1.9	-2.1	-4.96	µg/L	-4.96 ppb	15:45:24
3	SiO2†	782.5	16.5	4.7252	µg/L	4.7252 ppb	15:45:04
3	Si 251.611†	331.0	42.5	2.9408	µg/L	2.9408 ppb	15:45:24
3	Sn 189.927†	-19.8	5.3	2.3616	µg/L	2.3616 ppb	15:45:24
3	Ti 334.940†	-142.4	-38.2	-0.1907	µg/L	-0.1907 ppb	15:45:04
3	Tl 190.801†	3.5	-1.9	-1.8239	µg/L	-1.8239 ppb	15:45:24
3	U 367.007†	-139.0	0.1	0.1792	µg/L	0.1792 ppb	15:45:04
3	V 292.402†	210.1	60.9	0.9672	µg/L	0.9672 ppb	15:45:04
3	Zn 213.857†	185.6	-73.2	-2.4546	µg/L	-2.4546 ppb	15:45:24

Mean Data: 1203658086|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc	417064.5	103.7	%	0.20				0.19%
Sc RADIAL	5081.4	103	%	1.3				1.29%
Y 371.029	332802.7	104.05	%	0.463				0.44%
Sc 357.253	267776.6	104.2	%	0.43				0.41%
Ag 328.068†	26.3	0.3189	µg/L	0.29322	0.3189	ppb	0.29322	91.95%
Al 396.153Radial†	26.7	45.789	µg/L	63.2892	45.789	ppb	63.2892	138.22%
As 188.979†	0.6	1.1771	µg/L	5.85724	1.1771	ppb	5.85724	497.61%
B 249.677†	20.8	0.8309	µg/L	2.17770	0.8309	ppb	2.17770	262.08%
Ba 233.527†	7.1	0.1308	µg/L	0.18140	0.1308	ppb	0.18140	138.72%
Be 313.107†	125.7	0.0795	µg/L	0.05011	0.0795	ppb	0.05011	63.04%
Ca 317.933Radial†	3.9	3.1238	µg/L	1.43197	3.1238	ppb	1.43197	45.84%
Cd 226.502†	5.8	0.0666	µg/L	0.11533	0.0666	ppb	0.11533	173.14%
Co 228.616†	3.4	0.3511	µg/L	0.63547	0.3511	ppb	0.63547	180.97%
Cr 267.716†	30.7	0.4273	µg/L	0.89542	0.4273	ppb	0.89542	209.56%
Cu 324.752†	-151.1	-1.5273	µg/L	0.49334	-1.5273	ppb	0.49334	32.30%
Fe 238.204 Radial†	-1.1	-2.6081	µg/L	12.88462	-2.6081	ppb	12.88462	494.02%
K 766.490 Radial†	-163.9	-170.92	µg/L	47.091	-170.92	ppb	47.091	27.55%

Concentration less than lower limit for K 766.490 Radial.

Mg 279.077 IEC†	1.4	13.716 µg/L	21.5895	13.716 ppb	21.5895	157.40%
Mn 257.610†	29.2	0.1058 µg/L	0.03853	0.1058 ppb	0.03853	36.41%
Mo 202.031†	-6.2	-0.7637 µg/L	1.02779	-0.7637 ppb	1.02779	134.58%
Na 589.592 Radial†	76.9	29.066 µg/L	31.9761	29.066 ppb	31.9761	110.01%
Ni 231.604†	-3.3	-0.2228 µg/L	0.59472	-0.2228 ppb	0.59472	266.90%
P 214.914†	-4.3	-8.5485 µg/L	9.87756	-8.5485 ppb	9.87756	115.55%
Pb 220.353†	0.6	0.2596 µg/L	0.08041	0.2596 ppb	0.08041	30.98%
S 181.975 Axial†	-6.1	-19.554 µg/L	4.9976	-19.554 ppb	4.9976	25.56%
Sb 206.836†	2.6	4.1703 µg/L	5.53962	4.1703 ppb	5.53962	132.83%
Se 196.026†	0.5	1.06 µg/L	5.384	1.06 ppb	5.384	508.10%
SiO2†	10.9	3.1169 µg/L	2.06068	3.1169 ppb	2.06068	66.11%
Si 251.611†	32.2	2.2327 µg/L	1.01197	2.2327 ppb	1.01197	45.33%
Sn 189.927†	4.8	2.1237 µg/L	0.44355	2.1237 ppb	0.44355	20.89%
Sr 421.552†	-14.4	-0.1555 µg/L	0.25754	-0.1555 ppb	0.25754	165.64%
Ti 334.940†	37.5	0.1869 µg/L	0.46455	0.1869 ppb	0.46455	248.59%
Tl 190.801†	-3.9	-3.7805 µg/L	1.79387	-3.7805 ppb	1.79387	47.45%
U 367.007†	-50.7	-27.496 µg/L	34.6447	-27.496 ppb	34.6447	126.00%
V 292.402†	98.7	1.5586 µg/L	0.72943	1.5586 ppb	0.72943	46.80%
Zn 213.857†	-68.5	-2.2963 µg/L	0.20354	-2.2963 ppb	0.20354	8.86%

Sequence No.: 57 **Autosampler Location: 332**
Sample ID: 1203657517|1611348|1| **Date Collected: 11/2/2016 15:45:32**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203657517|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	5105.7	5105.7	104	%			15:46:01
1	Al 396.153Radial†	-127.2	-25.2	-43.117	µg/L	-43.117	ppb	15:46:01
1	Ca 317.933Radial†	69.8	7.9	6.3524	µg/L	6.3524	ppb	15:46:21
1	Fe 238.204 Radial†	35.8	-2.1	-4.8523	µg/L	-4.8523	ppb	15:46:21
1	K 766.490 Radial†	-71.0	9.0	9.3998	µg/L	9.3998	ppb	15:46:01
1	Mg 279.077 IEC†	-14.8	-0.7	-7.1434	µg/L	-7.1434	ppb	15:46:21
1	Na 589.592 Radial†	810.2	25.6	9.6546	µg/L	9.6546	ppb	15:46:01
1	Sr 421.552†	151.3	-11.2	-0.1209	µg/L	-0.1209	ppb	15:46:01
1	Sc	416097.4	416097.4	103.5	%			15:47:09
1	Y 371.029	329386.0	329386.0	102.99	%			15:47:09
1	Sc 357.253	265496.5	265496.5	103.4	%			15:47:09
1	Ag 328.068†	-568.4	-60.3	-0.6348	µg/L	-0.6348	ppb	15:47:09
1	As 188.979†	5.6	0.7	1.4384	µg/L	1.4384	ppb	15:47:29
1	B 249.677†	477.3	-47.3	-1.8844	µg/L	-1.8844	ppb	15:47:09
1	Ba 233.527†	-55.0	0.2	0.0014	µg/L	0.0014	ppb	15:47:29
1	Be 313.107†	-2125.6	165.7	0.1053	µg/L	0.1053	ppb	15:47:09
1	Cd 226.502†	-171.7	13.2	0.1505	µg/L	0.1505	ppb	15:47:29
1	Co 228.616†	-60.2	-4.7	-0.4767	µg/L	-0.4767	ppb	15:47:29
1	Cr 267.716†	118.1	-48.5	-0.6735	µg/L	-0.6735	ppb	15:47:09
1	Cu 324.752†	2040.8	-180.1	-1.8174	µg/L	-1.8174	ppb	15:47:09
1	Mn 257.610†	-119.3	28.3	0.1030	µg/L	0.1030	ppb	15:47:29
1	Mo 202.031†	-47.9	-6.0	-0.7359	µg/L	-0.7359	ppb	15:47:29
1	Ni 231.604†	8.5	1.0	0.0662	µg/L	0.0662	ppb	15:47:29
1	P 214.914†	21.8	-6.4	-12.686	µg/L	-12.686	ppb	15:47:29
1	Pb 220.353†	38.5	-1.3	-0.4596	µg/L	-0.4596	ppb	15:47:29
1	S 181.975 Axial†	46.4	-5.2	-16.779	µg/L	-16.779	ppb	15:47:29
1	Sb 206.836†	8.8	4.7	7.3964	µg/L	7.3964	ppb	15:47:29
1	Se 196.026†	6.5	2.3	5.40	µg/L	5.40	ppb	15:47:29
1	SiO2†	839.4	75.4	21.546	µg/L	21.546	ppb	15:47:09
1	Si 251.611†	347.6	60.2	4.1713	µg/L	4.1713	ppb	15:47:29
1	Sn 189.927†	-21.5	3.6	1.5782	µg/L	1.5782	ppb	15:47:29
1	Ti 334.940†	6.8	105.5	0.5261	µg/L	0.5261	ppb	15:47:09
1	Tl 190.801†	1.8	-3.5	-3.3581	µg/L	-3.3581	ppb	15:47:29
1	U 367.007†	-191.0	-50.8	-27.568	µg/L	-27.568	ppb	15:47:09
1	V 292.402†	20.9	-121.1	-1.9504	µg/L	-1.9504	ppb	15:47:09
1	Zn 213.857†	197.0	-61.4	-2.0564	µg/L	-2.0564	ppb	15:47:29
2	Sc RADIAL	5150.6	5150.6	105	%			15:46:23
2	Al 396.153Radial†	-38.1	61.0	104.57	µg/L	104.57	ppb	15:46:23
2	Ca 317.933Radial†	66.0	3.8	3.0290	µg/L	3.0290	ppb	15:46:43
2	Fe 238.204 Radial†	35.9	-2.3	-5.4171	µg/L	-5.4171	ppb	15:46:43
2	K 766.490 Radial†	-174.3	-89.0	-92.805	µg/L	-92.805	ppb	15:46:23
2	Mg 279.077 IEC†	-16.4	-2.1	-20.406	µg/L	-20.406	ppb	15:46:43
2	Na 589.592 Radial†	717.4	-69.8	-26.388	µg/L	-26.388	ppb	15:46:23
2	Sr 421.552†	197.1	31.3	0.3382	µg/L	0.3382	ppb	15:46:23
2	Sc	415642.7	415642.7	103.4	%			15:47:31
2	Y 371.029	332387.1	332387.1	103.92	%			15:47:31
2	Sc 357.253	268094.2	268094.2	104.4	%			15:47:31
2	Ag 328.068†	-490.4	19.9	0.2221	µg/L	0.2221	ppb	15:47:31
2	As 188.979†	4.6	-0.3	-0.6672	µg/L	-0.6672	ppb	15:47:51
2	B 249.677†	577.4	44.2	1.7641	µg/L	1.7641	ppb	15:47:31
2	Ba 233.527†	-62.3	-6.4	-0.1139	µg/L	-0.1139	ppb	15:47:51
2	Be 313.107†	-2301.5	17.1	0.0113	µg/L	0.0113	ppb	15:47:31
2	Cd 226.502†	-158.5	27.3	0.3123	µg/L	0.3123	ppb	15:47:51
2	Co 228.616†	-48.3	7.4	0.7549	µg/L	0.7549	ppb	15:47:51
2	Cr 267.716†	154.2	-15.0	-0.2070	µg/L	-0.2070	ppb	15:47:31
2	Cu 324.752†	2105.2	-137.5	-1.3747	µg/L	-1.3747	ppb	15:47:31
2	Mn 257.610†	-128.2	20.8	0.0763	µg/L	0.0763	ppb	15:47:51
2	Mo 202.031†	-40.3	1.7	0.2017	µg/L	0.2017	ppb	15:47:51
2	Ni 231.604†	9.7	2.0	0.1356	µg/L	0.1356	ppb	15:47:51

2	P 214.914†	16.5	-11.7	-23.153 µg/L	-23.153 ppb		15:47:51
2	Pb 220.353†	41.2	1.0	0.3922 µg/L	0.3922 ppb		15:47:51
2	S 181.975 Axial†	51.4	-0.8	-2.6842 µg/L	-2.6842 ppb		15:47:51
2	Sb 206.836†	6.0	1.9	3.0718 µg/L	3.0718 ppb		15:47:51
2	Se 196.026†	-0.4	-4.3	-10.1 µg/L	-10.1 ppb		15:47:51
2	SiO2†	814.9	44.0	12.582 µg/L	12.582 ppb		15:47:31
2	Si 251.611†	333.9	43.8	3.0313 µg/L	3.0313 ppb		15:47:51
2	Sn 189.927†	-18.4	6.8	3.0066 µg/L	3.0066 ppb		15:47:51
2	Ti 334.940†	-43.0	57.7	0.2877 µg/L	0.2877 ppb		15:47:31
2	Tl 190.801†	5.9	0.4	0.4264 µg/L	0.4264 ppb		15:47:51
2	U 367.007†	-144.5	-4.5	-2.4281 µg/L	-2.4281 ppb		15:47:31
2	V 292.402†	276.8	124.0	1.9783 µg/L	1.9783 ppb		15:47:31
2	Zn 213.857†	190.8	-69.1	-2.3158 µg/L	-2.3158 ppb		15:47:51
3	Sc RADIAL	5039.0	5039.0	102 %			15:46:45
3	Al 396.153Radial†	-125.2	-24.9	-42.653 µg/L	-42.653 ppb		15:46:45
3	Ca 317.933Radial†	57.6	-3.1	-2.4556 µg/L	-2.4556 ppb		15:47:05
3	Fe 238.204 Radial†	36.6	-0.8	-1.9641 µg/L	-1.9641 ppb		15:47:05
3	K 766.490 Radial†	-158.3	-77.1	-80.367 µg/L	-80.367 ppb		15:46:45
3	Mg 279.077 IEC†	-8.3	5.5	53.193 µg/L	53.193 ppb		15:47:05
3	Na 589.592 Radial†	729.1	-43.3	-16.343 µg/L	-16.343 ppb		15:46:45
3	Sr 421.552†	160.8	-0.1	-0.0007 µg/L	-0.0007 ppb		15:46:45
3	Sc	415902.8	415902.8	103.4 %			15:47:53
3	Y 371.029	333153.4	333153.4	104.16 %			15:47:53
3	Sc 357.253	268626.0	268626.0	104.6 %			15:47:53
3	Ag 328.068†	-673.4	-154.3	-1.6635 µg/L	-1.6635 ppb		15:47:53
3	As 188.979†	8.0	3.0	6.1847 µg/L	6.1847 ppb		15:48:13
3	B 249.677†	593.2	58.2	2.3220 µg/L	2.3220 ppb		15:47:53
3	Ba 233.527†	-46.2	9.2	0.1697 µg/L	0.1697 ppb		15:48:13
3	Be 313.107†	-2305.3	17.8	0.0111 µg/L	0.0111 ppb		15:47:53
3	Cd 226.502†	-184.3	3.0	0.0344 µg/L	0.0344 ppb		15:48:13
3	Co 228.616†	-52.1	3.8	0.3913 µg/L	0.3913 ppb		15:48:13
3	Cr 267.716†	216.9	44.6	0.6205 µg/L	0.6205 ppb		15:47:53
3	Cu 324.752†	2062.9	-182.0	-1.8370 µg/L	-1.8370 ppb		15:47:53
3	Mn 257.610†	-124.1	25.0	0.0891 µg/L	0.0891 ppb		15:48:13
3	Mo 202.031†	-52.6	-10.0	-1.2221 µg/L	-1.2221 ppb		15:48:13
3	Ni 231.604†	9.1	1.4	0.0965 µg/L	0.0965 ppb		15:48:13
3	P 214.914†	23.4	-5.2	-10.176 µg/L	-10.176 ppb		15:48:13
3	Pb 220.353†	40.3	-0.0	0.0207 µg/L	0.0207 ppb		15:48:13
3	S 181.975 Axial†	51.2	-1.2	-3.7708 µg/L	-3.7708 ppb		15:48:13
3	Sb 206.836†	6.8	2.7	4.1962 µg/L	4.1962 ppb		15:48:13
3	Se 196.026†	3.2	-0.9	-2.04 µg/L	-2.04 ppb		15:48:13
3	SiO2†	776.9	6.2	1.7702 µg/L	1.7702 ppb		15:47:53
3	Si 251.611†	363.3	71.3	4.9381 µg/L	4.9381 ppb		15:48:13
3	Sn 189.927†	-24.6	0.9	0.4007 µg/L	0.4007 ppb		15:48:13
3	Ti 334.940†	-123.3	-19.0	-0.0952 µg/L	-0.0952 ppb		15:47:53
3	Tl 190.801†	-4.7	-9.7	-9.4107 µg/L	-9.4107 ppb		15:48:13
3	U 367.007†	-196.7	-54.1	-29.368 µg/L	-29.368 ppb		15:47:53
3	V 292.402†	305.7	151.1	2.3912 µg/L	2.3912 ppb		15:47:53
3	Zn 213.857†	193.2	-67.2	-2.2559 µg/L	-2.2559 ppb		15:48:13

Mean Data: 1203657517|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	415880.9	103.4	%	0.06				0.05%
Sc RADIAL	5098.4	104	%	1.1				1.10%
Y 371.029	331642.2	103.69	%	0.623				0.60%
Sc 357.253	267405.5	104.1	%	0.65				0.63%
Ag 328.068†	-64.9	-0.6921	µg/L	0.94410	-0.6921	ppb	0.94410	136.42%
Al 396.153Radial†	3.7	6.2659	µg/L	85.13154	6.2659	ppb	85.13154	>999.9%
As 188.979†	1.1	2.3186	µg/L	3.50974	2.3186	ppb	3.50974	151.37%
B 249.677†	18.4	0.7339	µg/L	2.28460	0.7339	ppb	2.28460	311.30%
Ba 233.527†	1.0	0.0191	µg/L	0.14259	0.0191	ppb	0.14259	746.95%
Be 313.107†	66.9	0.0426	µg/L	0.05435	0.0426	ppb	0.05435	127.72%
Ca 317.933Radial†	2.9	2.3086	µg/L	4.44798	2.3086	ppb	4.44798	192.67%
Cd 226.502†	14.5	0.1658	µg/L	0.13958	0.1658	ppb	0.13958	84.20%
Co 228.616†	2.2	0.2232	µg/L	0.63278	0.2232	ppb	0.63278	283.55%
Cr 267.716†	-6.3	-0.0867	µg/L	0.65537	-0.0867	ppb	0.65537	756.18%
Cu 324.752†	-166.6	-1.6764	µg/L	0.26145	-1.6764	ppb	0.26145	15.60%
Fe 238.204 Radial†	-1.7	-4.0778	µg/L	1.85219	-4.0778	ppb	1.85219	45.42%
K 766.490 Radial†	-52.3	-54.591	µg/L	55.7653	-54.591	ppb	55.7653	102.15%

Mg 279.077 IEC†	0.9	8.5477 µg/L	39.22846	8.5477 ppb	39.22846	458.93%
Mn 257.610†	24.7	0.0895 µg/L	0.01334	0.0895 ppb	0.01334	14.90%
Mo 202.031†	-4.8	-0.5854 µg/L	0.72374	-0.5854 ppb	0.72374	123.63%
Na 589.592 Radial†	-29.2	-11.025 µg/L	18.6003	-11.025 ppb	18.6003	168.70%
Ni 231.604†	1.5	0.0994 µg/L	0.03479	0.0994 ppb	0.03479	34.99%
P 214.914†	-7.8	-15.338 µg/L	6.8830	-15.338 ppb	6.8830	44.87%
Pb 220.353†	-0.1	-0.0156 µg/L	0.42705	-0.0156 ppb	0.42705	>999.9%
S 181.975 Axial†	-2.4	-7.7448 µg/L	7.84309	-7.7448 ppb	7.84309	101.27%
Sb 206.836†	3.1	4.8881 µg/L	2.24379	4.8881 ppb	2.24379	45.90%
Se 196.026†	-1.0	-2.26 µg/L	7.769	-2.26 ppb	7.769	343.93%
SiO2†	41.9	11.966 µg/L	9.9020	11.966 ppb	9.9020	82.75%
Si 251.611†	58.4	4.0469 µg/L	0.95945	4.0469 ppb	0.95945	23.71%
Sn 189.927†	3.7	1.6618 µg/L	1.30498	1.6618 ppb	1.30498	78.53%
Sr 421.552†	6.7	0.0722 µg/L	0.23807	0.0722 ppb	0.23807	329.77%
Ti 334.940†	48.0	0.2396 µg/L	0.31348	0.2396 ppb	0.31348	130.86%
Tl 190.801†	-4.3	-4.1142 µg/L	4.96195	-4.1142 ppb	4.96195	120.61%
U 367.007†	-36.5	-19.788 µg/L	15.0611	-19.788 ppb	15.0611	76.11%
V 292.402†	51.3	0.8064 µg/L	2.39637	0.8064 ppb	2.39637	297.19%
Zn 213.857†	-65.9	-2.2094 µg/L	0.13582	-2.2094 ppb	0.13582	6.15%

Sequence No.: 58 **Autosampler Location: 333**
Sample ID: 1203658087|1611348|1| **Date Collected: 11/2/2016 15:48:23**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203658087|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	5015.7	5015.7	102	%			15:49:12
1	Al 396.153Radial†	2849.6	2892.9	4957.3	µg/L	4957.3	ppb	15:49:12
1	Ca 317.933Radial†	6161.9	5985.5	4811.4	µg/L	4811.4	ppb	15:49:12
1	Fe 238.204 Radial†	2203.2	2124.7	5007.5	µg/L	5007.5	ppb	15:49:12
1	K 766.490 Radial†	4616.4	4606.1	4800.5	µg/L	4800.5	ppb	15:48:52
1	Mg 279.077 IEC†	506.3	510.2	4935.9	µg/L	4935.9	ppb	15:49:12
1	Na 589.592 Radial†	14034.6	13012.6	4916.6	µg/L	4916.6	ppb	15:48:52
1	Sr 421.552†	45196.7	44180.6	477.07	µg/L	477.07	ppb	15:48:52
1	Sc	431579.2	431579.2	107.3	%			15:50:00
1	Y 371.029	332500.3	332500.3	103.96	%			15:50:00
1	Sc 357.253	271196.2	271196.2	105.6	%			15:50:00
1	Ag 328.068†	44899.4	43020.2	472.94	µg/L	472.94	ppb	15:50:00
1	As 188.979†	237.2	220.0	461.53	µg/L	461.53	ppb	15:50:20
1	B 249.677†	12215.2	11061.7	440.04	µg/L	440.04	ppb	15:50:00
1	Ba 233.527†	27168.3	25788.3	470.55	µg/L	470.55	ppb	15:50:00
1	Be 313.107†	780180.1	741239.8	467.84	µg/L	467.84	ppb	15:50:00
1	Cd 226.502†	42890.0	40806.4	465.07	µg/L	465.07	ppb	15:50:00
1	Co 228.616†	4813.8	4613.4	473.05	µg/L	473.05	ppb	15:50:20
1	Cr 267.716†	36006.9	33944.4	471.02	µg/L	471.02	ppb	15:50:00
1	Cu 324.752†	52193.3	47284.8	472.56	µg/L	472.56	ppb	15:50:00
1	Mn 257.610†	136638.5	129573.0	471.31	µg/L	471.31	ppb	15:50:00
1	Mo 202.031†	4005.4	3834.3	470.04	µg/L	470.04	ppb	15:50:20
1	Ni 231.604†	7221.9	6833.7	455.49	µg/L	455.49	ppb	15:50:20
1	P 214.914†	272.1	230.2	447.54	µg/L	447.54	ppb	15:50:20
1	Pb 220.353†	1327.7	1219.1	467.28	µg/L	467.28	ppb	15:50:20
1	S 181.975 Axial†	1617.4	1482.0	4763.1	µg/L	4763.1	ppb	15:50:20
1	Sb 206.836†	319.3	298.6	473.22	µg/L	473.22	ppb	15:50:20
1	Se 196.026†	214.3	199.0	464	µg/L	464	ppb	15:50:20
1	SiO2†	2561.3	1689.4	487.50	µg/L	487.50	ppb	15:50:20
1	Si 251.611†	3960.4	3475.3	240.66	µg/L	240.66	ppb	15:50:20
1	Sn 189.927†	1077.0	1044.6	464.37	µg/L	464.37	ppb	15:50:20
1	Ti 334.940†	100919.9	95694.2	476.99	µg/L	476.99	ppb	15:50:00
1	Tl 190.801†	517.9	485.4	472.14	µg/L	472.14	ppb	15:50:20
1	U 367.007†	791.5	883.7	450.40	µg/L	450.40	ppb	15:50:00
1	V 292.402†	31105.2	29322.8	471.18	µg/L	471.18	ppb	15:50:00
1	Zn 213.857†	14247.5	13243.9	440.06	µg/L	440.06	ppb	15:50:20
2	Sc RADIAL	5004.9	5004.9	102	%			15:49:34
2	Al 396.153Radial†	2847.1	2896.4	4963.4	µg/L	4963.4	ppb	15:49:34
2	Ca 317.933Radial†	6176.8	6013.0	4833.6	µg/L	4833.6	ppb	15:49:34
2	Fe 238.204 Radial†	2203.0	2129.2	5018.2	µg/L	5018.2	ppb	15:49:34
2	K 766.490 Radial†	4485.7	4487.4	4676.7	µg/L	4676.7	ppb	15:49:14
2	Mg 279.077 IEC†	507.4	512.4	4957.4	µg/L	4957.4	ppb	15:49:34
2	Na 589.592 Radial†	14009.8	13017.8	4918.5	µg/L	4918.5	ppb	15:49:14
2	Sr 421.552†	45232.1	44310.6	478.47	µg/L	478.47	ppb	15:49:14
2	Sc	428235.9	428235.9	106.5	%			15:50:22
2	Y 371.029	332445.9	332445.9	103.94	%			15:50:22
2	Sc 357.253	269080.0	269080.0	104.7	%			15:50:22
2	Ag 328.068†	44346.9	42827.3	470.81	µg/L	470.81	ppb	15:50:22
2	As 188.979†	229.5	214.4	449.82	µg/L	449.82	ppb	15:50:42
2	B 249.677†	12118.6	11060.4	439.99	µg/L	439.99	ppb	15:50:22
2	Ba 233.527†	27016.7	25845.9	471.60	µg/L	471.60	ppb	15:50:22
2	Be 313.107†	777185.4	744192.9	469.71	µg/L	469.71	ppb	15:50:22
2	Cd 226.502†	42498.4	40752.0	464.44	µg/L	464.44	ppb	15:50:22
2	Co 228.616†	4763.3	4601.1	471.79	µg/L	471.79	ppb	15:50:42
2	Cr 267.716†	35502.4	33731.0	468.06	µg/L	468.06	ppb	15:50:22
2	Cu 324.752†	51595.9	47103.3	470.76	µg/L	470.76	ppb	15:50:22
2	Mn 257.610†	135866.6	129854.1	472.33	µg/L	472.33	ppb	15:50:22
2	Mo 202.031†	3988.4	3848.0	471.71	µg/L	471.71	ppb	15:50:42
2	Ni 231.604†	7213.9	6879.8	458.57	µg/L	458.57	ppb	15:50:42

2	P 214.914†	268.8	229.1	445.36 µg/L	445.36 ppb	15:50:42
2	Pb 220.353†	1315.5	1217.3	466.59 µg/L	466.59 ppb	15:50:42
2	S 181.975 Axial†	1610.0	1487.0	4779.1 µg/L	4779.1 ppb	15:50:42
2	Sb 206.836†	313.4	295.4	468.19 µg/L	468.19 ppb	15:50:42
2	Se 196.026†	206.1	192.8	450 µg/L	450 ppb	15:50:42
2	SiO2†	2567.3	1714.2	494.57 µg/L	494.57 ppb	15:50:42
2	Si 251.611†	3999.6	3542.3	245.29 µg/L	245.29 ppb	15:50:42
2	Sn 189.927†	1066.0	1042.1	463.30 µg/L	463.30 ppb	15:50:42
2	Ti 334.940†	100322.7	95875.9	477.90 µg/L	477.90 ppb	15:50:22
2	Tl 190.801†	507.3	479.1	466.07 µg/L	466.07 ppb	15:50:42
2	U 367.007†	813.1	910.2	464.73 µg/L	464.73 ppb	15:50:22
2	V 292.402†	30840.1	29301.4	470.85 µg/L	470.85 ppb	15:50:22
2	Zn 213.857†	14231.4	13334.6	443.08 µg/L	443.08 ppb	15:50:42
3	Sc RADIAL	4989.5	4989.5	101 %		15:49:56
3	Al 396.153Radial†	2837.4	2895.5	4961.8 µg/L	4961.8 ppb	15:49:56
3	Ca 317.933Radial†	6176.2	6031.2	4848.2 µg/L	4848.2 ppb	15:49:56
3	Fe 238.204 Radial†	2190.8	2123.8	5005.4 µg/L	5005.4 ppb	15:49:56
3	K 766.490 Radial†	4687.2	4699.6	4898.1 µg/L	4898.1 ppb	15:49:36
3	Mg 279.077 IEC†	508.1	514.6	4978.4 µg/L	4978.4 ppb	15:49:56
3	Na 589.592 Radial†	14200.9	13248.8	5005.8 µg/L	5005.8 ppb	15:49:36
3	Sr 421.552†	45500.3	44712.3	482.81 µg/L	482.81 ppb	15:49:36
3	Sc	425256.5	425256.5	105.8 %		15:50:45
3	Y 371.029	332183.3	332183.3	103.86 %		15:50:45
3	Sc 357.253	269281.6	269281.6	104.8 %		15:50:45
3	Ag 328.068†	44182.1	42638.3	468.77 µg/L	468.77 ppb	15:50:45
3	As 188.979†	235.9	220.3	462.16 µg/L	462.16 ppb	15:51:05
3	B 249.677†	12017.7	10955.4	435.80 µg/L	435.80 ppb	15:50:45
3	Ba 233.527†	27170.0	25972.9	473.91 µg/L	473.91 ppb	15:50:45
3	Be 313.107†	776609.9	743088.3	469.01 µg/L	469.01 ppb	15:50:45
3	Cd 226.502†	42236.2	40471.5	461.24 µg/L	461.24 ppb	15:50:45
3	Co 228.616†	4814.4	4646.4	476.44 µg/L	476.44 ppb	15:51:05
3	Cr 267.716†	35312.3	33524.2	465.20 µg/L	465.20 ppb	15:50:45
3	Cu 324.752†	51167.1	46657.3	466.28 µg/L	466.28 ppb	15:50:45
3	Mn 257.610†	136325.0	130194.3	473.57 µg/L	473.57 ppb	15:50:45
3	Mo 202.031†	4004.8	3860.8	473.28 µg/L	473.28 ppb	15:51:05
3	Ni 231.604†	7189.0	6850.9	456.64 µg/L	456.64 ppb	15:51:05
3	P 214.914†	277.7	237.4	461.92 µg/L	461.92 ppb	15:51:05
3	Pb 220.353†	1327.2	1227.6	470.56 µg/L	470.56 ppb	15:51:05
3	S 181.975 Axial†	1622.1	1497.3	4812.3 µg/L	4812.3 ppb	15:51:05
3	Sb 206.836†	326.6	307.7	487.73 µg/L	487.73 ppb	15:51:05
3	Se 196.026†	209.3	195.7	457 µg/L	457 ppb	15:51:05
3	SiO2†	2470.5	1620.0	467.61 µg/L	467.61 ppb	15:51:05
3	Si 251.611†	3767.4	3317.9	229.76 µg/L	229.76 ppb	15:51:05
3	Sn 189.927†	1066.2	1041.5	463.01 µg/L	463.01 ppb	15:51:05
3	Ti 334.940†	100073.0	95566.0	476.36 µg/L	476.36 ppb	15:50:45
3	Tl 190.801†	514.8	485.9	472.63 µg/L	472.63 ppb	15:51:05
3	U 367.007†	732.4	832.7	422.72 µg/L	422.72 ppb	15:50:45
3	V 292.402†	30746.5	29190.1	469.06 µg/L	469.06 ppb	15:50:45
3	Zn 213.857†	14185.2	13280.4	441.28 µg/L	441.28 ppb	15:51:05

Mean Data: 1203658087|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	428357.2	106.5	%	0.79				0.74%
Sc RADIAL	5003.4	102	%	0.3				0.26%
Y 371.029	332376.5	103.92	%	0.053				0.05%
Sc 357.253	269852.6	105.0	%	0.45				0.43%
Ag 328.068†	42828.6	470.84	µg/L	2.086	470.84	ppb	2.086	0.44%
Al 396.153Radial†	2894.9	4960.8	µg/L	3.15	4960.8	ppb	3.15	0.06%
As 188.979†	218.2	457.83	µg/L	6.952	457.83	ppb	6.952	1.52%
B 249.677†	11025.8	438.61	µg/L	2.430	438.61	ppb	2.430	0.55%
Ba 233.527†	25869.0	472.02	µg/L	1.721	472.02	ppb	1.721	0.36%
Be 313.107†	742840.3	468.85	µg/L	0.941	468.85	ppb	0.941	0.20%
Ca 317.933Radial†	6009.9	4831.1	µg/L	18.51	4831.1	ppb	18.51	0.38%
Cd 226.502†	40676.6	463.58	µg/L	2.050	463.58	ppb	2.050	0.44%
Co 228.616†	4620.3	473.76	µg/L	2.403	473.76	ppb	2.403	0.51%
Cr 267.716†	33733.2	468.10	µg/L	2.914	468.10	ppb	2.914	0.62%
Cu 324.752†	47015.2	469.87	µg/L	3.235	469.87	ppb	3.235	0.69%
Fe 238.204 Radial†	2125.9	5010.4	µg/L	6.83	5010.4	ppb	6.83	0.14%
K 766.490 Radial†	4597.7	4791.7	µg/L	110.95	4791.7	ppb	110.95	2.32%

Mg 279.077 IEC†	512.4	4957.2 µg/L	21.29	4957.2 ppb	21.29	0.43%
Mn 257.610†	129873.8	472.41 µg/L	1.131	472.41 ppb	1.131	0.24%
Mo 202.031†	3847.7	471.68 µg/L	1.618	471.68 ppb	1.618	0.34%
Na 589.592 Radial†	13093.1	4947.0 µg/L	50.95	4947.0 ppb	50.95	1.03%
Ni 231.604†	6854.8	456.90 µg/L	1.553	456.90 ppb	1.553	0.34%
P 214.914†	232.2	451.60 µg/L	8.997	451.60 ppb	8.997	1.99%
Pb 220.353†	1221.3	468.15 µg/L	2.121	468.15 ppb	2.121	0.45%
S 181.975 Axial†	1488.8	4784.8 µg/L	25.10	4784.8 ppb	25.10	0.52%
Sb 206.836†	300.6	476.38 µg/L	10.147	476.38 ppb	10.147	2.13%
Se 196.026†	195.8	457 µg/L	7.2	457 ppb	7.2	1.58%
SiO2†	1674.5	483.23 µg/L	13.978	483.23 ppb	13.978	2.89%
Si 251.611†	3445.2	238.57 µg/L	7.977	238.57 ppb	7.977	3.34%
Sn 189.927†	1042.7	463.56 µg/L	0.716	463.56 ppb	0.716	0.15%
Sr 421.552†	44401.2	479.45 µg/L	2.995	479.45 ppb	2.995	0.62%
Ti 334.940†	95712.0	477.08 µg/L	0.776	477.08 ppb	0.776	0.16%
Tl 190.801†	483.5	470.28 µg/L	3.653	470.28 ppb	3.653	0.78%
U 367.007†	875.5	445.95 µg/L	21.353	445.95 ppb	21.353	4.79%
V 292.402†	29271.4	470.37 µg/L	1.141	470.37 ppb	1.141	0.24%
Zn 213.857†	13286.3	441.47 µg/L	1.521	441.47 ppb	1.521	0.34%

Sequence No.: 59 **Autosampler Location: 334**
Sample ID: 409254021|1611348|1| **Date Collected: 11/2/2016 15:51:14**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254021|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4896.2	4896.2	99.5	%			15:52:03
1	Al 396.153Radial†	137.0	235.0	402.77	µg/L	402.77	ppb	15:51:43
1	Ca 317.933Radial†	1072.8	1018.8	818.94	µg/L	818.94	ppb	15:52:03
1	Fe 238.204 Radial†	234.6	199.2	469.40	µg/L	469.40	ppb	15:52:03
1	K 766.490 Radial†	32.2	109.8	114.19	µg/L	114.19	ppb	15:51:43
1	Mg 279.077 IEC†	15.9	29.5	285.45	µg/L	285.45	ppb	15:52:03
1	Na 589.592 Radial†	17973.2	17306.5	6538.9	µg/L	6538.9	ppb	15:51:43
1	Sr 421.552†	482.2	327.5	3.5039	µg/L	3.5039	ppb	15:51:43
1	Sc	413648.2	413648.2	102.9	%			15:52:50
1	Y 371.029	327689.1	327689.1	102.46	%			15:52:50
1	Sc 357.253	263718.3	263718.3	102.7	%			15:52:50
1	Ag 328.068†	-558.9	-54.7	-0.5704	µg/L	-0.5704	ppb	15:52:50
1	As 188.979†	12.7	7.6	15.864	µg/L	15.864	ppb	15:53:10
1	B 249.677†	812.7	282.6	11.165	µg/L	11.165	ppb	15:53:10
1	Ba 233.527†	302.3	347.8	6.3379	µg/L	6.3379	ppb	15:53:10
1	Be 313.107†	-2199.3	80.1	0.0605	µg/L	0.0605	ppb	15:52:50
1	Cd 226.502†	-146.6	36.5	0.3866	µg/L	0.3866	ppb	15:53:10
1	Co 228.616†	-62.6	-7.4	-0.7906	µg/L	-0.7906	ppb	15:53:10
1	Cr 267.716†	228.6	59.9	0.8285	µg/L	0.8285	ppb	15:53:10
1	Cu 324.752†	2173.9	-37.2	-0.3509	µg/L	-0.3509	ppb	15:52:50
1	Mn 257.610†	2179.1	2266.3	8.2442	µg/L	8.2442	ppb	15:53:10
1	Mo 202.031†	-46.1	-4.6	-0.5302	µg/L	-0.5302	ppb	15:53:10
1	Ni 231.604†	7.6	0.2	0.0003	µg/L	0.0003	ppb	15:53:10
1	P 214.914†	34.2	5.8	11.183	µg/L	11.183	ppb	15:53:10
1	Pb 220.353†	26.8	-12.4	-4.7047	µg/L	-4.7047	ppb	15:53:10
1	S 181.975 Axial†	696.1	628.0	2016.8	µg/L	2016.8	ppb	15:53:10
1	Sb 206.836†	4.4	0.5	0.7988	µg/L	0.7988	ppb	15:53:10
1	Se 196.026†	5.5	1.4	3.13	µg/L	3.13	ppb	15:53:10
1	SiO2†	3385.3	2560.8	731.98	µg/L	731.98	ppb	15:53:10
1	Si 251.611†	5421.5	5005.0	346.58	µg/L	346.58	ppb	15:53:10
1	Sn 189.927†	-22.0	3.0	1.3595	µg/L	1.3595	ppb	15:53:10
1	Ti 334.940†	1083.9	1154.7	5.7720	µg/L	5.7720	ppb	15:52:50
1	Tl 190.801†	5.6	0.3	0.2451	µg/L	0.2451	ppb	15:53:10
1	U 367.007†	-156.9	-18.8	-12.982	µg/L	-12.982	ppb	15:52:50
1	V 292.402†	303.3	154.2	2.4190	µg/L	2.4190	ppb	15:53:10
1	Zn 213.857†	495.7	230.9	7.6603	µg/L	7.6603	ppb	15:53:10
2	Sc RADIAL	4925.2	4925.2	100	%			15:52:25
2	Al 396.153Radial†	140.0	237.2	406.51	µg/L	406.51	ppb	15:52:05
2	Ca 317.933Radial†	1076.6	1016.2	816.89	µg/L	816.89	ppb	15:52:25
2	Fe 238.204 Radial†	236.9	200.1	471.53	µg/L	471.53	ppb	15:52:25
2	K 766.490 Radial†	-190.1	-112.4	-117.56	µg/L	-117.56	ppb	15:52:05
2	Mg 279.077 IEC†	15.9	29.4	284.71	µg/L	284.71	ppb	15:52:25
2	Na 589.592 Radial†	18078.9	17305.8	6538.7	µg/L	6538.7	ppb	15:52:05
2	Sr 421.552†	445.5	288.0	3.0773	µg/L	3.0773	ppb	15:52:05
2	Sc	411169.2	411169.2	102.3	%			15:53:12
2	Y 371.029	323339.2	323339.2	101.10	%			15:53:12
2	Sc 357.253	263084.4	263084.4	102.4	%			15:53:12
2	Ag 328.068†	-412.1	87.4	0.9723	µg/L	0.9723	ppb	15:53:12
2	As 188.979†	10.1	5.2	10.818	µg/L	10.818	ppb	15:53:32
2	B 249.677†	782.0	254.5	10.045	µg/L	10.045	ppb	15:53:32
2	Ba 233.527†	283.4	330.1	6.0137	µg/L	6.0137	ppb	15:53:32
2	Be 313.107†	-2065.5	205.5	0.1399	µg/L	0.1399	ppb	15:53:12
2	Cd 226.502†	-178.6	4.9	0.0259	µg/L	0.0259	ppb	15:53:32
2	Co 228.616†	-46.1	8.6	0.8429	µg/L	0.8429	ppb	15:53:32
2	Cr 267.716†	236.3	68.0	0.9407	µg/L	0.9407	ppb	15:53:32
2	Cu 324.752†	2229.0	21.7	0.2499	µg/L	0.2499	ppb	15:53:12
2	Mn 257.610†	2192.5	2284.5	8.3104	µg/L	8.3104	ppb	15:53:32
2	Mo 202.031†	-33.0	8.1	1.0245	µg/L	1.0245	ppb	15:53:32
2	Ni 231.604†	12.6	5.0	0.3216	µg/L	0.3216	ppb	15:53:32

2	P 214.914†	34.2	5.9	11.346 µg/L	11.346 ppb		15:53:32
2	Pb 220.353†	39.1	-0.3	-0.1088 µg/L	-0.1088 ppb		15:53:32
2	S 181.975 Axial†	687.7	621.4	1995.8 µg/L	1995.8 ppb		15:53:32
2	Sb 206.836†	4.0	0.1	0.1296 µg/L	0.1296 ppb		15:53:32
2	Se 196.026†	6.3	2.2	5.15 µg/L	5.15 ppb		15:53:32
2	SiO2†	3373.1	2556.9	730.86 µg/L	730.86 ppb		15:53:32
2	Si 251.611†	5351.6	4949.4	342.73 µg/L	342.73 ppb		15:53:32
2	Sn 189.927†	-24.4	0.6	0.2839 µg/L	0.2839 ppb		15:53:32
2	Ti 334.940†	1128.8	1201.1	6.0034 µg/L	6.0034 ppb		15:53:12
2	Tl 190.801†	-15.2	-20.1	-19.391 µg/L	-19.391 ppb		15:53:32
2	U 367.007†	-121.5	15.3	5.5371 µg/L	5.5371 ppb		15:53:12
2	V 292.402†	295.2	147.0	2.3215 µg/L	2.3215 ppb		15:53:32
2	Zn 213.857†	493.5	230.0	7.6253 µg/L	7.6253 ppb		15:53:32
3	Sc RADIAL	4889.4	4889.4	99.4 %			15:52:47
3	Al 396.153Radial†	136.8	235.0	402.74 µg/L	402.74 ppb		15:52:27
3	Ca 317.933Radial†	1062.2	1009.6	811.57 µg/L	811.57 ppb		15:52:47
3	Fe 238.204 Radial†	236.0	200.9	473.50 µg/L	473.50 ppb		15:52:47
3	K 766.490 Radial†	139.4	217.8	226.81 µg/L	226.81 ppb		15:52:27
3	Mg 279.077 IEC†	12.4	26.0	251.84 µg/L	251.84 ppb		15:52:47
3	Na 589.592 Radial†	18480.6	17842.1	6741.3 µg/L	6741.3 ppb		15:52:27
3	Sr 421.552†	490.9	336.9	3.6057 µg/L	3.6057 ppb		15:52:27
3	Sc	415526.5	415526.5	103.3 %			15:53:35
3	Y 371.029	329399.9	329399.9	102.99 %			15:53:35
3	Sc 357.253	265515.3	265515.3	103.4 %			15:53:35
3	Ag 328.068†	-470.0	34.9	0.4141 µg/L	0.4141 ppb		15:53:35
3	As 188.979†	5.6	0.7	1.5350 µg/L	1.5350 ppb		15:53:55
3	B 249.677†	810.7	275.3	10.874 µg/L	10.874 ppb		15:53:55
3	Ba 233.527†	292.0	335.9	6.1193 µg/L	6.1193 ppb		15:53:55
3	Be 313.107†	-2096.9	193.7	0.1324 µg/L	0.1324 ppb		15:53:35
3	Cd 226.502†	-176.5	8.5	0.0672 µg/L	0.0672 ppb		15:53:55
3	Co 228.616†	-55.1	0.2	-0.0098 µg/L	-0.0098 ppb		15:53:55
3	Cr 267.716†	228.8	58.6	0.8092 µg/L	0.8092 ppb		15:53:55
3	Cu 324.752†	2171.1	-54.2	-0.5196 µg/L	-0.5196 ppb		15:53:35
3	Mn 257.610†	2172.8	2245.9	8.1711 µg/L	8.1711 ppb		15:53:55
3	Mo 202.031†	-30.2	11.1	1.3955 µg/L	1.3955 ppb		15:53:55
3	Ni 231.604†	18.1	10.3	0.6706 µg/L	0.6706 ppb		15:53:55
3	P 214.914†	34.7	6.1	11.776 µg/L	11.776 ppb		15:53:55
3	Pb 220.353†	43.4	3.5	1.3605 µg/L	1.3605 ppb		15:53:55
3	S 181.975 Axial†	682.0	609.7	1958.3 µg/L	1958.3 ppb		15:53:55
3	Sb 206.836†	10.0	5.8	9.2584 µg/L	9.2584 ppb		15:53:55
3	Se 196.026†	6.3	2.1	4.92 µg/L	4.92 ppb		15:53:55
3	SiO2†	3287.6	2444.0	698.58 µg/L	698.58 ppb		15:53:55
3	Si 251.611†	5232.9	4786.7	331.47 µg/L	331.47 ppb		15:53:55
3	Sn 189.927†	-25.1	0.1	0.0850 µg/L	0.0850 ppb		15:53:55
3	Ti 334.940†	1135.7	1197.7	5.9862 µg/L	5.9862 ppb		15:53:35
3	Tl 190.801†	0.4	-4.8	-4.6813 µg/L	-4.6813 ppb		15:53:55
3	U 367.007†	-155.9	-16.8	-11.920 µg/L	-11.920 ppb		15:53:35
3	V 292.402†	264.5	114.6	1.7978 µg/L	1.7978 ppb		15:53:55
3	Zn 213.857†	497.1	229.0	7.5946 µg/L	7.5946 ppb		15:53:55

Mean Data: 409254021|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	413447.9	102.8	%	0.54				0.53%
Sc RADIAL	4903.6	99.7	%	0.39				0.39%
Y 371.029	326809.4	102.18	%	0.977				0.96%
Sc 357.253	264106.0	102.8	%	0.49				0.48%
Ag 328.068†	22.5	0.2720	µg/L	0.78110	0.2720	ppb	0.78110	287.19%
Al 396.153Radial†	235.8	404.00	µg/L	2.173	404.00	ppb	2.173	0.54%
As 188.979†	4.5	9.4059	µg/L	7.26837	9.4059	ppb	7.26837	77.27%
B 249.677†	270.8	10.695	µg/L	0.5812	10.695	ppb	0.5812	5.43%
Ba 233.527†	337.9	6.1570	µg/L	0.16537	6.1570	ppb	0.16537	2.69%
Be 313.107†	159.8	0.1109	µg/L	0.04385	0.1109	ppb	0.04385	39.54%
Ca 317.933Radial†	1014.9	815.80	µg/L	3.804	815.80	ppb	3.804	0.47%
Cd 226.502†	16.6	0.1599	µg/L	0.19741	0.1599	ppb	0.19741	123.44%
Co 228.616†	0.5	0.0141	µg/L	0.81702	0.0141	ppb	0.81702	>999.9%
Cr 267.716†	62.2	0.8595	µg/L	0.07099	0.8595	ppb	0.07099	8.26%
Cu 324.752†	-23.2	-0.2069	µg/L	0.40444	-0.2069	ppb	0.40444	195.49%
Fe 238.204 Radial†	200.0	471.48	µg/L	2.049	471.48	ppb	2.049	0.43%
K 766.490 Radial†	71.7	74.480	µg/L	175.5865	74.480	ppb	175.5865	235.75%

Mg 279.077 IEC†	28.3	274.00 µg/L	19.199	274.00 ppb	19.199	7.01%
Mn 257.610†	2265.6	8.2419 µg/L	0.06970	8.2419 ppb	0.06970	0.85%
Mo 202.031†	4.8	0.6299 µg/L	1.02173	0.6299 ppb	1.02173	162.19%
Na 589.592 Radial†	17484.8	6606.3 µg/L	116.92	6606.3 ppb	116.92	1.77%
Ni 231.604†	5.2	0.3308 µg/L	0.33528	0.3308 ppb	0.33528	101.34%
P 214.914†	5.9	11.435 µg/L	0.3064	11.435 ppb	0.3064	2.68%
Pb 220.353†	-3.1	-1.1510 µg/L	3.16407	-1.1510 ppb	3.16407	274.90%
S 181.975 Axial†	619.7	1990.3 µg/L	29.62	1990.3 ppb	29.62	1.49%
Sb 206.836†	2.1	3.3956 µg/L	5.08836	3.3956 ppb	5.08836	149.85%
Se 196.026†	1.9	4.40 µg/L	1.106	4.40 ppb	1.106	25.13%
SiO2†	2520.6	720.47 µg/L	18.968	720.47 ppb	18.968	2.63%
Si 251.611†	4913.7	340.26 µg/L	7.853	340.26 ppb	7.853	2.31%
Sn 189.927†	1.2	0.5761 µg/L	0.68566	0.5761 ppb	0.68566	119.02%
Sr 421.552†	317.5	3.3956 µg/L	0.28036	3.3956 ppb	0.28036	8.26%
Ti 334.940†	1184.5	5.9205 µg/L	0.12892	5.9205 ppb	0.12892	2.18%
Tl 190.801†	-8.2	-7.9423 µg/L	10.21592	-7.9423 ppb	10.21592	128.63%
U 367.007†	-6.8	-6.4552 µg/L	10.39922	-6.4552 ppb	10.39922	161.10%
V 292.402†	138.6	2.1794 µg/L	0.33410	2.1794 ppb	0.33410	15.33%
Zn 213.857†	230.0	7.6267 µg/L	0.03291	7.6267 ppb	0.03291	0.43%

Sequence No.: 60 **Autosampler Location: 335**
Sample ID: 1203658088|1611348|1| **Date Collected: 11/2/2016 15:54:04**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203658088|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4968.3	4968.3	101	%			15:54:53
1	Al 396.153Radial†	165.9	261.7	448.47	µg/L	448.47	ppb	15:54:33
1	Ca 317.933Radial†	966.2	897.5	721.47	µg/L	721.47	ppb	15:54:53
1	Fe 238.204 Radial†	231.2	192.4	453.51	µg/L	453.51	ppb	15:54:53
1	K 766.490 Radial†	12.6	89.9	93.504	µg/L	93.504	ppb	15:54:33
1	Mg 279.077 IEC†	17.6	31.0	300.04	µg/L	300.04	ppb	15:54:53
1	Na 589.592 Radial†	18368.5	17435.9	6587.8	µg/L	6587.8	ppb	15:54:33
1	Sr 421.552†	353.6	193.2	2.0543	µg/L	2.0543	ppb	15:54:33
1	Sc	418330.9	418330.9	104.0	%			15:55:41
1	Y 371.029	331638.6	331638.6	103.69	%			15:55:41
1	Sc 357.253	268117.1	268117.1	104.4	%			15:55:41
1	Ag 328.068†	-426.4	81.2	0.9269	µg/L	0.9269	ppb	15:55:41
1	As 188.979†	10.6	5.4	11.318	µg/L	11.318	ppb	15:56:01
1	B 249.677†	816.8	273.5	10.806	µg/L	10.806	ppb	15:56:01
1	Ba 233.527†	272.6	314.6	5.7314	µg/L	5.7314	ppb	15:56:01
1	Be 313.107†	-2177.7	135.9	0.0958	µg/L	0.0958	ppb	15:55:41
1	Cd 226.502†	-181.9	5.0	0.0276	µg/L	0.0276	ppb	15:56:01
1	Co 228.616†	-44.4	11.0	1.0961	µg/L	1.0961	ppb	15:56:01
1	Cr 267.716†	214.3	42.6	0.5880	µg/L	0.5880	ppb	15:56:01
1	Cu 324.752†	2096.9	-145.6	-1.4370	µg/L	-1.4370	ppb	15:55:41
1	Mn 257.610†	2150.8	2204.4	8.0182	µg/L	8.0182	ppb	15:56:01
1	Mo 202.031†	-27.8	13.7	1.7117	µg/L	1.7117	ppb	15:56:01
1	Ni 231.604†	25.1	16.8	1.1103	µg/L	1.1103	ppb	15:56:01
1	P 214.914†	25.1	-3.5	-7.1309	µg/L	-7.1309	ppb	15:56:01
1	Pb 220.353†	37.9	-2.2	-0.7999	µg/L	-0.7999	ppb	15:56:01
1	S 181.975 Axial†	691.6	612.5	1967.2	µg/L	1967.2	ppb	15:56:01
1	Sb 206.836†	-0.2	-4.0	-6.3430	µg/L	-6.3430	ppb	15:56:01
1	Se 196.026†	8.5	4.2	9.67	µg/L	9.67	ppb	15:56:01
1	SiO2†	3009.0	2146.2	613.46	µg/L	613.46	ppb	15:56:01
1	Si 251.611†	4677.4	4205.4	291.21	µg/L	291.21	ppb	15:56:01
1	Sn 189.927†	-20.2	5.1	2.2774	µg/L	2.2774	ppb	15:56:01
1	Ti 334.940†	1125.4	1177.2	5.8821	µg/L	5.8821	ppb	15:55:41
1	Tl 190.801†	5.1	-0.3	-0.3031	µg/L	-0.3031	ppb	15:56:01
1	U 367.007†	-166.7	-25.7	-16.634	µg/L	-16.634	ppb	15:55:41
1	V 292.402†	296.8	143.1	2.2540	µg/L	2.2540	ppb	15:56:01
1	Zn 213.857†	307.2	42.4	1.3300	µg/L	1.3300	ppb	15:56:01
2	Sc RADIAL	4942.3	4942.3	100	%			15:55:15
2	Al 396.153Radial†	140.0	236.8	405.71	µg/L	405.71	ppb	15:54:55
2	Ca 317.933Radial†	961.0	897.4	721.38	µg/L	721.38	ppb	15:55:15
2	Fe 238.204 Radial†	230.4	192.8	454.42	µg/L	454.42	ppb	15:55:15
2	K 766.490 Radial†	42.9	120.2	125.07	µg/L	125.07	ppb	15:54:55
2	Mg 279.077 IEC†	15.2	28.7	277.64	µg/L	277.64	ppb	15:55:15
2	Na 589.592 Radial†	18103.0	17267.4	6524.1	µg/L	6524.1	ppb	15:54:55
2	Sr 421.552†	452.2	293.1	3.1344	µg/L	3.1344	ppb	15:54:55
2	Sc	419490.7	419490.7	104.3	%			15:56:03
2	Y 371.029	336611.9	336611.9	105.25	%			15:56:03
2	Sc 357.253	269010.9	269010.9	104.7	%			15:56:03
2	Ag 328.068†	-417.6	91.0	1.0286	µg/L	1.0286	ppb	15:56:03
2	As 188.979†	8.1	3.0	6.1928	µg/L	6.1928	ppb	15:56:23
2	B 249.677†	833.8	287.2	11.351	µg/L	11.351	ppb	15:56:23
2	Ba 233.527†	286.8	327.3	5.9626	µg/L	5.9626	ppb	15:56:23
2	Be 313.107†	-2136.4	182.3	0.1242	µg/L	0.1242	ppb	15:56:03
2	Cd 226.502†	-167.7	19.1	0.1891	µg/L	0.1891	ppb	15:56:23
2	Co 228.616†	-61.7	-5.3	-0.5808	µg/L	-0.5808	ppb	15:56:23
2	Cr 267.716†	229.7	56.6	0.7825	µg/L	0.7825	ppb	15:56:23
2	Cu 324.752†	2243.8	-12.1	-0.1006	µg/L	-0.1006	ppb	15:56:03
2	Mn 257.610†	2172.2	2218.0	8.0683	µg/L	8.0683	ppb	15:56:23
2	Mo 202.031†	-36.5	5.4	0.6969	µg/L	0.6969	ppb	15:56:23
2	Ni 231.604†	17.1	9.1	0.5944	µg/L	0.5944	ppb	15:56:23

2	P 214.914†	40.3	11.0	21.438 µg/L	21.438 ppb	15:56:23
2	Pb 220.353†	34.0	-6.0	-2.2659 µg/L	-2.2659 ppb	15:56:23
2	S 181.975 Axial†	694.3	612.9	1968.4 µg/L	1968.4 ppb	15:56:23
2	Sb 206.836†	6.6	2.5	4.0166 µg/L	4.0166 ppb	15:56:23
2	Se 196.026†	0.3	-3.7	-8.56 µg/L	-8.56 ppb	15:56:23
2	SiO2†	2978.3	2107.4	602.36 µg/L	602.36 ppb	15:56:23
2	Si 251.611†	4615.5	4131.4	286.09 µg/L	286.09 ppb	15:56:23
2	Sn 189.927†	-17.6	7.6	3.3882 µg/L	3.3882 ppb	15:56:23
2	Ti 334.940†	1030.9	1083.3	5.4143 µg/L	5.4143 ppb	15:56:03
2	Tl 190.801†	3.3	-2.1	-2.0389 µg/L	-2.0389 ppb	15:56:23
2	U 367.007†	-157.5	-16.5	-11.611 µg/L	-11.611 ppb	15:56:03
2	V 292.402†	274.5	120.8	1.8948 µg/L	1.8948 ppb	15:56:23
2	Zn 213.857†	316.9	50.6	1.6113 µg/L	1.6113 ppb	15:56:23
3	Sc RADIAL	4946.1	4946.1	101 %		15:55:37
3	Al 396.153Radial†	159.4	256.0	438.61 µg/L	438.61 ppb	15:55:17
3	Ca 317.933Radial†	967.4	903.1	725.92 µg/L	725.92 ppb	15:55:37
3	Fe 238.204 Radial†	229.4	191.6	451.60 µg/L	451.60 ppb	15:55:37
3	K 766.490 Radial†	40.8	118.1	122.87 µg/L	122.87 ppb	15:55:17
3	Mg 279.077 IEC†	9.7	23.2	224.48 µg/L	224.48 ppb	15:55:37
3	Na 589.592 Radial†	18098.4	17248.9	6517.2 µg/L	6517.2 ppb	15:55:17
3	Sr 421.552†	448.8	289.4	3.0947 µg/L	3.0947 ppb	15:55:17
3	Sc	420431.3	420431.3	104.6 %		15:56:25
3	Y 371.029	333213.8	333213.8	104.18 %		15:56:25
3	Sc 357.253	270173.6	270173.6	105.2 %		15:56:25
3	Ag 328.068†	-540.0	-23.7	-0.2127 µg/L	-0.2127 ppb	15:56:25
3	As 188.979†	6.4	1.4	2.8655 µg/L	2.8655 ppb	15:56:45
3	B 249.677†	816.4	267.2	10.554 µg/L	10.554 ppb	15:56:45
3	Ba 233.527†	282.1	321.6	5.8604 µg/L	5.8604 ppb	15:56:45
3	Be 313.107†	-2122.2	204.6	0.1381 µg/L	0.1381 ppb	15:56:25
3	Cd 226.502†	-193.6	-4.8	-0.0835 µg/L	-0.0835 ppb	15:56:45
3	Co 228.616†	-56.3	0.1	-0.0280 µg/L	-0.0280 ppb	15:56:45
3	Cr 267.716†	222.2	48.5	0.6709 µg/L	0.6709 ppb	15:56:45
3	Cu 324.752†	2161.2	-99.8	-0.9889 µg/L	-0.9889 ppb	15:56:25
3	Mn 257.610†	2177.1	2213.7	8.0544 µg/L	8.0544 ppb	15:56:45
3	Mo 202.031†	-34.1	7.9	1.0024 µg/L	1.0024 ppb	15:56:45
3	Ni 231.604†	20.5	12.2	0.8016 µg/L	0.8016 ppb	15:56:45
3	P 214.914†	30.1	1.1	1.9575 µg/L	1.9575 ppb	15:56:45
3	Pb 220.353†	46.6	5.8	2.2832 µg/L	2.2832 ppb	15:56:45
3	S 181.975 Axial†	698.4	613.9	1971.8 µg/L	1971.8 ppb	15:56:45
3	Sb 206.836†	3.8	-0.2	-0.3146 µg/L	-0.3146 ppb	15:56:45
3	Se 196.026†	5.4	1.2	2.80 µg/L	2.80 ppb	15:56:45
3	SiO2†	2930.7	2049.8	585.92 µg/L	585.92 ppb	15:56:45
3	Si 251.611†	4523.7	4025.1	278.73 µg/L	278.73 ppb	15:56:45
3	Sn 189.927†	-15.5	9.7	4.3263 µg/L	4.3263 ppb	15:56:45
3	Ti 334.940†	1016.5	1065.4	5.3251 µg/L	5.3251 ppb	15:56:25
3	Tl 190.801†	2.0	-3.3	-3.1813 µg/L	-3.1813 ppb	15:56:45
3	U 367.007†	-192.6	-49.2	-29.348 µg/L	-29.348 ppb	15:56:25
3	V 292.402†	300.3	144.2	2.2617 µg/L	2.2617 ppb	15:56:45
3	Zn 213.857†	309.5	42.4	1.3367 µg/L	1.3367 ppb	15:56:45

Mean Data: 1203658088|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc	419417.6	104.3	%	0.26				0.25%
Sc RADIAL	4952.2	101	%	0.3				0.28%
Y 371.029	333821.4	104.37	%	0.795				0.76%
Sc 357.253	269100.5	104.8	%	0.40				0.38%
Ag 328.068†	49.5	0.5809	µg/L	0.68917	0.5809	ppb	0.68917	118.63%
Al 396.153Radial†	251.5	430.93	µg/L	22.391	430.93	ppb	22.391	5.20%
As 188.979†	3.3	6.7920	µg/L	4.25782	6.7920	ppb	4.25782	62.69%
B 249.677†	276.0	10.904	µg/L	0.4072	10.904	ppb	0.4072	3.73%
Ba 233.527†	321.2	5.8515	µg/L	0.11585	5.8515	ppb	0.11585	1.98%
Be 313.107†	174.3	0.1194	µg/L	0.02156	0.1194	ppb	0.02156	18.06%
Ca 317.933Radial†	899.3	722.92	µg/L	2.593	722.92	ppb	2.593	0.36%
Cd 226.502†	6.4	0.0444	µg/L	0.13707	0.0444	ppb	0.13707	308.50%
Co 228.616†	1.9	0.1624	µg/L	0.85450	0.1624	ppb	0.85450	526.13%
Cr 267.716†	49.2	0.6805	µg/L	0.09760	0.6805	ppb	0.09760	14.34%
Cu 324.752†	-85.9	-0.8422	µg/L	0.68021	-0.8422	ppb	0.68021	80.77%
Fe 238.204 Radial†	192.3	453.17	µg/L	1.439	453.17	ppb	1.439	0.32%
K 766.490 Radial†	109.4	113.81	µg/L	17.623	113.81	ppb	17.623	15.48%

Mg 279.077 IEC†	27.6	267.39 µg/L	38.808	267.39 ppb	38.808	14.51%
Mn 257.610†	2212.0	8.0470 µg/L	0.02583	8.0470 ppb	0.02583	0.32%
Mo 202.031†	9.0	1.1370 µg/L	0.52063	1.1370 ppb	0.52063	45.79%
Na 589.592 Radial†	17317.4	6543.1 µg/L	38.94	6543.1 ppb	38.94	0.60%
Ni 231.604†	12.7	0.8354 µg/L	0.25960	0.8354 ppb	0.25960	31.07%
P 214.914†	2.9	5.4217 µg/L	14.59626	5.4217 ppb	14.59626	269.22%
Pb 220.353†	-0.8	-0.2608 µg/L	2.32197	-0.2608 ppb	2.32197	890.19%
S 181.975 Axial†	613.1	1969.1 µg/L	2.37	1969.1 ppb	2.37	0.12%
Sb 206.836†	-0.6	-0.8803 µg/L	5.20291	-0.8803 ppb	5.20291	591.04%
Se 196.026†	0.6	1.30 µg/L	9.207	1.30 ppb	9.207	706.68%
SiO2†	2101.1	600.58 µg/L	13.858	600.58 ppb	13.858	2.31%
Si 251.611†	4120.6	285.34 µg/L	6.275	285.34 ppb	6.275	2.20%
Sn 189.927†	7.5	3.3306 µg/L	1.02569	3.3306 ppb	1.02569	30.80%
Sr 421.552†	258.6	2.7611 µg/L	0.61243	2.7611 ppb	0.61243	22.18%
Ti 334.940†	1108.6	5.5405 µg/L	0.29915	5.5405 ppb	0.29915	5.40%
Tl 190.801†	-1.9	-1.8411 µg/L	1.44929	-1.8411 ppb	1.44929	78.72%
U 367.007†	-30.5	-19.198 µg/L	9.1420	-19.198 ppb	9.1420	47.62%
V 292.402†	136.1	2.1369 µg/L	0.20962	2.1369 ppb	0.20962	9.81%
Zn 213.857†	45.1	1.4260 µg/L	0.16051	1.4260 ppb	0.16051	11.26%

Sequence No.: 61 **Autosampler Location: 336**
Sample ID: 1203657516|1611348|1| **Date Collected: 11/2/2016 15:56:54**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203657516|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4915.9	4915.9	99.9	%			15:57:43
1	Al 396.153Radial†	784.5	882.6	1512.4	µg/L	1512.4	ppb	15:57:23
1	Ca 317.933Radial†	2247.0	2189.8	1760.2	µg/L	1760.2	ppb	15:57:43
1	Fe 238.204 Radial†	681.1	645.2	1520.5	µg/L	1520.5	ppb	15:57:43
1	K 766.490 Radial†	1060.7	1139.1	1187.0	µg/L	1187.0	ppb	15:57:23
1	Mg 279.077 IEC†	118.8	132.5	1281.4	µg/L	1281.4	ppb	15:57:43
1	Na 589.592 Radial†	20545.8	19809.3	7484.6	µg/L	7484.6	ppb	15:57:23
1	Sr 421.552†	19117.1	18977.4	204.96	µg/L	204.96	ppb	15:57:23
1	Sc	419743.8	419743.8	104.4	%			15:58:31
1	Y 371.029	329593.9	329593.9	103.05	%			15:58:31
1	Sc 357.253	269112.3	269112.3	104.8	%			15:58:31
1	Ag 328.068†	4132.7	4434.7	48.863	µg/L	48.863	ppb	15:58:31
1	As 188.979†	241.2	225.5	471.71	µg/L	471.71	ppb	15:58:51
1	B 249.677†	5555.2	4793.8	190.85	µg/L	190.85	ppb	15:58:31
1	Ba 233.527†	50096.3	47874.0	872.98	µg/L	872.98	ppb	15:58:31
1	Be 313.107†	316317.4	304170.9	191.66	µg/L	191.66	ppb	15:58:31
1	Cd 226.502†	8308.2	8110.0	92.323	µg/L	92.323	ppb	15:58:51
1	Co 228.616†	1979.2	1942.8	200.16	µg/L	200.16	ppb	15:58:51
1	Cr 267.716†	36208.2	34400.7	477.16	µg/L	477.16	ppb	15:58:31
1	Cu 324.752†	23017.7	19817.3	197.93	µg/L	197.93	ppb	15:58:31
1	Mn 257.610†	58302.6	55797.9	202.98	µg/L	202.98	ppb	15:58:31
1	Mo 202.031†	1690.9	1654.4	202.76	µg/L	202.76	ppb	15:58:51
1	Ni 231.604†	2999.6	2856.1	190.39	µg/L	190.39	ppb	15:58:51
1	P 214.914†	32.2	3.2	3.5402	µg/L	3.5402	ppb	15:58:51
1	Pb 220.353†	1377.5	1276.4	488.98	µg/L	488.98	ppb	15:58:51
1	S 181.975 Axial†	679.1	598.1	1922.3	µg/L	1922.3	ppb	15:58:51
1	Sb 206.836†	122.6	113.2	176.05	µg/L	176.05	ppb	15:58:51
1	Se 196.026†	44.6	38.6	90.2	µg/L	90.2	ppb	15:58:51
1	SiO2†	3928.4	3013.2	865.94	µg/L	865.94	ppb	15:58:51
1	Si 251.611†	6502.3	5930.8	410.69	µg/L	410.69	ppb	15:58:51
1	Sn 189.927†	465.8	469.0	207.87	µg/L	207.87	ppb	15:58:51
1	Ti 334.940†	1828.2	1844.0	9.0542	µg/L	9.0542	ppb	15:58:31
1	Tl 190.801†	219.3	204.1	197.10	µg/L	197.10	ppb	15:58:51
1	U 367.007†	3.5	137.3	65.638	µg/L	65.638	ppb	15:58:31
1	V 292.402†	12635.6	11920.3	192.00	µg/L	192.00	ppb	15:58:31
1	Zn 213.857†	6139.6	5608.8	186.52	µg/L	186.52	ppb	15:58:51
2	Sc RADIAL	4904.4	4904.4	99.7	%			15:58:05
2	Al 396.153Radial†	842.9	943.1	1616.1	µg/L	1616.1	ppb	15:57:45
2	Ca 317.933Radial†	2238.9	2186.9	1757.9	µg/L	1757.9	ppb	15:58:05
2	Fe 238.204 Radial†	683.3	649.0	1529.5	µg/L	1529.5	ppb	15:58:05
2	K 766.490 Radial†	1070.4	1151.4	1199.8	µg/L	1199.8	ppb	15:57:45
2	Mg 279.077 IEC†	130.4	144.4	1396.6	µg/L	1396.6	ppb	15:58:05
2	Na 589.592 Radial†	20733.1	20045.4	7573.8	µg/L	7573.8	ppb	15:57:45
2	Sr 421.552†	19271.9	19177.6	207.12	µg/L	207.12	ppb	15:57:45
2	Sc	426612.7	426612.7	106.1	%			15:58:53
2	Y 371.029	329115.1	329115.1	102.90	%			15:58:53
2	Sc 357.253	272682.2	272682.2	106.1	%			15:58:53
2	Ag 328.068†	4249.9	4493.4	49.433	µg/L	49.433	ppb	15:58:53
2	As 188.979†	242.3	223.5	467.61	µg/L	467.61	ppb	15:59:13
2	B 249.677†	5717.6	4877.3	194.18	µg/L	194.18	ppb	15:58:53
2	Ba 233.527†	51057.1	48153.1	878.07	µg/L	878.07	ppb	15:58:53
2	Be 313.107†	319167.6	302903.0	190.86	µg/L	190.86	ppb	15:58:53
2	Cd 226.502†	8275.1	7975.1	90.786	µg/L	90.786	ppb	15:59:13
2	Co 228.616†	1979.8	1918.8	197.70	µg/L	197.70	ppb	15:59:13
2	Cr 267.716†	37019.7	34712.7	481.49	µg/L	481.49	ppb	15:58:53
2	Cu 324.752†	23456.2	19942.8	199.24	µg/L	199.24	ppb	15:58:53
2	Mn 257.610†	59167.0	55883.5	203.29	µg/L	203.29	ppb	15:58:53
2	Mo 202.031†	1685.9	1628.6	199.60	µg/L	199.60	ppb	15:59:13
2	Ni 231.604†	2969.7	2790.5	186.01	µg/L	186.01	ppb	15:59:13

2	P 214.914†	41.3	11.4	19.609 µg/L	19.609 ppb	15:59:13
2	Pb 220.353†	1372.7	1254.6	480.57 µg/L	480.57 ppb	15:59:13
2	S 181.975 Axial†	675.7	586.5	1884.9 µg/L	1884.9 ppb	15:59:13
2	Sb 206.836†	119.4	108.6	168.75 µg/L	168.75 ppb	15:59:13
2	Se 196.026†	39.5	33.2	77.6 µg/L	77.6 ppb	15:59:13
2	SiO2†	3945.4	2980.1	856.52 µg/L	856.52 ppb	15:59:13
2	Si 251.611†	6607.4	5948.5	411.92 µg/L	411.92 ppb	15:59:13
2	Sn 189.927†	466.1	463.5	205.44 µg/L	205.44 ppb	15:59:13
2	Ti 334.940†	1561.6	1570.1	7.6867 µg/L	7.6867 ppb	15:58:53
2	Tl 190.801†	218.1	200.2	193.30 µg/L	193.30 ppb	15:59:13
2	U 367.007†	146.3	271.8	138.61 µg/L	138.61 ppb	15:58:53
2	V 292.402†	12924.3	12034.4	193.84 µg/L	193.84 ppb	15:58:53
2	Zn 213.857†	6104.9	5499.4	182.87 µg/L	182.87 ppb	15:59:13
3	Sc RADIAL	4933.3	4933.3	100 %		15:58:27
3	Al 396.153Radial†	880.9	976.0	1672.5 µg/L	1672.5 ppb	15:58:07
3	Ca 317.933Radial†	2259.7	2194.5	1764.0 µg/L	1764.0 ppb	15:58:27
3	Fe 238.204 Radial†	686.3	648.0	1527.1 µg/L	1527.1 ppb	15:58:27
3	K 766.490 Radial†	1316.8	1390.8	1449.5 µg/L	1449.5 ppb	15:58:07
3	Mg 279.077 IEC†	120.0	133.2	1288.9 µg/L	1288.9 ppb	15:58:27
3	Na 589.592 Radial†	20607.2	19798.0	7480.3 µg/L	7480.3 ppb	15:58:07
3	Sr 421.552†	19468.0	19260.0	208.01 µg/L	208.01 ppb	15:58:07
3	Sc	420653.7	420653.7	104.6 %		15:59:15
3	Y 371.029	332218.6	332218.6	103.87 %		15:59:15
3	Sc 357.253	270084.9	270084.9	105.1 %		15:59:15
3	Ag 328.068†	4033.9	4326.6	47.640 µg/L	47.640 ppb	15:59:15
3	As 188.979†	249.4	232.5	486.33 µg/L	486.33 ppb	15:59:36
3	B 249.677†	5644.1	4859.3	193.46 µg/L	193.46 ppb	15:59:15
3	Ba 233.527†	50873.0	48440.5	883.31 µg/L	883.31 ppb	15:59:15
3	Be 313.107†	319365.6	305982.8	192.80 µg/L	192.80 ppb	15:59:15
3	Cd 226.502†	8267.4	8042.7	91.556 µg/L	91.556 ppb	15:59:36
3	Co 228.616†	1977.9	1934.8	199.35 µg/L	199.35 ppb	15:59:36
3	Cr 267.716†	36361.3	34421.8	477.46 µg/L	477.46 ppb	15:59:15
3	Cu 324.752†	22995.9	19717.5	196.96 µg/L	196.96 ppb	15:59:15
3	Mn 257.610†	58767.0	56039.1	203.85 µg/L	203.85 ppb	15:59:15
3	Mo 202.031†	1693.8	1651.3	202.38 µg/L	202.38 ppb	15:59:36
3	Ni 231.604†	2968.7	2816.4	187.74 µg/L	187.74 ppb	15:59:36
3	P 214.914†	38.3	8.9	14.698 µg/L	14.698 ppb	15:59:36
3	Pb 220.353†	1377.5	1271.7	487.15 µg/L	487.15 ppb	15:59:36
3	S 181.975 Axial†	684.1	600.6	1930.2 µg/L	1930.2 ppb	15:59:36
3	Sb 206.836†	120.5	110.8	172.20 µg/L	172.20 ppb	15:59:36
3	Se 196.026†	43.2	37.1	86.6 µg/L	86.6 ppb	15:59:36
3	SiO2†	3837.3	2913.0	837.32 µg/L	837.32 ppb	15:59:36
3	Si 251.611†	6295.5	5711.7	395.52 µg/L	395.52 ppb	15:59:36
3	Sn 189.927†	470.2	471.6	209.01 µg/L	209.01 ppb	15:59:36
3	Ti 334.940†	1790.2	1801.6	8.8427 µg/L	8.8427 ppb	15:59:15
3	Tl 190.801†	212.0	196.4	189.63 µg/L	189.63 ppb	15:59:36
3	U 367.007†	68.0	198.7	98.909 µg/L	98.909 ppb	15:59:15
3	V 292.402†	12763.5	11998.5	193.26 µg/L	193.26 ppb	15:59:15
3	Zn 213.857†	6103.1	5553.0	184.67 µg/L	184.67 ppb	15:59:36

Mean Data: 1203657516|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc	422336.7	105.0	%	0.93				0.88%
Sc RADIAL	4917.8	99.9	%	0.30				0.30%
Y 371.029	330309.2	103.28	%	0.522				0.51%
Sc 357.253	270626.5	105.3	%	0.72				0.68%
Ag 328.068†	4418.2	48.646	µg/L	0.9160	48.646	ppb	0.9160	1.88%
Al 396.153Radial†	933.9	1600.3	µg/L	81.18	1600.3	ppb	81.18	5.07%
As 188.979†	227.2	475.22	µg/L	9.840	475.22	ppb	9.840	2.07%
B 249.677†	4843.5	192.83	µg/L	1.752	192.83	ppb	1.752	0.91%
Ba 233.527†	48155.9	878.12	µg/L	5.165	878.12	ppb	5.165	0.59%
Be 313.107†	304352.2	191.77	µg/L	0.976	191.77	ppb	0.976	0.51%
Ca 317.933Radial†	2190.4	1760.7	µg/L	3.08	1760.7	ppb	3.08	0.17%
Cd 226.502†	8042.6	91.555	µg/L	0.7686	91.555	ppb	0.7686	0.84%
Co 228.616†	1932.1	199.07	µg/L	1.255	199.07	ppb	1.255	0.63%
Cr 267.716†	34511.7	478.70	µg/L	2.418	478.70	ppb	2.418	0.51%
Cu 324.752†	19825.9	198.04	µg/L	1.142	198.04	ppb	1.142	0.58%
Fe 238.204 Radial†	647.4	1525.7	µg/L	4.67	1525.7	ppb	4.67	0.31%
K 766.490 Radial†	1227.1	1278.8	µg/L	148.00	1278.8	ppb	148.00	11.57%

Mg 279.077 IEC†	136.7	1322.3 µg/L	64.46	1322.3 ppb	64.46	4.87%
Mn 257.610†	55906.8	203.37 µg/L	0.445	203.37 ppb	0.445	0.22%
Mo 202.031†	1644.8	201.58 µg/L	1.727	201.58 ppb	1.727	0.86%
Na 589.592 Radial†	19884.3	7512.9 µg/L	52.78	7512.9 ppb	52.78	0.70%
Ni 231.604†	2821.0	188.05 µg/L	2.203	188.05 ppb	2.203	1.17%
P 214.914†	7.8	12.616 µg/L	8.2343	12.616 ppb	8.2343	65.27%
Pb 220.353†	1267.6	485.56 µg/L	4.423	485.56 ppb	4.423	0.91%
S 181.975 Axial†	595.1	1912.5 µg/L	24.22	1912.5 ppb	24.22	1.27%
Sb 206.836†	110.9	172.34 µg/L	3.651	172.34 ppb	3.651	2.12%
Se 196.026†	36.3	84.8 µg/L	6.50	84.8 ppb	6.50	7.66%
SiO2†	2968.8	853.26 µg/L	14.590	853.26 ppb	14.590	1.71%
Si 251.611†	5863.7	406.04 µg/L	9.132	406.04 ppb	9.132	2.25%
Sn 189.927†	468.1	207.44 µg/L	1.826	207.44 ppb	1.826	0.88%
Sr 421.552†	19138.3	206.70 µg/L	1.570	206.70 ppb	1.570	0.76%
Ti 334.940†	1738.6	8.5279 µg/L	0.73611	8.5279 ppb	0.73611	8.63%
Tl 190.801†	200.2	193.34 µg/L	3.733	193.34 ppb	3.733	1.93%
U 367.007†	202.6	101.05 µg/L	36.534	101.05 ppb	36.534	36.15%
V 292.402†	11984.4	193.03 µg/L	0.942	193.03 ppb	0.942	0.49%
Zn 213.857†	5553.7	184.69 µg/L	1.827	184.69 ppb	1.827	0.99%

Sequence No.: 62 **Autosampler Location: 337**
Sample ID: 1203658090|1611348|5| **Date Collected: 11/2/2016 15:59:44**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 1203658090|1611348|5|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4922.9	4922.9	100	%			16:00:33
1	Al 396.153Radial†	-101.7	-4.2	-7.2575	µg/L	-7.2575	ppb	16:00:13
1	Ca 317.933Radial†	264.9	205.4	165.11	µg/L	165.11	ppb	16:00:33
1	Fe 238.204 Radial†	78.9	42.3	99.703	µg/L	99.703	ppb	16:00:33
1	K 766.490 Radial†	-39.7	37.8	39.317	µg/L	39.317	ppb	16:00:13
1	Mg 279.077 IEC†	-10.6	3.0	29.102	µg/L	29.102	ppb	16:00:33
1	Na 589.592 Radial†	4165.5	3408.2	1287.7	µg/L	1287.7	ppb	16:00:13
1	Sr 421.552†	257.2	100.0	1.0729	µg/L	1.0729	ppb	16:00:13
1	Sc	410019.0	410019.0	102.0	%			16:01:21
1	Y 371.029	327375.8	327375.8	102.36	%			16:01:21
1	Sc 357.253	262443.6	262443.6	102.2	%			16:01:21
1	Ag 328.068†	-347.9	149.2	1.6803	µg/L	1.6803	ppb	16:01:21
1	As 188.979†	4.3	-0.5	-0.9667	µg/L	-0.9667	ppb	16:01:41
1	B 249.677†	560.2	39.2	1.5425	µg/L	1.5425	ppb	16:01:41
1	Ba 233.527†	16.7	69.8	1.2719	µg/L	1.2719	ppb	16:01:41
1	Be 313.107†	-2073.3	193.0	0.1236	µg/L	0.1236	ppb	16:01:21
1	Cd 226.502†	-181.1	2.0	0.0156	µg/L	0.0156	ppb	16:01:41
1	Co 228.616†	-53.7	1.1	0.1027	µg/L	0.1027	ppb	16:01:41
1	Cr 267.716†	181.7	15.1	0.2098	µg/L	0.2098	ppb	16:01:41
1	Cu 324.752†	2170.0	-30.7	-0.3239	µg/L	-0.3239	ppb	16:01:21
1	Mn 257.610†	326.8	463.6	1.6875	µg/L	1.6875	ppb	16:01:41
1	Mo 202.031†	-45.9	-4.6	-0.5567	µg/L	-0.5567	ppb	16:01:41
1	Ni 231.604†	15.7	8.1	0.5389	µg/L	0.5389	ppb	16:01:41
1	P 214.914†	17.1	-10.8	-21.369	µg/L	-21.369	ppb	16:01:41
1	Pb 220.353†	39.7	0.4	0.1709	µg/L	0.1709	ppb	16:01:41
1	S 181.975 Axial†	168.1	114.4	367.44	µg/L	367.44	ppb	16:01:41
1	Sb 206.836†	5.3	1.4	2.2253	µg/L	2.2253	ppb	16:01:41
1	Se 196.026†	4.4	0.3	0.666	µg/L	0.666	ppb	16:01:41
1	SiO2†	1259.2	495.8	141.70	µg/L	141.70	ppb	16:01:41
1	Si 251.611†	1339.0	1034.5	71.638	µg/L	71.638	ppb	16:01:41
1	Sn 189.927†	-25.6	-0.6	-0.2627	µg/L	-0.2627	ppb	16:01:41
1	Ti 334.940†	132.3	228.4	1.1416	µg/L	1.1416	ppb	16:01:21
1	Tl 190.801†	-4.3	-9.5	-9.1310	µg/L	-9.1310	ppb	16:01:41
1	U 367.007†	-199.9	-61.7	-34.069	µg/L	-34.069	ppb	16:01:21
1	V 292.402†	216.3	70.4	1.0973	µg/L	1.0973	ppb	16:01:41
1	Zn 213.857†	297.8	39.5	1.3067	µg/L	1.3067	ppb	16:01:41
2	Sc RADIAL	4918.6	4918.6	100.0	%			16:00:55
2	Al 396.153Radial†	-91.6	5.7	9.7961	µg/L	9.7961	ppb	16:00:35
2	Ca 317.933Radial†	261.1	201.8	162.24	µg/L	162.24	ppb	16:00:55
2	Fe 238.204 Radial†	77.2	40.7	95.911	µg/L	95.911	ppb	16:00:55
2	K 766.490 Radial†	-88.9	-11.4	-11.965	µg/L	-11.965	ppb	16:00:35
2	Mg 279.077 IEC†	-11.8	1.8	17.468	µg/L	17.468	ppb	16:00:55
2	Na 589.592 Radial†	4284.5	3530.7	1334.0	µg/L	1334.0	ppb	16:00:35
2	Sr 421.552†	216.3	59.3	0.6341	µg/L	0.6341	ppb	16:00:35
2	Sc	410532.6	410532.6	102.1	%			16:01:43
2	Y 371.029	325195.8	325195.8	101.68	%			16:01:43
2	Sc 357.253	264327.2	264327.2	102.9	%			16:01:43
2	Ag 328.068†	-519.8	-15.4	-0.1761	µg/L	-0.1761	ppb	16:01:43
2	As 188.979†	2.3	-2.5	-5.1974	µg/L	-5.1974	ppb	16:02:03
2	B 249.677†	569.4	44.3	1.7443	µg/L	1.7443	ppb	16:02:03
2	Ba 233.527†	31.0	83.5	1.5224	µg/L	1.5224	ppb	16:02:03
2	Be 313.107†	-2211.0	73.6	0.0482	µg/L	0.0482	ppb	16:01:43
2	Cd 226.502†	-201.4	-16.5	-0.1947	µg/L	-0.1947	ppb	16:02:03
2	Co 228.616†	-59.1	-3.8	-0.3995	µg/L	-0.3995	ppb	16:02:03
2	Cr 267.716†	186.7	18.7	0.2596	µg/L	0.2596	ppb	16:02:03
2	Cu 324.752†	2220.5	3.3	0.0455	µg/L	0.0455	ppb	16:01:43
2	Mn 257.610†	350.7	484.5	1.7639	µg/L	1.7639	ppb	16:02:03
2	Mo 202.031†	-42.0	-0.5	-0.0546	µg/L	-0.0546	ppb	16:02:03
2	Ni 231.604†	21.8	14.0	0.9308	µg/L	0.9308	ppb	16:02:03

2	P 214.914†	18.9	-9.2	-18.189 µg/L	-18.189 ppb		16:02:03
2	Pb 220.353†	23.6	-15.6	-5.9765 µg/L	-5.9765 ppb		16:02:03
2	S 181.975 Axial†	171.4	116.4	373.98 µg/L	373.98 ppb		16:02:03
2	Sb 206.836†	7.0	3.0	4.7839 µg/L	4.7839 ppb		16:02:03
2	Se 196.026†	4.4	0.3	0.628 µg/L	0.628 ppb		16:02:03
2	SiO2†	1267.6	495.2	141.54 µg/L	141.54 ppb		16:02:03
2	Si 251.611†	1324.7	1011.3	70.032 µg/L	70.032 ppb		16:02:03
2	Sn 189.927†	-18.8	6.1	2.7267 µg/L	2.7267 ppb		16:02:03
2	Ti 334.940†	116.5	212.1	1.0605 µg/L	1.0605 ppb		16:01:43
2	Tl 190.801†	-4.9	-10.0	-9.6148 µg/L	-9.6148 ppb		16:02:03
2	U 367.007†	-118.0	19.3	9.9316 µg/L	9.9316 ppb		16:01:43
2	V 292.402†	225.9	78.3	1.2473 µg/L	1.2473 ppb		16:02:03
2	Zn 213.857†	298.0	37.7	1.2423 µg/L	1.2423 ppb		16:02:03
3	Sc RADIAL	4898.5	4898.5	99.6 %			16:01:17
3	Al 396.153Radial†	14.8	112.3	192.39 µg/L	192.39 ppb		16:00:57
3	Ca 317.933Radial†	271.6	213.5	171.64 µg/L	171.64 ppb		16:01:17
3	Fe 238.204 Radial†	72.8	36.6	86.224 µg/L	86.224 ppb		16:01:17
3	K 766.490 Radial†	-55.0	22.2	23.149 µg/L	23.149 ppb		16:00:57
3	Mg 279.077 IEC†	-4.2	9.3	90.334 µg/L	90.334 ppb		16:01:17
3	Na 589.592 Radial†	4297.3	3561.2	1345.5 µg/L	1345.5 ppb		16:00:57
3	Sr 421.552†	202.9	46.7	0.4980 µg/L	0.4980 ppb		16:00:57
3	Sc	410142.3	410142.3	102.0 %			16:02:05
3	Y 371.029	325056.1	325056.1	101.63 %			16:02:05
3	Sc 357.253	264259.0	264259.0	102.9 %			16:02:05
3	Ag 328.068†	-554.1	-49.0	-0.5202 µg/L	-0.5202 ppb		16:02:05
3	As 188.979†	8.5	3.5	7.3337 µg/L	7.3337 ppb		16:02:25
3	B 249.677†	581.7	56.4	2.2285 µg/L	2.2285 ppb		16:02:25
3	Ba 233.527†	11.6	64.7	1.1790 µg/L	1.1790 ppb		16:02:25
3	Be 313.107†	-2179.5	103.7	0.0668 µg/L	0.0668 ppb		16:02:05
3	Cd 226.502†	-155.9	27.7	0.3101 µg/L	0.3101 ppb		16:02:25
3	Co 228.616†	-51.0	4.0	0.4047 µg/L	0.4047 ppb		16:02:25
3	Cr 267.716†	184.8	16.9	0.2345 µg/L	0.2345 ppb		16:02:25
3	Cu 324.752†	2074.0	-138.6	-1.3876 µg/L	-1.3876 ppb		16:02:05
3	Mn 257.610†	337.2	471.5	1.7138 µg/L	1.7138 ppb		16:02:25
3	Mo 202.031†	-48.3	-6.7	-0.8135 µg/L	-0.8135 ppb		16:02:25
3	Ni 231.604†	19.0	11.2	0.7476 µg/L	0.7476 ppb		16:02:25
3	P 214.914†	25.6	-2.7	-5.3324 µg/L	-5.3324 ppb		16:02:25
3	Pb 220.353†	43.8	4.1	1.5861 µg/L	1.5861 ppb		16:02:25
3	S 181.975 Axial†	170.6	115.7	371.73 µg/L	371.73 ppb		16:02:25
3	Sb 206.836†	7.6	3.6	5.6454 µg/L	5.6454 ppb		16:02:25
3	Se 196.026†	5.0	0.9	2.11 µg/L	2.11 ppb		16:02:25
3	SiO2†	1256.5	484.7	138.54 µg/L	138.54 ppb		16:02:25
3	Si 251.611†	1288.2	976.1	67.595 µg/L	67.595 ppb		16:02:25
3	Sn 189.927†	-26.2	-1.1	-0.4834 µg/L	-0.4834 ppb		16:02:25
3	Ti 334.940†	70.8	167.7	0.8395 µg/L	0.8395 ppb		16:02:05
3	Tl 190.801†	-3.1	-8.2	-7.9076 µg/L	-7.9076 ppb		16:02:25
3	U 367.007†	-162.6	-24.1	-13.571 µg/L	-13.571 ppb		16:02:05
3	V 292.402†	200.6	53.8	0.8410 µg/L	0.8410 ppb		16:02:25
3	Zn 213.857†	301.4	41.0	1.3543 µg/L	1.3543 ppb		16:02:25

Mean Data: 1203658090|1611348|5|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	410231.3	102.0	%	0.07				0.07%
Sc RADIAL	4913.3	99.9	%	0.26				0.26%
Y 371.029	325875.9	101.89	%	0.407				0.40%
Sc 357.253	263676.6	102.6	%	0.42				0.41%
Ag 328.068†	28.3	0.3280	µg/L	1.18374	0.3280	ppb	1.18374	360.89%
Al 396.153Radial†	37.9	64.975	µg/L	110.6699	64.975	ppb	110.6699	170.33%
As 188.979†	0.2	0.3899	µg/L	6.37475	0.3899	ppb	6.37475	>999.9%
B 249.677†	46.6	1.8384	µg/L	0.35254	1.8384	ppb	0.35254	19.18%
Ba 233.527†	72.7	1.3244	µg/L	0.17761	1.3244	ppb	0.17761	13.41%
Be 313.107†	123.4	0.0795	µg/L	0.03927	0.0795	ppb	0.03927	49.39%
Ca 317.933Radial†	206.9	166.33	µg/L	4.818	166.33	ppb	4.818	2.90%
Cd 226.502†	4.4	0.0437	µg/L	0.25360	0.0437	ppb	0.25360	580.59%
Co 228.616†	0.4	0.0360	µg/L	0.40619	0.0360	ppb	0.40619	>999.9%
Cr 267.716†	16.9	0.2346	µg/L	0.02491	0.2346	ppb	0.02491	10.62%
Cu 324.752†	-55.3	-0.5553	µg/L	0.74405	-0.5553	ppb	0.74405	133.99%
Fe 238.204 Radial†	39.9	93.946	µg/L	6.9508	93.946	ppb	6.9508	7.40%
K 766.490 Radial†	16.2	16.834	µg/L	26.2176	16.834	ppb	26.2176	155.75%

Mg 279.077 IEC†	4.7	45.635 µg/L	39.1454	45.635 ppb	39.1454	85.78%
Mn 257.610†	473.2	1.7217 µg/L	0.03881	1.7217 ppb	0.03881	2.25%
Mo 202.031†	-3.9	-0.4750 µg/L	0.38603	-0.4750 ppb	0.38603	81.28%
Na 589.592 Radial†	3500.0	1322.4 µg/L	30.60	1322.4 ppb	30.60	2.31%
Ni 231.604†	11.1	0.7391 µg/L	0.19607	0.7391 ppb	0.19607	26.53%
P 214.914†	-7.5	-14.964 µg/L	8.4910	-14.964 ppb	8.4910	56.74%
Pb 220.353†	-3.7	-1.4065 µg/L	4.02047	-1.4065 ppb	4.02047	285.85%
S 181.975 Axial†	115.5	371.05 µg/L	3.320	371.05 ppb	3.320	0.89%
Sb 206.836†	2.7	4.2182 µg/L	1.77883	4.2182 ppb	1.77883	42.17%
Se 196.026†	0.5	1.13 µg/L	0.842	1.13 ppb	0.842	74.32%
SiO2†	491.9	140.60 µg/L	1.780	140.60 ppb	1.780	1.27%
Si 251.611†	1007.3	69.755 µg/L	2.0357	69.755 ppb	2.0357	2.92%
Sn 189.927†	1.5	0.6602 µg/L	1.79304	0.6602 ppb	1.79304	271.60%
Sr 421.552†	68.7	0.7350 µg/L	0.30046	0.7350 ppb	0.30046	40.88%
Ti 334.940†	202.7	1.0139 µg/L	0.15637	1.0139 ppb	0.15637	15.42%
Tl 190.801†	-9.2	-8.8845 µg/L	0.87992	-8.8845 ppb	0.87992	9.90%
U 367.007†	-22.1	-12.569 µg/L	22.0172	-12.569 ppb	22.0172	175.17%
V 292.402†	67.5	1.0618 µg/L	0.20545	1.0618 ppb	0.20545	19.35%
Zn 213.857†	39.4	1.3011 µg/L	0.05621	1.3011 ppb	0.05621	4.32%

Sequence No.: 63 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/2/2016 16:02:35**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4920.5	4920.5	100	%			16:03:25
1	Al 396.153Radial†	2809.6	2906.9	4981.3	µg/L	4981.3	ppb	16:03:25
1	Ca 317.933Radial†	6321.5	6261.9	5033.6	µg/L	5033.6	ppb	16:03:25
1	Fe 238.204 Radial†	2179.7	2143.0	5050.7	µg/L	5050.7	ppb	16:03:25
1	K 766.490 Radial†	4413.3	4490.6	4680.1	µg/L	4680.1	ppb	16:03:05
1	Mg 279.077 IEC†	508.5	522.0	5050.1	µg/L	5050.1	ppb	16:03:25
1	Na 589.592 Radial†	26242.7	25486.6	9629.6	µg/L	9629.6	ppb	16:03:05
1	Sr 421.552†	44772.2	44613.6	481.74	µg/L	481.74	ppb	16:03:05
1	Sc	422654.6	422654.6	105.1	%			16:04:13
1	Y 371.029	329295.7	329295.7	102.96	%			16:04:13
1	Sc 357.253	266024.6	266024.6	103.6	%			16:04:13
1	Ag 328.068†	43910.0	42891.6	471.55	µg/L	471.55	ppb	16:04:13
1	As 188.979†	223.2	210.8	442.44	µg/L	442.44	ppb	16:04:33
1	B 249.677†	12759.9	11812.5	469.98	µg/L	469.98	ppb	16:04:13
1	Ba 233.527†	26989.0	26115.4	476.52	µg/L	476.52	ppb	16:04:13
1	Be 313.107†	775984.7	751555.0	474.33	µg/L	474.33	ppb	16:04:13
1	Cd 226.502†	42865.9	41572.8	473.80	µg/L	473.80	ppb	16:04:13
1	Co 228.616†	4772.2	4661.9	478.03	µg/L	478.03	ppb	16:04:33
1	Cr 267.716†	35663.9	34276.2	475.63	µg/L	475.63	ppb	16:04:13
1	Cu 324.752†	52199.2	48251.7	482.20	µg/L	482.20	ppb	16:04:13
1	Mn 257.610†	136919.0	132360.0	481.45	µg/L	481.45	ppb	16:04:13
1	Mo 202.031†	3927.9	3833.3	469.92	µg/L	469.92	ppb	16:04:33
1	Ni 231.604†	7241.4	6985.4	465.61	µg/L	465.61	ppb	16:04:33
1	P 214.914†	1263.8	1192.9	2350.4	µg/L	2350.4	ppb	16:04:33
1	Pb 220.353†	1323.8	1239.9	475.24	µg/L	475.24	ppb	16:04:33
1	S 181.975 Axial†	352.5	290.3	936.06	µg/L	936.06	ppb	16:04:33
1	Sb 206.836†	303.8	289.5	458.74	µg/L	458.74	ppb	16:04:33
1	Se 196.026†	209.5	198.4	463	µg/L	463	ppb	16:04:33
1	SiO2†	19170.4	17775.2	5085.4	µg/L	5085.4	ppb	16:04:13
1	Si 251.611†	35867.7	34359.6	2379.3	µg/L	2379.3	ppb	16:04:13
1	Sn 189.927†	1037.4	1026.2	456.19	µg/L	456.19	ppb	16:04:33
1	Ti 334.940†	97746.1	94487.8	470.98	µg/L	470.98	ppb	16:04:13
1	Tl 190.801†	516.2	493.2	479.66	µg/L	479.66	ppb	16:04:33
1	U 367.007†	750.0	858.2	436.33	µg/L	436.33	ppb	16:04:13
1	V 292.402†	30932.8	29729.1	477.66	µg/L	477.66	ppb	16:04:13
1	Zn 213.857†	14486.0	13736.5	456.50	µg/L	456.50	ppb	16:04:33
2	Sc RADIAL	4923.0	4923.0	100	%			16:03:47
2	Al 396.153Radial†	2821.0	2916.8	4998.4	µg/L	4998.4	ppb	16:03:47
2	Ca 317.933Radial†	6321.9	6259.1	5031.4	µg/L	5031.4	ppb	16:03:47
2	Fe 238.204 Radial†	2185.2	2147.4	5061.0	µg/L	5061.0	ppb	16:03:47
2	K 766.490 Radial†	4677.6	4752.5	4953.2	µg/L	4953.2	ppb	16:03:27
2	Mg 279.077 IEC†	508.4	521.7	5047.2	µg/L	5047.2	ppb	16:03:47
2	Na 589.592 Radial†	26518.3	25748.5	9728.6	µg/L	9728.6	ppb	16:03:27
2	Sr 421.552†	45160.9	44979.0	485.69	µg/L	485.69	ppb	16:03:27
2	Sc	417051.5	417051.5	103.7	%			16:04:35
2	Y 371.029	319755.5	319755.5	99.975	%			16:04:35
2	Sc 357.253	264930.4	264930.4	103.1	%			16:04:35
2	Ag 328.068†	42792.8	41983.4	461.57	µg/L	461.57	ppb	16:04:35
2	As 188.979†	228.6	216.9	455.09	µg/L	455.09	ppb	16:04:55
2	B 249.677†	12535.3	11645.7	463.32	µg/L	463.32	ppb	16:04:35
2	Ba 233.527†	26736.3	25978.1	474.00	µg/L	474.00	ppb	16:04:35
2	Be 313.107†	758516.3	737711.7	465.61	µg/L	465.61	ppb	16:04:35
2	Cd 226.502†	41966.3	40871.6	465.80	µg/L	465.80	ppb	16:04:35
2	Co 228.616†	4751.3	4660.6	477.89	µg/L	477.89	ppb	16:04:55
2	Cr 267.716†	34847.6	33627.0	466.62	µg/L	466.62	ppb	16:04:35
2	Cu 324.752†	51325.1	47612.2	475.81	µg/L	475.81	ppb	16:04:35
2	Mn 257.610†	135867.5	131886.6	479.73	µg/L	479.73	ppb	16:04:35
2	Mo 202.031†	3905.5	3827.2	469.18	µg/L	469.18	ppb	16:04:55
2	Ni 231.604†	7202.5	6976.6	465.02	µg/L	465.02	ppb	16:04:55

2	P 214.914†	1249.0	1183.6	2332.1 µg/L	2332.1 ppb		16:04:55
2	Pb 220.353†	1308.6	1230.3	471.61 µg/L	471.61 ppb		16:04:55
2	S 181.975 Axial†	339.5	279.1	900.03 µg/L	900.03 ppb		16:04:55
2	Sb 206.836†	305.9	292.8	463.97 µg/L	463.97 ppb		16:04:55
2	Se 196.026†	210.2	199.8	466 µg/L	466 ppb		16:04:55
2	SiO2†	19057.7	17742.3	5075.9 µg/L	5075.9 ppb		16:04:35
2	Si 251.611†	35623.7	34266.1	2372.8 µg/L	2372.8 ppb		16:04:35
2	Sn 189.927†	1026.5	1019.7	453.34 µg/L	453.34 ppb		16:04:55
2	Ti 334.940†	96696.3	93859.7	467.85 µg/L	467.85 ppb		16:04:35
2	Tl 190.801†	509.2	488.6	475.12 µg/L	475.12 ppb		16:04:55
2	U 367.007†	718.0	830.2	421.04 µg/L	421.04 ppb		16:04:35
2	V 292.402†	30153.9	29097.2	467.55 µg/L	467.55 ppb		16:04:35
2	Zn 213.857†	14385.7	13697.0	455.18 µg/L	455.18 ppb		16:04:55
3	Sc RADIAL	4918.9	4918.9	100.0 %			16:04:09
3	Al 396.153Radial†	2815.4	2913.6	4992.8 µg/L	4992.8 ppb		16:04:09
3	Ca 317.933Radial†	6301.9	6244.4	5019.5 µg/L	5019.5 ppb		16:04:09
3	Fe 238.204 Radial†	2181.4	2145.5	5056.5 µg/L	5056.5 ppb		16:04:09
3	K 766.490 Radial†	4833.5	4912.4	5119.9 µg/L	5119.9 ppb		16:03:49
3	Mg 279.077 IEC†	510.6	524.4	5072.7 µg/L	5072.7 ppb		16:04:09
3	Na 589.592 Radial†	26690.0	25942.4	9801.8 µg/L	9801.8 ppb		16:03:49
3	Sr 421.552†	45487.8	45343.5	489.63 µg/L	489.63 ppb		16:03:49
3	Sc	428013.2	428013.2	106.4 %			16:04:58
3	Y 371.029	328526.2	328526.2	102.72 %			16:04:58
3	Sc 357.253	269150.2	269150.2	104.8 %			16:04:58
3	Ag 328.068†	44189.6	42666.0	469.06 µg/L	469.06 ppb		16:04:58
3	As 188.979†	232.7	217.4	456.08 µg/L	456.08 ppb		16:05:18
3	B 249.677†	13001.0	11899.6	473.45 µg/L	473.45 ppb		16:04:58
3	Ba 233.527†	27273.3	26084.1	475.95 µg/L	475.95 ppb		16:04:58
3	Be 313.107†	779554.0	746259.8	471.00 µg/L	471.00 ppb		16:04:58
3	Cd 226.502†	43448.2	41647.9	474.66 µg/L	474.66 ppb		16:04:58
3	Co 228.616†	4793.2	4628.4	474.59 µg/L	474.59 ppb		16:05:18
3	Cr 267.716†	36005.1	34202.0	474.60 µg/L	474.60 ppb		16:04:58
3	Cu 324.752†	52770.6	48211.7	481.82 µg/L	481.82 ppb		16:04:58
3	Mn 257.610†	138466.9	132302.1	481.24 µg/L	481.24 ppb		16:04:58
3	Mo 202.031†	3891.8	3754.8	460.31 µg/L	460.31 ppb		16:05:18
3	Ni 231.604†	7213.1	6877.3	458.40 µg/L	458.40 ppb		16:05:18
3	P 214.914†	1263.7	1178.6	2322.2 µg/L	2322.2 ppb		16:05:18
3	Pb 220.353†	1307.0	1208.9	463.37 µg/L	463.37 ppb		16:05:18
3	S 181.975 Axial†	349.1	283.1	913.03 µg/L	913.03 ppb		16:05:18
3	Sb 206.836†	304.6	286.9	454.51 µg/L	454.51 ppb		16:05:18
3	Se 196.026†	216.3	202.4	472 µg/L	472 ppb		16:05:18
3	SiO2†	19419.8	17798.3	5092.0 µg/L	5092.0 ppb		16:04:58
3	Si 251.611†	36392.7	34458.6	2386.2 µg/L	2386.2 ppb		16:04:58
3	Sn 189.927†	1036.5	1013.7	450.67 µg/L	450.67 ppb		16:05:18
3	Ti 334.940†	98706.6	94308.4	470.09 µg/L	470.09 ppb		16:04:58
3	Tl 190.801†	511.3	482.8	469.58 µg/L	469.58 ppb		16:05:18
3	U 367.007†	786.1	884.2	450.40 µg/L	450.40 ppb		16:04:58
3	V 292.402†	31463.8	29889.0	480.16 µg/L	480.16 ppb		16:04:58
3	Zn 213.857†	14426.1	13516.9	449.18 µg/L	449.18 ppb		16:05:18

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	422573.1	105.1	%	1.36				1.30%
Sc RADIAL	4920.8	100	%	0.0				0.04%
Y 371.029	325859.1	101.88	%	1.657				1.63%
Sc 357.253	266701.8	103.8	%	0.85				0.82%
Ag 328.068†	42513.7	467.39	µg/L	5.191	467.39	ppb	5.191	1.11%
QC value within limits for Ag 328.068 Recovery = 93.48%								
Al 396.153Radial†	2912.4	4990.8	µg/L	8.70	4990.8	ppb	8.70	0.17%
QC value within limits for Al 396.153Radial Recovery = 99.82%								
As 188.979†	215.1	451.21	µg/L	7.605	451.21	ppb	7.605	1.69%
QC value within limits for As 188.979 Recovery = 90.24%								
B 249.677†	11785.9	468.91	µg/L	5.145	468.91	ppb	5.145	1.10%
QC value within limits for B 249.677 Recovery = 93.78%								
Ba 233.527†	26059.2	475.49	µg/L	1.319	475.49	ppb	1.319	0.28%
QC value within limits for Ba 233.527 Recovery = 95.10%								
Be 313.107†	745175.5	470.31	µg/L	4.404	470.31	ppb	4.404	0.94%
QC value within limits for Be 313.107 Recovery = 94.06%								
Ca 317.933Radial†	6255.1	5028.2	µg/L	7.58	5028.2	ppb	7.58	0.15%

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   QC value within limits for Ca 317.933Radial  Recovery = 100.56%
Cd 226.502†            41364.1      471.42 µg/L          4.889      471.42 ppb          4.889   1.04%
   QC value within limits for Cd 226.502  Recovery = 94.28%
Co 228.616†             4650.3      476.84 µg/L          1.945      476.84 ppb          1.945   0.41%
   QC value within limits for Co 228.616  Recovery = 95.37%
Cr 267.716†            34035.1      472.28 µg/L          4.933      472.28 ppb          4.933   1.04%
   QC value within limits for Cr 267.716  Recovery = 94.46%
Cu 324.752†            48025.2      479.94 µg/L          3.584      479.94 ppb          3.584   0.75%
   QC value within limits for Cu 324.752  Recovery = 95.99%
Fe 238.204 Radial†      2145.3      5056.0 µg/L           5.12      5056.0 ppb           5.12   0.10%
   QC value within limits for Fe 238.204 Radial  Recovery = 101.12%
K 766.490 Radial†       4718.5      4917.7 µg/L         222.05      4917.7 ppb         222.05   4.52%
   QC value within limits for K 766.490 Radial  Recovery = 98.35%
Mg 279.077 IEC†          522.7      5056.7 µg/L          13.98      5056.7 ppb          13.98   0.28%
   QC value within limits for Mg 279.077 IEC  Recovery = 101.13%
Mn 257.610†           132182.9      480.80 µg/L          0.939      480.80 ppb          0.939   0.20%
   QC value within limits for Mn 257.610  Recovery = 96.16%
Mo 202.031†             3805.1      466.47 µg/L          5.348      466.47 ppb          5.348   1.15%
   QC value within limits for Mo 202.031  Recovery = 93.29%
Na 589.592 Radial†     25725.8      9720.0 µg/L          86.41      9720.0 ppb          86.41   0.89%
   QC value within limits for Na 589.592 Radial  Recovery = 97.20%
Ni 231.604†             6946.4      463.01 µg/L          4.006      463.01 ppb          4.006   0.87%
   QC value within limits for Ni 231.604  Recovery = 92.60%
P 214.914†              1185.0      2334.9 µg/L          14.33      2334.9 ppb          14.33   0.61%
   QC value within limits for P 214.914  Recovery = 93.40%
Pb 220.353†             1226.4      470.08 µg/L          6.087      470.08 ppb          6.087   1.29%
   QC value within limits for Pb 220.353  Recovery = 94.02%
S 181.975 Axial†         284.2      916.37 µg/L         18.246      916.37 ppb         18.246   1.99%
   QC value within limits for S 181.975 Axial  Recovery = 91.64%
Sb 206.836†              289.7      459.07 µg/L          4.739      459.07 ppb          4.739   1.03%
   QC value within limits for Sb 206.836  Recovery = 91.81%
Se 196.026†              200.2         467 µg/L           4.8         467 ppb            4.8   1.03%
   QC value within limits for Se 196.026  Recovery = 93.45%
SiO2†                  17771.9      5084.4 µg/L          8.08      5084.4 ppb          8.08   0.16%
   QC value within limits for SiO2  Recovery = 95.08%
Si 251.611†            34361.4      2379.4 µg/L          6.67      2379.4 ppb          6.67   0.28%
   QC value within limits for Si 251.611  Recovery = 95.18%
Sn 189.927†             1019.9      453.40 µg/L          2.761      453.40 ppb          2.761   0.61%
   QC value within limits for Sn 189.927  Recovery = 90.68%
Sr 421.552†            44978.7      485.69 µg/L          3.944      485.69 ppb          3.944   0.81%
   QC value within limits for Sr 421.552  Recovery = 97.14%
Ti 334.940†            94218.6      469.64 µg/L          1.611      469.64 ppb          1.611   0.34%
   QC value within limits for Ti 334.940  Recovery = 93.93%
Tl 190.801†              488.2      474.79 µg/L          5.047      474.79 ppb          5.047   1.06%
   QC value within limits for Tl 190.801  Recovery = 94.96%
U 367.007†               857.6      435.92 µg/L         14.686      435.92 ppb         14.686   3.37%
   QC value less than the lower limit for U 367.007  Recovery = 87.18%
V 292.402†             29571.8      475.13 µg/L          6.676      475.13 ppb          6.676   1.41%
   QC value within limits for V 292.402  Recovery = 95.03%
Zn 213.857†            13650.1      453.62 µg/L          3.903      453.62 ppb          3.903   0.86%
   QC value within limits for Zn 213.857  Recovery = 90.72%
QC Failed.  Continue with analysis.
```

Sequence No.: 64 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/2/2016 16:05:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	5145.4	5145.4	105	%			16:05:56
1	Al 396.153Radial†	-117.0	-14.5	-24.908	µg/L	-24.908	ppb	16:05:56
1	Ca 317.933Radial†	79.4	16.6	13.338	µg/L	13.338	ppb	16:06:16
1	Fe 238.204 Radial†	38.6	0.3	0.7084	µg/L	0.7084	ppb	16:06:16
1	K 766.490 Radial†	-247.7	-159.4	-166.24	µg/L	-166.24	ppb	16:05:56
1	Mg 279.077 IEC†	-17.1	-2.8	-27.003	µg/L	-27.003	ppb	16:06:16
1	Na 589.592 Radial†	765.9	-22.9	-8.6342	µg/L	-8.6342	ppb	16:05:56
1	Sr 421.552†	192.0	26.5	0.2864	µg/L	0.2864	ppb	16:05:56
1	Sc	408042.9	408042.9	101.5	%			16:07:04
1	Y 371.029	326549.2	326549.2	102.10	%			16:07:04
1	Sc 357.253	258590.0	258590.0	100.7	%			16:07:04
1	Ag 328.068†	-452.8	39.9	0.5099	µg/L	0.5099	ppb	16:07:04
1	As 188.979†	7.6	2.8	5.8435	µg/L	5.8435	ppb	16:07:24
1	B 249.677†	563.8	51.0	2.0347	µg/L	2.0347	ppb	16:07:04
1	Ba 233.527†	-59.8	-6.1	-0.1096	µg/L	-0.1096	ppb	16:07:24
1	Be 313.107†	-2023.3	212.4	0.1336	µg/L	0.1336	ppb	16:07:04
1	Cd 226.502†	-175.7	4.8	0.0541	µg/L	0.0541	ppb	16:07:24
1	Co 228.616†	-60.2	-6.2	-0.6352	µg/L	-0.6352	ppb	16:07:24
1	Cr 267.716†	231.3	67.0	0.9296	µg/L	0.9296	ppb	16:07:04
1	Cu 324.752†	2102.2	-66.4	-0.7090	µg/L	-0.7090	ppb	16:07:04
1	Mn 257.610†	-138.7	5.9	0.0223	µg/L	0.0223	ppb	16:07:24
1	Mo 202.031†	-33.5	7.0	0.8592	µg/L	0.8592	ppb	16:07:24
1	Ni 231.604†	9.6	2.3	0.1542	µg/L	0.1542	ppb	16:07:24
1	P 214.914†	29.2	1.5	2.8810	µg/L	2.8810	ppb	16:07:24
1	Pb 220.353†	38.4	-0.4	-0.0753	µg/L	-0.0753	ppb	16:07:24
1	S 181.975 Axial†	43.5	-6.9	-22.121	µg/L	-22.121	ppb	16:07:24
1	Sb 206.836†	6.0	2.2	3.4613	µg/L	3.4613	ppb	16:07:24
1	Se 196.026†	5.7	1.7	4.01	µg/L	4.01	ppb	16:07:24
1	SiO2†	737.4	-4.2	-1.2042	µg/L	-1.2042	ppb	16:07:04
1	Si 251.611†	257.5	-20.3	-1.4083	µg/L	-1.4083	ppb	16:07:24
1	Sn 189.927†	-27.1	-2.5	-1.1150	µg/L	-1.1150	ppb	16:07:24
1	Ti 334.940†	-129.3	-29.5	-0.1473	µg/L	-0.1473	ppb	16:07:04
1	Tl 190.801†	-1.9	-7.1	-6.8747	µg/L	-6.8747	ppb	16:07:24
1	U 367.007†	-258.0	-122.3	-66.418	µg/L	-66.418	ppb	16:07:04
1	V 292.402†	204.2	61.6	0.9573	µg/L	0.9573	ppb	16:07:04
1	Zn 213.857†	249.5	-4.1	-0.1366	µg/L	-0.1366	ppb	16:07:24
2	Sc RADIAL	5092.4	5092.4	103	%			16:06:18
2	Al 396.153Radial†	-113.9	-12.7	-21.719	µg/L	-21.719	ppb	16:06:18
2	Ca 317.933Radial†	79.2	17.2	13.839	µg/L	13.839	ppb	16:06:38
2	Fe 238.204 Radial†	30.2	-7.4	-17.443	µg/L	-17.443	ppb	16:06:38
2	K 766.490 Radial†	-91.4	-10.9	-11.341	µg/L	-11.341	ppb	16:06:18
2	Mg 279.077 IEC†	-16.3	-2.2	-21.591	µg/L	-21.591	ppb	16:06:38
2	Na 589.592 Radial†	708.3	-70.9	-26.770	µg/L	-26.770	ppb	16:06:18
2	Sr 421.552†	173.7	10.8	0.1177	µg/L	0.1177	ppb	16:06:18
2	Sc	408851.1	408851.1	101.7	%			16:07:26
2	Y 371.029	323964.8	323964.8	101.29	%			16:07:26
2	Sc 357.253	260119.0	260119.0	101.3	%			16:07:26
2	Ag 328.068†	-467.4	28.1	0.3447	µg/L	0.3447	ppb	16:07:26
2	As 188.979†	8.7	3.9	8.1233	µg/L	8.1233	ppb	16:07:46
2	B 249.677†	462.5	-52.4	-2.0848	µg/L	-2.0848	ppb	16:07:26
2	Ba 233.527†	-52.4	1.6	0.0321	µg/L	0.0321	ppb	16:07:46
2	Be 313.107†	-2118.1	130.6	0.0815	µg/L	0.0815	ppb	16:07:26
2	Cd 226.502†	-178.5	3.0	0.0354	µg/L	0.0354	ppb	16:07:46
2	Co 228.616†	-59.4	-5.1	-0.5217	µg/L	-0.5217	ppb	16:07:46
2	Cr 267.716†	82.4	-81.4	-1.1272	µg/L	-1.1272	ppb	16:07:26
2	Cu 324.752†	1944.4	-234.4	-2.3636	µg/L	-2.3636	ppb	16:07:26
2	Mn 257.610†	-133.6	11.7	0.0430	µg/L	0.0430	ppb	16:07:46
2	Mo 202.031†	-52.1	-11.1	-1.3664	µg/L	-1.3664	ppb	16:07:46
2	Ni 231.604†	10.3	3.0	0.1986	µg/L	0.1986	ppb	16:07:46

2	P 214.914†	22.1	-5.7	-11.249 µg/L	-11.249 ppb		16:07:46
2	Pb 220.353†	41.7	2.7	1.0413 µg/L	1.0413 ppb		16:07:46
2	S 181.975 Axial†	44.2	-6.4	-20.690 µg/L	-20.690 ppb		16:07:46
2	Sb 206.836†	7.6	3.6	5.7799 µg/L	5.7799 ppb		16:07:46
2	Se 196.026†	4.2	0.2	0.373 µg/L	0.373 ppb		16:07:46
2	SiO2†	731.8	-14.1	-4.0400 µg/L	-4.0400 ppb		16:07:26
2	Si 251.611†	279.4	-0.2	-0.0109 µg/L	-0.0109 ppb		16:07:46
2	Sn 189.927†	-23.2	1.5	0.6482 µg/L	0.6482 ppb		16:07:46
2	Ti 334.940†	-194.5	-93.2	-0.4640 µg/L	-0.4640 ppb		16:07:26
2	Tl 190.801†	1.9	-3.4	-3.2470 µg/L	-3.2470 ppb		16:07:46
2	U 367.007†	-196.1	-59.7	-32.320 µg/L	-32.320 ppb		16:07:26
2	V 292.402†	284.5	139.7	2.2057 µg/L	2.2057 ppb		16:07:26
2	Zn 213.857†	261.7	6.5	0.2235 µg/L	0.2235 ppb		16:07:46
3	Sc RADIAL	5036.0	5036.0	102 %			16:06:40
3	Al 396.153Radial†	-85.9	13.5	23.091 µg/L	23.091 ppb		16:06:40
3	Ca 317.933Radial†	86.3	25.0	20.105 µg/L	20.105 ppb		16:07:00
3	Fe 238.204 Radial†	40.5	3.0	7.0252 µg/L	7.0252 ppb		16:07:00
3	K 766.490 Radial†	-177.3	-95.8	-99.871 µg/L	-99.871 ppb		16:06:40
3	Mg 279.077 IEC†	-2.3	11.3	109.58 µg/L	109.58 ppb		16:07:00
3	Na 589.592 Radial†	780.4	7.3	2.7624 µg/L	2.7624 ppb		16:06:40
3	Sr 421.552†	144.7	-15.7	-0.1701 µg/L	-0.1701 ppb		16:06:40
3	Sc	411565.5	411565.5	102.4 %			16:07:48
3	Y 371.029	327876.8	327876.8	102.51 %			16:07:48
3	Sc 357.253	265183.1	265183.1	103.2 %			16:07:48
3	Ag 328.068†	-450.6	53.3	0.6242 µg/L	0.6242 ppb		16:07:48
3	As 188.979†	8.0	3.0	6.2608 µg/L	6.2608 ppb		16:08:08
3	B 249.677†	513.4	-11.8	-0.4706 µg/L	-0.4706 ppb		16:07:48
3	Ba 233.527†	-51.8	3.2	0.0586 µg/L	0.0586 ppb		16:08:08
3	Be 313.107†	-2237.5	54.9	0.0344 µg/L	0.0344 ppb		16:07:48
3	Cd 226.502†	-174.1	10.6	0.1205 µg/L	0.1205 ppb		16:08:08
3	Co 228.616†	-56.4	-1.0	-0.1069 µg/L	-0.1069 ppb		16:08:08
3	Cr 267.716†	175.0	6.8	0.0949 µg/L	0.0949 ppb		16:07:48
3	Cu 324.752†	2241.9	17.0	0.1456 µg/L	0.1456 ppb		16:07:48
3	Mn 257.610†	-98.9	47.9	0.1708 µg/L	0.1708 ppb		16:08:08
3	Mo 202.031†	-48.9	-7.1	-0.8661 µg/L	-0.8661 ppb		16:08:08
3	Ni 231.604†	3.5	-3.8	-0.2561 µg/L	-0.2561 ppb		16:08:08
3	P 214.914†	15.9	-12.2	-24.049 µg/L	-24.049 ppb		16:08:08
3	Pb 220.353†	43.4	3.5	1.3735 µg/L	1.3735 ppb		16:08:08
3	S 181.975 Axial†	39.5	-11.8	-38.008 µg/L	-38.008 ppb		16:08:08
3	Sb 206.836†	1.3	-2.6	-4.1122 µg/L	-4.1122 ppb		16:08:08
3	Se 196.026†	2.3	-1.7	-3.98 µg/L	-3.98 ppb		16:08:08
3	SiO2†	742.9	-17.1	-4.8822 µg/L	-4.8822 ppb		16:07:48
3	Si 251.611†	273.6	-11.1	-0.7674 µg/L	-0.7674 ppb		16:08:08
3	Sn 189.927†	-16.4	8.5	3.7817 µg/L	3.7817 ppb		16:08:08
3	Ti 334.940†	-118.5	-15.9	-0.0789 µg/L	-0.0789 ppb		16:07:48
3	Tl 190.801†	2.4	-2.9	-2.8323 µg/L	-2.8323 ppb		16:08:08
3	U 367.007†	-206.0	-65.6	-35.671 µg/L	-35.671 ppb		16:07:48
3	V 292.402†	214.2	66.3	1.0351 µg/L	1.0351 ppb		16:07:48
3	Zn 213.857†	257.9	-2.1	-0.0788 µg/L	-0.0788 ppb		16:08:08

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	409486.5	101.8	%	0.46				0.45%
Sc RADIAL	5091.3	103	%	1.1				1.07%
Y 371.029	326130.3	101.97	%	0.622				0.61%
Sc 357.253	261297.4	101.7	%	1.34				1.32%
Ag 328.068†	40.4	0.4930	µg/L	0.14052	0.4930	ppb	0.14052	28.51%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	-4.6	-7.8453	µg/L	26.83876	-7.8453	ppb	26.83876	342.10%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	3.2	6.7425	µg/L	1.21388	6.7425	ppb	1.21388	18.00%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-4.4	-0.1736	µg/L	2.07575	-0.1736	ppb	2.07575	>999.9%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-0.4	-0.0063	µg/L	0.09042	-0.0063	ppb	0.09042	>999.9%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	132.6	0.0832	µg/L	0.04959	0.0832	ppb	0.04959	59.62%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	19.6	15.761	µg/L	3.7706	15.761	ppb	3.7706	23.92%

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   QC value within limits for Ca 317.933Radial  Recovery = Not calculated
Cd 226.502†                6.1      0.0700 µg/L       0.04471      0.0700 ppb        0.04471  63.91%
   QC value within limits for Cd 226.502  Recovery = Not calculated
Co 228.616†               -4.1     -0.4213 µg/L       0.27809     -0.4213 ppb        0.27809  66.01%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†               -2.6     -0.0342 µg/L       1.03444     -0.0342 ppb        1.03444 >999.9%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†              -94.6     -0.9757 µg/L       1.27566     -0.9757 ppb        1.27566 130.75%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        -1.4     -3.2366 µg/L      12.70240     -3.2366 ppb       12.70240 392.46%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†        -88.7     -92.483 µg/L       77.7126     -92.483 ppb        77.7126  84.03%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†            2.1      20.329 µg/L       77.3422      20.329 ppb        77.3422 380.44%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†               21.8      0.0787 µg/L       0.08044      0.0787 ppb        0.08044 102.25%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               -3.7     -0.4577 µg/L       1.16763     -0.4577 ppb        1.16763 255.08%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†       -28.8     -10.881 µg/L       14.8940     -10.881 ppb        14.8940 136.88%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†                0.5      0.0322 µg/L       0.25065      0.0322 ppb        0.25065 777.68%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†                -5.5     -10.805 µg/L       13.4704     -10.805 ppb        13.4704 124.66%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†                1.9      0.7798 µg/L       0.75896      0.7798 ppb        0.75896  97.33%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†          -8.4     -26.940 µg/L        9.6121     -26.940 ppb         9.6121  35.68%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†                1.1      1.7097 µg/L       5.17350      1.7097 ppb        5.17350 302.60%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†                0.1       0.136 µg/L        3.9989       0.136 ppb         3.9989 >999.9%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                    -11.8     -3.3754 µg/L       1.92692     -3.3754 ppb        1.92692  57.09%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              -10.5     -0.7288 µg/L       0.69950     -0.7288 ppb        0.69950  95.98%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†                2.5      1.1050 µg/L       2.48013      1.1050 ppb        2.48013 224.45%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†                7.2      0.0780 µg/L       0.23081      0.0780 ppb        0.23081 295.98%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†              -46.2     -0.2301 µg/L       0.20545     -0.2301 ppb        0.20545  89.30%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†               -4.5     -4.3180 µg/L       2.22385     -4.3180 ppb        2.22385  51.50%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -82.6     -44.803 µg/L       18.7937     -44.803 ppb        18.7937  41.95%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†                89.2      1.3994 µg/L       0.69939      1.3994 ppb        0.69939  49.98%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†                0.1      0.0027 µg/L       0.19342      0.0027 ppb        0.19342 >999.9%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

Sequence No.: 65 **Autosampler Location: 338**
Sample ID: 409254023|1611348|1| **Date Collected: 11/2/2016 16:08:17**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254023|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4877.1	4877.1	99.1	%			16:09:08
1	Al 396.153Radial†	362.2	462.8	793.03	µg/L	793.03	ppb	16:08:48
1	Ca 317.933Radial†	1287.9	1240.0	996.78	µg/L	996.78	ppb	16:09:08
1	Fe 238.204 Radial†	359.8	326.4	769.37	µg/L	769.37	ppb	16:09:08
1	K 766.490 Radial†	-86.1	-9.3	-10.234	µg/L	-10.234	ppb	16:08:48
1	Mg 279.077 IEC†	16.9	30.6	296.41	µg/L	296.41	ppb	16:09:08
1	Na 589.592 Radial†	13707.8	13074.2	4939.8	µg/L	4939.8	ppb	16:08:48
1	Sr 421.552†	450.9	297.8	3.1644	µg/L	3.1644	ppb	16:08:48
1	Sc	407728.6	407728.6	101.4	%			16:09:55
1	Y 371.029	321380.0	321380.0	100.48	%			16:09:55
1	Sc 357.253	262368.1	262368.1	102.1	%			16:09:55
1	Ag 328.068†	-444.7	54.3	0.6232	µg/L	0.6232	ppb	16:09:55
1	As 188.979†	5.2	0.4	0.8779	µg/L	0.8779	ppb	16:10:15
1	B 249.677†	988.6	458.8	18.126	µg/L	18.126	ppb	16:10:15
1	Ba 233.527†	420.7	465.3	8.4764	µg/L	8.4764	ppb	16:10:15
1	Be 313.107†	-2197.2	71.1	0.0623	µg/L	0.0623	ppb	16:09:55
1	Cd 226.502†	-181.3	1.8	-0.0292	µg/L	-0.0292	ppb	16:10:15
1	Co 228.616†	-52.2	2.5	0.1953	µg/L	0.1953	ppb	16:10:15
1	Cr 267.716†	264.1	95.8	1.3243	µg/L	1.3243	ppb	16:10:15
1	Cu 324.752†	2208.0	7.1	0.1192	µg/L	0.1192	ppb	16:09:55
1	Mn 257.610†	3146.5	3224.4	11.735	µg/L	11.735	ppb	16:10:15
1	Mo 202.031†	-50.8	-9.4	-1.0921	µg/L	-1.0921	ppb	16:10:15
1	Ni 231.604†	26.7	18.9	1.2399	µg/L	1.2399	ppb	16:10:15
1	P 214.914†	46.5	18.0	35.151	µg/L	35.151	ppb	16:10:15
1	Pb 220.353†	37.2	-2.1	-0.7712	µg/L	-0.7712	ppb	16:10:15
1	S 181.975 Axial†	135.8	82.8	266.26	µg/L	266.26	ppb	16:10:15
1	Sb 206.836†	5.1	1.2	1.9174	µg/L	1.9174	ppb	16:10:15
1	Se 196.026†	4.1	0.0	0.003	µg/L	0.003	ppb	16:10:15
1	SiO2†	4400.2	3571.5	1020.9	µg/L	1020.9	ppb	16:10:15
1	Si 251.611†	7324.0	6894.9	477.46	µg/L	477.46	ppb	16:10:15
1	Sn 189.927†	-23.1	1.8	0.8405	µg/L	0.8405	ppb	16:10:15
1	Ti 334.940†	1964.5	2022.4	10.101	µg/L	10.101	ppb	16:09:55
1	Tl 190.801†	-0.1	-5.3	-5.0830	µg/L	-5.0830	ppb	16:10:15
1	U 367.007†	-127.8	8.9	0.2937	µg/L	0.2937	ppb	16:09:55
1	V 292.402†	384.2	234.9	3.6893	µg/L	3.6893	ppb	16:10:15
1	Zn 213.857†	342.8	83.7	2.6692	µg/L	2.6692	ppb	16:10:15
2	Sc RADIAL	4883.4	4883.4	99.2	%			16:09:30
2	Al 396.153Radial†	316.3	416.1	713.04	µg/L	713.04	ppb	16:09:10
2	Ca 317.933Radial†	1292.3	1242.8	999.00	µg/L	999.00	ppb	16:09:30
2	Fe 238.204 Radial†	362.5	328.7	774.61	µg/L	774.61	ppb	16:09:30
2	K 766.490 Radial†	-106.3	-29.6	-31.342	µg/L	-31.342	ppb	16:09:10
2	Mg 279.077 IEC†	11.5	25.2	243.67	µg/L	243.67	ppb	16:09:30
2	Na 589.592 Radial†	13924.0	13274.2	5015.4	µg/L	5015.4	ppb	16:09:10
2	Sr 421.552†	319.2	164.6	1.7244	µg/L	1.7244	ppb	16:09:10
2	Sc	416535.3	416535.3	103.6	%			16:10:17
2	Y 371.029	328853.9	328853.9	102.82	%			16:10:17
2	Sc 357.253	265979.3	265979.3	103.5	%			16:10:17
2	Ag 328.068†	-507.3	-0.2	0.0312	µg/L	0.0312	ppb	16:10:17
2	As 188.979†	7.6	2.6	5.4550	µg/L	5.4550	ppb	16:10:37
2	B 249.677†	993.3	450.3	17.783	µg/L	17.783	ppb	16:10:37
2	Ba 233.527†	423.6	462.5	8.4255	µg/L	8.4255	ppb	16:10:37
2	Be 313.107†	-2069.8	223.4	0.1585	µg/L	0.1585	ppb	16:10:17
2	Cd 226.502†	-178.4	7.0	0.0306	µg/L	0.0306	ppb	16:10:37
2	Co 228.616†	-62.2	-6.4	-0.7188	µg/L	-0.7188	ppb	16:10:37
2	Cr 267.716†	265.3	93.5	1.2921	µg/L	1.2921	ppb	16:10:37
2	Cu 324.752†	2202.3	-27.7	-0.2333	µg/L	-0.2333	ppb	16:10:17
2	Mn 257.610†	3148.2	3184.2	11.591	µg/L	11.591	ppb	16:10:37
2	Mo 202.031†	-34.1	7.3	0.9599	µg/L	0.9599	ppb	16:10:37
2	Ni 231.604†	11.1	3.5	0.2098	µg/L	0.2098	ppb	16:10:37

2	P 214.914†	40.3	11.4	22.034 µg/L	22.034 ppb	16:10:37
2	Pb 220.353†	37.5	-2.3	-0.8199 µg/L	-0.8199 ppb	16:10:37
2	S 181.975 Axial†	138.2	83.4	267.95 µg/L	267.95 ppb	16:10:37
2	Sb 206.836†	6.4	2.4	3.7852 µg/L	3.7852 ppb	16:10:37
2	Se 196.026†	2.0	-2.0	-4.73 µg/L	-4.73 ppb	16:10:37
2	SiO2†	4341.0	3455.9	987.82 µg/L	987.82 ppb	16:10:37
2	Si 251.611†	7290.8	6765.5	468.49 µg/L	468.49 ppb	16:10:37
2	Sn 189.927†	-15.8	9.2	4.1023 µg/L	4.1023 ppb	16:10:37
2	Ti 334.940†	2024.2	2053.9	10.258 µg/L	10.258 ppb	16:10:17
2	Tl 190.801†	8.6	3.1	3.0100 µg/L	3.0100 ppb	16:10:37
2	U 367.007†	-142.5	-3.7	-6.5579 µg/L	-6.5579 ppb	16:10:17
2	V 292.402†	354.4	201.0	3.1559 µg/L	3.1559 ppb	16:10:37
2	Zn 213.857†	337.7	74.2	2.3598 µg/L	2.3598 ppb	16:10:37
3	Sc RADIAL	4901.3	4901.3	99.6 %		16:09:52
3	Al 396.153Radial†	214.2	312.5	535.45 µg/L	535.45 ppb	16:09:32
3	Ca 317.933Radial†	1294.0	1239.7	996.51 µg/L	996.51 ppb	16:09:52
3	Fe 238.204 Radial†	360.6	325.4	766.93 µg/L	766.93 ppb	16:09:52
3	K 766.490 Radial†	18.8	96.4	100.01 µg/L	100.01 ppb	16:09:32
3	Mg 279.077 IEC†	13.1	26.7	258.08 µg/L	258.08 ppb	16:09:52
3	Na 589.592 Radial†	13975.0	13274.2	5015.4 µg/L	5015.4 ppb	16:09:32
3	Sr 421.552†	430.0	274.6	2.9143 µg/L	2.9143 ppb	16:09:32
3	Sc	416031.2	416031.2	103.5 %		16:10:39
3	Y 371.029	330034.0	330034.0	103.19 %		16:10:39
3	Sc 357.253	266996.3	266996.3	103.9 %		16:10:39
3	Ag 328.068†	-415.6	89.8	1.0387 µg/L	1.0387 ppb	16:10:39
3	As 188.979†	4.0	-0.8	-1.7058 µg/L	-1.7058 ppb	16:11:00
3	B 249.677†	969.4	423.6	16.724 µg/L	16.724 ppb	16:11:00
3	Ba 233.527†	408.6	446.5	8.1337 µg/L	8.1337 ppb	16:11:00
3	Be 313.107†	-2200.5	105.2	0.0847 µg/L	0.0847 ppb	16:10:39
3	Cd 226.502†	-172.7	13.1	0.1002 µg/L	0.1002 ppb	16:11:00
3	Co 228.616†	-58.8	-3.0	-0.3666 µg/L	-0.3666 ppb	16:11:00
3	Cr 267.716†	243.7	71.7	0.9902 µg/L	0.9902 ppb	16:11:00
3	Cu 324.752†	2215.0	-23.6	-0.2036 µg/L	-0.2036 ppb	16:10:39
3	Mn 257.610†	3132.3	3157.4	11.492 µg/L	11.492 ppb	16:11:00
3	Mo 202.031†	-38.8	2.9	0.4172 µg/L	0.4172 ppb	16:11:00
3	Ni 231.604†	21.9	13.8	0.9004 µg/L	0.9004 ppb	16:11:00
3	P 214.914†	32.9	4.1	7.7177 µg/L	7.7177 ppb	16:11:00
3	Pb 220.353†	41.7	1.6	0.6763 µg/L	0.6763 ppb	16:11:00
3	S 181.975 Axial†	131.8	76.7	246.65 µg/L	246.65 ppb	16:11:00
3	Sb 206.836†	4.2	0.2	0.3904 µg/L	0.3904 ppb	16:11:00
3	Se 196.026†	3.4	-0.7	-1.66 µg/L	-1.66 ppb	16:11:00
3	SiO2†	4230.4	3333.5	952.83 µg/L	952.83 ppb	16:11:00
3	Si 251.611†	7034.0	6491.5	449.52 µg/L	449.52 ppb	16:11:00
3	Sn 189.927†	-19.9	5.3	2.3915 µg/L	2.3915 ppb	16:11:00
3	Ti 334.940†	2108.9	2127.9	10.627 µg/L	10.627 ppb	16:10:39
3	Tl 190.801†	3.7	-1.7	-1.6046 µg/L	-1.6046 ppb	16:11:00
3	U 367.007†	-174.8	-34.2	-23.076 µg/L	-23.076 ppb	16:10:39
3	V 292.402†	392.9	236.7	3.7149 µg/L	3.7149 ppb	16:11:00
3	Zn 213.857†	332.9	68.4	2.1612 µg/L	2.1612 ppb	16:11:00

Mean Data: 409254023|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	413431.7	102.8	%	1.23				1.20%
Sc RADIAL	4887.2	99.3	%	0.26				0.26%
Y 371.029	326756.0	102.16	%	1.467				1.44%
Sc 357.253	265114.6	103.2	%	0.95				0.92%
Ag 328.068†	47.9	0.5643	µg/L	0.50633	0.5643	ppb	0.50633	89.72%
Al 396.153Radial†	397.1	680.51	µg/L	131.838	680.51	ppb	131.838	19.37%
As 188.979†	0.7	1.5424	µg/L	3.62634	1.5424	ppb	3.62634	235.12%
B 249.677†	444.2	17.544	µg/L	0.7309	17.544	ppb	0.7309	4.17%
Ba 233.527†	458.1	8.3452	µg/L	0.18490	8.3452	ppb	0.18490	2.22%
Be 313.107†	133.2	0.1019	µg/L	0.05033	0.1019	ppb	0.05033	49.42%
Ca 317.933Radial†	1240.8	997.43	µg/L	1.365	997.43	ppb	1.365	0.14%
Cd 226.502†	7.3	0.0338	µg/L	0.06475	0.0338	ppb	0.06475	191.30%
Co 228.616†	-2.3	-0.2967	µg/L	0.46104	-0.2967	ppb	0.46104	155.38%
Cr 267.716†	87.0	1.2022	µg/L	0.18431	1.2022	ppb	0.18431	15.33%
Cu 324.752†	-14.7	-0.1059	µg/L	0.19551	-0.1059	ppb	0.19551	184.56%
Fe 238.204 Radial†	326.8	770.30	µg/L	3.922	770.30	ppb	3.922	0.51%
K 766.490 Radial†	19.1	19.477	µg/L	70.5352	19.477	ppb	70.5352	362.15%

Mg 279.077 IEC†	27.5	266.05 µg/L	27.258	266.05 ppb	27.258	10.25%
Mn 257.610†	3188.7	11.606 µg/L	0.1220	11.606 ppb	0.1220	1.05%
Mo 202.031†	0.3	0.0950 µg/L	1.06326	0.0950 ppb	1.06326	>999.9%
Na 589.592 Radial†	13207.5	4990.2 µg/L	43.62	4990.2 ppb	43.62	0.87%
Ni 231.604†	12.1	0.7834 µg/L	0.52496	0.7834 ppb	0.52496	67.01%
P 214.914†	11.2	21.634 µg/L	13.7210	21.634 ppb	13.7210	63.42%
Pb 220.353†	-0.9	-0.3049 µg/L	0.85013	-0.3049 ppb	0.85013	278.81%
S 181.975 Axial†	81.0	260.29 µg/L	11.839	260.29 ppb	11.839	4.55%
Sb 206.836†	1.3	2.0310 µg/L	1.70029	2.0310 ppb	1.70029	83.72%
Se 196.026†	-0.9	-2.13 µg/L	2.400	-2.13 ppb	2.400	112.83%
SiO2†	3453.6	987.17 µg/L	34.015	987.17 ppb	34.015	3.45%
Si 251.611†	6717.3	465.16 µg/L	14.263	465.16 ppb	14.263	3.07%
Sn 189.927†	5.4	2.4447 µg/L	1.63151	2.4447 ppb	1.63151	66.74%
Sr 421.552†	245.7	2.6010 µg/L	0.76944	2.6010 ppb	0.76944	29.58%
Ti 334.940†	2068.1	10.329 µg/L	0.2703	10.329 ppb	0.2703	2.62%
Tl 190.801†	-1.3	-1.2259 µg/L	4.05980	-1.2259 ppb	4.05980	331.18%
U 367.007†	-9.7	-9.7800 µg/L	12.01338	-9.7800 ppb	12.01338	122.84%
V 292.402†	224.2	3.5200 µg/L	0.31563	3.5200 ppb	0.31563	8.97%
Zn 213.857†	75.4	2.3967 µg/L	0.25599	2.3967 ppb	0.25599	10.68%

Sequence No.: 66 **Autosampler Location: 339**
Sample ID: 409254025|1611348|1| **Date Collected: 11/2/2016 16:11:08**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254025|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4878.7	4878.7	99.2	%			16:11:57
1	Al 396.153Radial†	137.6	236.2	404.72	µg/L	404.72	ppb	16:11:37
1	Ca 317.933Radial†	1668.4	1623.3	1304.9	µg/L	1304.9	ppb	16:11:57
1	Fe 238.204 Radial†	211.3	176.6	416.16	µg/L	416.16	ppb	16:11:57
1	K 766.490 Radial†	-64.1	12.8	13.089	µg/L	13.089	ppb	16:11:37
1	Mg 279.077 IEC†	13.3	27.0	261.07	µg/L	261.07	ppb	16:11:57
1	Na 589.592 Radial†	9076.2	8398.3	3173.2	µg/L	3173.2	ppb	16:11:37
1	Sr 421.552†	710.5	559.5	6.0093	µg/L	6.0093	ppb	16:11:37
1	Sc	413124.1	413124.1	102.7	%			16:12:45
1	Y 371.029	329853.2	329853.2	103.13	%			16:12:45
1	Sc 357.253	265707.2	265707.2	103.4	%			16:12:45
1	Ag 328.068†	-344.8	156.4	1.7908	µg/L	1.7908	ppb	16:12:45
1	As 188.979†	8.5	3.5	7.3035	µg/L	7.3035	ppb	16:13:05
1	B 249.677†	895.9	357.1	14.148	µg/L	14.148	ppb	16:13:05
1	Ba 233.527†	313.0	356.0	6.4876	µg/L	6.4876	ppb	16:13:05
1	Be 313.107†	-2183.7	111.1	0.0800	µg/L	0.0800	ppb	16:12:45
1	Cd 226.502†	-174.8	10.3	0.0911	µg/L	0.0911	ppb	16:13:05
1	Co 228.616†	-57.0	-1.5	-0.1795	µg/L	-0.1795	ppb	16:13:05
1	Cr 267.716†	228.3	58.0	0.8023	µg/L	0.8023	ppb	16:13:05
1	Cu 324.752†	2122.4	-102.8	-1.0348	µg/L	-1.0348	ppb	16:12:45
1	Mn 257.610†	989.6	1100.5	4.0026	µg/L	4.0026	ppb	16:13:05
1	Mo 202.031†	-31.7	9.7	1.2196	µg/L	1.2196	ppb	16:13:05
1	Ni 231.604†	10.9	3.3	0.2100	µg/L	0.2100	ppb	16:13:05
1	P 214.914†	36.8	8.0	15.602	µg/L	15.602	ppb	16:13:05
1	Pb 220.353†	39.7	-0.1	0.0166	µg/L	0.0166	ppb	16:13:05
1	S 181.975 Axial†	71.5	19.1	61.403	µg/L	61.403	ppb	16:13:05
1	Sb 206.836†	12.3	8.1	12.792	µg/L	12.792	ppb	16:13:05
1	Se 196.026†	5.1	0.9	2.11	µg/L	2.11	ppb	16:13:05
1	SiO2†	2926.4	2092.5	598.10	µg/L	598.10	ppb	16:13:05
1	Si 251.611†	4515.6	4089.6	283.20	µg/L	283.20	ppb	16:13:05
1	Sn 189.927†	-25.8	-0.6	-0.2150	µg/L	-0.2150	ppb	16:13:05
1	Ti 334.940†	1088.7	1151.5	5.7652	µg/L	5.7652	ppb	16:12:45
1	Tl 190.801†	6.2	0.8	0.7878	µg/L	0.7878	ppb	16:13:05
1	U 367.007†	-228.0	-86.5	-49.402	µg/L	-49.402	ppb	16:12:45
1	V 292.402†	321.3	169.4	2.6576	µg/L	2.6576	ppb	16:13:05
1	Zn 213.857†	254.5	-5.9	-0.2765	µg/L	-0.2765	ppb	16:13:05
2	Sc RADIAL	4907.5	4907.5	99.7	%			16:12:19
2	Al 396.153Radial†	127.7	225.4	386.24	µg/L	386.24	ppb	16:11:59
2	Ca 317.933Radial†	1685.2	1630.3	1310.5	µg/L	1310.5	ppb	16:12:19
2	Fe 238.204 Radial†	207.1	171.1	403.28	µg/L	403.28	ppb	16:12:19
2	K 766.490 Radial†	94.4	172.1	179.21	µg/L	179.21	ppb	16:11:59
2	Mg 279.077 IEC†	13.2	26.8	259.58	µg/L	259.58	ppb	16:12:19
2	Na 589.592 Radial†	9031.4	8299.8	3135.9	µg/L	3135.9	ppb	16:11:59
2	Sr 421.552†	704.1	548.9	5.8954	µg/L	5.8954	ppb	16:11:59
2	Sc	409674.7	409674.7	101.9	%			16:13:07
2	Y 371.029	324154.8	324154.8	101.35	%			16:13:07
2	Sc 357.253	261831.4	261831.4	101.9	%			16:13:07
2	Ag 328.068†	-372.1	124.7	1.4447	µg/L	1.4447	ppb	16:13:07
2	As 188.979†	10.2	5.3	10.960	µg/L	10.960	ppb	16:13:27
2	B 249.677†	918.7	392.3	15.553	µg/L	15.553	ppb	16:13:27
2	Ba 233.527†	300.7	348.4	6.3492	µg/L	6.3492	ppb	16:13:27
2	Be 313.107†	-2184.1	79.6	0.0600	µg/L	0.0600	ppb	16:13:07
2	Cd 226.502†	-172.0	10.5	0.0938	µg/L	0.0938	ppb	16:13:27
2	Co 228.616†	-57.5	-2.8	-0.3175	µg/L	-0.3175	ppb	16:13:27
2	Cr 267.716†	208.7	42.0	0.5807	µg/L	0.5807	ppb	16:13:27
2	Cu 324.752†	2250.8	53.6	0.5239	µg/L	0.5239	ppb	16:13:07
2	Mn 257.610†	996.1	1121.0	4.0771	µg/L	4.0771	ppb	16:13:27
2	Mo 202.031†	-41.8	-0.7	-0.0535	µg/L	-0.0535	ppb	16:13:27
2	Ni 231.604†	20.6	13.0	0.8539	µg/L	0.8539	ppb	16:13:27

2	P 214.914†	36.9	8.7	16.946 µg/L	16.946 ppb	16:13:27
2	Pb 220.353†	44.8	5.4	2.1358 µg/L	2.1358 ppb	16:13:27
2	S 181.975 Axial†	75.5	24.0	77.121 µg/L	77.121 ppb	16:13:27
2	Sb 206.836†	8.6	4.7	7.3990 µg/L	7.3990 ppb	16:13:27
2	Se 196.026†	2.7	-1.4	-3.20 µg/L	-3.20 ppb	16:13:27
2	SiO2†	2878.6	2087.4	596.66 µg/L	596.66 ppb	16:13:27
2	Si 251.611†	4477.9	4117.2	285.11 µg/L	285.11 ppb	16:13:27
2	Sn 189.927†	-26.5	-1.6	-0.6576 µg/L	-0.6576 ppb	16:13:27
2	Ti 334.940†	1065.4	1144.2	5.7290 µg/L	5.7290 ppb	16:13:07
2	Tl 190.801†	5.2	-0.1	-0.1215 µg/L	-0.1215 ppb	16:13:27
2	U 367.007†	-229.5	-91.2	-51.883 µg/L	-51.883 ppb	16:13:07
2	V 292.402†	344.9	197.1	3.0921 µg/L	3.0921 ppb	16:13:27
2	Zn 213.857†	251.5	-5.2	-0.2565 µg/L	-0.2565 ppb	16:13:27
3	Sc RADIAL	4896.8	4896.8	99.5 %		16:12:41
3	Al 396.153Radial†	94.3	192.1	329.25 µg/L	329.25 ppb	16:12:21
3	Ca 317.933Radial†	1683.9	1632.7	1312.4 µg/L	1312.4 ppb	16:12:41
3	Fe 238.204 Radial†	205.4	169.8	400.22 µg/L	400.22 ppb	16:12:41
3	K 766.490 Radial†	107.6	185.6	193.31 µg/L	193.31 ppb	16:12:21
3	Mg 279.077 IEC†	13.1	26.7	258.36 µg/L	258.36 ppb	16:12:41
3	Na 589.592 Radial†	9137.8	8426.4	3183.8 µg/L	3183.8 ppb	16:12:21
3	Sr 421.552†	659.3	505.4	5.4259 µg/L	5.4259 ppb	16:12:21
3	Sc	412170.4	412170.4	102.5 %		16:13:29
3	Y 371.029	329438.6	329438.6	103.00 %		16:13:29
3	Sc 357.253	263219.6	263219.6	102.5 %		16:13:29
3	Ag 328.068†	-345.0	153.0	1.6911 µg/L	1.6911 ppb	16:13:29
3	As 188.979†	6.9	2.0	4.2043 µg/L	4.2043 ppb	16:13:49
3	B 249.677†	947.6	415.7	16.489 µg/L	16.489 ppb	16:13:49
3	Ba 233.527†	287.9	334.4	6.0935 µg/L	6.0935 ppb	16:13:49
3	Be 313.107†	-2159.1	115.2	0.0816 µg/L	0.0816 ppb	16:13:29
3	Cd 226.502†	-172.2	11.2	0.1024 µg/L	0.1024 ppb	16:13:49
3	Co 228.616†	-68.5	-13.3	-1.3914 µg/L	-1.3914 ppb	16:13:49
3	Cr 267.716†	241.7	73.1	1.0119 µg/L	1.0119 ppb	16:13:49
3	Cu 324.752†	2042.7	-161.1	-1.5774 µg/L	-1.5774 ppb	16:13:29
3	Mn 257.610†	994.0	1113.8	4.0509 µg/L	4.0509 ppb	16:13:49
3	Mo 202.031†	-25.6	15.3	1.9064 µg/L	1.9064 ppb	16:13:49
3	Ni 231.604†	5.8	-1.5	-0.1134 µg/L	-0.1134 ppb	16:13:49
3	P 214.914†	34.3	5.9	11.485 µg/L	11.485 ppb	16:13:49
3	Pb 220.353†	42.9	3.4	1.2960 µg/L	1.2960 ppb	16:13:49
3	S 181.975 Axial†	70.1	18.4	59.107 µg/L	59.107 ppb	16:13:49
3	Sb 206.836†	12.5	8.4	13.269 µg/L	13.269 ppb	16:13:49
3	Se 196.026†	3.4	-0.7	-1.63 µg/L	-1.63 ppb	16:13:49
3	SiO2†	2840.7	2035.6	581.86 µg/L	581.86 ppb	16:13:49
3	Si 251.611†	4374.4	3993.0	276.51 µg/L	276.51 ppb	16:13:49
3	Sn 189.927†	-15.6	9.2	4.0998 µg/L	4.0998 ppb	16:13:49
3	Ti 334.940†	964.1	1039.9	5.2087 µg/L	5.2087 ppb	16:13:29
3	Tl 190.801†	-5.0	-10.1	-9.7406 µg/L	-9.7406 ppb	16:13:49
3	U 367.007†	-116.6	20.2	8.6200 µg/L	8.6200 ppb	16:13:29
3	V 292.402†	299.3	150.8	2.3937 µg/L	2.3937 ppb	16:13:49
3	Zn 213.857†	262.6	4.3	0.0725 µg/L	0.0725 ppb	16:13:49

Mean Data: 409254025|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc	411656.4	102.4	%	0.44				0.43%
Sc RADIAL	4894.3	99.5	%	0.30				0.30%
Y 371.029	327815.5	102.50	%	0.993				0.97%
Sc 357.253	263586.1	102.6	%	0.76				0.74%
Ag 328.068†	144.7	1.6422	µg/L	0.17813	1.6422	ppb	0.17813	10.85%
Al 396.153Radial†	217.9	373.40	µg/L	39.338	373.40	ppb	39.338	10.54%
As 188.979†	3.6	7.4891	µg/L	3.38144	7.4891	ppb	3.38144	45.15%
B 249.677†	388.3	15.397	µg/L	1.1785	15.397	ppb	1.1785	7.65%
Ba 233.527†	346.3	6.3101	µg/L	0.19990	6.3101	ppb	0.19990	3.17%
Be 313.107†	102.0	0.0739	µg/L	0.01202	0.0739	ppb	0.01202	16.26%
Ca 317.933Radial†	1628.8	1309.3	µg/L	3.92	1309.3	ppb	3.92	0.30%
Cd 226.502†	10.6	0.0958	µg/L	0.00591	0.0958	ppb	0.00591	6.17%
Co 228.616†	-5.9	-0.6294	µg/L	0.66342	-0.6294	ppb	0.66342	105.40%
Cr 267.716†	57.7	0.7983	µg/L	0.21563	0.7983	ppb	0.21563	27.01%
Cu 324.752†	-70.1	-0.6961	µg/L	1.09082	-0.6961	ppb	1.09082	156.70%
Fe 238.204 Radial†	172.5	406.55	µg/L	8.457	406.55	ppb	8.457	2.08%
K 766.490 Radial†	123.5	128.54	µg/L	100.229	128.54	ppb	100.229	77.98%

Mg 279.077 IEC†	26.8	259.67 µg/L	1.359	259.67 ppb	1.359	0.52%
Mn 257.610†	1111.8	4.0436 µg/L	0.03780	4.0436 ppb	0.03780	0.93%
Mo 202.031†	8.1	1.0242 µg/L	0.99443	1.0242 ppb	0.99443	97.10%
Na 589.592 Radial†	8374.9	3164.3 µg/L	25.13	3164.3 ppb	25.13	0.79%
Ni 231.604†	4.9	0.3168 µg/L	0.49242	0.3168 ppb	0.49242	155.43%
P 214.914†	7.5	14.678 µg/L	2.8450	14.678 ppb	2.8450	19.38%
Pb 220.353†	2.9	1.1495 µg/L	1.06717	1.1495 ppb	1.06717	92.84%
S 181.975 Axial†	20.5	65.877 µg/L	9.8053	65.877 ppb	9.8053	14.88%
Sb 206.836†	7.0	11.153 µg/L	3.2601	11.153 ppb	3.2601	29.23%
Se 196.026†	-0.4	-0.907 µg/L	2.7321	-0.907 ppb	2.7321	301.13%
SiO2†	2071.8	592.21 µg/L	8.990	592.21 ppb	8.990	1.52%
Si 251.611†	4066.6	281.60 µg/L	4.516	281.60 ppb	4.516	1.60%
Sn 189.927†	2.4	1.0757 µg/L	2.62822	1.0757 ppb	2.62822	244.32%
Sr 421.552†	537.9	5.7769 µg/L	0.30926	5.7769 ppb	0.30926	5.35%
Ti 334.940†	1111.9	5.5676 µg/L	0.31138	5.5676 ppb	0.31138	5.59%
Tl 190.801†	-3.1	-3.0248 µg/L	5.83384	-3.0248 ppb	5.83384	192.87%
U 367.007†	-52.5	-30.888 µg/L	34.2375	-30.888 ppb	34.2375	110.84%
V 292.402†	172.4	2.7145 µg/L	0.35265	2.7145 ppb	0.35265	12.99%
Zn 213.857†	-2.3	-0.1535 µg/L	0.19598	-0.1535 ppb	0.19598	127.71%

Sequence No.: 67 **Autosampler Location: 340**
Sample ID: 409254030|1611348|1| **Date Collected: 11/2/2016 16:13:59**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254030|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4909.4	4909.4	99.8	%			16:14:48
1	Al 396.153Radial†	230.0	327.9	561.94	µg/L	561.94	ppb	16:14:28
1	Ca 317.933Radial†	2023.2	1968.4	1582.3	µg/L	1582.3	ppb	16:14:48
1	Fe 238.204 Radial†	378.9	343.2	808.87	µg/L	808.87	ppb	16:14:48
1	K 766.490 Radial†	-81.0	-3.7	-4.3458	µg/L	-4.3458	ppb	16:14:28
1	Mg 279.077 IEC†	15.8	29.4	284.28	µg/L	284.28	ppb	16:14:48
1	Na 589.592 Radial†	10984.7	10254.0	3874.3	µg/L	3874.3	ppb	16:14:28
1	Sr 421.552†	920.9	765.9	8.2141	µg/L	8.2141	ppb	16:14:28
1	Sc	413336.9	413336.9	102.8	%			16:15:35
1	Y 371.029	323306.7	323306.7	101.09	%			16:15:35
1	Sc 357.253	264401.8	264401.8	102.9	%			16:15:35
1	Ag 328.068†	-462.3	40.6	0.5187	µg/L	0.5187	ppb	16:15:35
1	As 188.979†	8.4	3.4	7.1332	µg/L	7.1332	ppb	16:15:55
1	B 249.677†	1158.4	616.4	24.400	µg/L	24.400	ppb	16:15:35
1	Ba 233.527†	482.6	522.3	9.5134	µg/L	9.5134	ppb	16:15:55
1	Be 313.107†	-2187.5	97.0	0.0779	µg/L	0.0779	ppb	16:15:35
1	Cd 226.502†	-173.5	10.7	0.0712	µg/L	0.0712	ppb	16:15:55
1	Co 228.616†	-63.4	-8.0	-0.8863	µg/L	-0.8863	ppb	16:15:55
1	Cr 267.716†	159.3	-8.0	-0.1160	µg/L	-0.1160	ppb	16:15:35
1	Cu 324.752†	2185.3	-31.6	-0.2934	µg/L	-0.2934	ppb	16:15:35
1	Mn 257.610†	1677.9	1773.9	6.4591	µg/L	6.4591	ppb	16:15:55
1	Mo 202.031†	-41.4	0.1	0.0749	µg/L	0.0749	ppb	16:15:55
1	Ni 231.604†	13.8	6.2	0.3871	µg/L	0.3871	ppb	16:15:55
1	P 214.914†	34.8	6.3	12.008	µg/L	12.008	ppb	16:15:55
1	Pb 220.353†	46.0	6.2	2.4258	µg/L	2.4258	ppb	16:15:55
1	S 181.975 Axial†	94.0	41.2	132.72	µg/L	132.72	ppb	16:15:55
1	Sb 206.836†	6.2	2.2	3.4950	µg/L	3.4950	ppb	16:15:55
1	Se 196.026†	2.4	-1.7	-3.91	µg/L	-3.91	ppb	16:15:55
1	SiO2†	3252.8	2423.6	692.74	µg/L	692.74	ppb	16:15:35
1	Si 251.611†	5071.9	4651.6	322.11	µg/L	322.11	ppb	16:15:35
1	Sn 189.927†	-18.1	6.8	3.0776	µg/L	3.0776	ppb	16:15:55
1	Ti 334.940†	1895.2	1940.2	9.7030	µg/L	9.7030	ppb	16:15:35
1	Tl 190.801†	1.5	-3.7	-3.6173	µg/L	-3.6173	ppb	16:15:55
1	U 367.007†	-205.9	-66.0	-40.609	µg/L	-40.609	ppb	16:15:35
1	V 292.402†	281.3	132.0	2.0288	µg/L	2.0288	ppb	16:15:35
1	Zn 213.857†	318.8	57.8	1.8010	µg/L	1.8010	ppb	16:15:55
2	Sc RADIAL	4913.4	4913.4	99.9	%			16:15:10
2	Al 396.153Radial†	243.8	341.5	585.26	µg/L	585.26	ppb	16:14:50
2	Ca 317.933Radial†	2034.6	1978.1	1590.1	µg/L	1590.1	ppb	16:15:10
2	Fe 238.204 Radial†	379.5	343.5	809.58	µg/L	809.58	ppb	16:15:10
2	K 766.490 Radial†	-42.6	34.8	35.778	µg/L	35.778	ppb	16:14:50
2	Mg 279.077 IEC†	10.2	23.7	229.61	µg/L	229.61	ppb	16:15:10
2	Na 589.592 Radial†	10795.7	10055.8	3799.4	µg/L	3799.4	ppb	16:14:50
2	Sr 421.552†	864.1	708.2	7.5914	µg/L	7.5914	ppb	16:14:50
2	Sc	411635.2	411635.2	102.4	%			16:15:57
2	Y 371.029	327065.0	327065.0	102.26	%			16:15:57
2	Sc 357.253	262749.9	262749.9	102.3	%			16:15:57
2	Ag 328.068†	-512.5	-11.4	-0.0219	µg/L	-0.0219	ppb	16:15:57
2	As 188.979†	4.8	-0.0	-0.0094	µg/L	-0.0094	ppb	16:16:17
2	B 249.677†	1120.6	586.5	23.210	µg/L	23.210	ppb	16:15:57
2	Ba 233.527†	467.3	510.2	9.2945	µg/L	9.2945	ppb	16:16:17
2	Be 313.107†	-2059.6	208.7	0.1472	µg/L	0.1472	ppb	16:15:57
2	Cd 226.502†	-195.7	-12.1	-0.1887	µg/L	-0.1887	ppb	16:16:17
2	Co 228.616†	-61.5	-6.6	-0.7334	µg/L	-0.7334	ppb	16:16:17
2	Cr 267.716†	235.7	67.6	0.9331	µg/L	0.9331	ppb	16:15:57
2	Cu 324.752†	2167.3	-35.8	-0.3542	µg/L	-0.3542	ppb	16:15:57
2	Mn 257.610†	1660.5	1767.2	6.4365	µg/L	6.4365	ppb	16:16:17
2	Mo 202.031†	-40.1	1.1	0.1936	µg/L	0.1936	ppb	16:16:17
2	Ni 231.604†	14.1	6.5	0.4124	µg/L	0.4124	ppb	16:16:17

2	P 214.914†	29.9	1.7	2.9342 µg/L	2.9342 ppb	16:16:17
2	Pb 220.353†	47.3	7.7	3.0486 µg/L	3.0486 ppb	16:16:17
2	S 181.975 Axial†	96.8	44.6	143.47 µg/L	143.47 ppb	16:16:17
2	Sb 206.836†	9.7	5.7	9.0298 µg/L	9.0298 ppb	16:16:17
2	Se 196.026†	3.7	-0.3	-0.785 µg/L	-0.785 ppb	16:16:17
2	SiO2†	3161.9	2354.6	673.02 µg/L	673.02 ppb	16:15:57
2	Si 251.611†	4912.3	4526.6	313.45 µg/L	313.45 ppb	16:15:57
2	Sn 189.927†	-20.9	3.9	1.7917 µg/L	1.7917 ppb	16:16:17
2	Ti 334.940†	1749.2	1809.1	9.0489 µg/L	9.0489 ppb	16:15:57
2	Tl 190.801†	1.7	-3.6	-3.4638 µg/L	-3.4638 ppb	16:16:17
2	U 367.007†	-256.4	-116.7	-68.100 µg/L	-68.100 ppb	16:15:57
2	V 292.402†	357.3	208.0	3.2314 µg/L	3.2314 ppb	16:15:57
2	Zn 213.857†	314.5	55.6	1.7298 µg/L	1.7298 ppb	16:16:17
3	Sc RADIAL	4905.1	4905.1	99.7 %		16:15:32
3	Al 396.153Radial†	256.6	354.8	608.04 µg/L	608.04 ppb	16:15:12
3	Ca 317.933Radial†	2009.2	1956.1	1572.4 µg/L	1572.4 ppb	16:15:32
3	Fe 238.204 Radial†	381.6	346.2	815.96 µg/L	815.96 ppb	16:15:32
3	K 766.490 Radial†	-71.2	6.0	5.7806 µg/L	5.7806 ppb	16:15:12
3	Mg 279.077 IEC†	21.4	35.0	338.62 µg/L	338.62 ppb	16:15:32
3	Na 589.592 Radial†	10723.9	10002.0	3779.1 µg/L	3779.1 ppb	16:15:12
3	Sr 421.552†	877.0	722.7	7.7475 µg/L	7.7475 ppb	16:15:12
3	Sc	412713.2	412713.2	102.6 %		16:16:20
3	Y 371.029	327797.1	327797.1	102.49 %		16:16:20
3	Sc 357.253	263239.3	263239.3	102.5 %		16:16:20
3	Ag 328.068†	-432.4	67.8	0.7500 µg/L	0.7500 ppb	16:16:20
3	As 188.979†	10.3	5.4	11.174 µg/L	11.174 ppb	16:16:40
3	B 249.677†	1001.0	467.8	18.472 µg/L	18.472 ppb	16:16:20
3	Ba 233.527†	462.8	505.0	9.1990 µg/L	9.1990 ppb	16:16:40
3	Be 313.107†	-2116.8	156.7	0.1154 µg/L	0.1154 ppb	16:16:20
3	Cd 226.502†	-185.6	-1.8	-0.0725 µg/L	-0.0725 ppb	16:16:40
3	Co 228.616†	-51.1	3.7	0.3161 µg/L	0.3161 ppb	16:16:40
3	Cr 267.716†	233.7	65.3	0.9003 µg/L	0.9003 ppb	16:16:20
3	Cu 324.752†	2085.2	-119.9	-1.1287 µg/L	-1.1287 ppb	16:16:20
3	Mn 257.610†	1651.8	1755.7	6.3912 µg/L	6.3912 ppb	16:16:40
3	Mo 202.031†	-54.1	-12.5	-1.4731 µg/L	-1.4731 ppb	16:16:40
3	Ni 231.604†	15.4	7.8	0.4992 µg/L	0.4992 ppb	16:16:40
3	P 214.914†	36.4	8.0	15.299 µg/L	15.299 ppb	16:16:40
3	Pb 220.353†	44.2	4.6	1.7821 µg/L	1.7821 ppb	16:16:40
3	S 181.975 Axial†	94.8	42.4	136.51 µg/L	136.51 ppb	16:16:40
3	Sb 206.836†	3.6	-0.3	-0.4875 µg/L	-0.4875 ppb	16:16:40
3	Se 196.026†	2.5	-1.5	-3.65 µg/L	-3.65 ppb	16:16:40
3	SiO2†	3193.8	2379.9	680.27 µg/L	680.27 ppb	16:16:20
3	Si 251.611†	4889.6	4495.5	311.30 µg/L	311.30 ppb	16:16:20
3	Sn 189.927†	-26.6	-1.6	-0.6506 µg/L	-0.6506 ppb	16:16:40
3	Ti 334.940†	1879.1	1932.6	9.6645 µg/L	9.6645 ppb	16:16:20
3	Tl 190.801†	7.0	1.7	1.6012 µg/L	1.6012 ppb	16:16:40
3	U 367.007†	-82.3	53.7	24.355 µg/L	24.355 ppb	16:16:20
3	V 292.402†	329.9	180.7	2.8285 µg/L	2.8285 ppb	16:16:20
3	Zn 213.857†	320.8	61.1	1.9072 µg/L	1.9072 ppb	16:16:40

Mean Data: 409254030|1611348|1|

	Mean Corrected		Calib.		Sample		
Analyte	**Intensity**	**Conc.**	**Units**	**Std.Dev.**	**Conc.**	**Units**	**Std.Dev.**	**RSD**
Sc	412561.8	102.6	%	0.21				0.21%
Sc RADIAL	4909.3	99.8	%	0.08				0.08%
Y 371.029	326056.3	101.95	%	0.753				0.74%
Sc 357.253	263463.7	102.6	%	0.33				0.32%
Ag 328.068†	32.3	0.4156	µg/L	0.39616	0.4156	ppb	0.39616	95.32%
Al 396.153Radial†	341.4	585.08	µg/L	23.049	585.08	ppb	23.049	3.94%
As 188.979†	2.9	6.0992	µg/L	5.66280	6.0992	ppb	5.66280	92.85%
B 249.677†	556.9	22.027	µg/L	3.1360	22.027	ppb	3.1360	14.24%
Ba 233.527†	512.5	9.3356	µg/L	0.16117	9.3356	ppb	0.16117	1.73%
Be 313.107†	154.2	0.1135	µg/L	0.03466	0.1135	ppb	0.03466	30.53%
Ca 317.933Radial†	1967.5	1581.6	µg/L	8.88	1581.6	ppb	8.88	0.56%
Cd 226.502†	-1.1	-0.0633	µg/L	0.13020	-0.0633	ppb	0.13020	205.55%
Co 228.616†	-3.6	-0.4345	µg/L	0.65456	-0.4345	ppb	0.65456	150.64%
Cr 267.716†	41.7	0.5725	µg/L	0.59643	0.5725	ppb	0.59643	104.19%
Cu 324.752†	-62.4	-0.5921	µg/L	0.46572	-0.5921	ppb	0.46572	78.65%
Fe 238.204 Radial†	344.3	811.47	µg/L	3.903	811.47	ppb	3.903	0.48%
K 766.490 Radial†	12.4	12.404	µg/L	20.8660	12.404	ppb	20.8660	168.22%

Mg 279.077 IEC†	29.4	284.17 µg/L	54.504	284.17 ppb	54.504	19.18%
Mn 257.610†	1765.6	6.4289 µg/L	0.03457	6.4289 ppb	0.03457	0.54%
Mo 202.031†	-3.8	-0.4015 µg/L	0.92993	-0.4015 ppb	0.92993	231.59%
Na 589.592 Radial†	10103.9	3817.6 µg/L	50.14	3817.6 ppb	50.14	1.31%
Ni 231.604†	6.8	0.4329 µg/L	0.05878	0.4329 ppb	0.05878	13.58%
P 214.914†	5.3	10.080 µg/L	6.4037	10.080 ppb	6.4037	63.53%
Pb 220.353†	6.2	2.4189 µg/L	0.63328	2.4189 ppb	0.63328	26.18%
S 181.975 Axial†	42.7	137.57 µg/L	5.452	137.57 ppb	5.452	3.96%
Sb 206.836†	2.5	4.0124 µg/L	4.77972	4.0124 ppb	4.77972	119.12%
Se 196.026†	-1.2	-2.78 µg/L	1.733	-2.78 ppb	1.733	62.33%
SiO2†	2386.0	682.01 µg/L	9.973	682.01 ppb	9.973	1.46%
Si 251.611†	4557.9	315.62 µg/L	5.723	315.62 ppb	5.723	1.81%
Sn 189.927†	3.1	1.4062 µg/L	1.89378	1.4062 ppb	1.89378	134.67%
Sr 421.552†	732.3	7.8510 µg/L	0.32401	7.8510 ppb	0.32401	4.13%
Ti 334.940†	1894.0	9.4721 µg/L	0.36704	9.4721 ppb	0.36704	3.87%
Tl 190.801†	-1.9	-1.8267 µg/L	2.96961	-1.8267 ppb	2.96961	162.57%
U 367.007†	-43.0	-28.118 µg/L	47.4766	-28.118 ppb	47.4766	168.85%
V 292.402†	173.6	2.6962 µg/L	0.61213	2.6962 ppb	0.61213	22.70%
Zn 213.857†	58.1	1.8127 µg/L	0.08928	1.8127 ppb	0.08928	4.93%

Sequence No.: 68 **Autosampler Location: 341**
Sample ID: 409254033|1611348|1| **Date Collected: 11/2/2016 16:16:49**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254033|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4896.7	4896.7	99.5	%			16:17:38
1	Al 396.153Radial†	6.9	104.3	178.71	µg/L	178.71	ppb	16:17:18
1	Ca 317.933Radial†	1764.5	1713.7	1377.6	µg/L	1377.6	ppb	16:17:38
1	Fe 238.204 Radial†	100.9	64.8	152.83	µg/L	152.83	ppb	16:17:38
1	K 766.490 Radial†	71.5	149.3	155.62	µg/L	155.62	ppb	16:17:18
1	Mg 279.077 IEC†	24.1	37.8	365.75	µg/L	365.75	ppb	16:17:38
1	Na 589.592 Radial†	8079.7	7363.4	2782.1	µg/L	2782.1	ppb	16:17:18
1	Sr 421.552†	855.9	702.9	7.5733	µg/L	7.5733	ppb	16:17:18
1	Sc	410486.0	410486.0	102.1	%			16:18:26
1	Y 371.029	322813.9	322813.9	100.93	%			16:18:26
1	Sc 357.253	263110.4	263110.4	102.4	%			16:18:26
1	Ag 328.068†	-488.9	12.4	0.1725	µg/L	0.1725	ppb	16:18:26
1	As 188.979†	8.6	3.7	7.6828	µg/L	7.6828	ppb	16:18:46
1	B 249.677†	826.4	297.8	11.843	µg/L	11.843	ppb	16:18:26
1	Ba 233.527†	121.7	172.3	3.1400	µg/L	3.1400	ppb	16:18:46
1	Be 313.107†	-2226.3	48.7	0.0368	µg/L	0.0368	ppb	16:18:26
1	Cd 226.502†	-175.3	8.1	0.0824	µg/L	0.0824	ppb	16:18:46
1	Co 228.616†	-60.3	-5.3	-0.5501	µg/L	-0.5501	ppb	16:18:46
1	Cr 267.716†	214.7	46.9	0.6499	µg/L	0.6499	ppb	16:18:26
1	Cu 324.752†	2194.7	-11.9	-0.1252	µg/L	-0.1252	ppb	16:18:26
1	Mn 257.610†	283.3	420.3	1.5197	µg/L	1.5197	ppb	16:18:46
1	Mo 202.031†	-35.2	6.0	0.7428	µg/L	0.7428	ppb	16:18:46
1	Ni 231.604†	7.4	-0.0	-0.0052	µg/L	-0.0052	ppb	16:18:46
1	P 214.914†	29.2	1.0	1.8583	µg/L	1.8583	ppb	16:18:46
1	Pb 220.353†	44.0	4.4	1.7342	µg/L	1.7342	ppb	16:18:46
1	S 181.975 Axial†	77.7	25.8	82.865	µg/L	82.865	ppb	16:18:46
1	Sb 206.836†	4.4	0.5	0.7490	µg/L	0.7490	ppb	16:18:46
1	Se 196.026†	8.8	4.6	10.8	µg/L	10.8	ppb	16:18:46
1	SiO2†	2243.3	1453.5	415.45	µg/L	415.45	ppb	16:18:26
1	Si 251.611†	3236.9	2884.2	199.72	µg/L	199.72	ppb	16:18:26
1	Sn 189.927†	-25.4	-0.4	-0.1395	µg/L	-0.1395	ppb	16:18:46
1	Ti 334.940†	617.9	702.2	3.5265	µg/L	3.5265	ppb	16:18:26
1	Tl 190.801†	-2.6	-7.7	-7.4332	µg/L	-7.4332	ppb	16:18:46
1	U 367.007†	-178.4	-40.2	-22.704	µg/L	-22.704	ppb	16:18:26
1	V 292.402†	245.9	98.8	1.5595	µg/L	1.5595	ppb	16:18:26
1	Zn 213.857†	271.6	13.3	0.3990	µg/L	0.3990	ppb	16:18:46
2	Sc RADIAL	4858.7	4858.7	98.7	%			16:18:00
2	Al 396.153Radial†	-24.0	73.1	125.27	µg/L	125.27	ppb	16:17:40
2	Ca 317.933Radial†	1751.4	1714.3	1378.1	µg/L	1378.1	ppb	16:18:00
2	Fe 238.204 Radial†	105.8	70.6	166.40	µg/L	166.40	ppb	16:18:00
2	K 766.490 Radial†	29.3	107.2	111.67	µg/L	111.67	ppb	16:17:40
2	Mg 279.077 IEC†	15.8	29.6	286.31	µg/L	286.31	ppb	16:18:00
2	Na 589.592 Radial†	8068.8	7415.9	2802.0	µg/L	2802.0	ppb	16:17:40
2	Sr 421.552†	788.2	641.2	6.9051	µg/L	6.9051	ppb	16:17:40
2	Sc	413023.5	413023.5	102.7	%			16:18:48
2	Y 371.029	327723.0	327723.0	102.47	%			16:18:48
2	Sc 357.253	263792.3	263792.3	102.7	%			16:18:48
2	Ag 328.068†	-520.0	-16.7	-0.1151	µg/L	-0.1151	ppb	16:18:48
2	As 188.979†	7.6	2.7	5.5334	µg/L	5.5334	ppb	16:19:08
2	B 249.677†	682.4	155.5	6.1638	µg/L	6.1638	ppb	16:18:48
2	Ba 233.527†	138.0	187.8	3.4225	µg/L	3.4225	ppb	16:19:08
2	Be 313.107†	-2176.7	102.7	0.0703	µg/L	0.0703	ppb	16:18:48
2	Cd 226.502†	-196.2	-11.8	-0.1456	µg/L	-0.1456	ppb	16:19:08
2	Co 228.616†	-66.7	-11.4	-1.1785	µg/L	-1.1785	ppb	16:19:08
2	Cr 267.716†	214.9	46.5	0.6452	µg/L	0.6452	ppb	16:18:48
2	Cu 324.752†	2028.4	-179.5	-1.8178	µg/L	-1.8178	ppb	16:18:48
2	Mn 257.610†	273.5	410.0	1.4853	µg/L	1.4853	ppb	16:19:08
2	Mo 202.031†	-34.2	6.9	0.8640	µg/L	0.8640	ppb	16:19:08
2	Ni 231.604†	14.1	6.5	0.4276	µg/L	0.4276	ppb	16:19:08

2	P 214.914†	21.9	-6.2	-12.368 µg/L	-12.368 ppb		16:19:08
2	Pb 220.353†	33.8	-5.6	-2.0915 µg/L	-2.0915 ppb		16:19:08
2	S 181.975 Axial†	75.4	23.3	75.008 µg/L	75.008 ppb		16:19:08
2	Sb 206.836†	10.8	6.7	10.697 µg/L	10.697 ppb		16:19:08
2	Se 196.026†	5.2	1.1	2.64 µg/L	2.64 ppb		16:19:08
2	SiO2†	2301.6	1504.5	430.05 µg/L	430.05 ppb		16:18:48
2	Si 251.611†	3300.1	2937.6	203.42 µg/L	203.42 ppb		16:18:48
2	Sn 189.927†	-20.9	4.0	1.8042 µg/L	1.8042 ppb		16:19:08
2	Ti 334.940†	562.5	646.7	3.2500 µg/L	3.2500 ppb		16:18:48
2	Tl 190.801†	-5.6	-10.7	-10.290 µg/L	-10.290 ppb		16:19:08
2	U 367.007†	-235.9	-95.8	-52.968 µg/L	-52.968 ppb		16:18:48
2	V 292.402†	252.1	104.2	1.6323 µg/L	1.6323 ppb		16:18:48
2	Zn 213.857†	272.5	13.5	0.4071 µg/L	0.4071 ppb		16:19:08
3	Sc RADIAL	4863.1	4863.1	98.8 %			16:18:22
3	Al 396.153Radial†	-17.7	79.5	136.17 µg/L	136.17 ppb		16:18:02
3	Ca 317.933Radial†	1739.6	1700.7	1367.1 µg/L	1367.1 ppb		16:18:22
3	Fe 238.204 Radial†	98.3	62.9	148.33 µg/L	148.33 ppb		16:18:22
3	K 766.490 Radial†	-15.7	61.6	64.175 µg/L	64.175 ppb		16:18:02
3	Mg 279.077 IEC†	20.7	34.5	333.92 µg/L	333.92 ppb		16:18:22
3	Na 589.592 Radial†	8003.7	7342.7	2774.3 µg/L	2774.3 ppb		16:18:02
3	Sr 421.552†	864.6	717.7	7.7334 µg/L	7.7334 ppb		16:18:02
3	Sc	416364.2	416364.2	103.6 %			16:19:10
3	Y 371.029	331867.7	331867.7	103.76 %			16:19:10
3	Sc 357.253	268750.9	268750.9	104.6 %			16:19:10
3	Ag 328.068†	-529.1	-16.0	-0.1154 µg/L	-0.1154 ppb		16:19:10
3	As 188.979†	7.5	2.5	5.1286 µg/L	5.1286 ppb		16:19:30
3	B 249.677†	757.3	214.8	8.5321 µg/L	8.5321 ppb		16:19:10
3	Ba 233.527†	121.1	169.2	3.0827 µg/L	3.0827 ppb		16:19:30
3	Be 313.107†	-2140.3	176.6	0.1160 µg/L	0.1160 ppb		16:19:10
3	Cd 226.502†	-177.4	9.7	0.1010 µg/L	0.1010 ppb		16:19:30
3	Co 228.616†	-59.5	-3.3	-0.3466 µg/L	-0.3466 ppb		16:19:30
3	Cr 267.716†	180.1	9.4	0.1291 µg/L	0.1291 ppb		16:19:10
3	Cu 324.752†	2177.1	-73.7	-0.7592 µg/L	-0.7592 ppb		16:19:10
3	Mn 257.610†	269.3	401.1	1.4508 µg/L	1.4508 ppb		16:19:30
3	Mo 202.031†	-21.6	19.6	2.4174 µg/L	2.4174 ppb		16:19:30
3	Ni 231.604†	17.5	9.5	0.6280 µg/L	0.6280 ppb		16:19:30
3	P 214.914†	24.6	-4.0	-8.0674 µg/L	-8.0674 ppb		16:19:30
3	Pb 220.353†	39.8	-0.5	-0.1423 µg/L	-0.1423 ppb		16:19:30
3	S 181.975 Axial†	74.1	20.7	66.543 µg/L	66.543 ppb		16:19:30
3	Sb 206.836†	13.9	9.5	15.071 µg/L	15.071 ppb		16:19:30
3	Se 196.026†	3.2	-0.9	-2.04 µg/L	-2.04 ppb		16:19:30
3	SiO2†	2293.9	1455.8	416.13 µg/L	416.13 ppb		16:19:10
3	Si 251.611†	3248.6	2829.1	195.91 µg/L	195.91 ppb		16:19:10
3	Sn 189.927†	-23.4	2.1	0.9397 µg/L	0.9397 ppb		16:19:30
3	Ti 334.940†	472.7	550.7	2.7714 µg/L	2.7714 ppb		16:19:10
3	Tl 190.801†	-4.7	-9.7	-9.3335 µg/L	-9.3335 ppb		16:19:30
3	U 367.007†	-228.7	-84.6	-46.800 µg/L	-46.800 ppb		16:19:10
3	V 292.402†	182.0	32.6	0.5022 µg/L	0.5022 ppb		16:19:10
3	Zn 213.857†	274.3	10.2	0.2954 µg/L	0.2954 ppb		16:19:30

Mean Data: 409254033|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	413291.2	102.8	%	0.73				0.71%
Sc RADIAL	4872.9	99.0	%	0.42				0.43%
Y 371.029	327468.2	102.39	%	1.417				1.38%
Sc 357.253	265217.9	103.2	%	1.20				1.16%
Ag 328.068†	-6.8	-0.0193	µg/L	0.16610	-0.0193	ppb	0.16610	858.77%
Al 396.153Radial†	85.6	146.71	µg/L	28.238	146.71	ppb	28.238	19.25%
As 188.979†	2.9	6.1150	µg/L	1.37284	6.1150	ppb	1.37284	22.45%
B 249.677†	222.7	8.8463	µg/L	2.85265	8.8463	ppb	2.85265	32.25%
Ba 233.527†	176.4	3.2151	µg/L	0.18192	3.2151	ppb	0.18192	5.66%
Be 313.107†	109.3	0.0744	µg/L	0.03977	0.0744	ppb	0.03977	53.48%
Ca 317.933Radial†	1709.6	1374.3	µg/L	6.17	1374.3	ppb	6.17	0.45%
Cd 226.502†	2.0	0.0126	µg/L	0.13730	0.0126	ppb	0.13730	>999.9%
Co 228.616†	-6.7	-0.6917	µg/L	0.43363	-0.6917	ppb	0.43363	62.69%
Cr 267.716†	34.3	0.4747	µg/L	0.29932	0.4747	ppb	0.29932	63.05%
Cu 324.752†	-88.4	-0.9007	µg/L	0.85512	-0.9007	ppb	0.85512	94.94%
Fe 238.204 Radial†	66.1	155.85	µg/L	9.406	155.85	ppb	9.406	6.04%
K 766.490 Radial†	106.0	110.49	µg/L	45.732	110.49	ppb	45.732	41.39%

Mg 279.077 IEC†	34.0	328.66 µg/L	39.982	328.66 ppb	39.982	12.17%
Mn 257.610†	410.5	1.4853 µg/L	0.03445	1.4853 ppb	0.03445	2.32%
Mo 202.031†	10.9	1.3414 µg/L	0.93378	1.3414 ppb	0.93378	69.61%
Na 589.592 Radial†	7374.0	2786.1 µg/L	14.25	2786.1 ppb	14.25	0.51%
Ni 231.604†	5.3	0.3501 µg/L	0.32364	0.3501 ppb	0.32364	92.44%
P 214.914†	-3.1	-6.1924 µg/L	7.29625	-6.1924 ppb	7.29625	117.83%
Pb 220.353†	-0.6	-0.1666 µg/L	1.91296	-0.1666 ppb	1.91296	>999.9%
S 181.975 Axial†	23.3	74.806 µg/L	8.1628	74.806 ppb	8.1628	10.91%
Sb 206.836†	5.6	8.8392 µg/L	7.33972	8.8392 ppb	7.33972	83.04%
Se 196.026†	1.6	3.80 µg/L	6.499	3.80 ppb	6.499	171.10%
SiO2†	1471.3	420.54 µg/L	8.243	420.54 ppb	8.243	1.96%
Si 251.611†	2883.6	199.68 µg/L	3.757	199.68 ppb	3.757	1.88%
Sn 189.927†	1.9	0.8682 µg/L	0.97383	0.8682 ppb	0.97383	112.17%
Sr 421.552†	687.3	7.4040 µg/L	0.43939	7.4040 ppb	0.43939	5.93%
Ti 334.940†	633.2	3.1827 µg/L	0.38205	3.1827 ppb	0.38205	12.00%
Tl 190.801†	-9.3	-9.0189 µg/L	1.45413	-9.0189 ppb	1.45413	16.12%
U 367.007†	-73.5	-40.824 µg/L	15.9928	-40.824 ppb	15.9928	39.18%
V 292.402†	78.5	1.2313 µg/L	0.63253	1.2313 ppb	0.63253	51.37%
Zn 213.857†	12.3	0.3672 µg/L	0.06227	0.3672 ppb	0.06227	16.96%

Sequence No.: 69 **Autosampler Location: 342**
Sample ID: 409254035|1611348|1| **Date Collected: 11/2/2016 16:19:39**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254035|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4877.5	4877.5	99.1	%			16:20:28
1	Al 396.153Radial†	219.0	318.3	545.49	µg/L	545.49	ppb	16:20:08
1	Ca 317.933Radial†	1959.4	1917.3	1541.2	µg/L	1541.2	ppb	16:20:28
1	Fe 238.204 Radial†	260.4	226.1	532.92	µg/L	532.92	ppb	16:20:28
1	K 766.490 Radial†	104.9	183.3	190.86	µg/L	190.86	ppb	16:20:08
1	Mg 279.077 IEC†	14.3	28.0	271.01	µg/L	271.01	ppb	16:20:28
1	Na 589.592 Radial†	10888.6	10228.9	3864.8	µg/L	3864.8	ppb	16:20:08
1	Sr 421.552†	769.8	619.5	6.6483	µg/L	6.6483	ppb	16:20:08
1	Sc	413819.8	413819.8	102.9	%			16:21:16
1	Y 371.029	327445.4	327445.4	102.38	%			16:21:16
1	Sc 357.253	262769.3	262769.3	102.3	%			16:21:16
1	Ag 328.068†	-453.6	46.2	0.5578	µg/L	0.5578	ppb	16:21:16
1	As 188.979†	6.4	1.5	3.1685	µg/L	3.1685	ppb	16:21:36
1	B 249.677†	922.1	392.3	15.528	µg/L	15.528	ppb	16:21:16
1	Ba 233.527†	315.8	362.1	6.5964	µg/L	6.5964	ppb	16:21:36
1	Be 313.107†	-2296.4	-22.6	-0.0012	µg/L	-0.0012	ppb	16:21:16
1	Cd 226.502†	-174.4	8.8	0.0659	µg/L	0.0659	ppb	16:21:36
1	Co 228.616†	-43.8	10.7	1.0618	µg/L	1.0618	ppb	16:21:36
1	Cr 267.716†	193.6	26.5	0.3639	µg/L	0.3639	ppb	16:21:16
1	Cu 324.752†	2131.8	-70.6	-0.6895	µg/L	-0.6895	ppb	16:21:16
1	Mn 257.610†	1004.8	1126.0	4.0973	µg/L	4.0973	ppb	16:21:36
1	Mo 202.031†	-45.4	-4.1	-0.4602	µg/L	-0.4602	ppb	16:21:36
1	Ni 231.604†	19.0	11.3	0.7380	µg/L	0.7380	ppb	16:21:36
1	P 214.914†	34.6	6.3	12.136	µg/L	12.136	ppb	16:21:36
1	Pb 220.353†	48.8	9.2	3.5816	µg/L	3.5816	ppb	16:21:36
1	S 181.975 Axial†	74.2	22.5	72.310	µg/L	72.310	ppb	16:21:36
1	Sb 206.836†	9.0	5.0	7.8999	µg/L	7.8999	ppb	16:21:36
1	Se 196.026†	4.6	0.5	1.11	µg/L	1.11	ppb	16:21:36
1	SiO2†	3106.2	2299.9	657.38	µg/L	657.38	ppb	16:21:16
1	Si 251.611†	4803.5	4419.9	306.06	µg/L	306.06	ppb	16:21:16
1	Sn 189.927†	-18.8	6.1	2.7255	µg/L	2.7255	ppb	16:21:36
1	Ti 334.940†	1436.7	1503.5	7.5245	µg/L	7.5245	ppb	16:21:16
1	Tl 190.801†	2.7	-2.5	-2.4394	µg/L	-2.4394	ppb	16:21:36
1	U 367.007†	-178.2	-40.3	-24.991	µg/L	-24.991	ppb	16:21:16
1	V 292.402†	297.1	149.1	2.3273	µg/L	2.3273	ppb	16:21:16
1	Zn 213.857†	322.9	63.7	2.0381	µg/L	2.0381	ppb	16:21:36
2	Sc RADIAL	4852.0	4852.0	98.6	%			16:20:50
2	Al 396.153Radial†	198.5	298.7	511.91	µg/L	511.91	ppb	16:20:30
2	Ca 317.933Radial†	1963.8	1932.2	1553.2	µg/L	1553.2	ppb	16:20:50
2	Fe 238.204 Radial†	257.7	224.7	529.67	µg/L	529.67	ppb	16:20:50
2	K 766.490 Radial†	-23.3	53.8	55.799	µg/L	55.799	ppb	16:20:30
2	Mg 279.077 IEC†	19.7	33.5	324.10	µg/L	324.10	ppb	16:20:50
2	Na 589.592 Radial†	10599.1	9993.2	3775.7	µg/L	3775.7	ppb	16:20:30
2	Sr 421.552†	736.5	589.8	6.3276	µg/L	6.3276	ppb	16:20:30
2	Sc	415105.7	415105.7	103.2	%			16:21:38
2	Y 371.029	331047.8	331047.8	103.51	%			16:21:38
2	Sc 357.253	267604.5	267604.5	104.2	%			16:21:38
2	Ag 328.068†	-556.3	-44.4	-0.4295	µg/L	-0.4295	ppb	16:21:38
2	As 188.979†	8.1	3.1	6.4307	µg/L	6.4307	ppb	16:21:58
2	B 249.677†	971.7	423.6	16.777	µg/L	16.777	ppb	16:21:38
2	Ba 233.527†	307.6	348.6	6.3521	µg/L	6.3521	ppb	16:21:58
2	Be 313.107†	-2147.9	160.5	0.1129	µg/L	0.1129	ppb	16:21:38
2	Cd 226.502†	-171.3	14.8	0.1360	µg/L	0.1360	ppb	16:21:58
2	Co 228.616†	-58.9	-3.0	-0.3453	µg/L	-0.3453	ppb	16:21:58
2	Cr 267.716†	149.5	-19.2	-0.2690	µg/L	-0.2690	ppb	16:21:38
2	Cu 324.752†	2183.3	-58.9	-0.5778	µg/L	-0.5778	ppb	16:21:38
2	Mn 257.610†	1023.5	1126.2	4.0961	µg/L	4.0961	ppb	16:21:58
2	Mo 202.031†	-26.4	15.0	1.8732	µg/L	1.8732	ppb	16:21:58
2	Ni 231.604†	7.7	0.1	-0.0054	µg/L	-0.0054	ppb	16:21:58

2	P 214.914†	33.6	4.8	9.1485 µg/L	9.1485 ppb	16:21:58
2	Pb 220.353†	45.8	5.4	2.1349 µg/L	2.1349 ppb	16:21:58
2	S 181.975 Axial†	76.6	23.5	75.560 µg/L	75.560 ppb	16:21:58
2	Sb 206.836†	6.7	2.7	4.2345 µg/L	4.2345 ppb	16:21:58
2	Se 196.026†	2.7	-1.4	-3.26 µg/L	-3.26 ppb	16:21:58
2	SiO2†	3119.4	2257.7	645.32 µg/L	645.32 ppb	16:21:38
2	Si 251.611†	4936.3	4462.5	309.02 µg/L	309.02 ppb	16:21:38
2	Sn 189.927†	-25.8	-0.4	-0.1286 µg/L	-0.1286 ppb	16:21:58
2	Ti 334.940†	1306.2	1352.8	6.7738 µg/L	6.7738 ppb	16:21:38
2	Tl 190.801†	-0.8	-6.0	-5.7696 µg/L	-5.7696 ppb	16:21:58
2	U 367.007†	-196.6	-54.7	-32.822 µg/L	-32.822 ppb	16:21:38
2	V 292.402†	340.4	185.4	2.9161 µg/L	2.9161 ppb	16:21:38
2	Zn 213.857†	329.5	64.3	2.0606 µg/L	2.0606 ppb	16:21:58
3	Sc RADIAL	4872.9	4872.9	99.0 %		16:21:12
3	Al 396.153Radial†	167.8	266.8	457.27 µg/L	457.27 ppb	16:20:52
3	Ca 317.933Radial†	1962.9	1922.7	1545.6 µg/L	1545.6 ppb	16:21:12
3	Fe 238.204 Radial†	261.6	227.6	536.35 µg/L	536.35 ppb	16:21:12
3	K 766.490 Radial†	64.2	142.3	148.03 µg/L	148.03 ppb	16:20:52
3	Mg 279.077 IEC†	19.8	33.6	325.02 µg/L	325.02 ppb	16:21:12
3	Na 589.592 Radial†	10591.4	9939.3	3755.4 µg/L	3755.4 ppb	16:20:52
3	Sr 421.552†	744.1	594.3	6.3762 µg/L	6.3762 ppb	16:20:52
3	Sc	417026.4	417026.4	103.7 %		16:22:00
3	Y 371.029	332540.5	332540.5	103.97 %		16:22:00
3	Sc 357.253	268021.6	268021.6	104.3 %		16:22:00
3	Ag 328.068†	-491.1	19.0	0.2865 µg/L	0.2865 ppb	16:22:00
3	As 188.979†	8.4	3.3	6.9504 µg/L	6.9504 ppb	16:22:20
3	B 249.677†	912.1	365.1	14.440 µg/L	14.440 ppb	16:22:00
3	Ba 233.527†	306.2	346.9	6.3206 µg/L	6.3206 ppb	16:22:20
3	Be 313.107†	-2041.9	265.3	0.1805 µg/L	0.1805 ppb	16:22:00
3	Cd 226.502†	-172.2	14.2	0.1286 µg/L	0.1286 ppb	16:22:20
3	Co 228.616†	-59.3	-3.2	-0.3730 µg/L	-0.3730 ppb	16:22:20
3	Cr 267.716†	191.7	21.0	0.2883 µg/L	0.2883 ppb	16:22:00
3	Cu 324.752†	2191.6	-54.2	-0.5435 µg/L	-0.5435 ppb	16:22:00
3	Mn 257.610†	1030.8	1131.7	4.1163 µg/L	4.1163 ppb	16:22:20
3	Mo 202.031†	-40.2	1.8	0.2600 µg/L	0.2600 ppb	16:22:20
3	Ni 231.604†	14.7	6.8	0.4397 µg/L	0.4397 ppb	16:22:20
3	P 214.914†	33.0	4.1	7.8003 µg/L	7.8003 ppb	16:22:20
3	Pb 220.353†	31.1	-8.7	-3.2760 µg/L	-3.2760 ppb	16:22:20
3	S 181.975 Axial†	80.4	27.0	86.741 µg/L	86.741 ppb	16:22:20
3	Sb 206.836†	7.5	3.4	5.4271 µg/L	5.4271 ppb	16:22:20
3	Se 196.026†	3.7	-0.4	-0.960 µg/L	-0.960 ppb	16:22:20
3	SiO2†	3132.5	2265.6	647.59 µg/L	647.59 ppb	16:22:00
3	Si 251.611†	4913.0	4432.8	306.96 µg/L	306.96 ppb	16:22:00
3	Sn 189.927†	-17.8	7.3	3.2897 µg/L	3.2897 ppb	16:22:20
3	Ti 334.940†	1501.3	1537.8	7.6959 µg/L	7.6959 ppb	16:22:00
3	Tl 190.801†	-3.6	-8.7	-8.3719 µg/L	-8.3719 ppb	16:22:20
3	U 367.007†	-232.0	-88.4	-51.127 µg/L	-51.127 ppb	16:22:00
3	V 292.402†	354.3	198.3	3.1034 µg/L	3.1034 ppb	16:22:00
3	Zn 213.857†	328.4	62.8	2.0049 µg/L	2.0049 ppb	16:22:20

Mean Data: 409254035|1611348|1|

	Mean Corrected	Calib.			Sample		
Analyte	**Intensity**	**Conc.**	**Units**	**Std.Dev.**	**Conc.**	**Units**	**Std.Dev.**	**RSD**
Sc	415317.3	103.3	%	0.40				0.39%
Sc RADIAL	4867.5	98.9	%	0.28				0.28%
Y 371.029	330344.6	103.29	%	0.819				0.79%
Sc 357.253	266131.8	103.6	%	1.14				1.10%
Ag 328.068†	7.0	0.1383	µg/L	0.51006	0.1383	ppb	0.51006	368.92%
Al 396.153Radial†	294.6	504.89	µg/L	44.528	504.89	ppb	44.528	8.82%
As 188.979†	2.6	5.5165	µg/L	2.04999	5.5165	ppb	2.04999	37.16%
B 249.677†	393.7	15.582	µg/L	1.1697	15.582	ppb	1.1697	7.51%
Ba 233.527†	352.5	6.4230	µg/L	0.15096	6.4230	ppb	0.15096	2.35%
Be 313.107†	134.4	0.0974	µg/L	0.09186	0.0974	ppb	0.09186	94.34%
Ca 317.933Radial†	1924.1	1546.6	µg/L	6.07	1546.6	ppb	6.07	0.39%
Cd 226.502†	12.6	0.1102	µg/L	0.03853	0.1102	ppb	0.03853	34.97%
Co 228.616†	1.5	0.1145	µg/L	0.82051	0.1145	ppb	0.82051	716.52%
Cr 267.716†	9.4	0.1277	µg/L	0.34567	0.1277	ppb	0.34567	270.62%
Cu 324.752†	-61.2	-0.6036	µg/L	0.07635	-0.6036	ppb	0.07635	12.65%
Fe 238.204 Radial†	226.1	532.98	µg/L	3.342	532.98	ppb	3.342	0.63%
K 766.490 Radial†	126.5	131.56	µg/L	69.019	131.56	ppb	69.019	52.46%

Mg 279.077 IEC†	31.7	306.71 µg/L	30.918	306.71 ppb	30.918	10.08%
Mn 257.610†	1127.9	4.1033 µg/L	0.01134	4.1033 ppb	0.01134	0.28%
Mo 202.031†	4.2	0.5577 µg/L	1.19482	0.5577 ppb	1.19482	214.25%
Na 589.592 Radial†	10053.8	3798.6 µg/L	58.20	3798.6 ppb	58.20	1.53%
Ni 231.604†	6.1	0.3908 µg/L	0.37408	0.3908 ppb	0.37408	95.73%
P 214.914†	5.0	9.6949 µg/L	2.21883	9.6949 ppb	2.21883	22.89%
Pb 220.353†	2.0	0.8135 µg/L	3.61469	0.8135 ppb	3.61469	444.34%
S 181.975 Axial†	24.3	78.204 µg/L	7.5700	78.204 ppb	7.5700	9.68%
Sb 206.836†	3.7	5.8538 µg/L	1.86956	5.8538 ppb	1.86956	31.94%
Se 196.026†	-0.4	-1.04 µg/L	2.187	-1.04 ppb	2.187	211.28%
SiO2†	2274.4	650.10 µg/L	6.407	650.10 ppb	6.407	0.99%
Si 251.611†	4438.4	307.35 µg/L	1.514	307.35 ppb	1.514	0.49%
Sn 189.927†	4.3	1.9622 µg/L	1.83255	1.9622 ppb	1.83255	93.39%
Sr 421.552†	601.2	6.4507 µg/L	0.17285	6.4507 ppb	0.17285	2.68%
Ti 334.940†	1464.7	7.3314 µg/L	0.49045	7.3314 ppb	0.49045	6.69%
Tl 190.801†	-5.7	-5.5270 µg/L	2.97369	-5.5270 ppb	2.97369	53.80%
U 367.007†	-61.1	-36.313 µg/L	13.4129	-36.313 ppb	13.4129	36.94%
V 292.402†	177.6	2.7823 µg/L	0.40499	2.7823 ppb	0.40499	14.56%
Zn 213.857†	63.6	2.0346 µg/L	0.02802	2.0346 ppb	0.02802	1.38%

Sequence No.: 70 **Autosampler Location: 343**
Sample ID: 409254037|1611348|1| **Date Collected: 11/2/2016 16:22:29**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254037|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4933.3	4933.3	100	%			16:23:18
1	Al 396.153Radial†	67.6	164.8	282.44	µg/L	282.44	ppb	16:22:58
1	Ca 317.933Radial†	1619.7	1556.2	1250.9	µg/L	1250.9	ppb	16:23:18
1	Fe 238.204 Radial†	213.0	175.8	414.42	µg/L	414.42	ppb	16:23:18
1	K 766.490 Radial†	-122.9	-45.1	-47.282	µg/L	-47.282	ppb	16:22:58
1	Mg 279.077 IEC†	6.4	19.9	192.85	µg/L	192.85	ppb	16:23:18
1	Na 589.592 Radial†	8874.3	8095.7	3058.8	µg/L	3058.8	ppb	16:22:58
1	Sr 421.552†	570.3	411.8	4.4137	µg/L	4.4137	ppb	16:22:58
1	Sc	416095.5	416095.5	103.5	%			16:24:06
1	Y 371.029	332389.5	332389.5	103.93	%			16:24:06
1	Sc 357.253	265187.8	265187.8	103.2	%			16:24:06
1	Ag 328.068†	-453.8	50.1	0.5854	µg/L	0.5854	ppb	16:24:06
1	As 188.979†	4.8	-0.0	-0.0705	µg/L	-0.0705	ppb	16:24:26
1	B 249.677†	829.9	294.8	11.664	µg/L	11.664	ppb	16:24:06
1	Ba 233.527†	234.9	280.9	5.1178	µg/L	5.1178	ppb	16:24:26
1	Be 313.107†	-2192.7	98.3	0.0723	µg/L	0.0723	ppb	16:24:06
1	Cd 226.502†	-183.6	1.4	-0.0106	µg/L	-0.0106	ppb	16:24:26
1	Co 228.616†	-53.1	2.2	0.1897	µg/L	0.1897	ppb	16:24:26
1	Cr 267.716†	258.0	87.2	1.2062	µg/L	1.2062	ppb	16:24:06
1	Cu 324.752†	2067.6	-151.9	-1.5009	µg/L	-1.5009	ppb	16:24:06
1	Mn 257.610†	948.5	1062.5	3.8668	µg/L	3.8668	ppb	16:24:26
1	Mo 202.031†	-46.0	-4.3	-0.4923	µg/L	-0.4923	ppb	16:24:26
1	Ni 231.604†	11.4	3.8	0.2399	µg/L	0.2399	ppb	16:24:26
1	P 214.914†	30.5	2.0	3.7128	µg/L	3.7128	ppb	16:24:26
1	Pb 220.353†	43.8	3.9	1.5374	µg/L	1.5374	ppb	16:24:26
1	S 181.975 Axial†	78.7	26.1	84.012	µg/L	84.012	ppb	16:24:26
1	Sb 206.836†	5.7	1.7	2.6210	µg/L	2.6210	ppb	16:24:26
1	Se 196.026†	5.7	1.5	3.54	µg/L	3.54	ppb	16:24:26
1	SiO2†	3223.4	2385.7	681.92	µg/L	681.92	ppb	16:24:06
1	Si 251.611†	4953.8	4522.6	313.18	µg/L	313.18	ppb	16:24:06
1	Sn 189.927†	-20.2	4.9	2.1859	µg/L	2.1859	ppb	16:24:26
1	Ti 334.940†	1131.5	1195.0	5.9809	µg/L	5.9809	ppb	16:24:06
1	Tl 190.801†	1.5	-3.8	-3.6550	µg/L	-3.6550	ppb	16:24:26
1	U 367.007†	-163.4	-24.4	-15.655	µg/L	-15.655	ppb	16:24:06
1	V 292.402†	266.9	117.3	1.8333	µg/L	1.8333	ppb	16:24:06
1	Zn 213.857†	257.6	-2.4	-0.1535	µg/L	-0.1535	ppb	16:24:26
2	Sc RADIAL	4951.8	4951.8	101	%			16:23:40
2	Al 396.153Radial†	158.0	254.4	435.89	µg/L	435.89	ppb	16:23:20
2	Ca 317.933Radial†	1640.4	1570.7	1262.6	µg/L	1262.6	ppb	16:23:40
2	Fe 238.204 Radial†	219.3	181.4	427.41	µg/L	427.41	ppb	16:23:40
2	K 766.490 Radial†	4.9	82.3	85.553	µg/L	85.553	ppb	16:23:20
2	Mg 279.077 IEC†	10.1	23.6	228.75	µg/L	228.75	ppb	16:23:40
2	Na 589.592 Radial†	8755.3	7944.4	3001.7	µg/L	3001.7	ppb	16:23:20
2	Sr 421.552†	650.6	489.4	5.2513	µg/L	5.2513	ppb	16:23:20
2	Sc	420674.3	420674.3	104.6	%			16:24:28
2	Y 371.029	336646.0	336646.0	105.26	%			16:24:28
2	Sc 357.253	270019.1	270019.1	105.1	%			16:24:28
2	Ag 328.068†	-541.0	-25.0	-0.2539	µg/L	-0.2539	ppb	16:24:28
2	As 188.979†	6.9	1.8	3.7781	µg/L	3.7781	ppb	16:24:48
2	B 249.677†	810.0	261.6	10.335	µg/L	10.335	ppb	16:24:28
2	Ba 233.527†	229.4	271.6	4.9476	µg/L	4.9476	ppb	16:24:48
2	Be 313.107†	-2362.4	-25.1	-0.0071	µg/L	-0.0071	ppb	16:24:28
2	Cd 226.502†	-185.1	3.1	0.0087	µg/L	0.0087	ppb	16:24:48
2	Co 228.616†	-60.6	-4.0	-0.4443	µg/L	-0.4443	ppb	16:24:48
2	Cr 267.716†	206.2	33.4	0.4595	µg/L	0.4595	ppb	16:24:28
2	Cu 324.752†	2180.4	-80.3	-0.7774	µg/L	-0.7774	ppb	16:24:28
2	Mn 257.610†	956.0	1053.2	3.8321	µg/L	3.8321	ppb	16:24:48
2	Mo 202.031†	-44.0	-1.6	-0.1607	µg/L	-0.1607	ppb	16:24:48
2	Ni 231.604†	16.3	8.3	0.5399	µg/L	0.5399	ppb	16:24:48

2	P 214.914†	30.1	1.1	1.9570 µg/L	1.9570 ppb		16:24:48
2	Pb 220.353†	41.7	1.2	0.4826 µg/L	0.4826 ppb		16:24:48
2	S 181.975 Axial†	77.0	23.2	74.596 µg/L	74.596 ppb		16:24:48
2	Sb 206.836†	5.5	1.4	2.2393 µg/L	2.2393 ppb		16:24:48
2	Se 196.026†	8.6	4.2	9.87 µg/L	9.87 ppb		16:24:48
2	SiO2†	3254.7	2359.7	674.47 µg/L	674.47 ppb		16:24:28
2	Si 251.611†	5001.2	4481.9	310.36 µg/L	310.36 ppb		16:24:28
2	Sn 189.927†	-13.6	11.5	5.1048 µg/L	5.1048 ppb		16:24:48
2	Ti 334.940†	959.8	1012.1	5.0693 µg/L	5.0693 ppb		16:24:28
2	Tl 190.801†	13.0	7.2	6.9247 µg/L	6.9247 ppb		16:24:48
2	U 367.007†	-141.6	-0.7	-2.9138 µg/L	-2.9138 ppb		16:24:28
2	V 292.402†	213.0	61.4	0.9469 µg/L	0.9469 ppb		16:24:28
2	Zn 213.857†	262.0	-2.7	-0.1706 µg/L	-0.1706 ppb		16:24:48
3	Sc RADIAL	4951.4	4951.4	101 %			16:24:02
3	Al 396.153Radial†	184.4	280.6	480.89 µg/L	480.89 ppb		16:23:42
3	Ca 317.933Radial†	1621.2	1551.7	1247.4 µg/L	1247.4 ppb		16:24:02
3	Fe 238.204 Radial†	213.9	175.9	414.66 µg/L	414.66 ppb		16:24:02
3	K 766.490 Radial†	-80.1	-2.1	-2.4816 µg/L	-2.4816 ppb		16:23:42
3	Mg 279.077 IEC†	6.1	19.6	189.73 µg/L	189.73 ppb		16:24:02
3	Na 589.592 Radial†	8702.3	7892.4	2982.0 µg/L	2982.0 ppb		16:23:42
3	Sr 421.552†	555.9	395.4	4.2364 µg/L	4.2364 ppb		16:23:42
3	Sc	415561.8	415561.8	103.4 %			16:24:50
3	Y 371.029	329170.7	329170.7	102.92 %			16:24:50
3	Sc 357.253	264946.6	264946.6	103.1 %			16:24:50
3	Ag 328.068†	-496.0	8.8	0.1832 µg/L	0.1832 ppb		16:24:50
3	As 188.979†	8.0	3.0	6.3428 µg/L	6.3428 ppb		16:25:10
3	B 249.677†	712.7	181.9	7.1627 µg/L	7.1627 ppb		16:24:50
3	Ba 233.527†	221.2	267.9	4.8802 µg/L	4.8802 ppb		16:25:10
3	Be 313.107†	-2139.7	147.8	0.1009 µg/L	0.1009 ppb		16:24:50
3	Cd 226.502†	-184.0	0.8	-0.0170 µg/L	-0.0170 ppb		16:25:10
3	Co 228.616†	-53.3	1.9	0.1612 µg/L	0.1612 ppb		16:25:10
3	Cr 267.716†	181.1	12.8	0.1758 µg/L	0.1758 ppb		16:24:50
3	Cu 324.752†	2229.3	6.7	0.0477 µg/L	0.0477 ppb		16:24:50
3	Mn 257.610†	972.7	1086.8	3.9553 µg/L	3.9553 ppb		16:25:10
3	Mo 202.031†	-25.4	15.7	1.9523 µg/L	1.9523 ppb		16:25:10
3	Ni 231.604†	10.9	3.4	0.2137 µg/L	0.2137 ppb		16:25:10
3	P 214.914†	23.1	-5.1	-10.283 µg/L	-10.283 ppb		16:25:10
3	Pb 220.353†	35.4	-4.2	-1.5230 µg/L	-1.5230 ppb		16:25:10
3	S 181.975 Axial†	78.1	25.6	82.498 µg/L	82.498 ppb		16:25:10
3	Sb 206.836†	3.3	-0.6	-0.9659 µg/L	-0.9659 ppb		16:25:10
3	Se 196.026†	8.8	4.5	10.6 µg/L	10.6 ppb		16:25:10
3	SiO2†	3139.3	2307.0	659.42 µg/L	659.42 ppb		16:24:50
3	Si 251.611†	4862.5	4438.5	307.35 µg/L	307.35 ppb		16:24:50
3	Sn 189.927†	-24.7	0.5	0.2392 µg/L	0.2392 ppb		16:25:10
3	Ti 334.940†	829.3	903.0	4.5253 µg/L	4.5253 ppb		16:24:50
3	Tl 190.801†	1.4	-3.8	-3.7044 µg/L	-3.7044 ppb		16:25:10
3	U 367.007†	-256.3	-114.5	-64.596 µg/L	-64.596 ppb		16:24:50
3	V 292.402†	275.6	125.9	1.9608 µg/L	1.9608 ppb		16:24:50
3	Zn 213.857†	269.2	9.0	0.2297 µg/L	0.2297 ppb		16:25:10

Mean Data: 409254037|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	417443.9	103.8	%	0.70				0.67%
Sc RADIAL	4945.5	101	%	0.2				0.21%
Y 371.029	332735.4	104.03	%	1.172				1.13%
Sc 357.253	266717.9	103.8	%	1.11				1.07%
Ag 328.068†	11.3	0.1715	µg/L	0.41979	0.1715	ppb	0.41979	244.72%
Al 396.153Radial†	233.3	399.74	µg/L	104.045	399.74	ppb	104.045	26.03%
As 188.979†	1.6	3.3501	µg/L	3.22799	3.3501	ppb	3.22799	96.35%
B 249.677†	246.1	9.7207	µg/L	2.31273	9.7207	ppb	2.31273	23.79%
Ba 233.527†	273.5	4.9818	µg/L	0.12246	4.9818	ppb	0.12246	2.46%
Be 313.107†	73.7	0.0554	µg/L	0.05595	0.0554	ppb	0.05595	101.00%
Ca 317.933Radial†	1559.5	1253.6	µg/L	7.96	1253.6	ppb	7.96	0.63%
Cd 226.502†	1.8	-0.0063	µg/L	0.01337	-0.0063	ppb	0.01337	212.70%
Co 228.616†	0.0	-0.0311	µg/L	0.35807	-0.0311	ppb	0.35807	>999.9%
Cr 267.716†	44.4	0.6138	µg/L	0.53228	0.6138	ppb	0.53228	86.71%
Cu 324.752†	-75.2	-0.7435	µg/L	0.77484	-0.7435	ppb	0.77484	104.21%
Fe 238.204 Radial†	177.7	418.83	µg/L	7.431	418.83	ppb	7.431	1.77%
K 766.490 Radial†	11.7	11.930	µg/L	67.5803	11.930	ppb	67.5803	566.48%

Mg 279.077 IEC†	21.1	203.77 µg/L	21.681	203.77 ppb	21.681	10.64%
Mn 257.610†	1067.5	3.8847 µg/L	0.06353	3.8847 ppb	0.06353	1.64%
Mo 202.031†	3.3	0.4331 µg/L	1.32608	0.4331 ppb	1.32608	306.16%
Na 589.592 Radial†	7977.5	3014.2 µg/L	39.90	3014.2 ppb	39.90	1.32%
Ni 231.604†	5.1	0.3312 µg/L	0.18126	0.3312 ppb	0.18126	54.73%
P 214.914†	-0.7	-1.5377 µg/L	7.62421	-1.5377 ppb	7.62421	495.83%
Pb 220.353†	0.3	0.1656 µg/L	1.55463	0.1656 ppb	1.55463	938.55%
S 181.975 Axial†	25.0	80.369 µg/L	5.0563	80.369 ppb	5.0563	6.29%
Sb 206.836†	0.8	1.2981 µg/L	1.96995	1.2981 ppb	1.96995	151.75%
Se 196.026†	3.4	7.99 µg/L	3.866	7.99 ppb	3.866	48.41%
SiO2†	2350.8	671.94 µg/L	11.463	671.94 ppb	11.463	1.71%
Si 251.611†	4481.0	310.30 µg/L	2.913	310.30 ppb	2.913	0.94%
Sn 189.927†	5.6	2.5100 µg/L	2.44890	2.5100 ppb	2.44890	97.57%
Sr 421.552†	432.2	4.6338 µg/L	0.54210	4.6338 ppb	0.54210	11.70%
Ti 334.940†	1036.7	5.1918 µg/L	0.73545	5.1918 ppb	0.73545	14.17%
Tl 190.801†	-0.1	-0.1449 µg/L	6.12252	-0.1449 ppb	6.12252	>999.9%
U 367.007†	-46.5	-27.721 µg/L	32.5632	-27.721 ppb	32.5632	117.47%
V 292.402†	101.5	1.5804 µg/L	0.55229	1.5804 ppb	0.55229	34.95%
Zn 213.857†	1.3	-0.0315 µg/L	0.22636	-0.0315 ppb	0.22636	719.52%

Sequence No.: 71 **Autosampler Location: 344**
Sample ID: 409254039|1611348|1| **Date Collected: 11/2/2016 16:25:20**
Analyst: HSC **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 409254039|1611348|1|

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4962.4	4962.4	101	%			16:26:09
1	Al 396.153Radial†	100.0	196.6	336.87	µg/L	336.87	ppb	16:25:49
1	Ca 317.933Radial†	1740.9	1666.8	1339.9	µg/L	1339.9	ppb	16:26:09
1	Fe 238.204 Radial†	213.3	175.0	412.33	µg/L	412.33	ppb	16:26:09
1	K 766.490 Radial†	42.6	119.7	124.58	µg/L	124.58	ppb	16:25:49
1	Mg 279.077 IEC†	8.2	21.7	209.74	µg/L	209.74	ppb	16:26:09
1	Na 589.592 Radial†	8610.1	7781.8	2940.2	µg/L	2940.2	ppb	16:25:49
1	Sr 421.552†	639.8	477.3	5.1209	µg/L	5.1209	ppb	16:25:49
1	Sc	417967.6	417967.6	104.0	%			16:26:56
1	Y 371.029	332456.7	332456.7	103.95	%			16:26:56
1	Sc 357.253	267665.0	267665.0	104.2	%			16:26:56
1	Ag 328.068†	-498.3	11.5	0.2041	µg/L	0.2041	ppb	16:26:56
1	As 188.979†	3.8	-1.1	-2.1845	µg/L	-2.1845	ppb	16:27:16
1	B 249.677†	759.8	220.2	8.6879	µg/L	8.6879	ppb	16:26:56
1	Ba 233.527†	223.7	268.1	4.8848	µg/L	4.8848	ppb	16:27:16
1	Be 313.107†	-2174.1	135.8	0.0960	µg/L	0.0960	ppb	16:26:56
1	Cd 226.502†	-189.0	-2.1	-0.0501	µg/L	-0.0501	ppb	16:27:16
1	Co 228.616†	-50.5	5.1	0.4937	µg/L	0.4937	ppb	16:27:16
1	Cr 267.716†	257.1	84.0	1.1626	µg/L	1.1626	ppb	16:26:56
1	Cu 324.752†	2202.4	-41.0	-0.4223	µg/L	-0.4223	ppb	16:26:56
1	Mn 257.610†	1188.9	1284.8	4.6747	µg/L	4.6747	ppb	16:27:16
1	Mo 202.031†	-38.9	3.0	0.3947	µg/L	0.3947	ppb	16:27:16
1	Ni 231.604†	9.7	2.1	0.1295	µg/L	0.1295	ppb	16:27:16
1	P 214.914†	26.6	-2.0	-4.0774	µg/L	-4.0774	ppb	16:27:16
1	Pb 220.353†	41.5	1.3	0.5590	µg/L	0.5590	ppb	16:27:16
1	S 181.975 Axial†	76.2	23.0	74.150	µg/L	74.150	ppb	16:27:16
1	Sb 206.836†	2.7	-1.2	-1.8910	µg/L	-1.8910	ppb	16:27:16
1	Se 196.026†	4.1	-0.1	-0.205	µg/L	-0.205	ppb	16:27:16
1	SiO2†	2739.6	1892.5	540.96	µg/L	540.96	ppb	16:26:56
1	Si 251.611†	3921.3	3487.3	241.48	µg/L	241.48	ppb	16:26:56
1	Sn 189.927†	-22.4	2.9	1.3351	µg/L	1.3351	ppb	16:27:16
1	Ti 334.940†	1152.7	1205.2	6.0336	µg/L	6.0336	ppb	16:26:56
1	Tl 190.801†	11.6	5.9	5.7367	µg/L	5.7367	ppb	16:27:16
1	U 367.007†	-241.3	-97.6	-55.433	µg/L	-55.433	ppb	16:26:56
1	V 292.402†	324.6	170.2	2.6640	µg/L	2.6640	ppb	16:26:56
1	Zn 213.857†	331.7	66.4	2.1535	µg/L	2.1535	ppb	16:27:16
2	Sc RADIAL	4948.3	4948.3	101	%			16:26:31
2	Al 396.153Radial†	75.7	172.7	295.92	µg/L	295.92	ppb	16:26:11
2	Ca 317.933Radial†	1716.3	1647.3	1324.1	µg/L	1324.1	ppb	16:26:31
2	Fe 238.204 Radial†	204.5	166.8	393.01	µg/L	393.01	ppb	16:26:31
2	K 766.490 Radial†	32.7	110.0	114.48	µg/L	114.48	ppb	16:26:11
2	Mg 279.077 IEC†	7.5	21.0	203.60	µg/L	203.60	ppb	16:26:31
2	Na 589.592 Radial†	8695.2	7890.8	2981.4	µg/L	2981.4	ppb	16:26:11
2	Sr 421.552†	688.3	527.4	5.6635	µg/L	5.6635	ppb	16:26:11
2	Sc	412476.4	412476.4	102.6	%			16:27:18
2	Y 371.029	327829.2	327829.2	102.50	%			16:27:18
2	Sc 357.253	262973.5	262973.5	102.4	%			16:27:18
2	Ag 328.068†	-536.0	-33.9	-0.3423	µg/L	-0.3423	ppb	16:27:18
2	As 188.979†	9.1	4.2	8.6977	µg/L	8.6977	ppb	16:27:38
2	B 249.677†	748.8	222.3	8.7794	µg/L	8.7794	ppb	16:27:18
2	Ba 233.527†	234.9	282.9	5.1527	µg/L	5.1527	ppb	16:27:38
2	Be 313.107†	-2261.3	13.4	0.0180	µg/L	0.0180	ppb	16:27:18
2	Cd 226.502†	-169.8	13.4	0.1280	µg/L	0.1280	ppb	16:27:38
2	Co 228.616†	-49.5	5.3	0.5115	µg/L	0.5115	ppb	16:27:38
2	Cr 267.716†	179.3	12.4	0.1694	µg/L	0.1694	ppb	16:27:18
2	Cu 324.752†	2072.2	-130.5	-1.2870	µg/L	-1.2870	ppb	16:27:18
2	Mn 257.610†	1176.1	1292.5	4.7028	µg/L	4.7028	ppb	16:27:38
2	Mo 202.031†	-33.2	7.8	0.9901	µg/L	0.9901	ppb	16:27:38
2	Ni 231.604†	11.9	4.4	0.2842	µg/L	0.2842	ppb	16:27:38

2	P 214.914†	37.6	9.2	18.060 µg/L	18.060 ppb		16:27:38
2	Pb 220.353†	38.6	-0.8	-0.2678 µg/L	-0.2678 ppb		16:27:38
2	S 181.975 Axial†	79.3	27.4	88.054 µg/L	88.054 ppb		16:27:38
2	Sb 206.836†	7.9	3.9	6.2388 µg/L	6.2388 ppb		16:27:38
2	Se 196.026†	2.2	-1.9	-4.36 µg/L	-4.36 ppb		16:27:38
2	SiO2†	2574.9	1778.6	508.38 µg/L	508.38 ppb		16:27:18
2	Si 251.611†	3905.2	3538.7	245.05 µg/L	245.05 ppb		16:27:18
2	Sn 189.927†	-24.0	1.0	0.4644 µg/L	0.4644 ppb		16:27:38
2	Ti 334.940†	1020.4	1095.7	5.4876 µg/L	5.4876 ppb		16:27:18
2	Tl 190.801†	-0.9	-6.1	-5.8888 µg/L	-5.8888 ppb		16:27:38
2	U 367.007†	-156.1	-18.5	-12.376 µg/L	-12.376 ppb		16:27:18
2	V 292.402†	196.5	50.7	0.7809 µg/L	0.7809 ppb		16:27:18
2	Zn 213.857†	330.9	71.3	2.3203 µg/L	2.3203 ppb		16:27:38
3	Sc RADIAL	4938.2	4938.2	100 %			16:26:53
3	Al 396.153Radial†	89.8	186.8	320.17 µg/L	320.17 ppb		16:26:33
3	Ca 317.933Radial†	1726.2	1660.6	1334.9 µg/L	1334.9 ppb		16:26:53
3	Fe 238.204 Radial†	209.4	172.1	405.59 µg/L	405.59 ppb		16:26:53
3	K 766.490 Radial†	-6.9	70.6	73.365 µg/L	73.365 ppb		16:26:33
3	Mg 279.077 IEC†	10.6	24.1	233.31 µg/L	233.31 ppb		16:26:53
3	Na 589.592 Radial†	8708.4	7921.8	2993.1 µg/L	2993.1 ppb		16:26:33
3	Sr 421.552†	634.4	475.1	5.0973 µg/L	5.0973 ppb		16:26:33
3	Sc	415391.8	415391.8	103.3 %			16:27:40
3	Y 371.029	325830.8	325830.8	101.87 %			16:27:40
3	Sc 357.253	265140.0	265140.0	103.2 %			16:27:40
3	Ag 328.068†	-525.4	-19.3	-0.1847 µg/L	-0.1847 ppb		16:27:40
3	As 188.979†	4.1	-0.7	-1.4860 µg/L	-1.4860 ppb		16:28:01
3	B 249.677†	864.3	328.3	13.004 µg/L	13.004 ppb		16:27:40
3	Ba 233.527†	230.9	277.1	5.0494 µg/L	5.0494 ppb		16:28:01
3	Be 313.107†	-2221.5	70.0	0.0533 µg/L	0.0533 ppb		16:27:40
3	Cd 226.502†	-180.7	4.2	0.0225 µg/L	0.0225 ppb		16:28:01
3	Co 228.616†	-48.2	6.9	0.6761 µg/L	0.6761 ppb		16:28:01
3	Cr 267.716†	264.3	93.3	1.2917 µg/L	1.2917 ppb		16:27:40
3	Cu 324.752†	2014.3	-203.2	-2.0087 µg/L	-2.0087 ppb		16:27:40
3	Mn 257.610†	1187.9	1294.6	4.7096 µg/L	4.7096 ppb		16:28:01
3	Mo 202.031†	-28.4	12.8	1.5970 µg/L	1.5970 ppb		16:28:01
3	Ni 231.604†	14.8	7.2	0.4654 µg/L	0.4654 ppb		16:28:01
3	P 214.914†	34.6	6.0	11.595 µg/L	11.595 ppb		16:28:01
3	Pb 220.353†	35.2	-4.4	-1.6755 µg/L	-1.6755 ppb		16:28:01
3	S 181.975 Axial†	67.5	15.3	49.245 µg/L	49.245 ppb		16:28:01
3	Sb 206.836†	12.8	8.5	13.556 µg/L	13.556 ppb		16:28:01
3	Se 196.026†	6.0	1.8	4.24 µg/L	4.24 ppb		16:28:01
3	SiO2†	2576.6	1759.6	502.97 µg/L	502.97 ppb		16:27:40
3	Si 251.611†	3815.6	3420.7	236.88 µg/L	236.88 ppb		16:27:40
3	Sn 189.927†	-21.9	3.2	1.4446 µg/L	1.4446 ppb		16:28:01
3	Ti 334.940†	997.4	1065.2	5.3355 µg/L	5.3355 ppb		16:27:40
3	Tl 190.801†	-1.3	-6.5	-6.2399 µg/L	-6.2399 ppb		16:28:01
3	U 367.007†	-150.1	-11.4	-8.5922 µg/L	-8.5922 ppb		16:27:40
3	V 292.402†	304.5	153.8	2.4315 µg/L	2.4315 ppb		16:27:40
3	Zn 213.857†	326.6	64.5	2.0886 µg/L	2.0886 ppb		16:28:01

Mean Data: 409254039|1611348|1|

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	415278.6	103.3	%	0.68				0.66%
Sc RADIAL	4949.6	101	%	0.2				0.25%
Y 371.029	328705.6	102.77	%	1.063				1.03%
Sc 357.253	265259.5	103.3	%	0.91				0.89%
Ag 328.068†	-13.9	-0.1076	µg/L	0.28123	-0.1076	ppb	0.28123	261.29%
Al 396.153Radial†	185.4	317.65	µg/L	20.593	317.65	ppb	20.593	6.48%
As 188.979†	0.8	1.6757	µg/L	6.09122	1.6757	ppb	6.09122	363.50%
B 249.677†	256.9	10.157	µg/L	2.4656	10.157	ppb	2.4656	24.28%
Ba 233.527†	276.0	5.0290	µg/L	0.13509	5.0290	ppb	0.13509	2.69%
Be 313.107†	73.1	0.0558	µg/L	0.03908	0.0558	ppb	0.03908	70.08%
Ca 317.933Radial†	1658.2	1333.0	µg/L	8.04	1333.0	ppb	8.04	0.60%
Cd 226.502†	5.2	0.0335	µg/L	0.08958	0.0335	ppb	0.08958	267.68%
Co 228.616†	5.8	0.5604	µg/L	0.10056	0.5604	ppb	0.10056	17.94%
Cr 267.716†	63.2	0.8746	µg/L	0.61409	0.8746	ppb	0.61409	70.21%
Cu 324.752†	-124.9	-1.2393	µg/L	0.79428	-1.2393	ppb	0.79428	64.09%
Fe 238.204 Radial†	171.3	403.64	µg/L	9.805	403.64	ppb	9.805	2.43%
K 766.490 Radial†	100.1	104.14	µg/L	27.127	104.14	ppb	27.127	26.05%

Mg 279.077 IEC†	22.3	215.55 µg/L	15.680	215.55 ppb	15.680	7.27%
Mn 257.610†	1290.6	4.6957 µg/L	0.01852	4.6957 ppb	0.01852	0.39%
Mo 202.031†	7.9	0.9939 µg/L	0.60117	0.9939 ppb	0.60117	60.49%
Na 589.592 Radial†	7864.8	2971.6 µg/L	27.77	2971.6 ppb	27.77	0.93%
Ni 231.604†	4.6	0.2930 µg/L	0.16813	0.2930 ppb	0.16813	57.38%
P 214.914†	4.4	8.5260 µg/L	11.38351	8.5260 ppb	11.38351	133.52%
Pb 220.353†	-1.3	-0.4615 µg/L	1.12977	-0.4615 ppb	1.12977	244.82%
S 181.975 Axial†	21.9	70.483 µg/L	19.6626	70.483 ppb	19.6626	27.90%
Sb 206.836†	3.8	5.9681 µg/L	7.72726	5.9681 ppb	7.72726	129.48%
Se 196.026†	-0.0	-0.106 µg/L	4.3008	-0.106 ppb	4.3008	>999.9%
SiO2†	1810.3	517.44 µg/L	20.547	517.44 ppb	20.547	3.97%
Si 251.611†	3482.2	241.14 µg/L	4.095	241.14 ppb	4.095	1.70%
Sn 189.927†	2.4	1.0814 µg/L	0.53708	1.0814 ppb	0.53708	49.67%
Sr 421.552†	493.3	5.2939 µg/L	0.32032	5.2939 ppb	0.32032	6.05%
Ti 334.940†	1122.1	5.6189 µg/L	0.36714	5.6189 ppb	0.36714	6.53%
Tl 190.801†	-2.2	-2.1307 µg/L	6.81558	-2.1307 ppb	6.81558	319.88%
U 367.007†	-42.5	-25.467 µg/L	26.0201	-25.467 ppb	26.0201	102.17%
V 292.402†	124.9	1.9588 µg/L	1.02673	1.9588 ppb	1.02673	52.42%
Zn 213.857†	67.4	2.1875 µg/L	0.11956	2.1875 ppb	0.11956	5.47%

Sequence No.: 72 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/2/2016 16:28:10**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4962.8	4962.8	101	%			16:29:00
1	Al 396.153Radial†	2797.9	2871.3	4920.4	µg/L	4920.4	ppb	16:29:00
1	Ca 317.933Radial†	6346.6	6233.0	5010.4	µg/L	5010.4	ppb	16:29:00
1	Fe 238.204 Radial†	2170.8	2115.7	4986.3	µg/L	4986.3	ppb	16:29:00
1	K 766.490 Radial†	4667.2	4704.7	4903.4	µg/L	4903.4	ppb	16:28:40
1	Mg 279.077 IEC†	506.5	515.7	4989.3	µg/L	4989.3	ppb	16:29:00
1	Na 589.592 Radial†	26275.5	25295.5	9557.4	µg/L	9557.4	ppb	16:28:40
1	Sr 421.552†	44607.8	44069.1	475.86	µg/L	475.86	ppb	16:28:40
1	Sc	425212.9	425212.9	105.8	%			16:29:48
1	Y 371.029	332355.8	332355.8	103.91	%			16:29:48
1	Sc 357.253	268820.4	268820.4	104.6	%			16:29:48
1	Ag 328.068†	43787.3	42333.3	465.36	µg/L	465.36	ppb	16:29:48
1	As 188.979†	230.0	215.1	451.25	µg/L	451.25	ppb	16:30:08
1	B 249.677†	12917.5	11835.0	470.89	µg/L	470.89	ppb	16:29:48
1	Ba 233.527†	27290.8	26132.8	476.83	µg/L	476.83	ppb	16:29:48
1	Be 313.107†	783104.1	750565.3	473.71	µg/L	473.71	ppb	16:29:48
1	Cd 226.502†	43041.0	41309.7	470.81	µg/L	470.81	ppb	16:29:48
1	Co 228.616†	4773.2	4614.9	473.22	µg/L	473.22	ppb	16:30:08
1	Cr 267.716†	35823.4	34070.5	472.78	µg/L	472.78	ppb	16:29:48
1	Cu 324.752†	52270.4	47795.4	477.68	µg/L	477.68	ppb	16:29:48
1	Mn 257.610†	138145.1	132156.7	480.71	µg/L	480.71	ppb	16:29:48
1	Mo 202.031†	3903.0	3770.0	462.16	µg/L	462.16	ppb	16:30:08
1	Ni 231.604†	7176.2	6850.4	456.61	µg/L	456.61	ppb	16:30:08
1	P 214.914†	1257.0	1173.7	2312.6	µg/L	2312.6	ppb	16:30:08
1	Pb 220.353†	1304.0	1207.6	462.84	µg/L	462.84	ppb	16:30:08
1	S 181.975 Axial†	343.9	278.6	898.35	µg/L	898.35	ppb	16:30:08
1	Sb 206.836†	315.2	297.4	471.14	µg/L	471.14	ppb	16:30:08
1	Se 196.026†	211.4	198.0	462	µg/L	462	ppb	16:30:08
1	SiO2†	19412.0	17813.6	5096.3	µg/L	5096.3	ppb	16:29:48
1	Si 251.611†	36267.8	34381.8	2380.8	µg/L	2380.8	ppb	16:29:48
1	Sn 189.927†	1032.2	1010.8	449.39	µg/L	449.39	ppb	16:30:08
1	Ti 334.940†	98413.0	94143.5	469.27	µg/L	469.27	ppb	16:29:48
1	Tl 190.801†	503.0	475.5	462.52	µg/L	462.52	ppb	16:30:08
1	U 367.007†	842.8	939.4	480.77	µg/L	480.77	ppb	16:29:48
1	V 292.402†	31064.8	29544.6	474.69	µg/L	474.69	ppb	16:29:48
1	Zn 213.857†	14336.9	13448.6	446.92	µg/L	446.92	ppb	16:30:08
2	Sc RADIAL	4924.6	4924.6	100	%			16:29:22
2	Al 396.153Radial†	2806.7	2901.7	4972.4	µg/L	4972.4	ppb	16:29:22
2	Ca 317.933Radial†	6308.0	6243.2	5018.6	µg/L	5018.6	ppb	16:29:22
2	Fe 238.204 Radial†	2169.2	2130.8	5021.8	µg/L	5021.8	ppb	16:29:22
2	K 766.490 Radial†	4414.3	4488.0	4677.3	µg/L	4677.3	ppb	16:29:02
2	Mg 279.077 IEC†	502.8	515.9	4991.4	µg/L	4991.4	ppb	16:29:22
2	Na 589.592 Radial†	26018.3	25240.6	9536.7	µg/L	9536.7	ppb	16:29:02
2	Sr 421.552†	44415.9	44220.5	477.50	µg/L	477.50	ppb	16:29:02
2	Sc	419741.1	419741.1	104.4	%			16:30:11
2	Y 371.029	329249.4	329249.4	102.94	%			16:30:11
2	Sc 357.253	266506.5	266506.5	103.7	%			16:30:11
2	Ag 328.068†	43044.8	41981.0	461.57	µg/L	461.57	ppb	16:30:11
2	As 188.979†	232.1	219.0	459.39	µg/L	459.39	ppb	16:30:31
2	B 249.677†	12547.8	11585.8	460.94	µg/L	460.94	ppb	16:30:11
2	Ba 233.527†	26920.8	26002.6	474.46	µg/L	474.46	ppb	16:30:11
2	Be 313.107†	771764.0	746131.8	470.91	µg/L	470.91	ppb	16:30:11
2	Cd 226.502†	42172.6	40829.8	465.32	µg/L	465.32	ppb	16:30:11
2	Co 228.616†	4792.7	4673.3	479.20	µg/L	479.20	ppb	16:30:31
2	Cr 267.716†	35099.7	33670.1	467.22	µg/L	467.22	ppb	16:30:11
2	Cu 324.752†	51274.0	47268.6	472.37	µg/L	472.37	ppb	16:30:11
2	Mn 257.610†	136417.6	131637.7	478.82	µg/L	478.82	ppb	16:30:11
2	Mo 202.031†	3943.8	3841.8	470.95	µg/L	470.95	ppb	16:30:31
2	Ni 231.604†	7270.5	7000.8	466.64	µg/L	466.64	ppb	16:30:31

2	P 214.914†	1270.3	1196.9	2358.4 µg/L	2358.4 ppb		16:30:31
2	Pb 220.353†	1334.4	1247.8	478.30 µg/L	478.30 ppb		16:30:31
2	S 181.975 Axial†	348.4	285.7	921.33 µg/L	921.33 ppb		16:30:31
2	Sb 206.836†	311.6	296.5	469.87 µg/L	469.87 ppb		16:30:31
2	Se 196.026†	217.4	205.6	480 µg/L	480 ppb		16:30:31
2	SiO2†	19128.6	17701.4	5064.2 µg/L	5064.2 ppb		16:30:11
2	Si 251.611†	35778.4	34211.0	2369.0 µg/L	2369.0 ppb		16:30:11
2	Sn 189.927†	1053.9	1040.3	462.45 µg/L	462.45 ppb		16:30:31
2	Ti 334.940†	97165.0	93757.0	467.34 µg/L	467.34 ppb		16:30:11
2	Tl 190.801†	526.8	502.6	488.70 µg/L	488.70 ppb		16:30:31
2	U 367.007†	684.0	793.3	401.25 µg/L	401.25 ppb		16:30:11
2	V 292.402†	30486.9	29245.3	469.92 µg/L	469.92 ppb		16:30:11
2	Zn 213.857†	14530.5	13754.1	457.10 µg/L	457.10 ppb		16:30:31
3	Sc RADIAL	4938.4	4938.4	100 %			16:29:44
3	Al 396.153Radial†	2803.0	2890.2	4952.7 µg/L	4952.7 ppb		16:29:44
3	Ca 317.933Radial†	6271.4	6189.1	4975.1 µg/L	4975.1 ppb		16:29:44
3	Fe 238.204 Radial†	2178.2	2133.6	5028.5 µg/L	5028.5 ppb		16:29:44
3	K 766.490 Radial†	4347.1	4408.7	4594.6 µg/L	4594.6 ppb		16:29:24
3	Mg 279.077 IEC†	502.8	514.5	4977.2 µg/L	4977.2 ppb		16:29:44
3	Na 589.592 Radial†	26537.7	25685.6	9704.8 µg/L	9704.8 ppb		16:29:24
3	Sr 421.552†	44988.3	44666.8	482.32 µg/L	482.32 ppb		16:29:24
3	Sc	424053.2	424053.2	105.5 %			16:30:33
3	Y 371.029	332331.4	332331.4	103.91 %			16:30:33
3	Sc 357.253	267960.2	267960.2	104.3 %			16:30:33
3	Ag 328.068†	43808.7	42488.2	467.13 µg/L	467.13 ppb		16:30:33
3	As 188.979†	228.9	214.8	450.59 µg/L	450.59 ppb		16:30:53
3	B 249.677†	12693.5	11659.9	463.90 µg/L	463.90 ppb		16:30:33
3	Ba 233.527†	26994.0	25932.0	473.18 µg/L	473.18 ppb		16:30:33
3	Be 313.107†	780570.9	750538.9	473.69 µg/L	473.69 ppb		16:30:33
3	Cd 226.502†	42632.3	41049.9	467.84 µg/L	467.84 ppb		16:30:33
3	Co 228.616†	4780.1	4636.2	475.39 µg/L	475.39 ppb		16:30:53
3	Cr 267.716†	35681.0	34043.9	472.41 µg/L	472.41 ppb		16:30:33
3	Cu 324.752†	51829.5	47533.1	475.02 µg/L	475.02 ppb		16:30:33
3	Mn 257.610†	136797.0	131288.1	477.55 µg/L	477.55 ppb		16:30:33
3	Mo 202.031†	3888.4	3768.0	461.92 µg/L	461.92 ppb		16:30:53
3	Ni 231.604†	7141.3	6839.0	455.85 µg/L	455.85 ppb		16:30:53
3	P 214.914†	1254.6	1175.2	2315.6 µg/L	2315.6 ppb		16:30:53
3	Pb 220.353†	1293.5	1201.5	460.57 µg/L	460.57 ppb		16:30:53
3	S 181.975 Axial†	337.7	273.6	882.46 µg/L	882.46 ppb		16:30:53
3	Sb 206.836†	306.2	289.8	459.09 µg/L	459.09 ppb		16:30:53
3	Se 196.026†	206.8	194.2	453 µg/L	453 ppb		16:30:53
3	SiO2†	19249.2	17717.0	5068.7 µg/L	5068.7 ppb		16:30:33
3	Si 251.611†	35981.1	34218.2	2369.5 µg/L	2369.5 ppb		16:30:33
3	Sn 189.927†	1030.2	1012.0	449.91 µg/L	449.91 ppb		16:30:53
3	Ti 334.940†	97773.1	93831.9	467.71 µg/L	467.71 ppb		16:30:33
3	Tl 190.801†	512.7	486.3	472.95 µg/L	472.95 ppb		16:30:53
3	U 367.007†	721.0	825.2	418.50 µg/L	418.50 ppb		16:30:33
3	V 292.402†	31434.3	29994.1	481.83 µg/L	481.83 ppb		16:30:33
3	Zn 213.857†	14271.5	13429.8	446.29 µg/L	446.29 ppb		16:30:53

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	423002.4	105.2	%	0.72				0.68%
Sc RADIAL	4941.9	100	%	0.4				0.39%
Y 371.029	331312.2	103.59	%	0.559				0.54%
Sc 357.253	267762.4	104.2	%	0.46				0.44%
Ag 328.068†	42267.5	464.69	µg/L	2.843	464.69	ppb	2.843	0.61%
QC value within limits for Ag 328.068 Recovery = 92.94%								
Al 396.153Radial†	2887.7	4948.5	µg/L	26.28	4948.5	ppb	26.28	0.53%
QC value within limits for Al 396.153Radial Recovery = 98.97%								
As 188.979†	216.3	453.74	µg/L	4.899	453.74	ppb	4.899	1.08%
QC value within limits for As 188.979 Recovery = 90.75%								
B 249.677†	11693.6	465.24	µg/L	5.109	465.24	ppb	5.109	1.10%
QC value within limits for B 249.677 Recovery = 93.05%								
Ba 233.527†	26022.5	474.82	µg/L	1.855	474.82	ppb	1.855	0.39%
QC value within limits for Ba 233.527 Recovery = 94.96%								
Be 313.107†	749078.7	472.77	µg/L	1.609	472.77	ppb	1.609	0.34%
QC value within limits for Be 313.107 Recovery = 94.55%								
Ca 317.933Radial†	6221.8	5001.4	µg/L	23.10	5001.4	ppb	23.10	0.46%

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   QC value within limits for Ca 317.933Radial  Recovery = 100.03%
Cd 226.502†            41063.1      467.99 µg/L          2.746      467.99 ppb          2.746   0.59%
   QC value within limits for Cd 226.502  Recovery = 93.60%
Co 228.616†             4641.5      475.94 µg/L          3.027      475.94 ppb          3.027   0.64%
   QC value within limits for Co 228.616  Recovery = 95.19%
Cr 267.716†            33928.2      470.80 µg/L          3.108      470.80 ppb          3.108   0.66%
   QC value within limits for Cr 267.716  Recovery = 94.16%
Cu 324.752†            47532.4      475.02 µg/L          2.655      475.02 ppb          2.655   0.56%
   QC value within limits for Cu 324.752  Recovery = 95.00%
Fe 238.204 Radial†      2126.7      5012.2 µg/L          22.69      5012.2 ppb          22.69   0.45%
   QC value within limits for Fe 238.204 Radial  Recovery = 100.24%
K 766.490 Radial†       4533.8      4725.1 µg/L         159.84      4725.1 ppb         159.84   3.38%
   QC value within limits for K 766.490 Radial  Recovery = 94.50%
Mg 279.077 IEC†          515.4      4986.0 µg/L           7.64      4986.0 ppb           7.64   0.15%
   QC value within limits for Mg 279.077 IEC  Recovery = 99.72%
Mn 257.610†           131694.1      479.03 µg/L          1.589      479.03 ppb          1.589   0.33%
   QC value within limits for Mn 257.610  Recovery = 95.81%
Mo 202.031†             3793.3      465.01 µg/L          5.146      465.01 ppb          5.146   1.11%
   QC value within limits for Mo 202.031  Recovery = 93.00%
Na 589.592 Radial†     25407.2      9599.6 µg/L          91.66      9599.6 ppb          91.66   0.95%
   QC value within limits for Na 589.592 Radial  Recovery = 96.00%
Ni 231.604†             6896.8      459.70 µg/L          6.022      459.70 ppb          6.022   1.31%
   QC value within limits for Ni 231.604  Recovery = 91.94%
P 214.914†              1181.9      2328.9 µg/L          25.66      2328.9 ppb          25.66   1.10%
   QC value within limits for P 214.914  Recovery = 93.15%
Pb 220.353†             1219.0      467.23 µg/L          9.649      467.23 ppb          9.649   2.07%
   QC value within limits for Pb 220.353  Recovery = 93.45%
S 181.975 Axial†         279.3      900.71 µg/L         19.543      900.71 ppb         19.543   2.17%
   QC value within limits for S 181.975 Axial  Recovery = 90.07%
Sb 206.836†              294.5      466.70 µg/L          6.620      466.70 ppb          6.620   1.42%
   QC value within limits for Sb 206.836  Recovery = 93.34%
Se 196.026†              199.3        465 µg/L           13.5         465 ppb           13.5   2.91%
   QC value within limits for Se 196.026  Recovery = 93.03%
SiO2†                  17744.0      5076.4 µg/L          17.39      5076.4 ppb          17.39   0.34%
   QC value within limits for SiO2  Recovery = 94.93%
Si 251.611†            34270.3      2373.1 µg/L           6.69      2373.1 ppb           6.69   0.28%
   QC value within limits for Si 251.611  Recovery = 94.93%
Sn 189.927†             1021.0      453.92 µg/L          7.394      453.92 ppb          7.394   1.63%
   QC value within limits for Sn 189.927  Recovery = 90.78%
Sr 421.552†            44318.8      478.56 µg/L          3.357      478.56 ppb          3.357   0.70%
   QC value within limits for Sr 421.552  Recovery = 95.71%
Ti 334.940†            93910.8      468.11 µg/L          1.021      468.11 ppb          1.021   0.22%
   QC value within limits for Ti 334.940  Recovery = 93.62%
Tl 190.801†              488.1      474.72 µg/L         13.177      474.72 ppb         13.177   2.78%
   QC value within limits for Tl 190.801  Recovery = 94.94%
U 367.007†               852.6      433.50 µg/L         41.829      433.50 ppb         41.829   9.65%
   QC value less than the lower limit for U 367.007  Recovery = 86.70%
V 292.402†             29594.7      475.48 µg/L          5.996      475.48 ppb          5.996   1.26%
   QC value within limits for V 292.402  Recovery = 95.10%
Zn 213.857†            13544.2      450.10 µg/L          6.069      450.10 ppb          6.069   1.35%
   QC value within limits for Zn 213.857  Recovery = 90.02%
QC Failed.  Continue with analysis.
```

Sequence No.: 73 **Autosampler Location: 110**
Sample ID: PQL **Date Collected: 11/2/2016 16:31:02**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: PQL

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	4878.6	4878.6	99.2	%			16:31:53
1	Al 396.153Radial†	6.9	104.4	178.83	µg/L	178.83	ppb	16:31:33
1	Ca 317.933Radial†	336.2	279.8	224.90	µg/L	224.90	ppb	16:31:53
1	Fe 238.204 Radial†	105.1	69.4	163.55	µg/L	163.55	ppb	16:31:53
1	K 766.490 Radial†	25.3	103.0	107.31	µg/L	107.31	ppb	16:31:33
1	Mg 279.077 IEC†	18.9	32.6	315.30	µg/L	315.30	ppb	16:31:53
1	Na 589.592 Radial†	1454.8	712.1	269.04	µg/L	269.04	ppb	16:31:33
1	Sr 421.552†	661.3	509.9	5.4983	µg/L	5.4983	ppb	16:31:33
1	Sc	411454.4	411454.4	102.3	%			16:32:41
1	Y 371.029	324817.0	324817.0	101.56	%			16:32:41
1	Sc 357.253	263102.8	263102.8	102.4	%			16:32:41
1	Ag 328.068†	37.6	526.5	5.7482	µg/L	5.7482	ppb	16:32:41
1	As 188.979†	21.6	16.4	34.151	µg/L	34.151	ppb	16:33:01
1	B 249.677†	1750.0	1199.5	47.803	µg/L	47.803	ppb	16:32:41
1	Ba 233.527†	251.0	298.5	5.4459	µg/L	5.4459	ppb	16:33:01
1	Be 313.107†	5787.7	7873.4	4.9711	µg/L	4.9711	ppb	16:32:41
1	Cd 226.502†	238.8	412.5	4.6930	µg/L	4.6930	ppb	16:33:01
1	Co 228.616†	-15.0	39.0	3.9873	µg/L	3.9873	ppb	16:33:01
1	Cr 267.716†	686.6	507.6	7.0433	µg/L	7.0433	ppb	16:32:41
1	Cu 324.752†	3072.9	845.6	8.4821	µg/L	8.4821	ppb	16:32:41
1	Mn 257.610†	2758.3	2836.8	10.313	µg/L	10.313	ppb	16:32:41
1	Mo 202.031†	43.1	82.4	10.101	µg/L	10.101	ppb	16:33:01
1	Ni 231.604†	90.3	80.9	5.3913	µg/L	5.3913	ppb	16:33:01
1	P 214.914†	99.1	69.3	136.73	µg/L	136.73	ppb	16:33:01
1	Pb 220.353†	60.8	20.9	7.9760	µg/L	7.9760	ppb	16:33:01
1	S 181.975 Axial†	76.1	24.2	77.927	µg/L	77.927	ppb	16:33:01
1	Sb 206.836†	13.1	9.0	14.292	µg/L	14.292	ppb	16:33:01
1	Se 196.026†	18.5	14.1	33.0	µg/L	33.0	ppb	16:33:01
1	SiO2†	1476.7	705.1	201.60	µg/L	201.60	ppb	16:32:41
1	Si 251.611†	1678.1	1362.4	94.341	µg/L	94.341	ppb	16:32:41
1	Sn 189.927†	3.4	27.7	12.299	µg/L	12.299	ppb	16:33:01
1	Ti 334.940†	1142.2	1214.1	6.0545	µg/L	6.0545	ppb	16:32:41
1	Tl 190.801†	27.3	21.5	20.768	µg/L	20.768	ppb	16:33:01
1	U 367.007†	-47.2	87.9	46.782	µg/L	46.782	ppb	16:32:41
1	V 292.402†	586.0	430.9	6.9545	µg/L	6.9545	ppb	16:32:41
1	Zn 213.857†	565.5	300.3	9.9881	µg/L	9.9881	ppb	16:33:01
2	Sc RADIAL	4875.4	4875.4	99.1	%			16:32:15
2	Al 396.153Radial†	59.1	157.0	269.03	µg/L	269.03	ppb	16:31:55
2	Ca 317.933Radial†	326.4	270.1	217.15	µg/L	217.15	ppb	16:32:15
2	Fe 238.204 Radial†	99.6	63.9	150.69	µg/L	150.69	ppb	16:32:15
2	K 766.490 Radial†	84.1	162.4	169.24	µg/L	169.24	ppb	16:31:55
2	Mg 279.077 IEC†	22.2	35.9	347.50	µg/L	347.50	ppb	16:32:15
2	Na 589.592 Radial†	1436.1	694.1	262.25	µg/L	262.25	ppb	16:31:55
2	Sr 421.552†	596.0	444.4	4.7916	µg/L	4.7916	ppb	16:31:55
2	Sc	412113.3	412113.3	102.5	%			16:33:03
2	Y 371.029	328237.9	328237.9	102.63	%			16:33:03
2	Sc 357.253	263250.6	263250.6	102.5	%			16:33:03
2	Ag 328.068†	32.3	521.3	5.7374	µg/L	5.7374	ppb	16:33:03
2	As 188.979†	23.0	17.8	37.038	µg/L	37.038	ppb	16:33:23
2	B 249.677†	1794.2	1241.7	49.489	µg/L	49.489	ppb	16:33:03
2	Ba 233.527†	291.0	337.3	6.1559	µg/L	6.1559	ppb	16:33:23
2	Be 313.107†	5702.2	7786.8	4.9172	µg/L	4.9172	ppb	16:33:03
2	Cd 226.502†	254.8	427.9	4.8704	µg/L	4.8704	ppb	16:33:23
2	Co 228.616†	-4.9	48.8	4.9942	µg/L	4.9942	ppb	16:33:23
2	Cr 267.716†	571.7	395.1	5.4834	µg/L	5.4834	ppb	16:33:03
2	Cu 324.752†	3151.2	920.3	9.1972	µg/L	9.1972	ppb	16:33:03
2	Mn 257.610†	2755.8	2832.8	10.297	µg/L	10.297	ppb	16:33:03
2	Mo 202.031†	44.1	83.4	10.224	µg/L	10.224	ppb	16:33:23
2	Ni 231.604†	86.0	76.7	5.1104	µg/L	5.1104	ppb	16:33:23

2	P 214.914†	95.5	65.7	129.70 µg/L	129.70 ppb		16:33:23
2	Pb 220.353†	71.9	31.6	12.137 µg/L	12.137 ppb		16:33:23
2	S 181.975 Axial†	76.1	24.2	77.761 µg/L	77.761 ppb		16:33:23
2	Sb 206.836†	10.8	6.7	10.685 µg/L	10.685 ppb		16:33:23
2	Se 196.026†	17.2	12.9	30.0 µg/L	30.0 ppb		16:33:23
2	SiO2†	1496.7	723.8	206.94 µg/L	206.94 ppb		16:33:03
2	Si 251.611†	1684.6	1367.7	94.710 µg/L	94.710 ppb		16:33:03
2	Sn 189.927†	4.6	28.9	12.816 µg/L	12.816 ppb		16:33:23
2	Ti 334.940†	1224.3	1293.7	6.4516 µg/L	6.4516 ppb		16:33:03
2	Tl 190.801†	15.2	9.6	9.2851 µg/L	9.2851 ppb		16:33:23
2	U 367.007†	-129.4	7.7	3.2876 µg/L	3.2876 ppb		16:33:03
2	V 292.402†	640.3	483.5	7.7736 µg/L	7.7736 ppb		16:33:03
2	Zn 213.857†	573.5	307.7	10.238 µg/L	10.238 ppb		16:33:23
3	Sc RADIAL	4856.7	4856.7	98.7 %			16:32:37
3	Al 396.153Radial†	42.7	140.6	240.97 µg/L	240.97 ppb		16:32:17
3	Ca 317.933Radial†	331.8	276.8	222.51 µg/L	222.51 ppb		16:32:37
3	Fe 238.204 Radial†	109.3	74.2	174.86 µg/L	174.86 ppb		16:32:37
3	K 766.490 Radial†	-2.2	75.2	78.311 µg/L	78.311 ppb		16:32:17
3	Mg 279.077 IEC†	27.0	40.9	395.46 µg/L	395.46 ppb		16:32:37
3	Na 589.592 Radial†	1648.3	914.7	345.59 µg/L	345.59 ppb		16:32:17
3	Sr 421.552†	609.4	460.4	4.9624 µg/L	4.9624 ppb		16:32:17
3	Sc	408817.0	408817.0	101.7 %			16:33:25
3	Y 371.029	325947.6	325947.6	101.91 %			16:33:25
3	Sc 357.253	261228.6	261228.6	101.7 %			16:33:25
3	Ag 328.068†	-53.3	437.3	4.7434 µg/L	4.7434 ppb		16:33:25
3	As 188.979†	18.4	13.4	27.974 µg/L	27.974 ppb		16:33:45
3	B 249.677†	1756.3	1218.1	48.540 µg/L	48.540 ppb		16:33:25
3	Ba 233.527†	279.3	328.1	5.9851 µg/L	5.9851 ppb		16:33:45
3	Be 313.107†	5523.7	7654.3	4.8327 µg/L	4.8327 ppb		16:33:25
3	Cd 226.502†	223.4	399.0	4.5386 µg/L	4.5386 ppb		16:33:45
3	Co 228.616†	-5.5	48.2	4.9352 µg/L	4.9352 ppb		16:33:45
3	Cr 267.716†	577.1	404.7	5.6159 µg/L	5.6159 ppb		16:33:25
3	Cu 324.752†	3095.6	889.4	8.9364 µg/L	8.9364 ppb		16:33:25
3	Mn 257.610†	2649.5	2749.2	9.9916 µg/L	9.9916 ppb		16:33:25
3	Mo 202.031†	40.0	79.7	9.7705 µg/L	9.7705 ppb		16:33:45
3	Ni 231.604†	91.5	82.8	5.5129 µg/L	5.5129 ppb		16:33:45
3	P 214.914†	93.5	64.4	127.09 µg/L	127.09 ppb		16:33:45
3	Pb 220.353†	62.9	23.3	8.8933 µg/L	8.8933 ppb		16:33:45
3	S 181.975 Axial†	74.5	23.1	74.441 µg/L	74.441 ppb		16:33:45
3	Sb 206.836†	12.7	8.7	13.791 µg/L	13.791 ppb		16:33:45
3	Se 196.026†	21.6	17.3	40.3 µg/L	40.3 ppb		16:33:45
3	SiO2†	1444.3	683.6	195.44 µg/L	195.44 ppb		16:33:25
3	Si 251.611†	1663.7	1359.9	94.170 µg/L	94.170 ppb		16:33:25
3	Sn 189.927†	5.4	29.7	13.189 µg/L	13.189 ppb		16:33:45
3	Ti 334.940†	1086.1	1167.0	5.8201 µg/L	5.8201 ppb		16:33:25
3	Tl 190.801†	19.8	14.3	13.799 µg/L	13.799 ppb		16:33:45
3	U 367.007†	-2.7	131.3	70.264 µg/L	70.264 ppb		16:33:25
3	V 292.402†	551.9	401.5	6.4919 µg/L	6.4919 ppb		16:33:25
3	Zn 213.857†	564.2	302.9	10.070 µg/L	10.070 ppb		16:33:45

Mean Data: PQL

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	410794.9	102.2	%	0.43				0.42%
Sc RADIAL	4870.2	99.0	%	0.24				0.24%
Y 371.029	326334.1	102.03	%	0.545				0.53%
Sc 357.253	262527.3	102.2	%	0.44				0.43%
Ag 328.068†	495.0	5.4097	µg/L	0.57701	5.4097	ppb	0.57701	10.67%
QC value within limits for Ag 328.068 Recovery = 108.19%								
Al 396.153Radial†	134.0	229.61	µg/L	46.161	229.61	ppb	46.161	20.10%
QC value within limits for Al 396.153Radial Recovery = 114.80%								
As 188.979†	15.9	33.054	µg/L	4.6301	33.054	ppb	4.6301	14.01%
QC value within limits for As 188.979 Recovery = 110.18%								
B 249.677†	1219.8	48.611	µg/L	0.8449	48.611	ppb	0.8449	1.74%
QC value within limits for B 249.677 Recovery = 97.22%								
Ba 233.527†	321.3	5.8623	µg/L	0.37059	5.8623	ppb	0.37059	6.32%
QC value within limits for Ba 233.527 Recovery = 117.25%								
Be 313.107†	7771.5	4.9070	µg/L	0.06980	4.9070	ppb	0.06980	1.42%
QC value within limits for Be 313.107 Recovery = 98.14%								
Ca 317.933Radial†	275.6	221.52	µg/L	3.970	221.52	ppb	3.970	1.79%

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   QC value within limits for Ca 317.933Radial  Recovery = 110.76%
Cd 226.502†              413.1      4.7007 µg/L       0.16603      4.7007 ppb        0.16603   3.53%
   QC value within limits for Cd 226.502  Recovery = 94.01%
Co 228.616†               45.3      4.6389 µg/L       0.56506      4.6389 ppb        0.56506  12.18%
   QC value within limits for Co 228.616  Recovery = 92.78%
Cr 267.716†              435.8      6.0475 µg/L       0.86488      6.0475 ppb        0.86488  14.30%
   QC value within limits for Cr 267.716  Recovery = 120.95%
Cu 324.752†              885.1      8.8719 µg/L       0.36190      8.8719 ppb        0.36190   4.08%
   QC value within limits for Cu 324.752  Recovery = 88.72%
Fe 238.204 Radial†        69.2      163.03 µg/L        12.092      163.03 ppb         12.092   7.42%
   QC value greater than the upper limit for Fe 238.204 Radial  Recovery = 163.03%
K 766.490 Radial†        113.5      118.29 µg/L        46.450      118.29 ppb         46.450  39.27%
   QC value within limits for K 766.490 Radial  Recovery = 78.86%
Mg 279.077 IEC†           36.5      352.75 µg/L        40.339      352.75 ppb         40.339  11.44%
   QC value within limits for Mg 279.077 IEC  Recovery = 117.58%
Mn 257.610†             2806.3      10.200 µg/L        0.1811      10.200 ppb         0.1811   1.78%
   QC value within limits for Mn 257.610  Recovery = 102.00%
Mo 202.031†               81.8      10.032 µg/L        0.2345      10.032 ppb         0.2345   2.34%
   QC value within limits for Mo 202.031  Recovery = 100.32%
Na 589.592 Radial†       773.6      292.29 µg/L        46.281      292.29 ppb         46.281  15.83%
   QC value within limits for Na 589.592 Radial  Recovery = 97.43%
Ni 231.604†               80.1      5.3382 µg/L       0.20642      5.3382 ppb        0.20642   3.87%
   QC value within limits for Ni 231.604  Recovery = 106.76%
P 214.914†                66.4      131.17 µg/L         4.983      131.17 ppb          4.983   3.80%
   QC value within limits for P 214.914  Recovery = 87.45%
Pb 220.353†               25.3      9.6686 µg/L       2.18594      9.6686 ppb        2.18594  22.61%
   QC value within limits for Pb 220.353  Recovery = 96.69%
S 181.975 Axial†          23.9      76.710 µg/L        1.9666      76.710 ppb         1.9666   2.56%
   QC value within limits for S 181.975 Axial  Recovery = 76.71%
Sb 206.836†                8.1      12.922 µg/L        1.9539      12.922 ppb         1.9539  15.12%
   QC value within limits for Sb 206.836  Recovery = 129.22%
Se 196.026†               14.7        34.4 µg/L          5.31        34.4 ppb           5.31  15.42%
   QC value within limits for Se 196.026  Recovery = 114.77%
SiO2†                    704.2      201.33 µg/L         5.753      201.33 ppb          5.753   2.86%
   QC value within limits for SiO2  Recovery = 94.52%
Si 251.611†             1363.3      94.407 µg/L        0.2763      94.407 ppb         0.2763   0.29%
   QC value within limits for Si 251.611  Recovery = 94.41%
Sn 189.927†               28.8      12.768 µg/L        0.4470      12.768 ppb         0.4470   3.50%
   QC value within limits for Sn 189.927  Recovery = 127.68%
Sr 421.552†              471.6      5.0841 µg/L       0.36870      5.0841 ppb        0.36870   7.25%
   QC value within limits for Sr 421.552  Recovery = 101.68%
Ti 334.940†             1224.9      6.1087 µg/L       0.31920      6.1087 ppb        0.31920   5.23%
   QC value within limits for Ti 334.940  Recovery = 122.17%
Tl 190.801†               15.1      14.617 µg/L        5.7852      14.617 ppb         5.7852  39.58%
   QC value within limits for Tl 190.801  Recovery = 73.09%
U 367.007†                75.6      40.111 µg/L       33.9826      40.111 ppb        33.9826  84.72%
   QC value within limits for U 367.007  Recovery = 80.22%
V 292.402†               438.6      7.0733 µg/L       0.64906      7.0733 ppb        0.64906   9.18%
   QC value greater than the upper limit for V 292.402  Recovery = 141.47%
Zn 213.857†              303.6      10.099 µg/L        0.1271      10.099 ppb         0.1271   1.26%
   QC value within limits for Zn 213.857  Recovery = 100.99%
QC Failed.  Continue with analysis.
```

Sequence No.: 74 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/2/2016 16:33:55**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Sc RADIAL	5044.4	5044.4	103	%			16:34:25
1	Al 396.153Radial†	-54.5	44.2	75.754	µg/L	75.754	ppb	16:34:25
1	Ca 317.933Radial†	74.9	13.8	11.054	µg/L	11.054	ppb	16:34:45
1	Fe 238.204 Radial†	38.6	1.1	2.4850	µg/L	2.4850	ppb	16:34:45
1	K 766.490 Radial†	-202.3	-119.9	-125.04	µg/L	-125.04	ppb	16:34:25
1	Mg 279.077 IEC†	-6.1	7.6	73.418	µg/L	73.418	ppb	16:34:45
1	Na 589.592 Radial†	842.2	66.3	25.042	µg/L	25.042	ppb	16:34:25
1	Sr 421.552†	223.5	60.9	0.6578	µg/L	0.6578	ppb	16:34:25
1	Sc	414156.5	414156.5	103.0	%			16:35:33
1	Y 371.029	332213.2	332213.2	103.87	%			16:35:33
1	Sc 357.253	264444.6	264444.6	102.9	%			16:35:33
1	Ag 328.068†	-420.7	81.0	0.8720	µg/L	0.8720	ppb	16:35:33
1	As 188.979†	4.2	-0.7	-1.3715	µg/L	-1.3715	ppb	16:35:53
1	B 249.677†	503.3	-20.2	-0.8054	µg/L	-0.8054	ppb	16:35:33
1	Ba 233.527†	-54.9	0.0	0.0031	µg/L	0.0031	ppb	16:35:53
1	Be 313.107†	-2036.1	244.5	0.1533	µg/L	0.1533	ppb	16:35:33
1	Cd 226.502†	-178.5	5.8	0.0663	µg/L	0.0663	ppb	16:35:53
1	Co 228.616†	-54.7	0.5	0.0470	µg/L	0.0470	ppb	16:35:53
1	Cr 267.716†	194.0	25.6	0.3575	µg/L	0.3575	ppb	16:35:33
1	Cu 324.752†	2045.8	-167.4	-1.6567	µg/L	-1.6567	ppb	16:35:33
1	Mn 257.610†	-114.1	32.8	0.1171	µg/L	0.1171	ppb	16:35:53
1	Mo 202.031†	-27.8	13.3	1.6336	µg/L	1.6336	ppb	16:35:53
1	Ni 231.604†	13.9	6.2	0.4150	µg/L	0.4150	ppb	16:35:53
1	P 214.914†	22.0	-6.2	-12.240	µg/L	-12.240	ppb	16:35:53
1	Pb 220.353†	32.9	-6.6	-2.5197	µg/L	-2.5197	ppb	16:35:53
1	S 181.975 Axial†	41.6	-9.7	-30.999	µg/L	-30.999	ppb	16:35:53
1	Sb 206.836†	10.7	6.6	10.458	µg/L	10.458	ppb	16:35:53
1	Se 196.026†	3.9	-0.2	-0.393	µg/L	-0.393	ppb	16:35:53
1	SiO2†	745.2	-12.9	-3.6837	µg/L	-3.6837	ppb	16:35:33
1	Si 251.611†	279.7	-4.5	-0.3092	µg/L	-0.3092	ppb	16:35:53
1	Sn 189.927†	-24.2	0.9	0.4153	µg/L	0.4153	ppb	16:35:53
1	Ti 334.940†	-191.4	-87.0	-0.4339	µg/L	-0.4339	ppb	16:35:33
1	Tl 190.801†	-1.5	-6.7	-6.4840	µg/L	-6.4840	ppb	16:35:53
1	U 367.007†	-100.8	36.0	19.544	µg/L	19.544	ppb	16:35:33
1	V 292.402†	300.9	151.0	2.4289	µg/L	2.4289	ppb	16:35:33
1	Zn 213.857†	257.3	-2.0	-0.0750	µg/L	-0.0750	ppb	16:35:53
2	Sc RADIAL	5133.8	5133.8	104	%			16:34:47
2	Al 396.153Radial†	-135.0	-32.0	-54.858	µg/L	-54.858	ppb	16:34:47
2	Ca 317.933Radial†	74.4	12.0	9.6531	µg/L	9.6531	ppb	16:35:08
2	Fe 238.204 Radial†	38.4	0.2	0.5353	µg/L	0.5353	ppb	16:35:08
2	K 766.490 Radial†	-162.9	-78.6	-82.018	µg/L	-82.018	ppb	16:34:47
2	Mg 279.077 IEC†	-18.5	-4.1	-40.135	µg/L	-40.135	ppb	16:35:08
2	Na 589.592 Radial†	692.6	-91.5	-34.556	µg/L	-34.556	ppb	16:34:47
2	Sr 421.552†	154.1	-9.4	-0.1018	µg/L	-0.1018	ppb	16:34:47
2	Sc	410755.1	410755.1	102.2	%			16:35:55
2	Y 371.029	327972.6	327972.6	102.54	%			16:35:55
2	Sc 357.253	262296.4	262296.4	102.1	%			16:35:55
2	Ag 328.068†	-409.5	88.7	0.9735	µg/L	0.9735	ppb	16:35:55
2	As 188.979†	9.0	4.1	8.4315	µg/L	8.4315	ppb	16:36:15
2	B 249.677†	447.0	-71.3	-2.8449	µg/L	-2.8449	ppb	16:35:55
2	Ba 233.527†	-54.2	0.3	0.0063	µg/L	0.0063	ppb	16:36:15
2	Be 313.107†	-2229.1	39.3	0.0239	µg/L	0.0239	ppb	16:35:55
2	Cd 226.502†	-180.4	2.6	0.0294	µg/L	0.0294	ppb	16:36:15
2	Co 228.616†	-53.0	1.7	0.1770	µg/L	0.1770	ppb	16:36:15
2	Cr 267.716†	148.6	-17.2	-0.2385	µg/L	-0.2385	ppb	16:35:55
2	Cu 324.752†	2083.4	-114.3	-1.1398	µg/L	-1.1398	ppb	16:35:55
2	Mn 257.610†	-128.5	17.8	0.0662	µg/L	0.0662	ppb	16:36:15
2	Mo 202.031†	-46.4	-5.1	-0.6299	µg/L	-0.6299	ppb	16:36:15
2	Ni 231.604†	7.2	-0.2	-0.0121	µg/L	-0.0121	ppb	16:36:15

2	P 214.914†	32.4	4.2	8.3967 µg/L	8.3967 ppb		16:36:15
2	Pb 220.353†	37.4	-1.9	-0.7270 µg/L	-0.7270 ppb		16:36:15
2	S 181.975 Axial†	38.4	-12.5	-40.210 µg/L	-40.210 ppb		16:36:15
2	Sb 206.836†	1.8	-2.1	-3.3360 µg/L	-3.3360 ppb		16:36:15
2	Se 196.026†	2.7	-1.3	-3.13 µg/L	-3.13 ppb		16:36:15
2	SiO2†	737.1	-14.9	-4.2600 µg/L	-4.2600 ppb		16:35:55
2	Si 251.611†	270.9	-10.8	-0.7497 µg/L	-0.7497 ppb		16:36:15
2	Sn 189.927†	-30.7	-5.6	-2.4892 µg/L	-2.4892 ppb		16:36:15
2	Ti 334.940†	-201.1	-98.0	-0.4884 µg/L	-0.4884 ppb		16:35:55
2	Tl 190.801†	-3.6	-8.7	-8.4261 µg/L	-8.4261 ppb		16:36:15
2	U 367.007†	-133.9	2.8	1.5252 µg/L	1.5252 ppb		16:35:55
2	V 292.402†	157.1	12.6	0.1972 µg/L	0.1972 ppb		16:35:55
2	Zn 213.857†	255.7	-1.5	-0.0474 µg/L	-0.0474 ppb		16:36:15
3	Sc RADIAL	5067.6	5067.6	103 %			16:35:10
3	Al 396.153Radial†	-89.3	10.7	18.333 µg/L	18.333 ppb		16:35:10
3	Ca 317.933Radial†	72.7	11.2	9.0368 µg/L	9.0368 ppb		16:35:30
3	Fe 238.204 Radial†	38.4	0.7	1.6350 µg/L	1.6350 ppb		16:35:30
3	K 766.490 Radial†	-64.0	15.3	15.984 µg/L	15.984 ppb		16:35:10
3	Mg 279.077 IEC†	-7.8	5.9	57.514 µg/L	57.514 ppb		16:35:30
3	Na 589.592 Radial†	666.2	-108.4	-40.959 µg/L	-40.959 ppb		16:35:10
3	Sr 421.552†	165.3	3.4	0.0370 µg/L	0.0370 ppb		16:35:10
3	Sc	412383.2	412383.2	102.6 %			16:36:17
3	Y 371.029	327241.7	327241.7	102.32 %			16:36:17
3	Sc 357.253	263699.3	263699.3	102.7 %			16:36:17
3	Ag 328.068†	-549.6	-45.6	-0.4761 µg/L	-0.4761 ppb		16:36:17
3	As 188.979†	6.2	1.3	2.7099 µg/L	2.7099 ppb		16:36:37
3	B 249.677†	544.3	21.2	0.8444 µg/L	0.8444 ppb		16:36:17
3	Ba 233.527†	-60.7	-5.8	-0.1045 µg/L	-0.1045 ppb		16:36:37
3	Be 313.107†	-2191.2	87.8	0.0544 µg/L	0.0544 ppb		16:36:17
3	Cd 226.502†	-195.5	-11.2	-0.1277 µg/L	-0.1277 ppb		16:36:37
3	Co 228.616†	-49.2	5.7	0.5830 µg/L	0.5830 ppb		16:36:37
3	Cr 267.716†	181.1	13.6	0.1897 µg/L	0.1897 ppb		16:36:17
3	Cu 324.752†	2000.1	-206.3	-2.0758 µg/L	-2.0758 ppb		16:36:17
3	Mn 257.610†	-127.2	19.8	0.0701 µg/L	0.0701 ppb		16:36:37
3	Mo 202.031†	-44.0	-2.6	-0.3175 µg/L	-0.3175 ppb		16:36:37
3	Ni 231.604†	7.0	-0.4	-0.0272 µg/L	-0.0272 ppb		16:36:37
3	P 214.914†	14.4	-13.5	-26.674 µg/L	-26.674 ppb		16:36:37
3	Pb 220.353†	29.5	-9.8	-3.7274 µg/L	-3.7274 ppb		16:36:37
3	S 181.975 Axial†	42.3	-8.9	-28.511 µg/L	-28.511 ppb		16:36:37
3	Sb 206.836†	9.1	5.1	8.0601 µg/L	8.0601 ppb		16:36:37
3	Se 196.026†	1.8	-2.2	-5.12 µg/L	-5.12 ppb		16:36:37
3	SiO2†	709.2	-45.9	-13.121 µg/L	-13.121 ppb		16:36:17
3	Si 251.611†	273.9	-9.3	-0.6446 µg/L	-0.6446 ppb		16:36:37
3	Sn 189.927†	-24.4	0.7	0.2873 µg/L	0.2873 ppb		16:36:37
3	Ti 334.940†	-210.3	-105.9	-0.5281 µg/L	-0.5281 ppb		16:36:17
3	Tl 190.801†	4.4	-0.9	-0.9041 µg/L	-0.9041 ppb		16:36:37
3	U 367.007†	-182.3	-43.6	-23.708 µg/L	-23.708 ppb		16:36:17
3	V 292.402†	181.6	35.6	0.5557 µg/L	0.5557 ppb		16:36:17
3	Zn 213.857†	252.0	-6.5	-0.2199 µg/L	-0.2199 ppb		16:36:37

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc	412431.6	102.6	%	0.42				0.41%
Sc RADIAL	5082.0	103	%	0.9				0.91%
Y 371.029	329142.5	102.91	%	0.839				0.82%
Sc 357.253	263480.1	102.6	%	0.42				0.41%
Ag 328.068†	41.4	0.4565	µg/L	0.80924	0.4565	ppb	0.80924	177.29%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153Radial†	7.6	13.076	µg/L	65.4649	13.076	ppb	65.4649	500.64%
QC value within limits for Al 396.153Radial Recovery = Not calculated								
As 188.979†	1.6	3.2566	µg/L	4.92432	3.2566	ppb	4.92432	151.21%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	-23.4	-0.9353	µg/L	1.84804	-0.9353	ppb	1.84804	197.59%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 233.527†	-1.8	-0.0317	µg/L	0.06307	-0.0317	ppb	0.06307	198.79%
QC value within limits for Ba 233.527 Recovery = Not calculated								
Be 313.107†	123.9	0.0772	µg/L	0.06765	0.0772	ppb	0.06765	87.63%
QC value within limits for Be 313.107 Recovery = Not calculated								
Ca 317.933Radial†	12.3	9.9145	µg/L	1.03350	9.9145	ppb	1.03350	10.42%

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   QC value within limits for Ca 317.933Radial  Recovery = Not calculated
Cd 226.502†              -0.9     -0.0107 µg/L       0.10299     -0.0107 ppb        0.10299 966.96%
   QC value within limits for Cd 226.502  Recovery = Not calculated
Co 228.616†               2.6      0.2690 µg/L       0.27957      0.2690 ppb        0.27957 103.93%
   QC value within limits for Co 228.616  Recovery = Not calculated
Cr 267.716†               7.4      0.1029 µg/L       0.30732      0.1029 ppb        0.30732 298.68%
   QC value within limits for Cr 267.716  Recovery = Not calculated
Cu 324.752†            -162.7     -1.6241 µg/L       0.46888     -1.6241 ppb        0.46888  28.87%
   QC value within limits for Cu 324.752  Recovery = Not calculated
Fe 238.204 Radial†        0.7      1.5518 µg/L       0.97749      1.5518 ppb        0.97749  62.99%
   QC value within limits for Fe 238.204 Radial  Recovery = Not calculated
K 766.490 Radial†       -61.1     -63.692 µg/L       72.2764     -63.692 ppb        72.2764 113.48%
   QC value within limits for K 766.490 Radial  Recovery = Not calculated
Mg 279.077 IEC†           3.1      30.266 µg/L       61.4850      30.266 ppb        61.4850 203.15%
   QC value within limits for Mg 279.077 IEC  Recovery = Not calculated
Mn 257.610†              23.5      0.0845 µg/L       0.02831      0.0845 ppb        0.02831  33.52%
   QC value within limits for Mn 257.610  Recovery = Not calculated
Mo 202.031†               1.9      0.2287 µg/L       1.22661      0.2287 ppb        1.22661 536.24%
   QC value within limits for Mo 202.031  Recovery = Not calculated
Na 589.592 Radial†      -44.5     -16.824 µg/L       36.3986     -16.824 ppb        36.3986 216.34%
   QC value within limits for Na 589.592 Radial  Recovery = Not calculated
Ni 231.604†               1.9      0.1253 µg/L       0.25108      0.1253 ppb        0.25108 200.45%
   QC value within limits for Ni 231.604  Recovery = Not calculated
P 214.914†               -5.2     -10.173 µg/L       17.6267     -10.173 ppb        17.6267 173.28%
   QC value within limits for P 214.914  Recovery = Not calculated
Pb 220.353†              -6.1      -2.3247 µg/L       1.50968     -2.3247 ppb        1.50968  64.94%
   QC value within limits for Pb 220.353  Recovery = Not calculated
S 181.975 Axial†        -10.4     -33.240 µg/L        6.1628     -33.240 ppb         6.1628  18.54%
   QC value within limits for S 181.975 Axial  Recovery = Not calculated
Sb 206.836†               3.2      5.0608 µg/L       7.37010      5.0608 ppb        7.37010 145.63%
   QC value within limits for Sb 206.836  Recovery = Not calculated
Se 196.026†              -1.2       -2.88 µg/L         2.373       -2.88 ppb          2.373  82.41%
   QC value within limits for Se 196.026  Recovery = Not calculated
SiO2†                   -24.6     -7.0217 µg/L       5.29029     -7.0217 ppb        5.29029  75.34%
   QC value within limits for SiO2  Recovery = Not calculated
Si 251.611†              -8.2     -0.5678 µg/L       0.23003     -0.5678 ppb        0.23003  40.51%
   QC value within limits for Si 251.611  Recovery = Not calculated
Sn 189.927†              -1.3     -0.5955 µg/L       1.64120     -0.5955 ppb        1.64120 275.59%
   QC value within limits for Sn 189.927  Recovery = Not calculated
Sr 421.552†              18.3      0.1977 µg/L       0.40445      0.1977 ppb        0.40445 204.59%
   QC value within limits for Sr 421.552  Recovery = Not calculated
Ti 334.940†             -97.0     -0.4835 µg/L       0.04729     -0.4835 ppb        0.04729   9.78%
   QC value within limits for Ti 334.940  Recovery = Not calculated
Tl 190.801†              -5.5     -5.2714 µg/L       3.90485     -5.2714 ppb        3.90485  74.08%
   QC value within limits for Tl 190.801  Recovery = Not calculated
U 367.007†               -1.6     -0.8796 µg/L      21.72623     -0.8796 ppb       21.72623 >999.9%
   QC value within limits for U 367.007  Recovery = Not calculated
V 292.402†               66.4      1.0606 µg/L       1.19844      1.0606 ppb        1.19844 113.00%
   QC value within limits for V 292.402  Recovery = Not calculated
Zn 213.857†              -3.3     -0.1141 µg/L       0.09268     -0.1141 ppb        0.09268  81.22%
   QC value within limits for Zn 213.857  Recovery = Not calculated
All analyte(s) passed QC.
```

==========

Analysis Begun

Logged In Analyst: lab **Technique: AA FIMS-MHS**
Spectrometer Model: FIMS-100, S/N B050-9550 **Autosampler Model: S10**

Sample Information File: C:\data-AA\Administrator\Sample Information\110916.sif
Batch ID:
Results Data Set: 111016S1
Results Library: C:\data-AA\Administrator\Results\Results.mdb

==========

Method Loaded
Method Name: SOILMTM1 **Method Last Saved: 11/9/2016 15:34:58**
Method Description: SW-846 7471A ANALYST MTM1

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: Calib Blank **Date Collected: 11/10/2016 10:37:48**
Analyst: **Data Type: Original**

Replicate Data: Calib Blank

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0017	0.0047	0.0017	10:38:39	Yes
2		[0.00]	0.0016	0.0045	0.0016	10:39:09	Yes
Mean:		[0.00]	0.0016				
SD:		0.00	0.0001				
%RSD:		0.00	6.33				

Auto-zero performed.

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.2 **Date Collected: 11/10/2016 10:39:27**
Analyst: **Data Type: Original**

Replicate Data: S0.2

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0023	0.0174	0.0040	10:40:18	Yes
2		[0.2]	0.0025	0.0166	0.0041	10:40:48	Yes
Mean:		[0.2]	0.0024				
SD:		0.0	0.0001				
%RSD:		0.0	4.72				

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.01200 Intercept: 0.00000

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 11/10/2016 10:41:07**
Analyst: **Data Type: Original**

Replicate Data: S0.5

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0063	0.0375	0.0080	10:41:58	Yes
2		[0.5]	0.0063	0.0363	0.0079	10:42:28	Yes
Mean:		[0.5]	0.0063				
SD:		0.0	0.0000				
%RSD:		0.0	0.59				

Standard number 2 applied. [0.5]
Correlation Coef.: 0.999798 Slope: 0.01259 Intercept: -0.00004

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: S2.0 **Date Collected: 11/10/2016 10:42:48**
Analyst: **Data Type: Original**

Replicate Data: S2.0

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0257	0.1285	0.0273	10:43:39	Yes
2		[2.0]	0.0255	0.1267	0.0272	10:44:09	Yes
Mean:		[2.0]	0.0256				
SD:		0.0	0.0001				
%RSD:		0.0	0.32				

Standard number 3 applied. [2.0]
Correlation Coef.: 0.999980 Slope: 0.01284 Intercept: -0.00010

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S5.0 **Date Collected: 11/10/2016 10:44:29**
Analyst: **Data Type: Original**

Replicate Data: S5.0

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.0625	0.3074	0.0642	10:45:21	Yes
2		[5.0]	0.0632	0.3077	0.0649	10:45:51	Yes
Mean:		[5.0]	0.0629				
SD:		0.0	0.0005				
%RSD:		0.0	0.78				

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999966 Slope: 0.01259 Intercept: 0.00003

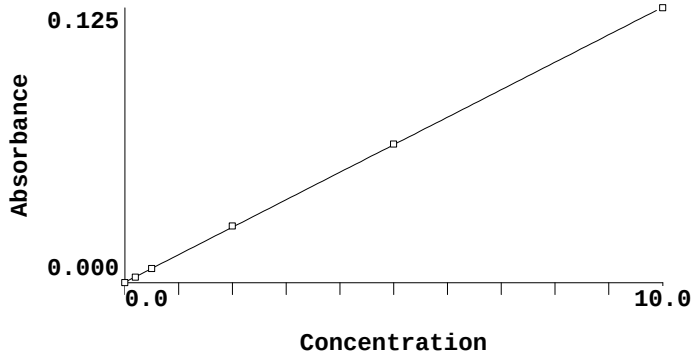
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: S10.0 **Date Collected: 11/10/2016 10:46:11**
Analyst: **Data Type: Original**

Replicate Data: S10.0

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.1246	0.6023	0.1262	10:47:02	Yes
2		[10.0]	0.1249	0.6014	0.1266	10:47:32	Yes
Mean:		[10.0]	0.1248				
SD:		0.0	0.0003				
%RSD:		0.0	0.21				

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999981 Slope: 0.01248 Intercept: 0.00016



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
Calib Blank	0.0000	0	-0.013	0.00	6.3
S0.2	0.0024	0.2	0.180	0.00	4.7
S0.5	0.0063	0.5	0.490	0.00	0.6
S2.0	0.0256	2.0	2.038	0.00	0.3

S5.0	0.0629	5.0	5.024	0.00	0.8
S10.0	0.1248	10.0	9.982	0.00	0.2

Correlation Coef.: 0.999981 Slope: 0.01248 Intercept: 0.00016

==========

Sequence No.: 7 **Autosampler Location: 9**
Sample ID: ICV **Date Collected: 11/10/2016 10:47:51**
Analyst: **Data Type: Original**

Replicate Data: ICV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.028	5.028	0.0629	0.3090	0.0646	10:48:42	Yes
2	5.047	5.047	0.0632	0.3061	0.0648	10:49:12	Yes
Mean:	5.038	5.038	0.0630				
SD:	0.014	0.014	0.0002				
%RSD:	0.272	0.272	0.27				

QC value within limits for Hg 253.7 Recovery = 100.75%
All analyte(s) passed QC.

==========

Sequence No.: 8 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 11/10/2016 10:49:31**
Analyst: **Data Type: Original**

Replicate Data: ICB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.020	-0.020	-0.0001	0.0071	0.0016	10:50:23	Yes
2	-0.022	-0.022	-0.0001	0.0071	0.0015	10:50:53	Yes
Mean:	-0.021	-0.021	-0.0001				
SD:	0.001	0.001	0.0000				
%RSD:	6.731	6.731	17.75				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 9 **Autosampler Location: 11**
Sample ID: CRDL **Date Collected: 11/10/2016 10:51:13**
Analyst: **Data Type: Original**

Replicate Data: CRDL

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.162	0.162	0.0022	0.0179	0.0038	10:52:04	Yes
2	0.159	0.159	0.0021	0.0175	0.0038	10:52:34	Yes
Mean:	0.160	0.160	0.0022				
SD:	0.002	0.002	0.0000				
%RSD:	1.431	1.431	1.33				

QC value within limits for Hg 253.7 Recovery = 80.11%
All analyte(s) passed QC.

==========

Sequence No.: 10 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 10:52:54**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.950	4.950	0.0619	0.3039	0.0636	10:53:44	Yes
2	4.970	4.970	0.0622	0.3019	0.0638	10:54:15	Yes
Mean:	4.960	4.960	0.0621				
SD:	0.014	0.014	0.0002				
%RSD:	0.281	0.281	0.28				

QC value within limits for Hg 253.7 Recovery = 99.20%
All analyte(s) passed QC.

==========

Sequence No.: 11 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 10:54:34**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.037	-0.037	-0.0003	0.0055	0.0013	10:55:25	Yes
2	-0.041	-0.041	-0.0003	0.0049	0.0013	10:55:55	Yes
Mean:	-0.039	-0.039	-0.0003				
SD:	0.002	0.002	0.0000				
%RSD:	5.684	5.684	8.46				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.
User canceled analysis.

Replicate Data: 409107040|1614660|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.825	0.825	0.0105	0.0581	0.0121	11:16:39	Yes
2	0.822	0.822	0.0104	0.0576	0.0121	11:17:09	Yes
Mean:	0.824	0.824	0.0104				
SD:	0.002	0.002	0.0000				
%RSD:	0.197	0.197	0.19				

==========

Sequence No.: 10 **Autosampler Location: 21**
Sample ID: 409825007|1614660|1 **Date Collected: 11/10/2016 11:17:29**
Analyst: MTM **Data Type: Original**

Replicate Data: 409825007|1614660|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.001	0.001	0.0002	0.0086	0.0018	11:18:20	Yes
2	-0.006	-0.006	0.0001	0.0074	0.0017	11:18:50	Yes
Mean:	-0.003	-0.003	0.0001				
SD:	0.005	0.005	0.0001				
%RSD:	204.6	204.6	53.25				

==========

Sequence No.: 11 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 11:19:10**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.019	5.019	0.0628	0.3065	0.0645	11:20:00	Yes
2	4.915	4.915	0.0615	0.2989	0.0632	11:20:30	Yes
Mean:	4.967	4.967	0.0622				
SD:	0.074	0.074	0.0009				
%RSD:	1.481	1.481	1.48				

QC value within limits for Hg 253.7 Recovery = 99.35%
All analyte(s) passed QC.

==========

Sequence No.: 12 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 11:20:49**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.047	-0.047	-0.0004	0.0046	0.0012	11:21:40	Yes
2	-0.038	-0.038	-0.0003	0.0057	0.0013	11:22:10	Yes
Mean:	-0.043	-0.043	-0.0004				
SD:	0.006	0.006	0.0001				
%RSD:	14.03	14.03	20.01				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 13 **Autosampler Location: 22**
Sample ID: 409825008|1614660|1 **Date Collected: 11/10/2016 11:22:29**
Analyst: MTM **Data Type: Original**

Replicate Data: 409825008|1614660|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.020	-0.020	-0.0001	0.0067	0.0016	11:23:21	Yes
2	-0.019	-0.019	-0.0001	0.0067	0.0016	11:23:51	Yes
Mean:	-0.019	-0.019	-0.0001				

SD:	0.000	0.000	0.0000
%RSD:	2.372	2.372	6.99

==========

Sequence No.: 14 **Autosampler Location: 23**
Sample ID: 409825009|1614660|1 **Date Collected: 11/10/2016 11:24:11**
Analyst: MTM **Data Type: Original**

Replicate Data: 409825009|1614660|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.005	-0.005	0.0001	0.0075	0.0017	11:25:02	Yes
2	-0.010	-0.010	0.0000	0.0075	0.0017	11:25:32	Yes
Mean:	-0.007	-0.007	0.0001				
SD:	0.004	0.004	0.0000				
%RSD:	51.71	51.71	72.04				

==========

Sequence No.: 15 **Autosampler Location: 24**
Sample ID: 409825012|1614660|1 **Date Collected: 11/10/2016 11:25:52**
Analyst: MTM **Data Type: Original**

Replicate Data: 409825012|1614660|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.086	0.086	0.0012	0.0129	0.0029	11:26:44	Yes
2	0.084	0.084	0.0012	0.0133	0.0029	11:27:14	Yes
Mean:	0.085	0.085	0.0012				
SD:	0.001	0.001	0.0000				
%RSD:	1.291	1.291	1.12				

==========

Sequence No.: 16 **Autosampler Location: 25**
Sample ID: 410106001|1614660|1 **Date Collected: 11/10/2016 11:27:34**
Analyst: MTM **Data Type: Original**

Replicate Data: 410106001|1614660|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.376	0.376	0.0049	0.0304	0.0065	11:28:26	Yes
2	0.373	0.373	0.0048	0.0305	0.0065	11:28:56	Yes
Mean:	0.375	0.375	0.0048				
SD:	0.002	0.002	0.0000				
%RSD:	0.617	0.617	0.60				

==========

Sequence No.: 17 **Autosampler Location: 26**
Sample ID: 1203666305|1614669|1 **Date Collected: 11/10/2016 11:29:16**
Analyst: MTM **Data Type: Original**

Replicate Data: 1203666305|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.054	-0.054	-0.0005	0.0052	0.0011	11:30:07	Yes
2	-0.056	-0.056	-0.0005	0.0050	0.0011	11:30:37	Yes
Mean:	-0.055	-0.055	-0.0005				
SD:	0.002	0.002	0.0000				
%RSD:	3.249	3.249	4.23				

==========

Sequence No.: 18 **Autosampler Location: 27**
Sample ID: 1203666306|1614669|1 **Date Collected: 11/10/2016 11:30:56**
Analyst: MTM **Data Type: Original**

Replicate Data: 1203666306|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored

#	ug/L	ug/L	Signal	Area	Height		Stored
1	2.077	2.077	0.0261	0.1325	0.0277	11:31:47	Yes
2	2.085	2.085	0.0262	0.1312	0.0278	11:32:17	Yes
Mean:	2.081	2.081	0.0261				
SD:	0.006	0.006	0.0001				
%RSD:	0.272	0.272	0.27				

==========

Sequence No.: 19 **Autosampler Location: 28**
Sample ID: 409254011|1614669|1 **Date Collected: 11/10/2016 11:32:36**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254011|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.188	0.188	0.0025	0.0193	0.0042	11:33:27	Yes
2	0.187	0.187	0.0025	0.0195	0.0041	11:33:57	Yes
Mean:	0.188	0.188	0.0025				
SD:	0.000	0.000	0.0000				
%RSD:	0.193	0.193	0.18				

==========

Sequence No.: 20 **Autosampler Location: 29**
Sample ID: 1203666307|1614669|1 **Date Collected: 11/10/2016 11:34:16**
Analyst: MTM **Data Type: Original**

Replicate Data: 1203666307|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.154	0.154	0.0021	0.0177	0.0037	11:35:07	Yes
2	0.150	0.150	0.0020	0.0173	0.0037	11:35:37	Yes
Mean:	0.152	0.152	0.0021				
SD:	0.003	0.003	0.0000				
%RSD:	1.743	1.743	1.61				

==========

Sequence No.: 21 **Autosampler Location: 30**
Sample ID: 1203666308|1614669|1 **Date Collected: 11/10/2016 11:35:56**
Analyst: MTM **Data Type: Original**

Replicate Data: 1203666308|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.338	2.338	0.0293	0.1487	0.0310	11:36:47	Yes
2	2.298	2.298	0.0288	0.1461	0.0305	11:37:16	Yes
Mean:	2.318	2.318	0.0291				
SD:	0.028	0.028	0.0003				
%RSD:	1.203	1.203	1.20				

==========

Sequence No.: 22 **Autosampler Location: 31**
Sample ID: 1203666309|1614669|5 **Date Collected: 11/10/2016 11:37:36**
Analyst: MTM **Data Type: Original**

Replicate Data: 1203666309|1614669|5

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.014	-0.014	-0.0000	0.0075	0.0016	11:38:27	Yes
2	-0.009	-0.009	0.0000	0.0070	0.0017	11:38:57	Yes
Mean:	-0.011	-0.011	0.0000				
SD:	0.003	0.003	0.0000				
%RSD:	28.80	28.80	221.13				

==========

Sequence No.: 23 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 11:39:16**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.899	4.899	0.0613	0.3030	0.0630	11:40:07	Yes
2	4.830	4.830	0.0605	0.2953	0.0621	11:40:37	Yes
Mean:	4.864	4.864	0.0609				
SD:	0.048	0.048	0.0006				
%RSD:	0.997	0.997	0.99				

QC value within limits for Hg 253.7 Recovery = 97.29%
All analyte(s) passed QC.

==========

Sequence No.: 24 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 11:40:56**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.049	-0.049	-0.0004	0.0054	0.0012	11:41:47	Yes
2	-0.049	-0.049	-0.0005	0.0051	0.0012	11:42:17	Yes
Mean:	-0.049	-0.049	-0.0005				
SD:	0.000	0.000	0.0000				
%RSD:	0.595	0.595	0.80				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 25 **Autosampler Location: 32**
Sample ID: 1203666310|1614669|1 **Date Collected: 11/10/2016 11:42:37**
Analyst: MTM **Data Type: Original**

Replicate Data: 1203666310|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.385	2.385	0.0299	0.1507	0.0316	11:43:28	Yes
2	2.387	2.387	0.0300	0.1498	0.0316	11:43:58	Yes
Mean:	2.386	2.386	0.0299				
SD:	0.001	0.001	0.0000				
%RSD:	0.057	0.057	0.06				

==========

Sequence No.: 26 **Autosampler Location: 33**
Sample ID: 409254012|1614669|1 **Date Collected: 11/10/2016 11:44:18**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254012|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.437	0.437	0.0056	0.0345	0.0073	11:45:09	Yes
2	0.433	0.433	0.0056	0.0341	0.0072	11:45:39	Yes
Mean:	0.435	0.435	0.0056				
SD:	0.003	0.003	0.0000				
%RSD:	0.708	0.708	0.69				

==========

Sequence No.: 27 **Autosampler Location: 34**
Sample ID: 409254013|1614669|1 **Date Collected: 11/10/2016 11:45:59**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254013|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.367	0.367	0.0047	0.0304	0.0064	11:46:50	Yes
2	0.370	0.370	0.0048	0.0305	0.0064	11:47:20	Yes

Mean:	0.368	0.368	0.0048
SD:	0.003	0.003	0.0000
%RSD:	0.695	0.695	0.67

==========

Sequence No.: 28 **Autosampler Location: 35**
Sample ID: 409254014|1614669|1 **Date Collected: 11/10/2016 11:47:40**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254014|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.454	0.454	0.0058	0.0357	0.0075	11:48:32	Yes
2	0.445	0.445	0.0057	0.0356	0.0074	11:49:02	Yes
Mean:	0.450	0.450	0.0058				
SD:	0.006	0.006	0.0001				
%RSD:	1.427	1.427	1.39				

==========

Sequence No.: 29 **Autosampler Location: 36**
Sample ID: 409254015|1614669|1 **Date Collected: 11/10/2016 11:49:22**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254015|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.385	0.385	0.0050	0.0310	0.0066	11:50:14	Yes
2	0.374	0.374	0.0048	0.0310	0.0065	11:50:44	Yes
Mean:	0.379	0.379	0.0049				
SD:	0.007	0.007	0.0001				
%RSD:	1.963	1.963	1.90				

==========

Sequence No.: 30 **Autosampler Location: 37**
Sample ID: 409254016|1614669|1 **Date Collected: 11/10/2016 11:51:04**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254016|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.441	0.441	0.0057	0.0353	0.0073	11:51:56	Yes
2	0.440	0.440	0.0056	0.0349	0.0073	11:52:26	Yes
Mean:	0.441	0.441	0.0057				
SD:	0.001	0.001	0.0000				
%RSD:	0.250	0.250	0.24				

==========

Sequence No.: 31 **Autosampler Location: 38**
Sample ID: 409254017|1614669|1 **Date Collected: 11/10/2016 11:52:46**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254017|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.382	0.382	0.0049	0.0315	0.0066	11:53:37	Yes
2	0.378	0.378	0.0049	0.0306	0.0065	11:54:07	Yes
Mean:	0.380	0.380	0.0049				
SD:	0.003	0.003	0.0000				
%RSD:	0.794	0.794	0.77				

==========

Sequence No.: 32 **Autosampler Location: 39**
Sample ID: 409254018|1614669|1 **Date Collected: 11/10/2016 11:54:27**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254018|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.412	0.412	0.0053	0.0331	0.0070	11:55:18	Yes
2	0.406	0.406	0.0052	0.0327	0.0069	11:55:48	Yes
Mean:	0.409	0.409	0.0053				
SD:	0.005	0.005	0.0001				
%RSD:	1.133	1.133	1.10				

==========

Sequence No.: 33 **Autosampler Location: 40**
Sample ID: 409254019|1614669|1 **Date Collected: 11/10/2016 11:56:08**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254019|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.330	0.330	0.0043	0.0278	0.0059	11:56:59	Yes
2	0.318	0.318	0.0041	0.0277	0.0058	11:57:29	Yes
Mean:	0.324	0.324	0.0042				
SD:	0.008	0.008	0.0001				
%RSD:	2.450	2.450	2.36				

==========

Sequence No.: 34 **Autosampler Location: 41**
Sample ID: 409254020|1614669|1 **Date Collected: 11/10/2016 11:57:49**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254020|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.619	0.619	0.0079	0.0455	0.0095	11:58:40	Yes
2	0.619	0.619	0.0079	0.0453	0.0095	11:59:10	Yes
Mean:	0.619	0.619	0.0079				
SD:	0.000	0.000	0.0000				
%RSD:	0.010	0.010	0.01				

==========

Sequence No.: 35 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 11:59:29**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.850	4.850	0.0607	0.2989	0.0623	12:00:20	Yes
2	4.860	4.860	0.0608	0.2973	0.0625	12:00:50	Yes
Mean:	4.855	4.855	0.0608				
SD:	0.008	0.008	0.0001				
%RSD:	0.155	0.155	0.15				

QC value within limits for Hg 253.7 Recovery = 97.10%
All analyte(s) passed QC.

==========

Sequence No.: 36 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 12:01:09**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.046	-0.046	-0.0004	0.0053	0.0012	12:01:59	Yes
2	-0.047	-0.047	-0.0004	0.0055	0.0012	12:02:29	Yes
Mean:	-0.047	-0.047	-0.0004				
SD:	0.000	0.000	0.0000				
%RSD:	0.330	0.330	0.46				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

Sequence No.: 37 **Autosampler Location: 42**
Sample ID: 409254022|1614669|1 **Date Collected: 11/10/2016 12:02:49**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254022|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.424	0.424	0.0055	0.0340	0.0071	12:03:40	Yes
2	0.421	0.421	0.0054	0.0335	0.0071	12:04:10	Yes
Mean:	0.423	0.423	0.0054				
SD:	0.002	0.002	0.0000				
%RSD:	0.463	0.463	0.45				

Sequence No.: 38 **Autosampler Location: 43**
Sample ID: 409254024|1614669|1 **Date Collected: 11/10/2016 12:04:29**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254024|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.370	0.370	0.0048	0.0302	0.0064	12:05:20	Yes
2	0.378	0.378	0.0049	0.0306	0.0065	12:05:50	Yes
Mean:	0.374	0.374	0.0048				
SD:	0.006	0.006	0.0001				
%RSD:	1.480	1.480	1.43				

Sequence No.: 39 **Autosampler Location: 44**
Sample ID: 409254029|1614669|1 **Date Collected: 11/10/2016 12:06:10**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254029|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.537	0.537	0.0069	0.0402	0.0085	12:07:01	Yes
2	0.536	0.536	0.0069	0.0407	0.0085	12:07:31	Yes
Mean:	0.537	0.537	0.0069				
SD:	0.000	0.000	0.0000				
%RSD:	0.068	0.068	0.07				

Sequence No.: 40 **Autosampler Location: 45**
Sample ID: 409254032|1614669|1 **Date Collected: 11/10/2016 12:07:50**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254032|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.256	0.256	0.0034	0.0238	0.0050	12:08:41	Yes
2	0.258	0.258	0.0034	0.0237	0.0050	12:09:11	Yes
Mean:	0.257	0.257	0.0034				
SD:	0.002	0.002	0.0000				
%RSD:	0.648	0.648	0.62				

Sequence No.: 41 **Autosampler Location: 46**
Sample ID: 409254034|1614669|1 **Date Collected: 11/10/2016 12:09:31**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254034|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.404	0.404	0.0052	0.0323	0.0069	12:10:22	Yes

2	0.396	0.396	0.0051	0.0317	0.0067	12:10:53	Yes
Mean:	0.400	0.400	0.0052				
SD:	0.006	0.006	0.0001				
%RSD:	1.509	1.509	1.46				

==========

Sequence No.: 42 **Autosampler Location: 47**
Sample ID: 409254036|1614669|1 **Date Collected: 11/10/2016 12:11:13**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254036|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.211	0.211	0.0028	0.0209	0.0044	12:12:04	Yes
2	0.207	0.207	0.0027	0.0208	0.0044	12:12:35	Yes
Mean:	0.209	0.209	0.0028				
SD:	0.003	0.003	0.0000				
%RSD:	1.415	1.415	1.33				

==========

Sequence No.: 43 **Autosampler Location: 48**
Sample ID: 409254038|1614669|1 **Date Collected: 11/10/2016 12:12:55**
Analyst: MTM **Data Type: Original**

Replicate Data: 409254038|1614669|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.011	0.011	0.0003	0.0092	0.0019	12:13:47	Yes
2	0.007	0.007	0.0002	0.0088	0.0019	12:14:17	Yes
Mean:	0.009	0.009	0.0003				
SD:	0.003	0.003	0.0000				
%RSD:	35.25	35.25	14.67				

==========

Sequence No.: 44 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 12:14:37**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.763	4.763	0.0596	0.2930	0.0613	12:15:27	Yes
2	4.813	4.813	0.0602	0.2956	0.0619	12:15:58	Yes
Mean:	4.788	4.788	0.0599				
SD:	0.035	0.035	0.0004				
%RSD:	0.732	0.732	0.73				

QC value within limits for Hg 253.7 Recovery = 95.76%
All analyte(s) passed QC.

==========

Sequence No.: 45 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 12:16:17**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.052	-0.052	-0.0005	0.0052	0.0012	12:17:08	Yes
2	-0.054	-0.054	-0.0005	0.0052	0.0011	12:17:38	Yes
Mean:	-0.053	-0.053	-0.0005				
SD:	0.001	0.001	0.0000				
%RSD:	2.167	2.167	2.86				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Analysis Begun

Logged In Analyst: lab **Technique: AA FIMS-MHS**
Spectrometer Model: FIMS-100, S/N B050-9550 **Autosampler Model: S10**

Sample Information File: C:\data-AA\lab\Sample Information\110916.SIF
Batch ID:
Results Data Set: 111016W1
Results Library: C:\data-AA\lab\Results\Results.mdb

==========

Method Loaded
Method Name: WATERbyv **Method Last Saved: 11/9/2016 16:32:03**
Method Description: SW-846 7470A, EPA 245.1 ANALYST MTM

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: Calib Blank **Date Collected: 11/10/2016 10:39:17**
Analyst: **Data Type: Original**

Replicate Data: Calib Blank

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0007	0.0048	0.0007	10:40:08	Yes
2		[0.00]	0.0006	0.0040	0.0006	10:40:38	Yes
Mean:		[0.00]	0.0007				
SD:		0.00	0.0001				
%RSD:		0.00	8.91				

Auto-zero performed.

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: S0.2 **Date Collected: 11/10/2016 10:40:57**
Analyst: **Data Type: Original**

Replicate Data: S0.2

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0024	0.0173	0.0030	10:41:48	Yes
2		[0.2]	0.0023	0.0172	0.0030	10:42:18	Yes
Mean:		[0.2]	0.0023				
SD:		0.0	0.0000				
%RSD:		0.0	0.58				

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.01172 Intercept: 0.00000

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: S0.5 **Date Collected: 11/10/2016 10:42:37**
Analyst: **Data Type: Original**

Replicate Data: S0.5

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0057	0.0374	0.0063	10:43:28	Yes
2		[0.5]	0.0056	0.0369	0.0063	10:43:58	Yes
Mean:		[0.5]	0.0056				
SD:		0.0	0.0000				
%RSD:		0.0	0.81				

Standard number 2 applied. [0.5]
Correlation Coef.: 0.999817 Slope: 0.01122 Intercept: 0.00004

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: S2.0 **Date Collected: 11/10/2016 10:44:18**
Analyst: **Data Type: Original**

Replicate Data: S2.0

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0223	0.1359	0.0230	10:45:09	Yes
2		[2.0]	0.0221	0.1334	0.0228	10:45:40	Yes
Mean:		[2.0]	0.0222				
SD:		0.0	0.0001				
%RSD:		0.0	0.66				

Standard number 3 applied. [2.0]
Correlation Coef.: 0.999986 Slope: 0.01108 Intercept: 0.00007

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: S5.0 **Date Collected: 11/10/2016 10:46:00**
Analyst: **Data Type: Original**

Replicate Data: S5.0

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.0537	0.3244	0.0544	10:46:52	Yes
2		[5.0]	0.0535	0.3214	0.0541	10:47:22	Yes
Mean:		[5.0]	0.0536				
SD:		0.0	0.0002				
%RSD:		0.0	0.34				

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999897 Slope: 0.01071 Intercept: 0.00027

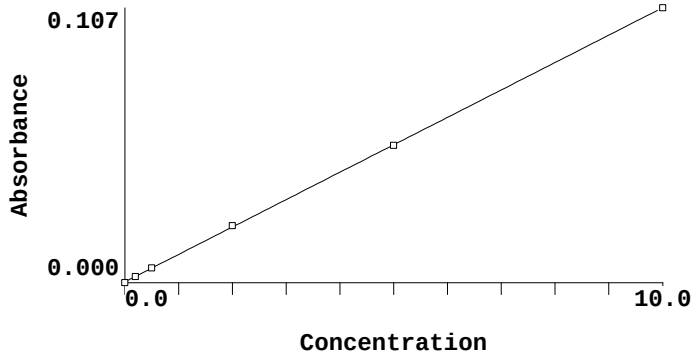
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: S10.0 **Date Collected: 11/10/2016 10:47:42**
Analyst: **Data Type: Original**

Replicate Data: S10.0

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.1076	0.6514	0.1083	10:48:32	Yes
2		[10.0]	0.1070	0.6413	0.1077	10:49:03	Yes
Mean:		[10.0]	0.1073				
SD:		0.0	0.0005				
%RSD:		0.0	0.44				

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999977 Slope: 0.01070 Intercept: 0.00027



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
Calib Blank	0.0000	0	-0.025	0.00	8.9
S0.2	0.0023	0.2	0.194	0.00	0.6
S0.5	0.0056	0.5	0.500	0.00	0.8
S2.0	0.0222	2.0	2.051	0.00	0.7

S5.0	0.0536	5.0	4.981	0.00	0.3
S10.0	0.1073	10.0	9.999	0.00	0.4

Correlation Coef.: 0.999977 Slope: 0.01070 Intercept: 0.00027

==========

Sequence No.: 7 **Autosampler Location: 9**
Sample ID: ICV **Date Collected: 11/10/2016 10:49:22**
Analyst: **Data Type: Original**

Replicate Data: ICV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.027	5.027	0.0541	0.3273	0.0548	10:50:13	Yes
2	4.909	4.909	0.0528	0.3169	0.0535	10:50:43	Yes
Mean:	4.968	4.968	0.0534				
SD:	0.084	0.084	0.0009				
%RSD:	1.688	1.688	1.68				

QC value within limits for Hg 253.7 Recovery = 99.36%
All analyte(s) passed QC.

==========

Sequence No.: 8 **Autosampler Location: 10**
Sample ID: ICB **Date Collected: 11/10/2016 10:51:03**
Analyst: **Data Type: Original**

Replicate Data: ICB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.031	-0.031	-0.0001	0.0032	0.0006	10:51:54	Yes
2	-0.028	-0.028	-0.0000	0.0034	0.0007	10:52:24	Yes
Mean:	-0.030	-0.030	-0.0000				
SD:	0.002	0.002	0.0000				
%RSD:	6.783	6.783	45.41				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 9 **Autosampler Location: 11**
Sample ID: CRDL **Date Collected: 11/10/2016 10:52:44**
Analyst: **Data Type: Original**

Replicate Data: CRDL

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.180	0.180	0.0022	0.0169	0.0029	10:53:36	Yes
2	0.184	0.184	0.0022	0.0173	0.0029	10:54:06	Yes
Mean:	0.182	0.182	0.0022				
SD:	0.003	0.003	0.0000				
%RSD:	1.468	1.468	1.29				

QC value within limits for Hg 253.7 Recovery = 91.00%
All analyte(s) passed QC.

==========

Sequence No.: 10 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 10:54:26**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.961	4.961	0.0534	0.3260	0.0541	10:55:17	Yes
2	4.841	4.841	0.0521	0.3150	0.0528	10:55:47	Yes
Mean:	4.901	4.901	0.0527				
SD:	0.085	0.085	0.0009				
%RSD:	1.735	1.735	1.73				

QC value within limits for Hg 253.7 Recovery = 98.02%
All analyte(s) passed QC.

==========

Sequence No.: 11 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 10:56:06**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.020	-0.020	0.0001	0.0039	0.0007	10:56:57	Yes
2	-0.024	-0.024	0.0000	0.0036	0.0007	10:57:27	Yes
Mean:	-0.022	-0.022	0.0000				
SD:	0.003	0.003	0.0000				
%RSD:	12.54	12.54	78.72				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 12 **Autosampler Location: 99**
Sample ID: 1203665505|1614345|1 **Date Collected: 11/10/2016 10:57:47**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203665505|1614345|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.089	-0.089	-0.0007	-0.0002	0.0000	10:58:39	Yes
2	-0.088	-0.088	-0.0007	-0.0000	0.0000	10:59:09	Yes
Mean:	-0.088	-0.088	-0.0007				
SD:	0.001	0.001	0.0000				
%RSD:	0.692	0.692	0.97				

==========

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 10:59:29**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.921	4.921	0.0529	0.3228	0.0536	11:00:20	Yes
2	4.852	4.852	0.0522	0.3164	0.0529	11:00:49	Yes
Mean:	4.887	4.887	0.0526				
SD:	0.049	0.049	0.0005				
%RSD:	1.000	1.000	0.99				

QC value within limits for Hg 253.7 Recovery = 97.73%
All analyte(s) passed QC.

==========

Sequence No.: 14 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 11:01:08**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.027	-0.027	-0.0000	0.0034	0.0007	11:01:59	Yes
2	-0.030	-0.030	-0.0001	0.0032	0.0006	11:02:29	Yes
Mean:	-0.029	-0.029	-0.0000				
SD:	0.002	0.002	0.0000				
%RSD:	8.688	8.688	71.08				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

#	ug/L	ug/L	Signal	Area	Height		Stored
1	2.056	2.056	0.0223	0.1363	0.0230	13:28:52	Yes
2	2.030	2.030	0.0220	0.1330	0.0227	13:29:22	Yes
Mean:	2.043	2.043	0.0221				
SD:	0.018	0.018	0.0002				
%RSD:	0.891	0.891	0.88				

Sequence No.: 19 **Autosampler Location: 76**
Sample ID: 1203666298|1614667|1 **Date Collected: 11/10/2016 13:29:42**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666298|1614667|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.031	-0.031	-0.0001	0.0037	0.0006	13:30:34	Yes
2	-0.030	-0.030	-0.0001	0.0037	0.0006	13:31:04	Yes
Mean:	-0.031	-0.031	-0.0001				
SD:	0.001	0.001	0.0000				
%RSD:	1.834	1.834	10.11				

Sequence No.: 20 **Autosampler Location: 77**
Sample ID: 1203656346|1614667|1 **Date Collected: 11/10/2016 13:31:24**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203656346|1614667|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.025	-0.025	0.0000	0.0044	0.0007	13:32:15	Yes
2	-0.030	-0.030	-0.0001	0.0039	0.0006	13:32:46	Yes
Mean:	-0.027	-0.027	-0.0000				
SD:	0.004	0.004	0.0000				
%RSD:	13.84	13.84	177.09				

Sequence No.: 21 **Autosampler Location: 78**
Sample ID: 1203666299|1614667|1 **Date Collected: 11/10/2016 13:33:06**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666299|1614667|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.069	2.069	0.0224	0.1373	0.0231	13:33:57	Yes
2	2.037	2.037	0.0221	0.1338	0.0228	13:34:27	Yes
Mean:	2.053	2.053	0.0222				
SD:	0.022	0.022	0.0002				
%RSD:	1.082	1.082	1.07				

Sequence No.: 22 **Autosampler Location: 79**
Sample ID: 409105003|1614667|1 **Date Collected: 11/10/2016 13:34:47**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409105003|1614667|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.038	-0.038	-0.0001	0.0030	0.0005	13:35:39	Yes
2	-0.034	-0.034	-0.0001	0.0033	0.0006	13:36:09	Yes
Mean:	-0.036	-0.036	-0.0001				
SD:	0.003	0.003	0.0000				
%RSD:	8.234	8.234	26.91				

Sequence No.: 23 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 13:36:29**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.035	5.035	0.0542	0.3249	0.0548	13:37:19	Yes
2	4.954	4.954	0.0533	0.3166	0.0540	13:37:50	Yes
Mean:	4.995	4.995	0.0537				
SD:	0.057	0.057	0.0006				
%RSD:	1.140	1.140	1.13				

QC value within limits for Hg 253.7 Recovery = 99.89%
All analyte(s) passed QC.

==========

Sequence No.: 24 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 13:38:09**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.035	-0.035	-0.0001	0.0032	0.0006	13:39:00	Yes
2	-0.037	-0.037	-0.0001	0.0029	0.0006	13:39:30	Yes
Mean:	-0.036	-0.036	-0.0001				
SD:	0.002	0.002	0.0000				
%RSD:	4.329	4.329	14.22				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 25 **Autosampler Location: 80**
Sample ID: 1203666300|1614667|1 **Date Collected: 11/10/2016 13:39:49**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666300|1614667|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.077	2.077	0.0225	0.1374	0.0232	13:40:41	Yes
2	2.056	2.056	0.0223	0.1343	0.0230	13:41:11	Yes
Mean:	2.066	2.066	0.0224				
SD:	0.015	0.015	0.0002				
%RSD:	0.716	0.716	0.71				

==========

Sequence No.: 26 **Autosampler Location: 81**
Sample ID: 1203666301|1614667|1 **Date Collected: 11/10/2016 13:41:31**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666301|1614667|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.101	2.101	0.0228	0.1390	0.0234	13:42:22	Yes
2	2.063	2.063	0.0223	0.1348	0.0230	13:42:53	Yes
Mean:	2.082	2.082	0.0226				
SD:	0.027	0.027	0.0003				
%RSD:	1.307	1.307	1.29				

==========

Sequence No.: 27 **Autosampler Location: 82**
Sample ID: 1203666302|1614667|5 **Date Collected: 11/10/2016 13:43:13**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666302|1614667|5

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.036	-0.036	-0.0001	0.0030	0.0006	13:44:04	Yes
2	-0.033	-0.033	-0.0001	0.0035	0.0006	13:44:34	Yes

Mean:	-0.034	-0.034	-0.0001
SD:	0.002	0.002	0.0000
%RSD:	5.859	5.859	21.83

==========

Sequence No.: 28 **Autosampler Location: 83**
Sample ID: 1203666304|1614667|1 **Date Collected: 11/10/2016 13:44:55**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666304|1614667|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.073	2.073	0.0225	0.1378	0.0231	13:45:46	Yes
2	2.052	2.052	0.0222	0.1339	0.0229	13:46:16	Yes
Mean:	2.063	2.063	0.0223				
SD:	0.015	0.015	0.0002				
%RSD:	0.711	0.711	0.70				

==========

Sequence No.: 29 **Autosampler Location: 84**
Sample ID: 1203666311|1614671|1 **Date Collected: 11/10/2016 13:46:36**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666311|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.031	-0.031	-0.0001	0.0034	0.0006	13:47:28	Yes
2	-0.027	-0.027	-0.0000	0.0041	0.0007	13:47:58	Yes
Mean:	-0.029	-0.029	-0.0000				
SD:	0.003	0.003	0.0000				
%RSD:	11.47	11.47	88.54				

==========

Sequence No.: 30 **Autosampler Location: 85**
Sample ID: 1203657517|1614671|1 **Date Collected: 11/10/2016 13:48:18**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203657517|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.030	-0.030	-0.0001	0.0038	0.0006	13:49:10	Yes
2	-0.030	-0.030	-0.0000	0.0037	0.0006	13:49:40	Yes
Mean:	-0.030	-0.030	-0.0001				
SD:	0.000	0.000	0.0000				
%RSD:	0.494	0.494	3.13				

==========

Sequence No.: 31 **Autosampler Location: 86**
Sample ID: 1203666312|1614671|1 **Date Collected: 11/10/2016 13:50:01**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666312|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.026	2.026	0.0220	0.1341	0.0226	13:50:52	Yes
2	2.000	2.000	0.0217	0.1305	0.0224	13:51:22	Yes
Mean:	2.013	2.013	0.0218				
SD:	0.019	0.019	0.0002				
%RSD:	0.931	0.931	0.92				

==========

Sequence No.: 32 **Autosampler Location: 87**
Sample ID: 409254021|1614671|1 **Date Collected: 11/10/2016 13:51:43**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409254021|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.027	-0.027	-0.0000	0.0038	0.0007	13:52:34	Yes
2	-0.027	-0.027	-0.0000	0.0037	0.0007	13:53:05	Yes
Mean:	-0.027	-0.027	-0.0000				
SD:	0.000	0.000	0.0000				
%RSD:	0.886	0.886	12.73				

==========

Sequence No.: 33 **Autosampler Location: 88**
Sample ID: 1203657516|1614671|1 **Date Collected: 11/10/2016 13:53:25**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203657516|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.990	0.990	0.0109	0.0688	0.0115	13:54:17	Yes
2	0.931	0.931	0.0102	0.0640	0.0109	13:54:47	Yes
Mean:	0.961	0.961	0.0106				
SD:	0.042	0.042	0.0004				
%RSD:	4.327	4.327	4.22				

==========

Sequence No.: 34 **Autosampler Location: 89**
Sample ID: 1203666313|1614671|1 **Date Collected: 11/10/2016 13:55:07**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666313|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.028	-0.028	-0.0000	0.0039	0.0007	13:55:59	Yes
2	-0.027	-0.027	-0.0000	0.0038	0.0007	13:56:29	Yes
Mean:	-0.028	-0.028	-0.0000				
SD:	0.001	0.001	0.0000				
%RSD:	2.240	2.240	23.87				

==========

Sequence No.: 35 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 13:56:49**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.081	5.081	0.0547	0.3283	0.0553	13:57:40	Yes
2	5.071	5.071	0.0545	0.3239	0.0552	13:58:10	Yes
Mean:	5.076	5.076	0.0546				
SD:	0.007	0.007	0.0001				
%RSD:	0.135	0.135	0.13				

QC value within limits for Hg 253.7 Recovery = 101.52%
All analyte(s) passed QC.

==========

Sequence No.: 36 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 13:58:29**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.034	-0.034	-0.0001	0.0031	0.0006	13:59:20	Yes
2	-0.029	-0.029	-0.0000	0.0034	0.0006	13:59:50	Yes
Mean:	-0.031	-0.031	-0.0001				
SD:	0.003	0.003	0.0000				
%RSD:	10.95	10.95	55.77				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

2	-0.047	-0.047	-0.0002	0.0023	0.0004	14:15:58	Yes
Mean:	-0.047	-0.047	-0.0002				
SD:	0.000	0.000	0.0000				
%RSD:	0.005	0.005	0.01				

==========

Sequence No.: 10 **Autosampler Location: 55**
Sample ID: 1203666261|1614653|1 **Date Collected: 11/10/2016 14:16:18**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666261|1614653|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.322	2.322	0.0251	0.1526	0.0258	14:17:09	Yes
2	2.310	2.310	0.0250	0.1502	0.0257	14:17:39	Yes
Mean:	2.316	2.316	0.0251				
SD:	0.009	0.009	0.0001				
%RSD:	0.378	0.378	0.37				

==========

Sequence No.: 11 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 14:17:59**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.098	5.098	0.0548	0.3278	0.0555	14:18:49	Yes
2	5.057	5.057	0.0544	0.3230	0.0551	14:19:20	Yes
Mean:	5.078	5.078	0.0546				
SD:	0.029	0.029	0.0003				
%RSD:	0.578	0.578	0.58				

QC value within limits for Hg 253.7 Recovery = 101.55%
All analyte(s) passed QC.

==========

Sequence No.: 12 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 14:19:39**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.041	-0.041	-0.0002	0.0028	0.0005	14:20:30	Yes
2	-0.040	-0.040	-0.0002	0.0030	0.0005	14:21:00	Yes
Mean:	-0.041	-0.041	-0.0002				
SD:	0.001	0.001	0.0000				
%RSD:	1.691	1.691	4.45				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 13 **Autosampler Location: 56**
Sample ID: 409700003|1614653|1 **Date Collected: 11/10/2016 14:21:19**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409700003|1614653|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.011	-0.011	0.0001	0.0047	0.0008	14:22:10	Yes
2	-0.010	-0.010	0.0002	0.0047	0.0008	14:22:40	Yes
Mean:	-0.011	-0.011	0.0002				
SD:	0.001	0.001	0.0000				
%RSD:	9.720	9.720	7.18				

==========

Sequence No.: 14 **Autosampler Location: 57**

Sample ID: 409826003|1614653|1 **Date Collected: 11/10/2016 14:23:00**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409826003|1614653|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.003	-0.003	0.0002	0.0051	0.0009	14:23:52	Yes
2	-0.005	-0.005	0.0002	0.0050	0.0009	14:24:22	Yes
Mean:	-0.004	-0.004	0.0002				
SD:	0.002	0.002	0.0000				
%RSD:	40.81	40.81	7.24				

Sequence No.: 15 **Autosampler Location: 58**
Sample ID: 409849005|1614653|1 **Date Collected: 11/10/2016 14:24:41**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409849005|1614653|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.037	-0.037	-0.0001	0.0031	0.0006	14:25:33	Yes
2	-0.040	-0.040	-0.0002	0.0028	0.0005	14:26:03	Yes
Mean:	-0.039	-0.039	-0.0001				
SD:	0.002	0.002	0.0000				
%RSD:	4.355	4.355	12.51				

Sequence No.: 16 **Autosampler Location: 59**
Sample ID: 409979005|1614653|1 **Date Collected: 11/10/2016 14:26:23**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409979005|1614653|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.019	0.019	0.0005	0.0065	0.0012	14:27:14	Yes
2	0.020	0.020	0.0005	0.0065	0.0012	14:27:44	Yes
Mean:	0.019	0.019	0.0005				
SD:	0.001	0.001	0.0000				
%RSD:	2.897	2.897	1.26				

Sequence No.: 17 **Autosampler Location: 90**
Sample ID: 1203666315|1614671|5 **Date Collected: 11/10/2016 14:28:04**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666315|1614671|5

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.049	-0.049	-0.0003	0.0025	0.0004	14:28:56	Yes
2	-0.046	-0.046	-0.0002	0.0027	0.0005	14:29:26	Yes
Mean:	-0.047	-0.047	-0.0002				
SD:	0.002	0.002	0.0000				
%RSD:	4.593	4.593	9.86				

Sequence No.: 18 **Autosampler Location: 91**
Sample ID: 1203666317|1614671|1 **Date Collected: 11/10/2016 14:29:46**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 1203666317|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.215	2.215	0.0240	0.1439	0.0247	14:30:38	Yes
2	2.187	2.187	0.0237	0.1409	0.0244	14:31:08	Yes
Mean:	2.201	2.201	0.0238				
SD:	0.020	0.020	0.0002				

%RSD: 0.899 0.899 0.89

==========

Sequence No.: 19 **Autosampler Location: 92**
Sample ID: 409254023|1614671|1 **Date Collected: 11/10/2016 14:31:28**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409254023|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.039	-0.039	-0.0001	0.0027	0.0005	14:32:20	Yes
2	-0.038	-0.038	-0.0001	0.0029	0.0005	14:32:50	Yes
Mean:	-0.039	-0.039	-0.0001				
SD:	0.001	0.001	0.0000				
%RSD:	1.438	1.438	4.12				

==========

Sequence No.: 20 **Autosampler Location: 93**
Sample ID: 409254025|1614671|1 **Date Collected: 11/10/2016 14:33:10**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409254025|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.036	-0.036	-0.0001	0.0031	0.0006	14:34:02	Yes
2	-0.040	-0.040	-0.0002	0.0028	0.0005	14:34:32	Yes
Mean:	-0.038	-0.038	-0.0001				
SD:	0.003	0.003	0.0000				
%RSD:	7.221	7.221	20.96				

==========

Sequence No.: 21 **Autosampler Location: 94**
Sample ID: 409254030|1614671|1 **Date Collected: 11/10/2016 14:34:53**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409254030|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.036	-0.036	-0.0001	0.0031	0.0006	14:35:44	Yes
2	-0.032	-0.032	-0.0001	0.0036	0.0006	14:36:14	Yes
Mean:	-0.034	-0.034	-0.0001				
SD:	0.003	0.003	0.0000				
%RSD:	9.545	9.545	36.89				

==========

Sequence No.: 22 **Autosampler Location: 95**
Sample ID: 409254033|1614671|1 **Date Collected: 11/10/2016 14:36:34**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409254033|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.042	-0.042	-0.0002	0.0028	0.0005	14:37:26	Yes
2	-0.041	-0.041	-0.0002	0.0029	0.0005	14:37:56	Yes
Mean:	-0.041	-0.041	-0.0002				
SD:	0.001	0.001	0.0000				
%RSD:	1.561	1.561	4.01				

==========

Sequence No.: 23 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 14:38:17**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored

1	5.129	5.129	0.0552	0.3285	0.0559	14:39:07	Yes
2	5.080	5.080	0.0546	0.3234	0.0553	14:39:38	Yes
Mean:	5.105	5.105	0.0549				
SD:	0.035	0.035	0.0004				
%RSD:	0.688	0.688	0.68				

QC value within limits for Hg 253.7 Recovery = 102.09%
All analyte(s) passed QC.

==========

Sequence No.: 24 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 14:39:57**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.080	-0.080	-0.0006	0.0002	0.0001	14:40:47	Yes
2	-0.089	-0.089	-0.0007	-0.0004	0.0000	14:41:17	Yes
Mean:	-0.084	-0.084	-0.0006				
SD:	0.006	0.006	0.0001				
%RSD:	7.145	7.145	10.18				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 25 **Autosampler Location: 96**
Sample ID: 409254035|1614671|1 **Date Collected: 11/10/2016 14:41:37**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409254035|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.032	-0.032	-0.0001	0.0033	0.0006	14:42:29	Yes
2	-0.034	-0.034	-0.0001	0.0030	0.0006	14:42:59	Yes
Mean:	-0.033	-0.033	-0.0001				
SD:	0.001	0.001	0.0000				
%RSD:	3.692	3.692	15.77				

==========

Sequence No.: 26 **Autosampler Location: 97**
Sample ID: 409254037|1614671|1 **Date Collected: 11/10/2016 14:43:19**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409254037|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.044	-0.044	-0.0002	0.0029	0.0005	14:44:11	Yes
2	-0.047	-0.047	-0.0002	0.0025	0.0004	14:44:41	Yes
Mean:	-0.046	-0.046	-0.0002				
SD:	0.002	0.002	0.0000				
%RSD:	4.152	4.152	9.24				

==========

Sequence No.: 27 **Autosampler Location: 98**
Sample ID: 409254039|1614671|1 **Date Collected: 11/10/2016 14:45:01**
Analyst: MTM1 **Data Type: Original**

Replicate Data: 409254039|1614671|1

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.035	-0.035	-0.0001	0.0034	0.0006	14:45:53	Yes
2	-0.036	-0.036	-0.0001	0.0031	0.0006	14:46:23	Yes
Mean:	-0.035	-0.035	-0.0001				
SD:	0.001	0.001	0.0000				
%RSD:	2.647	2.647	9.20				

==========

Sequence No.: 28 **Autosampler Location: 7**
Sample ID: CCV **Date Collected: 11/10/2016 14:46:44**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.129	5.129	0.0552	0.3296	0.0558	14:47:34	Yes
2	5.084	5.084	0.0547	0.3232	0.0554	14:48:04	Yes
Mean:	5.106	5.106	0.0549				
SD:	0.032	0.032	0.0003				
%RSD:	0.621	0.621	0.62				

QC value within limits for Hg 253.7 Recovery = 102.12%
All analyte(s) passed QC.

==========

Sequence No.: 29 **Autosampler Location: 8**
Sample ID: CCB **Date Collected: 11/10/2016 14:48:23**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.079	-0.079	-0.0006	0.0001	0.0001	14:49:14	Yes
2	-0.089	-0.089	-0.0007	-0.0003	0.0000	14:49:44	Yes
Mean:	-0.084	-0.084	-0.0006				
SD:	0.007	0.007	0.0001				
%RSD:	8.169	8.169	11.67				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

Miscellaneous

Prep Logbook

Acid Digestion of Sediments, Sludges, and Soils

Batch ID: **1611118**
Analyst: James Pressley
Method: SW846 3050B
Lab SOP: GL-MA-E-009 REV# 26
Instrument: BAL-892

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1203657601	Metals Spike Mix I	UI2464937-01	.25	mL
LCS	1203657601	Metals Spike Mix II	UI2464937-02	.25	mL
MS	1203657603	Metals Spike Mix I	UI2464937-01	.25	mL
MS	1203657603	Metals Spike Mix II	UI2464937-02	.25	mL

Sample ID	Prep Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)
1203657600 MB	27-OCT-2016 20:50:01	Soil	0.505	50	99.0099
1203657601 LCS	27-OCT-2016 20:50:01	Soil	0.525	50	95.2381
409254022	27-OCT-2016 20:50:01	Soil	0.587	50	85.17888
1203657602 DUP (409254022)	27-OCT-2016 20:50:01	Soil	0.524	50	95.41985
1203657603 MS (409254022)	27-OCT-2016 20:50:01	Soil	0.514	50	97.27626
1203657604 SDILT (409254022)	27-OCT-2016 20:50:01	Soil	0.587	50	85.17888
409254024	27-OCT-2016 20:50:01	Soil	0.527	50	94.87666
409254029	27-OCT-2016 20:50:01	Soil	0.555	50	90.09009
409254032	27-OCT-2016 20:50:01	Soil	0.571	50	87.56567
409254034	27-OCT-2016 20:50:01	Soil	0.547	50	91.40768
409254036	27-OCT-2016 20:50:01	Soil	0.547	50	91.40768
409254038	27-OCT-2016 20:50:01	Soil	0.508	50	98.4252

Reagent/Solvent Lot ID	Description	Amount
2451969	Concentrated Nitric Acid	1.25 mL
2460888	HYDROCHLORIC ACID	10 mL

Comments:
Block Temperature (90-100C): 95 C
Temperature within limits (Y/N)?: Y
Thermometer ID: 118631
Hot Block ID: 2

Prep Logbook

Acid Digestion of Sediments, Sludges, and Soils

Batch ID: **1611116**
Analyst: James Pressley
Method: SW846 3050B
Lab SOP: GL-MA-E-009 REV# 26
Instrument: BAL-893

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1203657596	Metals Spike Mix I	UI2464937-01	.25	mL
LCS	1203657596	Metals Spike Mix II	UI2464937-02	.25	mL
MS	1203657598	Metals Spike Mix I	UI2464937-01	.25	mL
MS	1203657598	Metals Spike Mix II	UI2464937-02	.25	mL

Sample ID	Prep Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)
1203657595 MB	27-OCT-2016 20:43:37	Soil	0.544	50	91.91176
1203657596 LCS	27-OCT-2016 20:43:37	Soil	0.564	50	88.65248
409254001	27-OCT-2016 20:43:37	Soil	0.522	50	95.78544
1203657597 DUP (409254001)	27-OCT-2016 20:43:37	Soil	0.555	50	90.09009
1203657598 MS (409254001)	27-OCT-2016 20:43:37	Soil	0.565	50	88.49558
1203657599 SDILT (409254001)	27-OCT-2016 20:43:37	Soil	0.522	50	95.78544
409254002	27-OCT-2016 20:43:37	Soil	0.52	50	96.15385
409254003	27-OCT-2016 20:43:37	Soil	0.561	50	89.12656
409254004	27-OCT-2016 20:43:37	Soil	0.518	50	96.5251
409254005	27-OCT-2016 20:43:37	Soil	0.55	50	90.90909
409254006	27-OCT-2016 20:43:37	Soil	0.547	50	91.40768
409254007	27-OCT-2016 20:43:37	Soil	0.591	50	84.60237
409254008	27-OCT-2016 20:43:37	Soil	0.524	50	95.41985
409254009	27-OCT-2016 20:43:37	Soil	0.566	50	88.33922
409254010	27-OCT-2016 20:43:37	Soil	0.538	50	92.9368
409254011	27-OCT-2016 20:43:37	Soil	0.521	50	95.96929
409254012	27-OCT-2016 20:43:37	Soil	0.513	50	97.46589
409254013	27-OCT-2016 20:43:37	Soil	0.546	50	91.57509
409254014	27-OCT-2016 20:43:37	Soil	0.538	50	92.9368
409254015	27-OCT-2016 20:43:37	Soil	0.551	50	90.7441
409254016	27-OCT-2016 20:43:37	Soil	0.515	50	97.08738
409254017	27-OCT-2016 20:43:37	Soil	0.586	50	85.32423
409254018	27-OCT-2016 20:43:37	Soil	0.502	50	99.60159
409254019	27-OCT-2016 20:43:37	Soil	0.572	50	87.41259
409254020	27-OCT-2016 20:43:37	Soil	0.571	50	87.56567

Reagent/Solvent Lot ID	Description	Amount
2451969	Concentrated Nitric Acid	1.25 mL
2460888	HYDROCHLORIC ACID	10 mL

Comments:
Block Temperature (90-100C): 95 C
Temperature within limits (Y/N)?: Y
Thermometer ID: 118631
Hot Block ID: 2
Prep Date: 27-OCT-2016 21:05 BAL-893 James Pressley

Prep Logbook

Acid Digestion of Total Metals in Aqueous Samples and Extracts for Analysis by ICP and ICP-MS

Batch ID: **1611344**
Analyst: Clyde Wright
Method: SW846 3010A
Lab SOP: GL-MA-E-008 REV# 18
Instrument: Metals Manual Instrument

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1203658087	Metals Spike Mix I	UI2464937-01	.25	mL
LCS	1203658087	Metals Spike Mix II	UI2464937-02	.25	mL

Sample ID	Prep Date	Matrix	Initial Volume (mL)	Final Volume (mL)	Prep Factor (mL/mL)
1203658086 MB	28-OCT-2016 11:51:11	Soil	5	50	10
1203657517 TB	28-OCT-2016 11:51:11	Soil	5	50	10
1203658087 LCS	28-OCT-2016 11:51:11	Soil	5	50	10
409254021	28-OCT-2016 11:51:11	Soil	5	50	10
1203657516 MS (409254021)	28-OCT-2016 11:51:11	Soil	5	50	10
1203658088 DUP (409254021)	28-OCT-2016 11:51:11	Soil	5	50	10
1203658090 SDILT (409254021)	28-OCT-2016 11:51:11	Soil	5	50	10
409254023	28-OCT-2016 11:51:11	Soil	5	50	10
409254025	28-OCT-2016 11:51:11	Soil	5	50	10
409254030	28-OCT-2016 11:51:11	Soil	5	50	10
409254033	28-OCT-2016 11:51:11	Soil	5	50	10
409254035	28-OCT-2016 11:51:11	Soil	5	50	10
409254037	28-OCT-2016 11:51:11	Soil	5	50	10
409254039	28-OCT-2016 11:51:11	Soil	5	50	10

Reagent/Solvent Lot ID	Description	Amount
2451969	Concentrated Nitric Acid	3 mL
2460888	HYDROCHLORIC ACID	2.5 mL

Comments:
Block Temperature (90-95C): 91 C
Temperature within limits (Y/N)?: Y
Thermometer ID: 118631
Hot Block ID: 2

Prep Logbook

Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

Batch ID: **1614668**
Analyst: Alan Stanley
Method: SW846 7471B Prep
Lab SOP: GL-MA-E-010 REV# 31
Instrument: BAL 423

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1203666306	MHGSOILMSSPIKE	WHG161109-14	.3	mL
MS	1203666308	MHGSOILMSSPIKE	WHG161109-14	.3	mL

Sample ID	Prep Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)
1203666305 MB	09-NOV-2016 14:39:22	Soil	0.512	30	58.59375
1203666306 LCS	09-NOV-2016 14:39:22	Soil	0.534	30	56.17978
409254011	09-NOV-2016 14:39:22	Soil	0.511	30	58.70841
1203666307 DUP (409254011)	09-NOV-2016 14:39:22	Soil	0.5	30	60
1203666308 MS (409254011)	09-NOV-2016 14:39:22	Soil	0.501	30	59.88024
1203666309 SDILT (409254011)	09-NOV-2016 14:39:22	Soil	0.511	30	58.70841
409254012	09-NOV-2016 14:39:22	Soil	0.516	30	58.13953
409254013	09-NOV-2016 14:39:22	Soil	0.509	30	58.9391
409254014	09-NOV-2016 14:39:22	Soil	0.576	30	52.08333
409254015	09-NOV-2016 14:39:22	Soil	0.514	30	58.36576
409254016	09-NOV-2016 14:39:22	Soil	0.572	30	52.44755
409254017	09-NOV-2016 14:39:22	Soil	0.52	30	57.69231
409254018	09-NOV-2016 14:39:22	Soil	0.521	30	57.58157
409254019	09-NOV-2016 14:39:22	Soil	0.594	30	50.50505
409254020	09-NOV-2016 14:39:22	Soil	0.549	30	54.64481
409254022	09-NOV-2016 14:39:22	Soil	0.564	30	53.19149
409254024	09-NOV-2016 14:39:22	Soil	0.544	30	55.14706
409254029	09-NOV-2016 14:39:22	Soil	0.502	30	59.76096
409254032	09-NOV-2016 14:39:22	Soil	0.551	30	54.44646
409254034	09-NOV-2016 14:39:22	Soil	0.512	30	58.59375
409254036	09-NOV-2016 14:39:22	Soil	0.539	30	55.65863
409254038	09-NOV-2016 14:39:22	Soil	0.521	30	57.58157

Reagent/Solvent Lot ID	Description	Amount
2464396-C	5% KMnO4 solution	7.5 mL
2467932-C	Hg reducing agent	3 mL
2476285-C	50% Aqua Regia	3 mL
IHG161109-01	Mercury Intermediate 1st Source 200 ug/L	250 mL
IHG161109-02	Mercury Intermediate 2nd Source 200 ug/L	250 mL
UHG2455249-01	Mercury Source Standard #1 1,000 mg/L	50 uL
UHG2455256-02	Mercury Source Standard #2 1,000 mg/L	50 uL
WHG161109-07	Mercury Working Standard 1st Source CAL S 0.2/CRA	30 uL
WHG161109-08	Mercury Working Standard 1st Source CAL S 0.5	75 uL
WHG161109-09	Mercury Working 1st Source CAL S 2.0	300 uL
WHG161109-10	Mercury Working 1st Source CAL S 5.0/CCV	750 uL
WHG161109-11	Mercury Working 1st Source CAL S 10.0	1.5 mL

Comments:
Digestion Start Date: 09-NOV-2016 14:39
Digestion End Date: 09-NOV-2016 15:19
Block Temperature (92-98C): 94 C
Temperature within limits (Y/N)?: Y
Thermometer ID: 2126223
Hot Block ID: 6

Prep Logbook

Sample ID	Prep Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)

Reagent/Solvent Lot ID	Description	Amount
WHG161109-12	Mercury Working 2nd Source S 5.0/ICV	750 uL

Comments:

Prep Logbook

Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

Batch ID: **1614670**
Analyst: Alan Stanley
Method: SW846 7470A Prep
Lab SOP: GL-MA-E-010 REV# 31
Instrument: Metals Manual Instrument

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1203666312	MHGLIQLCSMSSPIKE	WHG161109-13	.2	mL

Sample ID	Prep Date	Matrix	Initial Volume (mL)	Final Volume (mL)	Prep Factor (mL/mL)	pH Check
1203666311 MB	09-NOV-2016 13:15:58	Soil	2	20	10	<2
1203657517 TB	09-NOV-2016 13:15:58	Soil	2	20	10	<2
1203666312 LCS	09-NOV-2016 13:15:58	Soil	2	20	10	<2
409254021	09-NOV-2016 13:15:58	Soil	2	20	10	<2
1203657516 MS (409254021)	09-NOV-2016 13:15:58	Soil	2	20	10	<2
1203666313 DUP (409254021)	09-NOV-2016 13:15:58	Soil	2	20	10	<2
1203666315 SDILT (409254021)	09-NOV-2016 13:15:58	Soil	2	20	10	<2
409254023	09-NOV-2016 13:15:58	Soil	2	20	10	<2
409254025	09-NOV-2016 13:15:58	Soil	2	20	10	<2
409254030	09-NOV-2016 13:15:58	Soil	2	20	10	<2
409254033	09-NOV-2016 13:15:58	Soil	2	20	10	<2
409254035	09-NOV-2016 13:15:58	Soil	2	20	10	<2
409254037	09-NOV-2016 13:15:58	Soil	2	20	10	<2
409254039	09-NOV-2016 13:15:58	Soil	2	20	10	<2

Reagent/Solvent Lot ID	Description	Amount
2436218-1	NITRIC ACID	.5 mL
2460309-C	5% Potassium Persulfate	1.5 mL
2464396-C	5% KMnO4 solution	3 mL
2467932-C	Hg reducing agent	1 mL
2475119	Sulfuric Acid, Concentrated	1 mL
IHG161109-01	Mercury Intermediate 1st Source 200 ug/L	250 mL
IHG161109-02	Mercury Intermediate 2nd Source 200 ug/L	250 mL
UHG2455249-01	Mercury Source Standard #1 1,000 mg/L	50 uL
UHG2455256-02	Mercury Source Standard #2 1,000 mg/L	50 uL
WHG161109-01A	Mercury Working 1st Source CAL 0.2/CRA	20 uL
WHG161109-02	Mercury Working 1st Source CAL 0.5	50 uL
WHG161109-03	Mercury Working 1st Source CAL 2.0	200 uL
WHG161109-04	Mercury Working 1st Source CAL 5.0/CCV	500 uL
WHG161109-05	Mercury Working 1st Source CAL 10.0	1 mL
WHG161109-06	Mercury Working 2nd Source 5.0/ICV	500 uL

Comments:
Digestion Start Date: 09-NOV-2016 13:15
Digestion End Date: 09-NOV-2016 15:15
Block Temperature (90-95C): 94 C
Temperature within limits (Y/N)?: Y
Thermometer ID: 118629
Hot Block ID: 7

Prep Logbook

Synthetic Precipitation Leaching Preparation

Batch ID: 1611084 **Verified by:** _____
Analyst: Richard Dollinger
Method: EPA 1312

Lab SOP: GL-LB-E-024 REV# 11
Instrument: TCLP Tumbler # 101

Sample ID Analysis Start Date	1203657517 TB 27-OCT-2016 15:59:34	409254021 27-OCT-2016 15:59:34	1203657516 MS (409254021) 27-OCT-2016 15:59:34	409254023 27-OCT-2016 15:59:34
100% Solid Y/N	y	y	y	y
(I) Sub Sample Aliquot I=G-H (g)		100	100	100
Extration Start Temperature (celsius)	23	23	23	23
Filtrate pH (su)		9	9	9
Tumbler Speed	28	28	28	28
Sample Properties <>/= Water	SPLP2	Solid	Solid	Solid
(J) 20XC or 20XI (mL)		2000	2000	2000
Filtrate Volume (mL)	100	100	100	100

Type	Sample Id	Description		Spike Amt	Units
MS	1203657516	TCLP Spiking Solution A/B	UI160727	.25	mL
MS	1203657516	TCLP Spiking Solution Hg	UI2435207	.25	mL
RGNT	All	SPLP WESTERN EXTRACTION FLUID 4.97	161027	2000	mL
REGNT	All	Concentrated Nitric Acid	160907-tclp	2.5	mL

Comments:

Extration End Date: 28-OCT-2016 08:00:00
Filtration End Date: 28-OCT-2016 09:15:21
Bottle Lot Number: 41031600
Filter Lot Number: 400119-6221

Prep Logbook

Synthetic Precipitation Leaching Preparation

Batch ID: 1611084 **Verified by:** _____
Analyst: Richard Dollinger
Method: EPA 1312

Lab SOP: GL-LB-E-024 REV# 11
Instrument: TCLP Tumbler # 101

Sample ID Analysis Start Date	409254025 27-OCT-2016 15:59:34	409254030 27-OCT-2016 15:59:34	409254033 27-OCT-2016 15:59:34	409254035 27-OCT-2016 15:59:34
100% Solid Y/N	y	y	y	y
(I) Sub Sample Aliquot I=G-H (g)	100	100	100	100
Extration Start Temperature (celsius)	23	23	23	23
Filtrate pH (su)	9	9	9	9
Tumbler Speed	28	28	28	28
Sample Properties <>/= Water	Solid	Solid	Solid	Solid
(J) 20XC or 20XI (mL)	2000	2000	2000	2000
Filtrate Volume (mL)	100	100	100	100

Type	Sample Id	Description		Spike Amt	Units
MS	1203657516	TCLP Spiking Solution A/B	UI160727	.25	mL
MS	1203657516	TCLP Spiking Solution Hg	UI2435207	.25	mL
RGNT	All	SPLP WESTERN EXTRACTION FLUID 4.97	161027	2000	mL
REGNT	All	Concentrated Nitric Acid	160907-tclp	2.5	mL

Comments:

Extration End Date: 28-OCT-2016 08:00:00
Filtration End Date: 28-OCT-2016 09:15:21
Bottle Lot Number: 41031600
Filter Lot Number: 400119-6221

Prep Logbook

Synthetic Precipitation Leaching Preparation

Batch ID: **1611084** **Verified by:** _____
Analyst: **Richard Dollinger**
Method: **EPA 1312**

Lab SOP: **GL-LB-E-024 REV# 11**
Instrument: **TCLP Tumbler # 101**

Sample ID	**409254037**	**409254039**
Analysis Start Date	**27-OCT-2016 15:59:34**	**27-OCT-2016 15:59:34**
100% Solid Y/N	y	y
(I) Sub Sample Aliquot I=G-H (g)	100	100
Extration Start Temperature (celsius)	23	23
Filtrate pH (su)	9	9
Tumbler Speed	28	28
Sample Properties <>/= Water	Solid	Solid
(J) 20XC or 20XI (mL)	2000	2000
Filtrate Volume (mL)	100	100

Type	Sample Id	Description	Serial Number	Spike Amt	Units
MS	1203657516	TCLP Spiking Solution A/B	UI160727	.25	mL
MS	1203657516	TCLP Spiking Solution Hg	UI2435207	.25	mL
RGNT	All	SPLP WESTERN EXTRACTION FLUID 4.97	161027	2000	mL
REGNT	All	Concentrated Nitric Acid	160907-tclp	2.5	mL

Comments:

Extration End Date: 28-OCT-2016 08:00:00
Filtration End Date: 28-OCT-2016 09:15:21
Bottle Lot Number: 41031600
Filter Lot Number: 400119-6221

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
10-NOV-16	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
MERCURY	SW846 7470A	Solid	HAAL
Batch ID:	**Sample Numbers:**		
1614671	See Below		

Potentially affected work order(s)(SDG): 409254

Application Issues:

Failed Recovery for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed Recovery for MS/MSD, or PS/PSD: QC 1203657516MS	1. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike recovery was within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recovery may be attributed to possible sample matrix interference and/or non-homogeneity. 1203657516 (DP010216MS) Mercury [48.1* (75%-125%)].

Originator's Name:

Monifa Basdeo 10-NOV-16

Data Validator/Group Leader:

Alan Stanley 11-NOV-16

DATA EXCEPTION REPORT

Mo.Day Yr.	**Division:**	**Quality Criteria:**	**Type:**
11-NOV-16	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ICP	SW846 3050B/6010C	Solid	HAAL
Batch ID:	**Sample Numbers:**		
1611117	See Below		

Potentially affected work order(s)(SDG): 409254

Application Issues:

Failed Recovery for MS/MSD, or PS/PSD

Failed RPD for DUP

Failed difference for SDILT

Specification and Requirements Exception Description:	**DER Disposition:**
1. Failed RPD for DUP: QC 1203657597DUP 2. Failed Recovery for MS/MSD, or PS/PSD: QC 1203657598MS 3. Failed difference for SDILT: QC 1203657599SDILT	1. Not all the applicable analyte RPD values were within the acceptance criteria. 1203657597 (DP110100DUP) Antimony [abs(4030 - 2730)* (+/-1040 ug/kg)], Lead [153* (0%-20%)] and Manganese [20.4* (0%-20%)]. 2. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike recovery was within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recovery may be attributed to possible sample matrix interference and/or non-homogeneity. 1203657598 (DP110100MS) Barium [149* (75%-125%)], Potassium [189* (75%-125%)] and Zinc [65.7* (75%-125%)]. 3. Not all the applicable analytes were within the established acceptance criteria. Matrix suppression may be suspected. The data has been qualified. 1203657599 (DP110100SDILT) Copper [17.4 *(0%-10%)].

Originator's Name:

Travis Tola 11-NOV-16

Data Validator/Group Leader:

Jerry Wigfall 18-NOV-16

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
17-NOV-16	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ICP	SW846 3050B/6010C	Solid	HAAL
Batch ID:	**Sample Numbers:**		
1611119	See Below		

Potentially affected work order(s)(SDG): 409254

Application Issues:

Failed Recovery for MS/MSD, or PS/PSD

Failed RPD for DUP

Specification and Requirements Exception Description:	DER Disposition:
1. Failed RPD for DUP: QC 1203657602DUP 2. Failed Recovery for MS/MSD, or PS/PSD: QC 1203657603MS	1. Not all the applicable analyte RPD values were within the acceptance criteria. 1203657602 (DP010109DUP) Aluminum [21.8* (0%-20%)], Barium [23.4* (0%-20%)], Copper [24.1* (0%-20%)] and Lead [20.8* (0%-20%)]. 2. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike recovery was within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recovery may be attributed to possible sample matrix interference and/or non-homogeneity. 1203657603 (DP010109MS) Antimony [73.2* (75%-125%)] and Potassium [133* (75%-125%)].

Originator's Name:

Helen Camello 17-NOV-16

Data Validator/Group Leader:

Jerry Wigfall 18-NOV-16

Standard Logbook

Serial ID: UHG2455249-01 **Open/Reference Date:** 16-SEP-16 **Amount :** 100 mL
Name: MHGSTOCK1 **Received:** 16-SEP-16 **Catalog Number :** G34-060080-02-01
Type: Source Material **Expires:** 16-SEP-17 **Lot Number :** 1095529
Employee: Alan Stanley **Solvent :** 10% HNO3
Supplier: O2SI
Description: Mercury Source Standard #1 1,000 mg/L
Comments: None

Analyte	Concentration	Analyte	Concentration
Mercury	1000 mg/L		

Serial ID: UHG2455256-02 **Open/Reference Date:** 16-SEP-16 **Amount :** 100 mL
Name: MHGSTOCK2 **Received:** 16-SEP-16 **Catalog Number :** 060080-02-01
Type: Source Material **Expires:** 16-SEP-17 **Lot Number :** 1095530
Employee: Alan Stanley **Solvent :** 2% HNO3
Supplier: 02Si
Description: Mercury Source Standard #2 1,000 mg/L
Comments: None

Analyte	Concentration	Analyte	Concentration
Mercury	999.7 mg/L		

Serial ID: UI151210-42 **Open/Reference Date:** 14-DEC-15 **Amount :** 250 mL
Name: SILICON **Received:** 08-DEC-15 **Catalog Number :** HP100050-4F
Type: Source Material **Expires:** 14-DEC-16 **Lot Number :** 1522506
Employee: Helen Camello **Solvent :** H20/tr HF
Supplier: ENVIRONMENTAL EXPRESS
Description: SILICON 1000mg/L H20/tr HF
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI160310-40 **Open/Reference Date:** 14-MAR-16 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 09-MAR-16 **Catalog Number :** G34-160358-01-03
Type: Source Material **Expires:** 14-MAR-17 **Lot Number :** 1087630
Employee: Travis Tola **Solvent :** 5%HNO3
Supplier: 02si
Description: SECOND SOURCE STD #1A 5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 mg/L	Arsenic	100 mg/L
Barium	100 mg/L	Boron	100 mg/L
Cadmium	100 mg/L	Calcium	1000 mg/L
Chromium	100 mg/L	Cobalt	100 mg/L

Analyte	Concentration	Analyte	Concentration
Copper	100 mg/L	Iron	1000 mg/L
Lead	100 mg/L	Phosphorous	500 mg/L
Potassium	500 mg/L	Selenium	500 mg/L
Sodium	500 mg/L	Strontium	100 mg/L

Serial ID: UI160310-41 **Open/Reference Date:** 14-MAR-16 **Amount :** 500 mL
Name: SECOND SOURCE STD -1 **Received:** 09-MAR-16 **Catalog Number :** G34-160358-01-03
Type: Source Material **Expires:** 14-MAR-17 **Lot Number :** 1087630
Employee: Travis Tola **Solvent :** 5%HNO3,TR.HF
Supplier: 02si
Description: SECOND SOURCE STD #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 mg/L	Beryllium	50 mg/L
Magnesium	1000 mg/L	Manganese	100 mg/L
Molybdenum	100 mg/L	Nickel	100 mg/L
Silver	50 mg/L	Sulfur	500 mg/L
Thallium	100 mg/L	Tin	100 mg/L
Titanium	100 mg/L	Uranium	100 mg/L
Vanadium	100 mg/L	Zinc	100 mg/L

Serial ID: UI160411-40 **Open/Reference Date:** 11-APR-16 **Amount :** 500 mL
Name: TRACE ICP Stock PQL Sta **Received:** 11-APR-16 **Catalog Number :** 160543-02-03
Type: Source Material **Expires:** 11-APR-17 **Lot Number :** 1087959
Employee: Travis Tola **Solvent :** +/-0.5%in2%HNO3+TrHF
Supplier: 02si
Description: TRACE ICP Stock PQL Standard
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	100 mg/L	Antimony	5 mg/L
Arsenic	15 mg/L	Barium	2.5 mg/L
Beryllium	2.5 mg/L	Boron	25 mg/L
Cadmium	2.5 mg/L	Calcium	100 mg/L
Chromium	2.5 mg/L	Cobalt	2.5 mg/L
Copper	5 mg/L	Iron	50 mg/L
Lead	5 mg/L	Magnesium	150 mg/L
Manganese	5 mg/L	Molybdenum	5 mg/L
Nickel	2.5 mg/L	Phosphorous	75 mg/L
Potassium	75 mg/L	Selenium	15 mg/L
Silicon	50 mg/L	Silver	2.5 mg/L
Sodium	150 mg/L	Strontium	2.5 mg/L
Sulfur	50 mg/L	Thallium	10 mg/L
Tin	5 mg/L	Titanium	2.5 mg/L

Analyte	Concentration	Analyte	Concentration
Uranium	25 mg/L	Vanadium	2.5 mg/L
Zinc	5 mg/L		

Serial ID: UI160519-40 **Open/Reference Date:** 23-MAY-16 **Amount :** 500 mL
Name: TRACE ICP ICSA SOLN. A **Received:** 18-MAY-16 **Catalog Number :** 160005-08-03
Type: Source Material **Expires:** 23-MAY-17 **Lot Number :** 1090998
Employee: Helen Camello **Solvent :** 5% HNO3 mg/l
Supplier: O2SI
Description: Trace ICP Interference Check Standard Solution A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	20000 mg/L	Calcium	20000 mg/L
Iron	8000 mg/L	Magnesium	20000 mg/L

Serial ID: UI160705-41 **Open/Reference Date:** 15-JUL-16 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 29-JUN-16 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 15-JUL-17 **Lot Number :** 1093046
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI160712-40 **Open/Reference Date:** 12-JUL-16 **Amount :** 500 mL
Name: ICP HIGH RANGE STD-A **Received:** 11-JUL-16 **Catalog Number :** 160211-06-03
Type: Source Material **Expires:** 12-JUL-17 **Lot Number :** 1093571
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 mg/L	Arsenic	100 mg/L
Barium	150 mg/L	Beryllium	30 mg/L
Boron	50 mg/L	Cadmium	100 mg/L
Chromium	250 mg/L	Cobalt	100 mg/L
Copper	200 mg/L	Lead	250 mg/L
Manganese	100 mg/L	Molybdenum	100 mg/L
Nickel	100 mg/L	Phosphorous	150 mg/L
Selenium	100 mg/L	Silica	1070 mg/L
Silicon	500 mg/L	Silver	100 mg/L

Analyte	Concentration	Analyte	Concentration
Strontium	100 mg/L	Thallium	100 mg/L
Tin	100 mg/L	Titanium	100 mg/L
Vanadium	100 mg/L	Zinc	150 mg/L

Serial ID: UI160712-41 **Open/Reference Date:** 12-JUL-16 **Amount :** 500 mL
Name: ICP HIGH RANGE STD B **Received:** 11-JUL-16 **Catalog Number :** 160211-06-03
Type: Source Material **Expires:** 12-JUL-17 **Lot Number :** 1093571
Employee: Helen Camello **Solvent :** +/-0.5%in2%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	5000 mg/L	Calcium	5000 mg/L
Iron	5000 mg/L	Magnesium	5000 mg/L
Potassium	3000 mg/L	Sodium	5000 mg/L
Sulfur	500 mg/L	Uranium	150 mg/L

Serial ID: UI160727 **Open/Reference Date:** 27-JUL-16 **Amount :** 500 mL
Name: TCLP Spike A/B **Received:** 27-JUL-16 **Catalog Number :** 161472-01-03
Type: Source Material **Expires:** 27-JUL-17 **Lot Number :** 1093608
Employee: Edmund Frampton **Solvent :** 5% nitric + trace HF
Supplier: O2Si
Description: TCLP Spiking Solution A/B
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	4000 mg/L	Antimony	801 mg/L
Arsenic	2000 mg/L	Barium	4000 mg/L
Beryllium	800 mg/L	Boron	800 mg/L
Cadmium	400 mg/L	Calcium	4000 mg/L
Chromium	2000 mg/L	Cobalt	800 mg/L
Copper	800 mg/L	Iron	4001 mg/L
Lead	2000 mg/L	Lithium	200 mg/L
Magnesium	4001 mg/L	Manganese	800 mg/L
Molybdenum	800 mg/L	Nickel	800 mg/L
Potassium	4000 mg/L	Selenium	400 mg/L
Silver	201 mg/L	Sodium	4000 mg/L
Strontium	800 mg/L	Thallium	800 mg/L
Thorium	200 mg/L	Tin	801 mg/L
Uranium	400 mg/L	Uranium-235	2.88 mg/L
Uranium-238	397.12 mg/L	Vanadium	800 mg/L
Zinc	800 mg/L	Zirconium	200 mg/L

Standard Logbook

Serial ID: UI160831-40 **Open/Reference Date:** 13-SEP-16 **Amount :** 500 mL
Name: TRACE CALSTD#1A SOUR **Received:** 25-AUG-16 **Catalog Number :** HP2270-1-500
Type: Source Material **Expires:** 11-AUG-17 **Lot Number :** 1622136
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Std #1A
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	2000 mg/L	Arsenic	200 mg/L
Barium	200 mg/L	Beryllium	200 mg/L
Boron	200 mg/L	Cadmium	200 mg/L
Calcium	2000 mg/L	Chromium	200 mg/L
Cobalt	200 mg/L	Copper	200 mg/L
Iron	2000 mg/L	Lead	200 mg/L
Magnesium	2000 mg/L	Manganese	200 mg/L
Nickel	200 mg/L	Phosphorous	1000 mg/L
Potassium	2000 mg/L	Selenium	200 mg/L
Sodium	2000 mg/L	Strontium	200 mg/L
Thallium	200 mg/L	Uranium	200 mg/L
Uranium-235	1.44 mg/L	Uranium-238	198.56 mg/L
Vanadium	200 mg/L	Zinc	200 mg/L

Serial ID: UI160831-41 **Open/Reference Date:** 13-SEP-16 **Amount :** 500 mL
Name: TRACE CALSTD#1B SOUR **Received:** 25-AUG-16 **Catalog Number :** HP2270-2-500
Type: Source Material **Expires:** 11-AUG-17 **Lot Number :** 1622317
Employee: Helen Camello **Solvent :** HNO3
Supplier: Environmental Express
Description: Trace Calibration Standard #1B
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	200 mg/L	Molybdenum	200 mg/L
Silver	200 mg/L	Sulfur	400 mg/L
Tin	200 mg/L	Titanium	200 mg/L

Serial ID: UI160831-42 **Open/Reference Date:** 13-SEP-16 **Amount :** 500 mL
Name: SILICON 1000mg/L **Received:** 25-AUG-16 **Catalog Number :** 060014-02-03
Type: Source Material **Expires:** 13-SEP-17 **Lot Number :** 1094895
Employee: Helen Camello **Solvent :** in H2O(NH4)2SiF6
Supplier: o2si
Description: Silicon 1000mg/L in H2O(NH4)2SiF6
Comments: None

Analyte	Concentration	Analyte	Concentration
Silica	2139 mg/L	Silicon	1000 mg/L

Serial ID: UI160831-43 **Open/Reference Date:** 09-SEP-16 **Amount :** 500 mL
Name: TRACE ICP ICSA SOLN A **Received:** 30-AUG-16 **Catalog Number :** 160005-01-03
Type: Source Material **Expires:** 09-SEP-17 **Lot Number :** 1090481
Employee: Helen Camello **Solvent :** 5%HNO3
Supplier: o2si
Description: TRACE ICP ICSA SOLN A mg/L+/-0.5%IN5%HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	5000 mg/L	Calcium	5000 mg/L
Iron	2000 mg/L	Magnesium	5000 mg/L

Serial ID: UI160930-40 **Open/Reference Date:** 04-NOV-16 **Amount :** 500 mL
Name: TRACE ICP Na-1000SOUR **Received:** 27-SEP-16 **Catalog Number :** 060011-02-03
Type: Source Material **Expires:** 04-NOV-17 **Lot Number :** 1096737
Employee: Helen Camello **Solvent :** 1%HNO3
Supplier: 02SI
Description: Sodium 1000 +/- 3 ug/mL in 1% HNO3
Comments: None

Analyte	Concentration	Analyte	Concentration
Sodium	1000 ug/mL		

Serial ID: UI161025-49.12 **Open/Reference Date:** 16-NOV-16 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 31-OCT-16 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 17-NOV-16 **Lot Number :** 1098008
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L

Analyte	Concentration	Analyte	Concentration
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI161025-49.2 **Open/Reference Date:** 02-NOV-16 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 31-OCT-16 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 03-NOV-16 **Lot Number :** 1098008
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI161025-49.9 **Open/Reference Date:** 11-NOV-16 **Amount :** 100 ml
Name: Trace ICP ICSAB **Received:** 31-OCT-16 **Catalog Number :** 160066-04
Type: Source Material **Expires:** 12-NOV-16 **Lot Number :** 1098008
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Inteferent Check Standard AB
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	500000 ug/L	Antimony	500 ug/L
Arsenic	500 ug/L	Barium	500 ug/L
Beryllium	250 ug/L	Boron	500 ug/L
Cadmium	500 ug/L	Calcium	500000 ug/L
Chromium	500 ug/L	Cobalt	500 ug/L
Copper	500 ug/L	Iron	200000 ug/L
Lead	500 ug/L	Magnesium	500000 ug/L

Analyte	Concentration	Analyte	Concentration
Manganese	500 ug/L	Molybdenum	500 ug/L
Nickel	500 ug/L	Phosphorous	2500 ug/L
Potassium	5000 ug/L	Selenium	2500 ug/L
Silica	10696.5 ug/L	Silicon	5000 ug/L
Silver	250 ug/L	Sodium	5000 ug/L
Strontium	500 ug/L	Sulfur	2500 ug/L
Thallium	500 ug/L	Tin	500 ug/L
Titanium	500 ug/L	Uranium	500 ug/L
Vanadium	500 ug/L	Zinc	500 ug/L

Serial ID: UI2435207 **Open/Reference Date:** 27-JUL-16 **Amount :** 500 mL
Name: TCLP Spike Hg **Received:** 27-JUL-16 **Catalog Number :** 060080-43-03
Type: Source Material **Expires:** 27-JUL-17 **Lot Number :** 1093090
Employee: Edmund Frampton **Solvent :** 2% nitric acid
Supplier: O2Si
Description: TCLP Spiking Solution Hg
Comments: None

Analyte	Concentration	Analyte	Concentration
Mercury	8 mg/L		

Serial ID: UI2464937-01 **Open/Reference Date:** 14-OCT-16 **Catalog Number :** 160047-01
Name: METALSPIKE-1 **Received:** 14-OCT-16 **Lot Number :** 1097281
Type: Source Material **Expires:** 14-OCT-17
Employee: Shanta Mack
Supplier: OS2I
Description: Metals Spike Mix I
Comments: None

Analyte	Concentration	Analyte	Concentration
Aluminum	1000 ug/mL	Arsenic	100 ug/mL
Barium	100 ug/mL	Beryllium	100 ug/mL
Boron	100 ug/mL	Cadmium	100 ug/mL
Calcium	1000 ug/mL	Cobalt	100 ug/mL
Iron	1000 ug/mL	Lead	100 ug/mL
Magnesium	1000 ug/mL	Phosphorous	100 ug/mL
Potassium	1000 ug/mL	Silver	100 ug/mL
Sodium	1000 ug/mL	Strontium	100 ug/mL

Serial ID: UI2464937-02 **Open/Reference Date:** 14-OCT-16 **Catalog Number :** 160048-01
Name: METALSPIKE-2 **Received:** 14-OCT-16 **Lot Number :** 1097279
Type: Source Material **Expires:** 14-OCT-17
Employee: Shanta Mack
Supplier: OS2I

Description: Metals Spike Mix II
Comments: None

Analyte	Concentration	Analyte	Concentration
Antimony	100 ug/mL	Chromium	100 ug/mL
Copper	100 ug/mL	Manganese	100 ug/mL
Molybdenum	100 ug/mL	Nickel	100 ug/mL
Selenium	100 ug/mL	Silica	2141 ug/mL
Silicon	1000 ug/mL	Sulfur	1000 ug/mL
Thallium	100 ug/mL	Tin	100 ug/mL
Titanium	100 ug/mL	Uranium	100 ug/mL
Uranium-235	.72 ug/mL	Uranium-238	99.28 ug/mL
Vanadium	100 ug/mL	Zinc	100 ug/mL

Serial ID: IHG161109-01 **Open/Reference Date:** 09-NOV-16 **Instrument Id :** Mercury
Name: MHGINTER1 **Received:** 09-NOV-16 **Pipet Id :** Minou1
Type: Intermediate **Expires:** 11-NOV-16 **Solvent :** 1mL HNO3 + TypeI H2O
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Intermediate 1st Source 200 ug/L
Comments: Prepare fresh daily

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UHG2455249-01	Mercury	1000 mg/L	.05 mL	250 mL	200 ug/L

Serial ID: IHG161109-02 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Minou1
Name: MHGINTER2 **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Intermediate **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Intermediate 2nd Source 200 ug/L
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UHG2455256-02	Mercury	999.7 mg/L	.05 mL	250 mL	200 ug/L

Serial ID: WHG161109-01A **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCAL0.2CRA **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 1st Source CAL 0.2/CRA
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	20 uL	20 mL	.2 ug/L

Serial ID: WHG161109-02 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCAL0.5 **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 1st Source CAL 0.5
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	50 uL	20 mL	.5 ug/L

Serial ID: WHG161109-03 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCAL2.0 **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 1st Source CAL 2.0
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	200 uL	20 mL	2 ug/L

Serial ID: WHG161109-04 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCAL5.0CCV **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 1st Source CAL 5.0/CCV
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	.05 uL	20 mL	5 ug/L

Serial ID: WHG161109-05 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCAL10.0 **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 1st Source CAL 10.0
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	1000 uL	20 mL	10 ug/L

Standard Logbook

Serial ID: WHG161109-06 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORK5.0ICV **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 2nd Source 5.0/ICV
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	500 uL	20 mL	5 ug/L

Serial ID: WHG161109-07 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCALS0.2CRA **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working Standard 1st Source CAL S 0.2/CRA
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	30 uL	30 mL	.2 ug/L

Serial ID: WHG161109-08 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCALS0.5 **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working Standard 1st Source CAL S 0.5
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	75 uL	30 mL	.5 ug/L

Serial ID: WHG161109-09 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCALS2.0 **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 1st Source CAL S 2.0
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	300 uL	30 mL	2 ug/L

Standard Logbook

Serial ID: WHG161109-10 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCALS5.0CCV **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 1st Source CAL S 5.0/CCV
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	750 uL	30 mL	5 ug/L

Serial ID: WHG161109-11 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKCALS10.0 **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 1st Source CAL S 10.0
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-01	Mercury	200 ug/L	1500 uL	30 mL	10 ug/L

Serial ID: WHG161109-12 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGWORKS5.0ICV **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury Working 2nd Source S 5.0/ICV
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
IHG161109-02	Mercury	200 ug/L	750 uL	30 mL	5 ug/L

Serial ID: WHG161109-13 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGLIQLCSMSSPIKE **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury working intermediate standard for LCS/MS
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UHG2455249-01	Mercury	1000 mg/L	.05 mL	250 mL	200 ug/L

Standard Logbook

Serial ID: WHG161109-14 **Open/Reference Date:** 09-NOV-16 **Pipet Id :** Hg1289245
Name: MHGSOILMSSPIKE **Received:** 09-NOV-16 **Solvent :** 2% HNO3-1734294
Type: Working **Expires:** 11-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: Mercury soil working intermediate standard for MS
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UHG2455249-01	Mercury	1000 mg/L	.05 mL	250 mL	200 ug/L

Serial ID: WI160921-48 **Open/Reference Date:** 21-SEP-16 **Amount :** 25 mL
Name: Trace ICP ICSA **Received:** 19-MAY-16 **Catalog Number :** 160005-08-03
Type: Working **Expires:** 21-DEC-16 **Lot Number :** 1090998
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Interferent Check Standard A
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160519-40	Aluminum	20000 mg/L	25 mL	1000 mL	500000 UG/L
UI160519-40	Calcium	20000 mg/L	25 mL	1000 mL	500000 UG/L
UI160519-40	Iron	8000 mg/L	25 mL	1000 mL	200000 UG/L
UI160519-40	Magnesium	20000 mg/L	25 mL	1000 mL	500000 UG/L

Serial ID: WI161021-40 **Open/Reference Date:** 21-OCT-16 **Balance Id :** 216
Name: ICP HIGH RANGE STD-A **Received:** 12-JUL-16 **Lot Number :** 1093571
Type: Working **Expires:** 21-NOV-16 **Pipet Id :** 1099667
Employee: Helen Camello **Solvent :** 3%HCL and1%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160712-40	Antimony	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Arsenic	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Barium	150 mg/L	50 mL	500 mL	15000 ug/L
UI160712-40	Beryllium	30 mg/L	50 mL	500 mL	3000 ug/L
UI160712-40	Boron	50 mg/L	50 mL	500 mL	5000 ug/L
UI160712-40	Cadmium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Chromium	250 mg/L	50 mL	500 mL	25000 ug/L
UI160712-40	Cobalt	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Copper	200 mg/L	50 mL	500 mL	20000 ug/L
UI160712-40	Lead	250 mg/L	50 mL	500 mL	25000 ug/L
UI160712-40	Manganese	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Molybdenum	100 mg/L	50 mL	500 mL	10000 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160712-40	Nickel	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Phosphorous	150 mg/L	50 mL	500 mL	15000 ug/L
UI160712-40	Selenium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Silica	1070 mg/L	50 mL	500 mL	107000 ug/L
UI160712-40	Silicon	500 mg/L	50 mL	500 mL	50000 ug/L
UI160712-40	Silver	100 mg/L	50 mL	500 mL	1000 ug/L
UI160712-40	Strontium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Thallium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Tin	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Titanium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Vanadium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Zinc	150 mg/L	50 mL	500 mL	15000 ug/L

Serial ID: WI161021-41 **Open/Reference Date:** 21-OCT-16 **Balance Id :** 216
Name: ICP HIGH RANGE STD B **Received:** 12-JUL-16 **Lot Number :** 1093571
Type: Working **Expires:** 21-NOV-16 **Pipet Id :** 1099667
Employee: Helen Camello **Solvent :** 3%HCLand 1%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160712-41	Aluminum	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Calcium	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Iron	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Magnesium	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Potassium	3000 mg/L	50 mL	500 mL	300000 ug/L
UI160712-41	Sodium	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Sulfur	500 mg/L	50 mL	500 mL	50000 ug/L
UI160712-41	Uranium	150 mg/L	50 mL	500 mL	15000 ug/L

Serial ID: WI161021-48 **Open/Reference Date:** 21-OCT-16 **Amount :** 25 mL
Name: Trace ICP ICSA **Received:** 19-MAY-16 **Catalog Number :** 160005-08-03
Type: Working **Expires:** 21-JAN-17 **Lot Number :** 1090998
Employee: Helen Camello **Solvent :** 3% HCl + 1% HNO3
Supplier: o2si
Description: Trace ICP Interferent Check Standard A
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160519-40	Aluminum	20000 mg/L	25 mL	1000 mL	500000 UG/L
UI160519-40	Calcium	20000 mg/L	25 mL	1000 mL	500000 UG/L
UI160519-40	Iron	8000 mg/L	25 mL	1000 mL	200000 UG/L
UI160519-40	Magnesium	20000 mg/L	25 mL	1000 mL	500000 UG/L

Standard Logbook

Serial ID: WI161102-43 **Open/Reference Date:** 02-NOV-16 **Balance Id :** 216
Name: TRACE ICP 0.5/CCV STD. **Received:** 25-AUG-16 **Pipet Id :** 1099667
Type: Working **Expires:** 03-NOV-16 **Solvent :** 3%HCL AND 1%HNO3-2471558
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP O.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160705-41	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L
UI160831-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI160831-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L
UI160831-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-42	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L
UI160831-42	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L

Standard Logbook

Serial ID: WI161102-44 **Open/Reference Date:** 02-NOV-16 **Balance Id :** 216
Name: TRACE ICP SCAL 1.0 **Received:** 25-AUG-16 **Pipet Id :** 3581809
Type: Working **Expires:** 03-NOV-16 **Solvent :** 3%HCL&1%HNO3-2471558
Employee: Helen Camello
Supplier: o2si
Description: Trace ICP Calibration Standard 1.0ppm
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160831-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI160831-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-42	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI160831-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L

Standard Logbook

Serial ID: WI161102-45 **Open/Reference Date:** 02-NOV-16 **Balance Id :** 216
Name: TRACE ICP S-10 STD **Received:** 30-AUG-16 **Pipet Id :** 1099667
Type: Working **Expires:** 03-NOV-16 **Solvent :** 3%HCL and 1%HNO3-2471558
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP S-10 CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160705-41	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L
UI160831-43	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI160831-43	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI160831-43	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI160831-43	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L

Serial ID: WI161102-46 **Open/Reference Date:** 02-NOV-16 **Balance Id :** 216
Name: ICP TRACE ICV **Received:** 10-MAR-16 **Pipet Id :** 1099667
Type: Working **Expires:** 03-NOV-16 **Solvent :** 3%HCL AND 1%HNO3-2471558
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI151210-42	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI151210-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI160310-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160310-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI160310-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Serial ID: WI161102-47 **Open/Reference Date:** 02-NOV-16 **Balance Id :** 216

Name: PQL Working Standard **Received:** 11-APR-16 **Pipet Id :** 1099667

Type: Working **Expires:** 03-NOV-16 **Solvent :** 3%HCL&1%HNO3-2471558

Employee: Helen Camello

Supplier: 02si

Description: PQL Working Standard

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160411-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L
UI160411-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Arsenic	15 mg/L	2 mL	1000 mL	15 ug/L
UI160411-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI160411-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Calcium	100 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI160411-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Selenium	15 mg/L	2 mL	1000 mL	15 ug/L
UI160411-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Sodium	150 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160411-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI160411-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: WI161104-40 **Open/Reference Date:** 04-NOV-16 **Balance Id :** 216
Name: ICP HIGH RANGE STD-A **Received:** 12-JUL-16 **Lot Number :** 1093571
Type: Working **Expires:** 04-DEC-16 **Pipet Id :** 1099667
Employee: Helen Camello **Solvent :** 3%HCL and1%HNO3
Supplier: 02SI
Description: ICP HIGH RANGE STD SOLUTION A
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160712-40	Antimony	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Arsenic	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Barium	150 mg/L	50 mL	500 mL	15000 ug/L
UI160712-40	Beryllium	30 mg/L	50 mL	500 mL	3000 ug/L
UI160712-40	Boron	50 mg/L	50 mL	500 mL	5000 ug/L
UI160712-40	Cadmium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Chromium	250 mg/L	50 mL	500 mL	25000 ug/L
UI160712-40	Cobalt	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Copper	200 mg/L	50 mL	500 mL	20000 ug/L
UI160712-40	Lead	250 mg/L	50 mL	500 mL	25000 ug/L
UI160712-40	Manganese	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Molybdenum	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Nickel	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Phosphorous	150 mg/L	50 mL	500 mL	15000 ug/L
UI160712-40	Selenium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Silica	1070 mg/L	50 mL	500 mL	107000 ug/L
UI160712-40	Silicon	500 mg/L	50 mL	500 mL	50000 ug/L
UI160712-40	Silver	100 mg/L	50 mL	500 mL	1000 ug/L
UI160712-40	Strontium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Thallium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Tin	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Titanium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Vanadium	100 mg/L	50 mL	500 mL	10000 ug/L
UI160712-40	Zinc	150 mg/L	50 mL	500 mL	15000 ug/L

Serial ID: WI161104-41 **Open/Reference Date:** 04-NOV-16 **Balance Id :** 216
Name: ICP HIGH RANGE STD B **Received:** 12-JUL-16 **Lot Number :** 1093571
Type: Working **Expires:** 04-DEC-16 **Pipet Id :** 1099667
Employee: Helen Camello **Solvent :** 3%HCLand 1%HNO3
Supplier: 02SI

Description: ICP HIGH RANGE STD SOLUTION B
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160712-41	Aluminum	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Calcium	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Iron	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Magnesium	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Potassium	3000 mg/L	50 mL	500 mL	300000 ug/L
UI160712-41	Sodium	5000 mg/L	50 mL	500 mL	500000 ug/L
UI160712-41	Sulfur	500 mg/L	50 mL	500 mL	50000 ug/L
UI160712-41	Uranium	150 mg/L	50 mL	500 mL	15000 ug/L

Serial ID: WI161111-42 **Open/Reference Date:** 11-NOV-16 **Balance Id :** 216
Name: TRACE ICP 0.1 PPM STD. **Received:** 25-AUG-16 **Pipet Id :** 1099667
Type: Working **Expires:** 12-NOV-16 **Solvent :** 3%HCL AND 1%HNO3-2474796
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP 0.1 PPM CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI161111-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161111-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161111-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161111-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161111-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI161111-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161111-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI161111-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI161111-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161111-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI161111-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI161111-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161111-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI161111-43 **Open/Reference Date:** 11-NOV-16 **Balance Id :** 216
Name: TRACE ICP 0.5/CCV STD. **Received:** 25-AUG-16 **Pipet Id :** 1099667
Type: Working **Expires:** 12-NOV-16 **Solvent :** 3%HCL AND 1%HNO3-2474796
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP O.5/CCV CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI160831-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-42	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L
UI160831-42	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI160930-40	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L

Serial ID: WI161111-44 **Open/Reference Date:** 11-NOV-16 **Balance Id :** 216

Name: TRACE ICP SCAL 1.0 **Received:** 25-AUG-16 **Pipet Id :** 3581809

Type: Working **Expires:** 12-NOV-16 **Solvent :** 3%HCL&1%HNO3-2474796

Employee: Helen Camello

Supplier: o2si

Description: Trace ICP Calibration Standard 1.0ppm

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160831-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI160831-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-42	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI160831-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L

Serial ID: WI161111-45 **Open/Reference Date:** 11-NOV-16 **Balance Id :** 216
Name: TRACE ICP S-10 STD **Received:** 30-AUG-16 **Pipet Id :** 1099667
Type: Working **Expires:** 12-NOV-16 **Solvent :** 3%HCL and 1%HNO3-2474796
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP S-10 CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-43	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI160831-43	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI160831-43	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI160831-43	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI160930-40	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L

Serial ID: WI161111-46 **Open/Reference Date:** 11-NOV-16 **Balance Id :** 216
Name: ICP TRACE ICV **Received:** 10-MAR-16 **Pipet Id :** 1099667
Type: Working **Expires:** 12-NOV-16 **Solvent :** 3%HCL AND 1%HNO3-2474796
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI151210-42	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI151210-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160310-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI160310-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI160310-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Serial ID: WI161111-47 **Open/Reference Date:** 11-NOV-16 **Balance Id :** 216

Name: PQL Working Standard **Received:** 11-APR-16 **Pipet Id :** 1099667

Type: Working **Expires:** 12-NOV-16 **Solvent :** 3%HCL&1%HNO3-2474796

Employee: Helen Camello

Supplier: 02si

Description: PQL Working Standard

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160411-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L
UI160411-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Arsenic	15 mg/L	2 mL	1000 mL	15 ug/L
UI160411-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI160411-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Calcium	100 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI160411-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Selenium	15 mg/L	2 mL	1000 mL	15 ug/L
UI160411-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160411-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Sodium	150 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L
UI160411-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI160411-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: WI161116-42 **Open/Reference Date:** 16-NOV-16 **Balance Id :** 216

Name: TRACE ICP 0.1 PPM STD. **Received:** 25-AUG-16 **Pipet Id :** 1099667

Type: Working **Expires:** 17-NOV-16 **Solvent :** 3%HCL AND 1%HNO3-2477714

Employee: Helen Camello

Supplier: GEL

Description: TRACE ICP 0.1 PPM CALIBRATION STD.

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI161116-44	Aluminum	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161116-44	Antimony	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Arsenic	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Barium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Beryllium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Boron	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Cadmium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Calcium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161116-44	Chromium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Cobalt	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Copper	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Iron	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161116-44	Lead	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Magnesium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161116-44	Manganese	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Molybdenum	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Nickel	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Phosphorous	5000 ug/L	10 mL	100 mL	500 ug/L
WI161116-44	Potassium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161116-44	Selenium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Silica	10698 ug/L	10 mL	100 mL	1069 ug/L
WI161116-44	Silicon	5000 ug/L	10 mL	100 mL	500 ug/L
WI161116-44	Silver	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Sodium	10000 ug/L	10 mL	100 mL	1000 ug/L
WI161116-44	Strontium	1000 ug/L	10 mL	100 mL	100 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
WI161116-44	Sulfur	2000 ug/L	10 mL	100 mL	200 ug/L
WI161116-44	Thallium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Tin	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Titanium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Uranium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Vanadium	1000 ug/L	10 mL	100 mL	100 ug/L
WI161116-44	Zinc	1000 ug/L	10 mL	100 mL	100 ug/L

Serial ID: WI161116-43 **Open/Reference Date:** 16-NOV-16 **Balance Id :** 216

Name: TRACE ICP 0.5/CCV STD. **Received:** 25-AUG-16 **Pipet Id :** 1099667

Type: Working **Expires:** 17-NOV-16 **Solvent :** 3%HCL AND 1%HNO3-2477714

Employee: Helen Camello

Supplier: GEL

Description: TRACE ICP O.5/CCV CALIBRATION STD.

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-40	Aluminum	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Arsenic	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Barium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Beryllium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Boron	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Cadmium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Calcium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Chromium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Cobalt	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Copper	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Iron	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Lead	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Magnesium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Manganese	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Nickel	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Phosphorous	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI160831-40	Potassium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Selenium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Sodium	2000 mg/L	2.5 mL	1000 mL	5000 UG/L
UI160831-40	Strontium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Thallium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Uranium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Vanadium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-40	Zinc	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Antimony	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Molybdenum	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Silver	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Sulfur	400 mg/L	2.5 mL	1000 mL	1000 UG/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-41	Tin	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-41	Titanium	200 mg/L	2.5 mL	1000 mL	500 UG/L
UI160831-42	Silica	2139 mg/L	2.5 mL	1000 mL	5348.25 UG/L
UI160831-42	Silicon	1000 mg/L	2.5 mL	1000 mL	2500 UG/L
UI160930-40	Sodium	1000 ug/mL	5 mL	1000 mL	5000 UG/L

Serial ID: WI161116-44 **Open/Reference Date:** 16-NOV-16 **Balance Id :** 216

Name: TRACE ICP SCAL 1.0 **Received:** 25-AUG-16 **Pipet Id :** 3581809

Type: Working **Expires:** 17-NOV-16 **Solvent :** 3%HCL&1%HNO3-2477714

Employee: Helen Camello

Supplier: o2si

Description: Trace ICP Calibration Standard 1.0ppm

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-40	Aluminum	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Arsenic	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Barium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Beryllium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Boron	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Cadmium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Calcium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Chromium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Cobalt	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Copper	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Iron	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Lead	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Magnesium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Manganese	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Nickel	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Phosphorous	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160831-40	Potassium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Selenium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Sodium	2000 mg/L	2.5 mL	500 mL	10000 ug/L
UI160831-40	Strontium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Thallium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Uranium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Vanadium	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-40	Zinc	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Antimony	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Molybdenum	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Silver	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Sulfur	400 mg/L	2.5 mL	500 mL	2000 ug/L
UI160831-41	Tin	200 mg/L	2.5 mL	500 mL	1000 ug/L
UI160831-41	Titanium	200 mg/L	2.5 mL	500 mL	1000 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-42	Silica	2139 mg/L	2.5 mL	500 mL	10698 ug/L
UI160831-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L

Serial ID: WI161116-45 **Open/Reference Date:** 16-NOV-16 **Balance Id :** 216
Name: TRACE ICP S-10 STD **Received:** 30-AUG-16 **Pipet Id :** 1099667
Type: Working **Expires:** 17-NOV-16 **Solvent :** 3%HCL and 1%HNO3-24777714
Employee: Helen Camello
Supplier: GEL
Description: TRACE ICP S-10 CALIBRATION STD.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160831-43	Aluminum	5000 mg/L	5 mL	500 mL	50000 UG/L
UI160831-43	Calcium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI160831-43	Iron	2000 mg/L	5 mL	500 mL	20000 UG/L
UI160831-43	Magnesium	5000 mg/L	5 mL	500 mL	50000 UG/L
UI160930-40	Sodium	1000 ug/mL	10 mL	500 mL	20000 UG/L

Serial ID: WI161116-46 **Open/Reference Date:** 16-NOV-16 **Balance Id :** 216
Name: ICP TRACE ICV **Received:** 10-MAR-16 **Pipet Id :** 1099667
Type: Working **Expires:** 17-NOV-16 **Solvent :** 3%HCL AND 1%HNO3-2477714
Employee: Helen Camello
Supplier: GEL
Description: Initial Calibration Verification ICP Trace Metals
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI151210-42	Silica	2139 mg/L	2.5 mL	500 mL	10695 ug/L
UI151210-42	Silicon	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Aluminum	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Arsenic	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Barium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Boron	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Cadmium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Calcium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Chromium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Cobalt	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Copper	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Iron	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-40	Lead	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-40	Phosphorous	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Potassium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Selenium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Sodium	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-40	Strontium	100 mg/L	2.5 mL	500 mL	500 ug/L

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160310-41	Antimony	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Beryllium	50 mg/L	2.5 mL	500 mL	250 ug/L
UI160310-41	Magnesium	1000 mg/L	2.5 mL	500 mL	5000 ug/L
UI160310-41	Manganese	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Molybdenum	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Nickel	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Silver	50 mg/L	2.5 mL	500 mL	250 ug/L
UI160310-41	Sulfur	500 mg/L	2.5 mL	500 mL	2500 ug/L
UI160310-41	Thallium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Tin	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Titanium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Uranium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Vanadium	100 mg/L	2.5 mL	500 mL	500 ug/L
UI160310-41	Zinc	100 mg/L	2.5 mL	500 mL	500 ug/L

Serial ID: WI161116-47 **Open/Reference Date:** 16-NOV-16 **Balance Id :** 216

Name: PQL Working Standard **Received:** 11-APR-16 **Pipet Id :** 1099667

Type: Working **Expires:** 17-NOV-16 **Solvent :** 3%HCL&1%HNO3-2477714

Employee: Helen Camello

Supplier: 02si

Description: PQL Working Standard

Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160411-40	Aluminum	100 mg/L	2 mL	1000 mL	200 ug/L
UI160411-40	Antimony	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Arsenic	15 mg/L	2 mL	1000 mL	15 ug/L
UI160411-40	Barium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Beryllium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Boron	25 mg/L	2 mL	1000 mL	50 ug/L
UI160411-40	Cadmium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Calcium	100 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Chromium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Cobalt	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Copper	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Iron	50 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Lead	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Magnesium	150 mg/L	2 mL	1000 mL	300 ug/L
UI160411-40	Manganese	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Molybdenum	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Nickel	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Phosphorous	75 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Potassium	75 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Selenium	15 mg/L	2 mL	1000 mL	15 ug/L
UI160411-40	Silicon	50 mg/L	2 mL	1000 mL	100 ug/L

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
UI160411-40	Silver	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Sodium	150 mg/L	2 mL	1000 mL	150 ug/L
UI160411-40	Strontium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Sulfur	50 mg/L	2 mL	1000 mL	100 ug/L
UI160411-40	Thallium	10 mg/L	2 mL	1000 mL	20 ug/L
UI160411-40	Tin	5 mg/L	2 mL	1000 mL	10 ug/L
UI160411-40	Titanium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Uranium	25 mg/L	2 mL	1000 mL	50 ug/L
UI160411-40	Vanadium	2.5 mg/L	2 mL	1000 mL	5 ug/L
UI160411-40	Zinc	5 mg/L	2 mL	1000 mL	10 ug/L

Serial ID: 160119-tclp **Open/Reference Date:** 19-JAN-16 **Lot Number :** 0000118139
Name: I-HNO3 **Received:** 19-JAN-16
Type: Reagent/Solvent **Expires:** 19-JAN-17
Employee: John Orgel
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 160202-BP **Open/Reference Date:** 02-FEB-16 **Lot Number :** 156039
Name: I-HCL **Received:** 02-FEB-16 **Preservative_Id :** 5 none
Type: Reagent/Solvent **Expires:** 02-FEB-17
Employee: Jeremy Tisdale
Supplier: FISHER Scientific
Description: HYDROCHLORIC ACID for bottle prep
Comments: None

Serial ID: 160215 **Open/Reference Date:** 15-FEB-16
Name: SPLP 60/40 Intermediate **Received:** 15-FEB-16
Type: Reagent/Solvent **Expires:** 19-JAN-17
Employee: Edmund Frampton
Supplier: GEL
Description: SPLP 60/40 Intermediate
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
160119-tclp	I-HNO3	68.0-70.0%	4 mL	500 mL	60%H2SO4/40%HNO3
2349143	B-H2SO4-MER	95 - 98 percent	6 mL	500 mL	60%H2SO4/40%HNO3

Serial ID: 160907-tclp **Open/Reference Date:** 07-SEP-16 **Lot Number :** 0000137493
Name: I-HNO3 **Received:** 07-SEP-16
Type: Reagent/Solvent **Expires:** 07-SEP-17
Employee: Richard Dollinger
Supplier: Macron Chemicals
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 161027 **Open/Reference Date:** 27-OCT-16 **Balance Id :** BAL-011
Name: SPLP2 **Received:** 27-OCT-16
Type: Reagent/Solvent **Expires:** 19-JAN-17
Employee: Richard Dollinger
Supplier: GEL
Description: SPLP WESTERN EXTRACTION FLUID 4.97
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
160215	SPLP 60/40 Intermediate	60%H2SO4/40%H	7 mL	50 L	SPLP2

Serial ID: 2349143 **Open/Reference Date:** 24-DEC-15 **Lot Number :** 0000122133
Name: B-H2SO4-MER **Received:** 24-DEC-15
Type: Reagent/Solvent **Expires:** 24-DEC-17
Employee: Alan Stanley
Supplier: MACRON
Description: Sulfuric Acid, Concentrated
Comments: None

Serial ID: 2358607-A **Open/Reference Date:** 22-JAN-16 **Lot Number :** 3025C513
Name: B-NH2OH.HCl-MER **Received:** 22-JAN-16
Type: Reagent/Solvent **Expires:** 22-JAN-17
Employee: Monifa Basdeo
Supplier: EMD
Description: Hydroxlyamine Hydrochloride
Comments: None

Serial ID: 2375431-A **Open/Reference Date:** 07-MAR-16 **Lot Number :** 155044
Name: B-NaCl-MER **Received:** 07-MAR-16
Type: Reagent/Solvent **Expires:** 07-MAR-17
Employee: Monifa Basdeo
Supplier: VWR
Description: Sodium Chloride
Comments: None

Standard Logbook

Serial ID: 2384052 **Open/Reference Date:** 25-MAR-16 **Lot Number :** A0361726
Name: B-K2S2O8S-MER **Received:** 25-MAR-16
Type: Reagent/Solvent **Expires:** 25-MAR-18
Employee: Alan Stanley
Supplier: ACROS ORGANICS
Description: Potassium Persulfate Concentrate.
Comments: None

Serial ID: 2436218-1 **Open/Reference Date:** 29-JUL-16 **Instrument Id :** MERCURY
Name: B-HNO3-MER **Received:** 29-JUL-16 **Lot Number :** 0000137493
Type: Reagent/Solvent **Expires:** 29-JUL-18
Employee: Alan Stanley
Supplier: BDH
Description: NITRIC ACID
Comments: None

Serial ID: 2437806-A **Open/Reference Date:** 02-AUG-16 **Lot Number :** 160888
Name: B-KMnO4(VWR)-MER **Received:** 02-AUG-16
Type: Reagent/Solvent **Expires:** 02-AUG-18
Employee: Alan Stanley
Supplier: Fisher
Description: Potassium Permanganate
Comments: None

Serial ID: 2451969 **Open/Reference Date:** 07-SEP-16 **Lot Number :** 0000141596
Name: I-HNO3 **Received:** 07-SEP-16
Type: Reagent/Solvent **Expires:** 07-SEP-17
Employee: Edmund Frampton
Supplier: MACRON
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 2460309-C **Open/Reference Date:** 29-SEP-16 **Balance Id :** BAL-002
Name: B-K2S2O8-MER **Received:** 29-SEP-16
Type: Reagent/Solvent **Expires:** 25-MAR-18
Employee: Alan Stanley
Supplier: GEL
Description: 5% Potassium Persulfate
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
2384052	B-K2S2O8S-MER	N/A	175 g	1000 mL	5%

Serial ID: 2460888 **Open/Reference Date:** 30-SEP-16 **Lot Number :** 163526
Name: I-HCL **Received:** 30-SEP-16
Type: Reagent/Solvent **Expires:** 30-SEP-17
Employee: Shanta Mack
Supplier: FISHER SCIENTIFIC
Description: HYDROCHLORIC ACID
Comments: None

Serial ID: 2464396-C **Open/Reference Date:** 13-OCT-16 **Balance Id :** BAL-423
Name: B-KMnO4-MER **Received:** 13-OCT-16
Type: Reagent/Solvent **Expires:** 02-AUG-18
Employee: Monifa Basdeo
Supplier: GEL
Description: 5% KMnO4 solution
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
2437806-A	B-KMnO4(VWR)-MER	Crystals	175 g	1000 mL	5%

Serial ID: 2467922 **Open/Reference Date:** 21-OCT-16 **Lot Number :** 2016081971
Name: I-HNO3 **Received:** 21-OCT-16
Type: Reagent/Solvent **Expires:** 21-OCT-18
Employee: Shanta Mack
Supplier: BDH
Description: Concentrated Nitric Acid
Comments: None

Serial ID: 2467932-C **Open/Reference Date:** 20-OCT-16 **Balance Id :** BAL-002
Name: B-NaCl.NH2OH.HCl-MER **Received:** 20-OCT-16
Type: Reagent/Solvent **Expires:** 21-JAN-17
Employee: Monifa Basdeo
Supplier: GEL
Description: Hg reducing agent
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
2358607-A	B-NH2OH.HCl-MER	N/A	120 g	1000 mL	2.2%
2375431-A	B-NaCl-MER	100	120 g	1000 mL	2.2%

Serial ID: 2471558 **Open/Reference Date:** 31-OCT-16 **Solvent :** 3%HCL+1%HNO3
Name: B-ICP-RINSE SOLN **Received:** 31-OCT-16
Type: Reagent/Solvent **Expires:** 06-NOV-16
Employee: Helen Camello
Supplier: GEL

Description: 3%HCL+1%HNO3 RINSE SOLN.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
160202-BP	I-HCL	36.5-38.0	240 mL	10000 mL	N/A
2451969	I-HNO3	68.0-70.0%	80 mL	10000 mL	N/A

Serial ID: 2474090-A **Open/Reference Date:** 03-NOV-16 **Lot Number :** 163526
Name: B-HCl-MER **Received:** 03-NOV-16
Type: Reagent/Solvent **Expires:** 03-NOV-18
Employee: Monifa Basdeo
Supplier: Fisher Scientific
Description: Hydrochloric Acid Conc.
Comments: None

Serial ID: 2474796 **Open/Reference Date:** 07-NOV-16 **Solvent :** 3%HCL+1%HNO3
Name: B-ICP-RINSE SOLN **Received:** 21-OCT-16
Type: Reagent/Solvent **Expires:** 13-NOV-16
Employee: Helen Camello
Supplier: GEL
Description: 3%HCL+1%HNO3 RINSE SOLN.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
2460888	I-HCL	36.5-38.0	240 mL	10000 mL	N/A
2467922	I-HNO3	68.0-70.0%	80 mL	10000 mL	N/A

Serial ID: 2475119 **Open/Reference Date:** 07-NOV-16 **Lot Number :** 2016092001
Name: B-H2SO4-MER **Received:** 07-NOV-16
Type: Reagent/Solvent **Expires:** 07-NOV-18
Employee: Alan Stanley
Supplier: BDH
Description: Sulfuric Acid, Concentrated
Comments: None

Serial ID: 2476285-C **Open/Reference Date:** 09-NOV-16 **Solvent :** DI H2O
Name: B-Aqua Regia-MER **Received:** 09-NOV-16
Type: Reagent/Solvent **Expires:** 10-NOV-16
Employee: Alan Stanley
Supplier: GEL
Description: 50% Aqua Regia
Comments: None

Standard Logbook

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
2436218-1	B-HNO3-MER	68.0-70.0%	25 mL	200 mL	100 ml
2474090-A	B-HCl-MER	36.5-38%	75 mL	200 mL	100 ml

Serial ID: 2477714 **Open/Reference Date:** 14-NOV-16 **Solvent :** 3%HCL+1%HNO3
Name: B-ICP-RINSE SOLN **Received:** 14-NOV-16
Type: Reagent/Solvent **Expires:** 20-NOV-16
Employee: Helen Camello
Supplier: GEL
Description: 3%HCL+1%HNO3 RINSE SOLN.
Comments: None

Parent Material	Analyte	Parent Conc.	Aliquot	Final Vol.	Final Conc.
2460888	I-HCL	36.5-38.0	240 mL	10000 mL	N/A
2467922	I-HNO3	68.0-70.0%	80 mL	10000 mL	N/A

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
Haley & Aldrich, Inc. (HAAL)
SDG #: 409254

Product: **Perchlorate**
Analytical Method: EPA 314.0
Analytical Procedure: GL-GC-E-096 REV# 8
Analytical Batches: 1611808 and 1611807

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
409254011	SS110100
409254012	SS110200
409254013	SD140300
409254014	SD140200
409254015	SD140100
409254016	SD140100DUP
1203659162	Method Blank (MB)
1203659163	Laboratory Control Sample (LCS)
1203659164	409254011(SS110100) Sample Duplicate (DUP)
1203659165	409254011(SS110100) Matrix Spike (MS)

The samples in this SDG were analyzed on a "dry weight" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

HAAL002 Haley & Aldrich, Inc.

Client SDG: 409254 GEL Work Order: 409254

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Kristen Mizzell **Name: Kristen Mizzell**

Date: 22 NOV 2016 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC
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Certificate of Analysis

Report Date: November 22, 2016

Company :	Haley & Aldrich, Inc.
Address :	100 Corporate Place, Suite 105
	Rocky Hill, Connecticut 06067
Contact:	Mr. Miles van Noordennen
Project:	Fort Calhoun Nuclear Station

Client Sample ID:	SS110100	Project:	HAAL00201
Sample ID:	409254011	Client ID:	HAAL002
Matrix:	Soil		
Collect Date:	24-OCT-16 10:04		
Receive Date:	27-OCT-16		
Collector:	Client		
Moisture:	4.21%		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 314.0 Perchlorate by IC "Dry Weight Corrected"												
Perchlorate	U	ND	14.0	41.1	ug/kg	9.85	1	MAR1	11/15/16	2112	1611808	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 314.0	EPA 314.0 Prep Perchlorate by IC	MAR1	11/15/16	1141	1611807

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 22, 2016

Company :	Haley & Aldrich, Inc.
Address :	100 Corporate Place, Suite 105
	Rocky Hill, Connecticut 06067
Contact:	Mr. Miles van Noordennen
Project:	Fort Calhoun Nuclear Station

Client Sample ID:	SS110200	Project:	HAAL00201
Sample ID:	409254012	Client ID:	HAAL002
Matrix:	Soil		
Collect Date:	24-OCT-16 10:54		
Receive Date:	27-OCT-16		
Collector:	Client		
Moisture:	17.4%		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 314.0 Perchlorate by IC "Dry Weight Corrected"												
Perchlorate	U	ND	16.1	47.5	ug/kg	9.80	1	MAR1	11/15/16	2214	1611808	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 314.0	EPA 314.0 Prep Perchlorate by IC	MAR1	11/15/16	1141	1611807

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 22, 2016

Company :	Haley & Aldrich, Inc.
Address :	100 Corporate Place, Suite 105
	Rocky Hill, Connecticut 06067
Contact:	Mr. Miles van Noordennen
Project:	Fort Calhoun Nuclear Station

Client Sample ID:	SD140300	Project:	HAAL00201
Sample ID:	409254013	Client ID:	HAAL002
Matrix:	Soil		
Collect Date:	24-OCT-16 11:43		
Receive Date:	27-OCT-16		
Collector:	Client		
Moisture:	36.6%		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 314.0 Perchlorate by IC "Dry Weight Corrected"												
Perchlorate	U	ND	21.3	62.6	ug/kg	9.93	1	MAR1	11/15/16	2235	1611808	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 314.0	EPA 314.0 Prep Perchlorate by IC	MAR1	11/15/16	1141	1611807

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 22, 2016

Company :	Haley & Aldrich, Inc.
Address :	100 Corporate Place, Suite 105
	Rocky Hill, Connecticut 06067
Contact:	Mr. Miles van Noordennen
Project:	Fort Calhoun Nuclear Station

Client Sample ID:	SD140200	Project:	HAAL00201
Sample ID:	409254014	Client ID:	HAAL002
Matrix:	Soil		
Collect Date:	24-OCT-16 11:58		
Receive Date:	27-OCT-16		
Collector:	Client		
Moisture:	44.5%		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 314.0 Perchlorate by IC "Dry Weight Corrected"												
Perchlorate	U	ND	24.2	71.2	ug/kg	9.88	1	MAR1	11/15/16	2256	1611808	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 314.0	EPA 314.0 Prep Perchlorate by IC	MAR1	11/15/16	1141	1611807

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 22, 2016

Company :	Haley & Aldrich, Inc.
Address :	100 Corporate Place, Suite 105
	Rocky Hill, Connecticut 06067
Contact:	Mr. Miles van Noordennen
Project:	Fort Calhoun Nuclear Station

Client Sample ID:	SD140100	Project:	HAAL00201
Sample ID:	409254015	Client ID:	HAAL002
Matrix:	Soil		
Collect Date:	24-OCT-16 12:35		
Receive Date:	27-OCT-16		
Collector:	Client		
Moisture:	37.6%		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 314.0 Perchlorate by IC "Dry Weight Corrected"												
Perchlorate	U	ND	21.6	63.5	ug/kg	9.90	1	MAR1	11/15/16	2317	1611808	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 314.0	EPA 314.0 Prep Perchlorate by IC	MAR1	11/15/16	1141	1611807

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: November 22, 2016

Company :	Haley & Aldrich, Inc.
Address :	100 Corporate Place, Suite 105
	Rocky Hill, Connecticut 06067
Contact:	Mr. Miles van Noordennen
Project:	Fort Calhoun Nuclear Station

Client Sample ID:	SD140100DUP	Project:	HAAL00201
Sample ID:	409254016	Client ID:	HAAL002
Matrix:	Soil		
Collect Date:	24-OCT-16 12:35		
Receive Date:	27-OCT-16		
Collector:	Client		
Moisture:	36.7%		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
EPA 314.0 Perchlorate by IC "Dry Weight Corrected"												
Perchlorate	U	ND	21.1	62.1	ug/kg	9.83	1	MAR1	11/15/16	2338	1611808	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 314.0	EPA 314.0 Prep Perchlorate by IC	MAR1	11/15/16	1141	1611807

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 314.0	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 22, 2016

Haley & Aldrich, Inc.
100 Corporate Place, Suite 105
Rocky Hill, Connecticut

Contact: **Mr. Miles van Noordennen**

Workorder: **409254**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography												
Batch 1611808												
QC1203659164 409254011 DUP												
Perchlorate		U	ND	U	ND	ug/kg	N/A			MAR1	11/15/16	21:33
QC1203659163 LCS												
Perchlorate	500				497	ug/kg		99.4	(90%-110%)		11/15/16	20:51
QC1203659162 MB												
Perchlorate				U	ND	ug/kg					11/15/16	20:30
QC1203659165 409254011 MS												
Perchlorate	103	U	ND		106	ug/kg		103	(50%-145%)		11/15/16	21:53

Notes:

The Qualifiers in this report are defined as follows:

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes

QC Summary

Workorder: **409254**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Instrument QC Data Summary

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Report Run On: 22-NOV-2016 08:16

GEL Laboratories LLC

Contract: HAAL00201

SDG #: 409254

Ion Chromatography

Method: EPA 314.0

Instrument: DIONEX Aquion (IC10)

Parmname: Perchlorate Concentration Units:ug/L

Sample Type	Run Date	Data File	Result	Nominal	Recovery	Limits	Within Limits
ICV	**15-NOV-2016 14:15:00**	**161115**	**49.5356**	**50**	**99.1**	**(90%-110%)**	**Yes**
CCV	15-NOV-2016 15:38:00	161115	73.9836	75	98.6	(90%-110%)	Yes
CCV	15-NOV-2016 19:48:00	161115	23.9378	25	95.8	(90%-110%)	Yes
CCV	15-NOV-2016 23:59:00	161115	73.2477	75	97.7	(90%-110%)	Yes

Sample Type	Run Date	Data File	Result	Limits	Within Limits
ICB	**15-NOV-2016 14:36:00**	**161115**	**0**	**4**	**Yes**
CCB	15-NOV-2016 20:09:00	161115	0	4	Yes
CCB	16-NOV-2016 00:19:00	161115	0	4	Yes

Perchlorate Raw Data

Prep Logbook

Perchlorate by Ion Chromatography (IC)

Batch ID: **1611807**
Analyst: Mary Sherwood
Method: EPA 314.0
Lab SOP: GL-GC-E-096 REV# 8
Instrument: Sartorius Balance B-001

Type	Sample Id	Description	Serial Number	Spike Amount	Spike Units
LCS	1203659163	PER-LCS	WPC161029-03LCS	40	mL
MS	1203659165	PER-STDSPIKE	SPC161029-01	.4	mL

Sample ID	Prep Date	Matrix	Initial Weight (g)	Final Volume (mL)	Prep Factor (mL/g)
1203659162 MB	15-NOV-2016 11:41:00	Soil	4.01	40	9.97506
1203659163 LCS	15-NOV-2016 11:41:00	Soil	4	40	10
409254011	15-NOV-2016 11:41:00	Soil	4.06	40	9.85222
1203659164 DUP (409254011)	15-NOV-2016 11:41:00	Soil	4.07	40	9.82801
1203659165 MS (409254011)	15-NOV-2016 11:41:00	Soil	4.06	40	9.85222
409254012	15-NOV-2016 11:41:00	Soil	4.08	40	9.80392
409254013	15-NOV-2016 11:41:00	Soil	4.03	40	9.92556
409254014	15-NOV-2016 11:41:00	Soil	4.05	40	9.87654
409254015	15-NOV-2016 11:41:00	Soil	4.04	40	9.90099
409254016	15-NOV-2016 11:41:00	Soil	4.07	40	9.82801

Reagent/Solvent Lot ID **Description** **Amount**

Comments:

This is runlog for Sequence 161115.seq for IC10

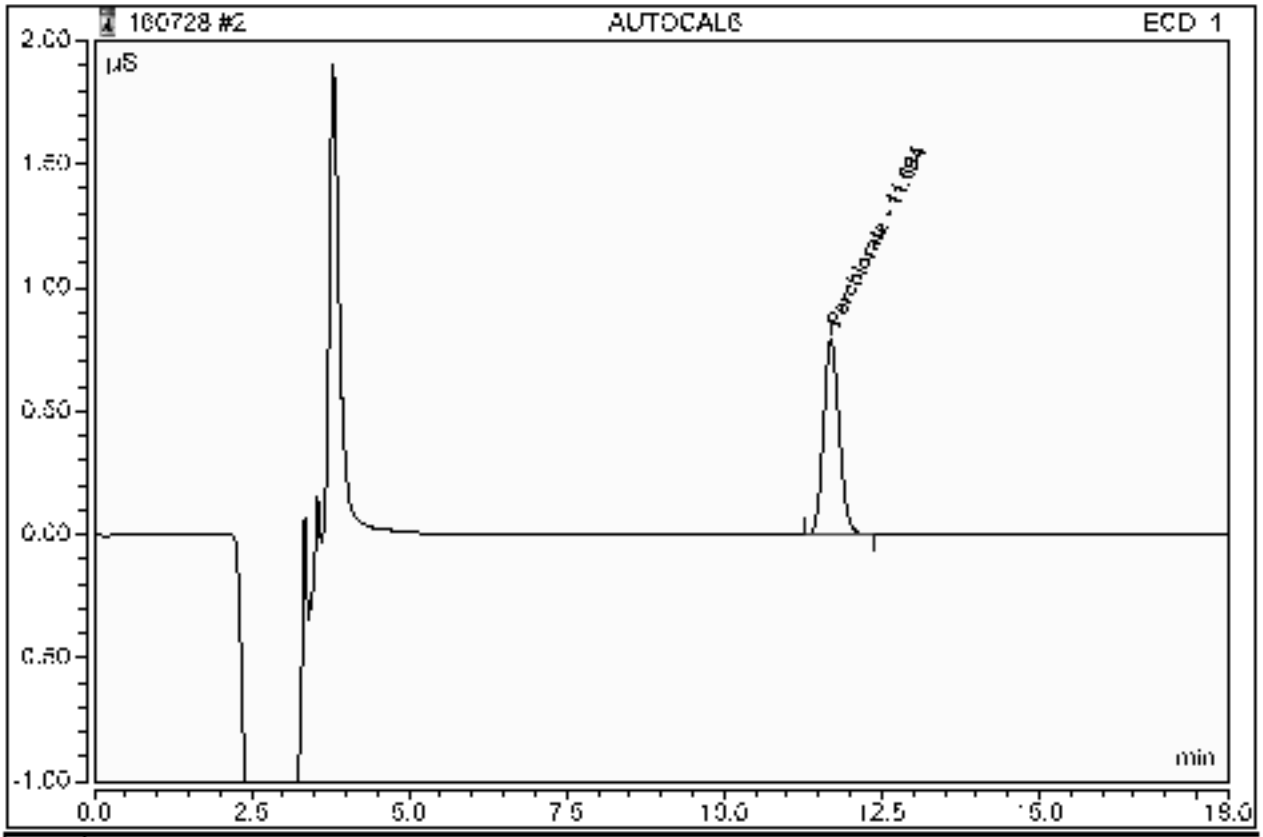
Sample ID	Run Time	Batch	Dilution	Dataset	Analyst
BLK	07/28/16 07:39		1	161115	MAR1
ICAL-06	07/28/16 08:00		1	161115	MAR1
ICAL-05	07/28/16 08:21		1	161115	MAR1
ICAL-04	07/28/16 08:42		1	161115	MAR1
ICAL-03	07/28/16 09:02		1	161115	MAR1
ICAL-02	07/28/16 09:23		1	161115	MAR1
ICAL-01	07/28/16 09:44		1	161115	MAR1

This is runlog for Sequence 160728.seq for IC10

Sample ID	Run Time	Batch	Dilution	Dataset	Analyst
BLK	7/28/2016 07:39		1	160728	1-Mar
ICAL-06	7/28/2016 08:00		1	160728	1-Mar
ICAL-05	7/28/2016 08:21		1	160728	1-Mar
ICAL-04	7/28/2016 08:42		1	160728	1-Mar
ICAL-03	7/28/2016 09:02		1	160728	1-Mar
ICAL-02	7/28/2016 09:23		1	160728	1-Mar
ICAL-01	7/28/2016 09:44		1	160728	1-Mar
ICV	7/28/2016 10:05		1	160728	1-Mar
ICB	7/28/2016 10:26		1	160728	1-Mar
IPC	7/28/2016 10:47		1	160728	1-Mar
PQL	7/28/2016 11:08		1	160728	1-Mar
MRL	7/28/2016 11:28		1	160728	1-Mar
CVH	7/28/2016 11:49		1	160728	1-Mar
CCB	7/28/2016 12:10		1	160728	1-Mar
MRL	7/28/2016 12:31		1	160728	1-Mar
CVH	7/28/2016 12:51		1	160728	1-Mar
CCB	7/28/2016 13:12		1	160728	1-Mar
BLK	7/28/2016 13:33		1	160728	1-Mar
1203581553	7/28/2016 13:54	1580385	1	160728	1-Mar
1203593494	7/28/2016 14:15	1580385	1	160728	1-Mar
1203593495	7/28/2016 14:36	1580385	1	160728	1-Mar
1203593496	7/28/2016 15:27	1580385	1	160728	1-Mar
1203593497	7/28/2016 15:47	1580385	1	160728	1-Mar
401142001	7/28/2016 16:08	1580385	1	160728	1-Mar
401142002	7/28/2016 16:29	1580385	1	160728	1-Mar
1203581552	7/28/2016 16:50	1580385	1	160728	1-Mar
CVL	7/28/2016 17:11		1	160728	1-Mar
CCB	7/28/2016 17:31		1	160728	1-Mar
1203581572	7/28/2016 17:52	1580397	1	160728	1-Mar
1203581573	7/28/2016 18:13	1580397	1	160728	1-Mar
400694001	7/28/2016 18:34	1580397	1	160728	1-Mar
400694002	7/28/2016 18:55	1580397	1	160728	1-Mar
CVH	7/28/2016 19:16		1	160728	1-Mar
CCB	7/28/2016 19:37		1	160728	1-Mar

2 AUTOCAL6

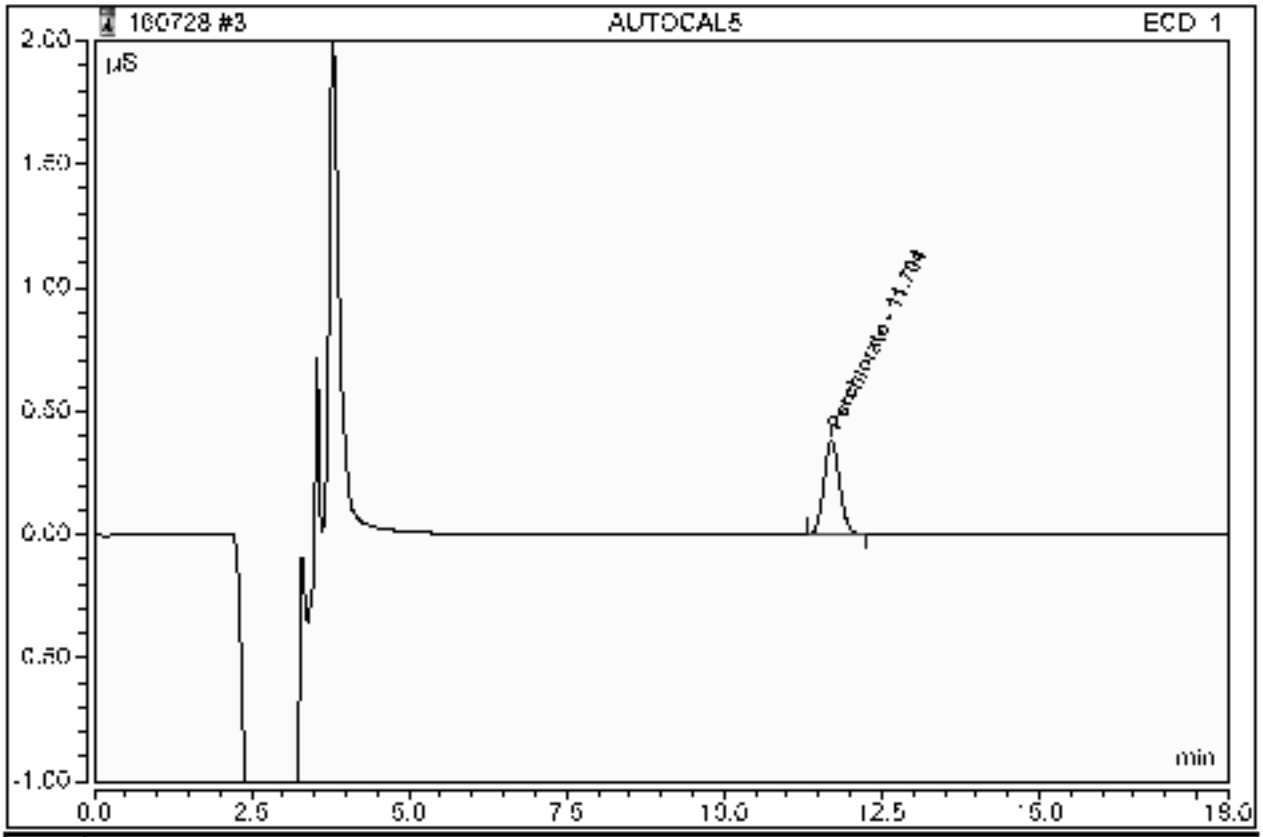
Sample Name:	AUTOCAL6	*Injection Volume:*	5000.0
Vial Number:	2	*Channel:*	ECD_1
Sample Type:	Calibration Standard	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	7/26/2016 8:00	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.69	Perchlorate	100.0000	100.6901	FALSE	0.22608	100.00
Total:				100.6901	0.000	0.226	100.00

3 AUTOCAL5

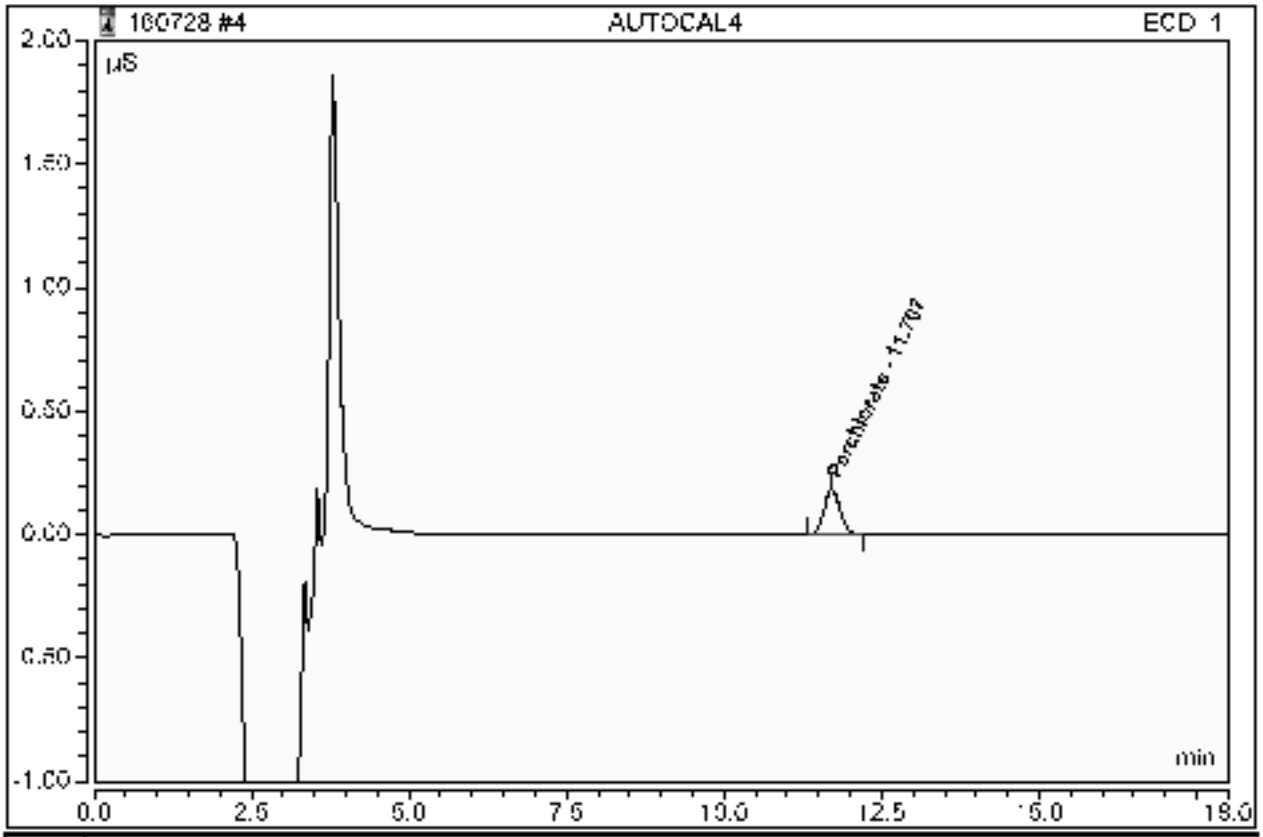
Sample Name:	AUTOCAL5	*Injection Volume:*	5000.0
Vial Number:	3	*Channel:*	ECD_1
Sample Type:	Calibration Standard	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160728CLO4	*Sample Amount:*	1.0000
Recording Time:	7/28/2016 8:21	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.70	Perchlorate	50.0000	48.8569	FALSE	0.10855	100.00
Total:				48.8569	0.000	0.109	100.00

4 AUTOCAL4

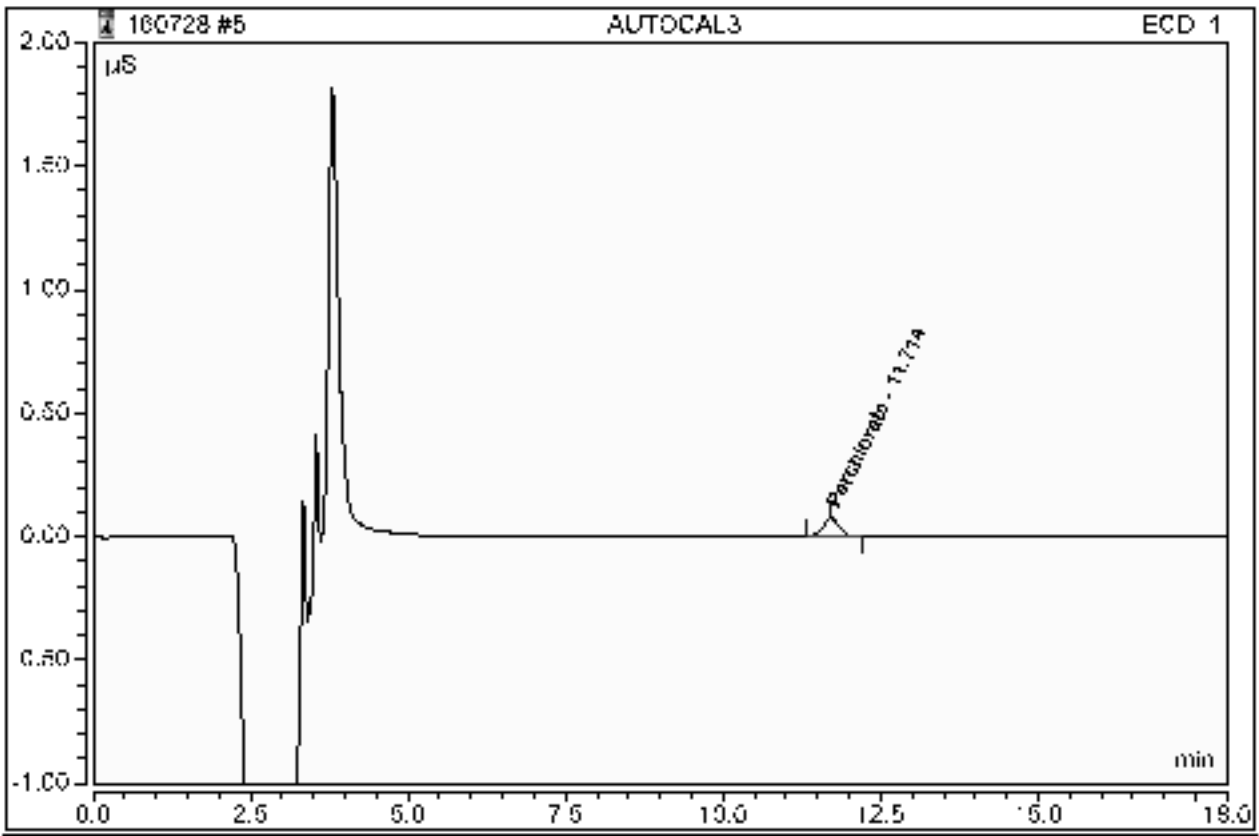
Sample Name:	AUTOCAL4	*Injection Volume:*	5000.0
Vial Number:	4	*Channel:*	ECD_1
Sample Type:	Calibration Standard	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160728CLO4	*Sample Amount:*	1.0000
Recording Time:	7/28/2016 8:42	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.71	Perchlorate	25.0000	24.2651	FALSE	0.05280	100.00
Total:				24.2651	0.000	0.053	100.00

5 AUTOCAL3

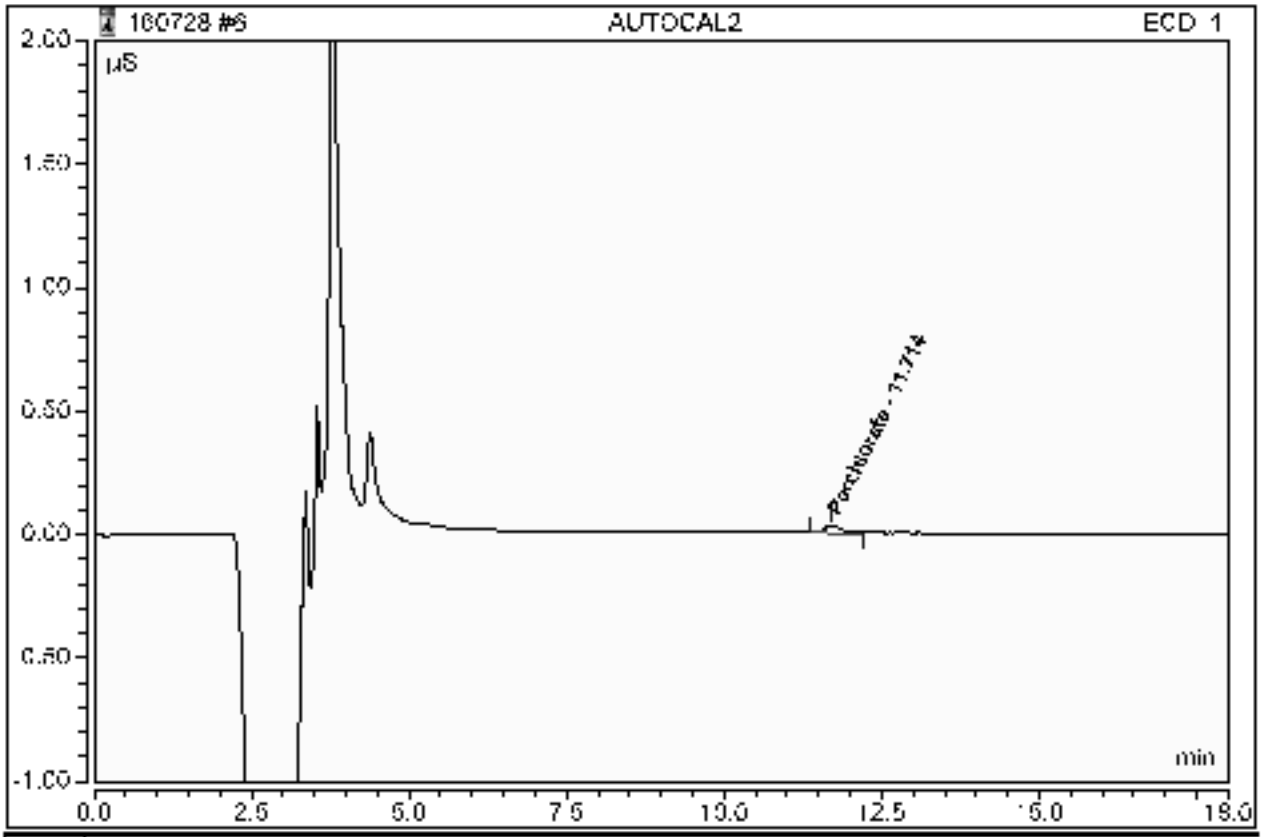
Sample Name:	AUTOCAL3	*Injection Volume:*	5000.0
Vial Number:	5	*Channel:*	ECD_1
Sample Type:	Calibration Standard	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160728CLO4	*Sample Amount:*	1.0000
Recording Time:	7/28/2016 9:02	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.71	Perchlorate	10.0000	10.2935	FALSE	0.02112	100.00
Total:				10.2935	0.000	0.021	100.00

6 AUTOCAL2

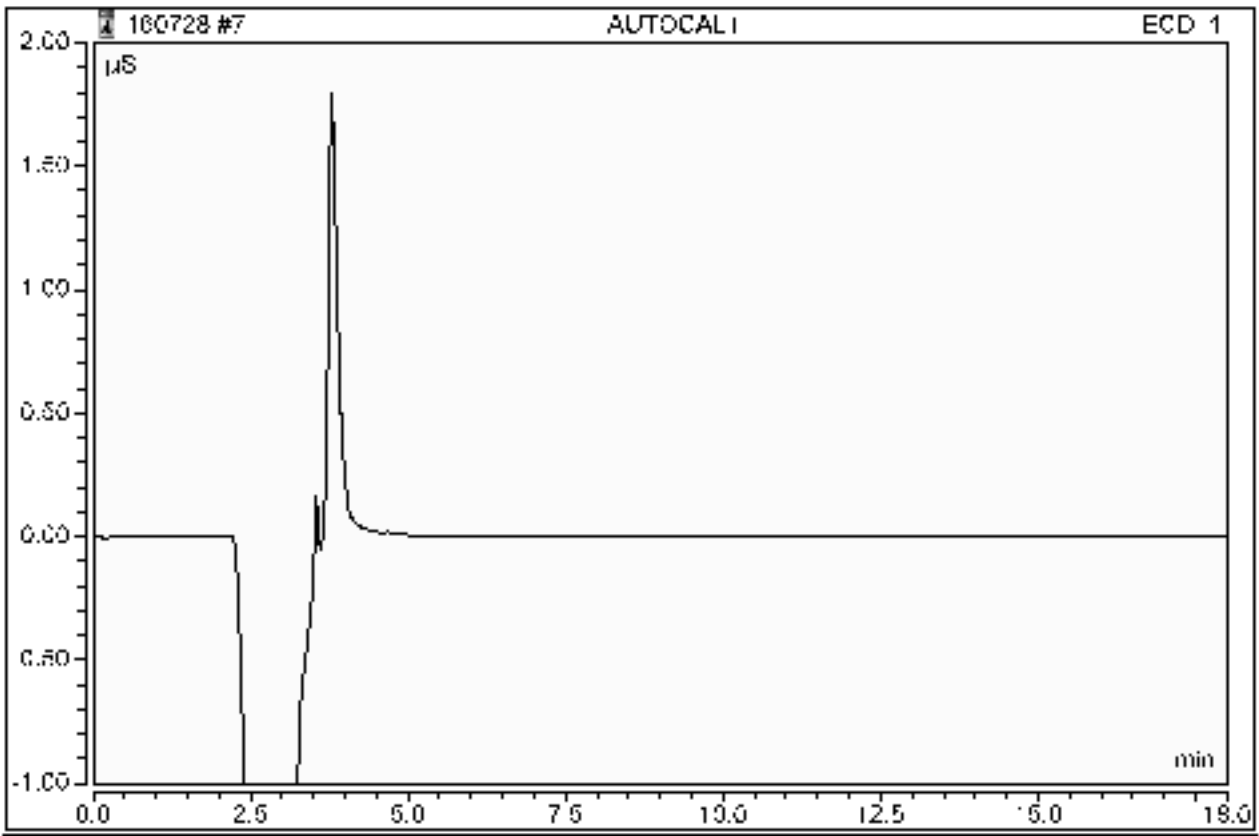
Sample Name:	AUTOCAL2	*Injection Volume:*	5000.0
Vial Number:	6	*Channel:*	ECD_1
Sample Type:	Calibration Standard	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160728CLO4	*Sample Amount:*	1.0000
Recording Time:	7/28/2016 9:23	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.71	Perchlorate	4.0000	4.8943	FALSE	0.00888	100.00
Total:				4.8943	0.000	0.009	100.00

7 AUTOCAL1

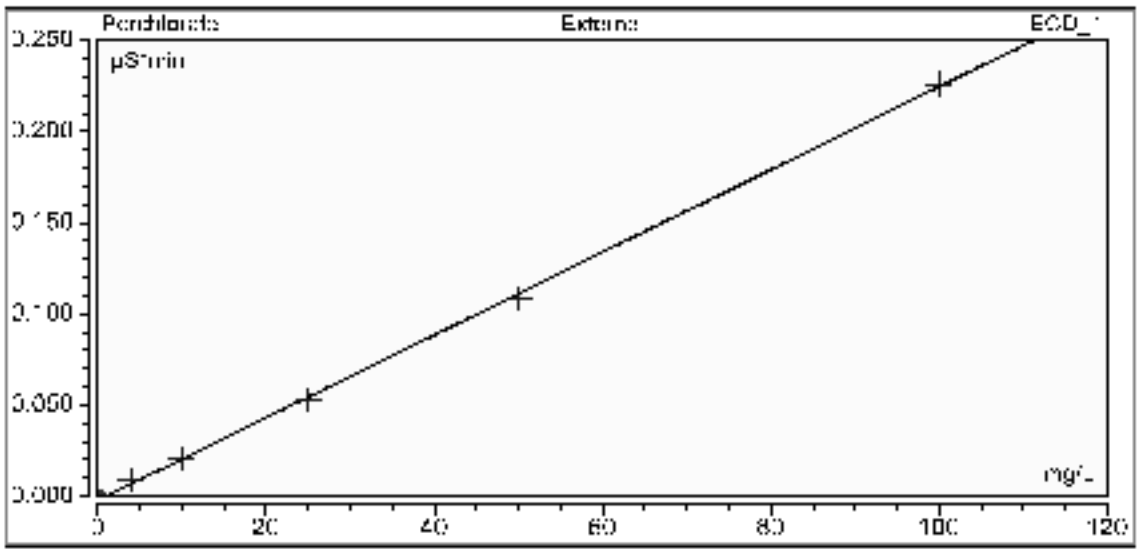
Sample Name:	AUTOCAL1	*Injection Volume:*	5000.0
Vial Number:	7	*Channel:*	ECD_1
Sample Type:	Calibration Standard	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160728CLO4	*Sample Amount:*	1.0000
Recording Time:	7/28/2016 9:44	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	0.0000	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

7 AUTOCAL1

Sample Name:	AUTOCAL1	*Injection Volume:*	5000.0
Vial Number:	7	*Channel:*	ECD_1
Sample Type:	Calibration Standard	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160728CLO4	*Sample Amount:*	1.0000
Recording Time:	7/28/2016 9:44	Analyst:	MAR1
Run Time (min):	16.00	Column:	AS16.#005998; GL-GC-E-096



Peak Name	Ret.Time min	Peak Name	Cal.Type	Coeff.Det. %	Offset	Slope	Curve
Perchlorate	n.a.	Perchlorate	Lin, WithOffset	99.9474	-0.0022	0.0023	0.0000
Average:				99.9474	-0.0022	0.0023	0.0000

This is runlog for Sequence 161115.seq for IC10

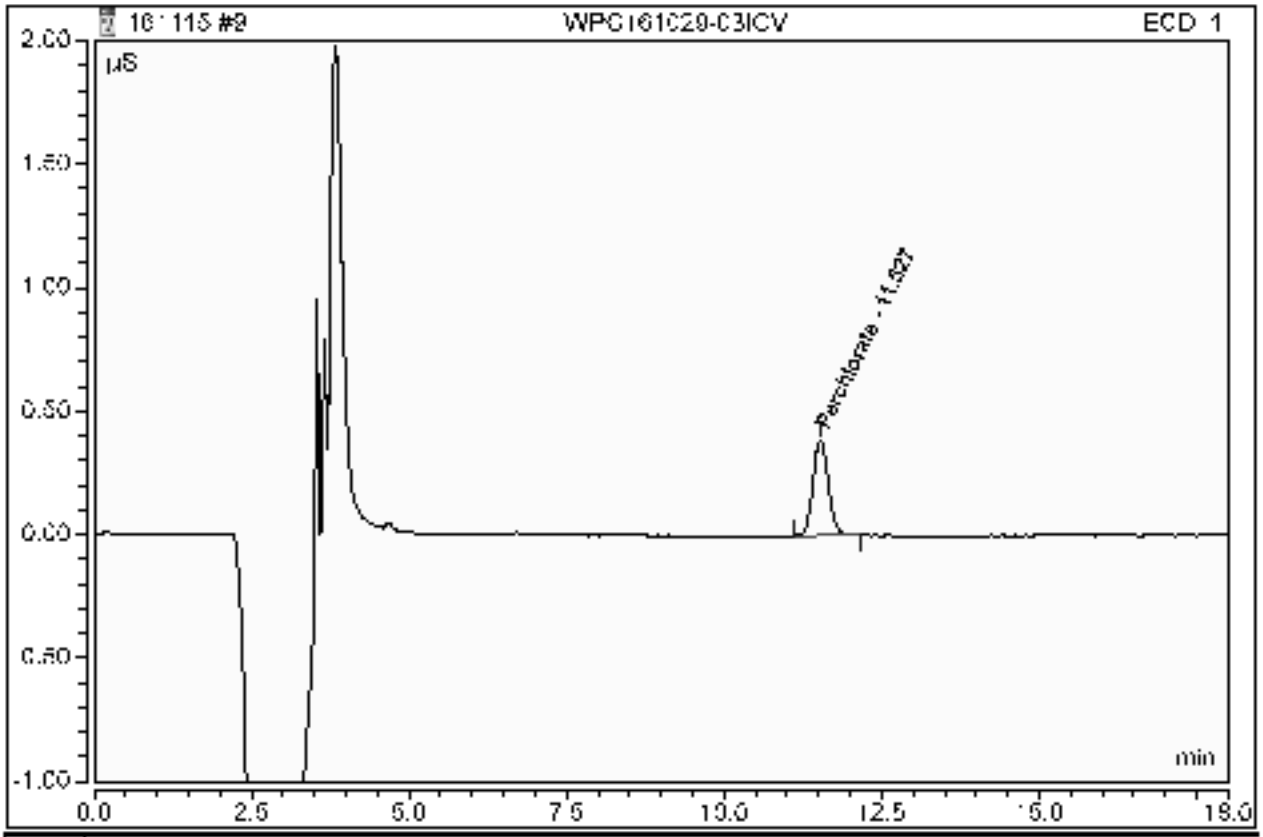
Sample ID	Run Time	Batch	Dilution	Dataset	Analyst
BLK	11/15/16 13:55		1	161115	MAR1
ICV	11/15/16 14:15		1	161115	MAR1
ICB	11/15/16 14:36		1	161115	MAR1
IPC	11/15/16 14:57		1	161115	MAR1
PQL	11/15/16 15:17		1	161115	MAR1
CVH	11/15/16 15:38		1	161115	MAR1
CCB	11/15/16 15:59		1	161115	MAR1
1203666928	11/15/16 16:20	1614894	1	161115	MAR1
1203666929	11/15/16 16:41	1614894	1	161115	MAR1
409633004	11/15/16 17:01	1614894	1	161115	MAR1
1203666930	11/15/16 17:22	1614894	1	161115	MAR1
1203666931	11/15/16 17:43	1614894	1	161115	MAR1
409735001	11/15/16 18:04	1614894	1	161115	MAR1
409735002	11/15/16 18:25	1614894	1	161115	MAR1
409947001	11/15/16 18:46	1614894	1	161115	MAR1
409993001	11/15/16 19:07	1614894	1	161115	MAR1
409993002	11/15/16 19:27	1614894	1	161115	MAR1
CVL	11/15/16 19:48		1	161115	MAR1
CCB	11/15/16 20:09		1	161115	MAR1
1203659162	11/15/16 20:30	1611808	1	161115	MAR1
1203659163	11/15/16 20:51	1611808	1	161115	MAR1
409254011	11/15/16 21:12	1611808	1	161115	MAR1
1203659164	11/15/16 21:33	1611808	1	161115	MAR1
1203659165	11/15/16 21:53	1611808	1	161115	MAR1
409254012	11/15/16 22:14	1611808	1	161115	MAR1
409254013	11/15/16 22:35	1611808	1	161115	MAR1
409254014	11/15/16 22:56	1611808	1	161115	MAR1
409254015	11/15/16 23:17	1611808	1	161115	MAR1

```
409254016            11/15/16 23:38 1611808 1     161115       MAR1

CVH                  11/15/16 23:59       1     161115       MAR1
```

9 WPC161029-03ICV

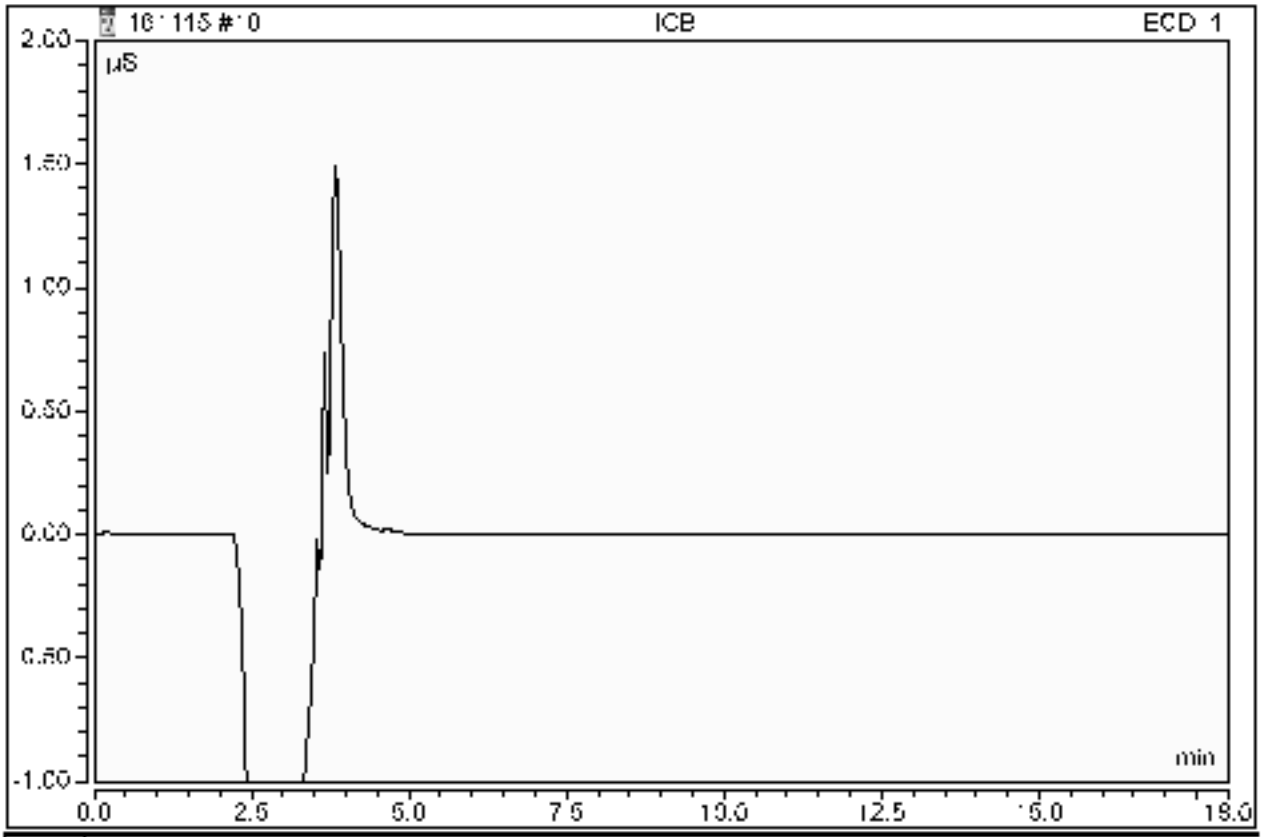
Sample Name:	WPC161029-03ICV	*Injection Volume:*	5000.0
Vial Number:	2	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 14:15	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.53	Perchlorate	n.a.	49.5356	FALSE	0.11009	100.00
Total:				49.5356	0.000	0.110	100.00

10 ICB

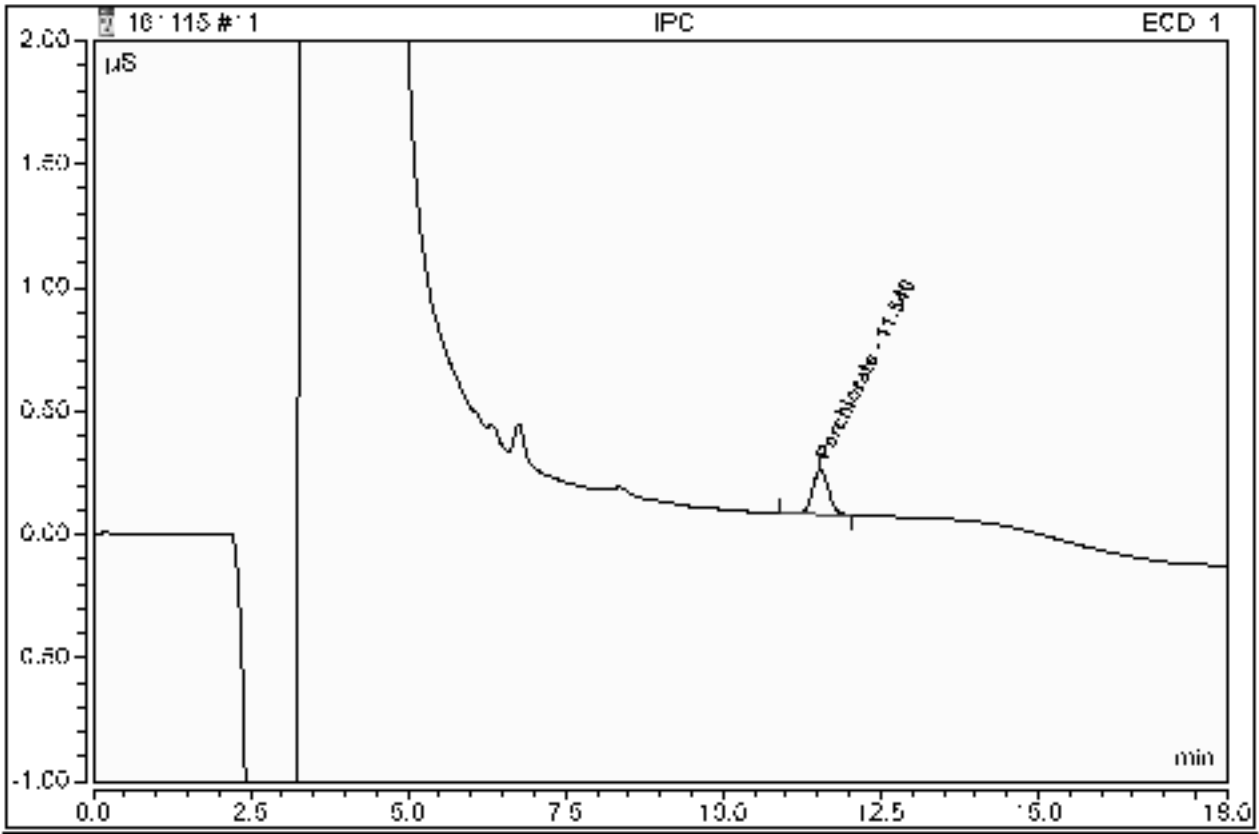
Sample Name:	ICB	*Injection Volume:*	5000.0
Vial Number:	3	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 14:36	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	n.a.	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

11 IPC

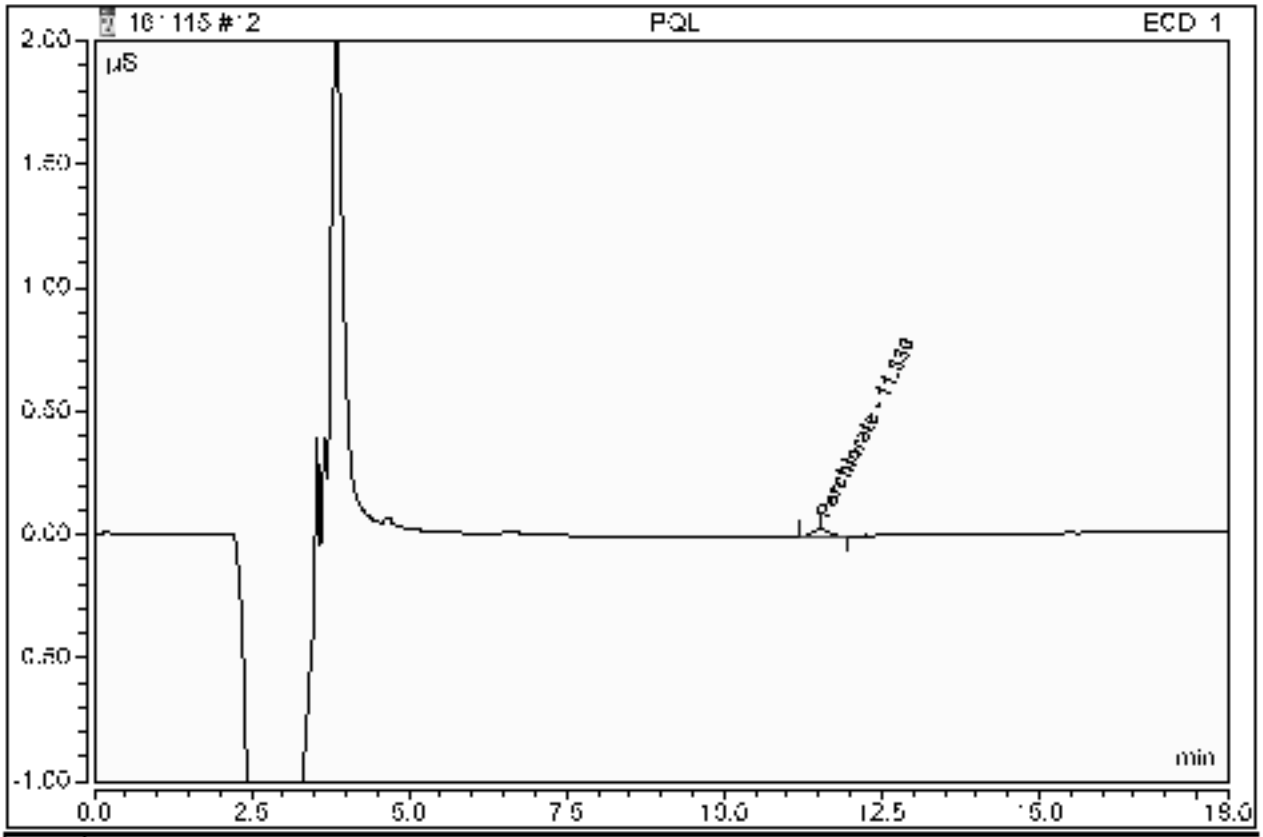
Sample Name:	IPC	*Injection Volume:*	5000.0
Vial Number:	4	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 14:57	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.54	Perchlorate	n.a.	24.3022	FALSE	0.05288	100.00
Total:				24.3022	0.000	0.053	100.00

12 PQL

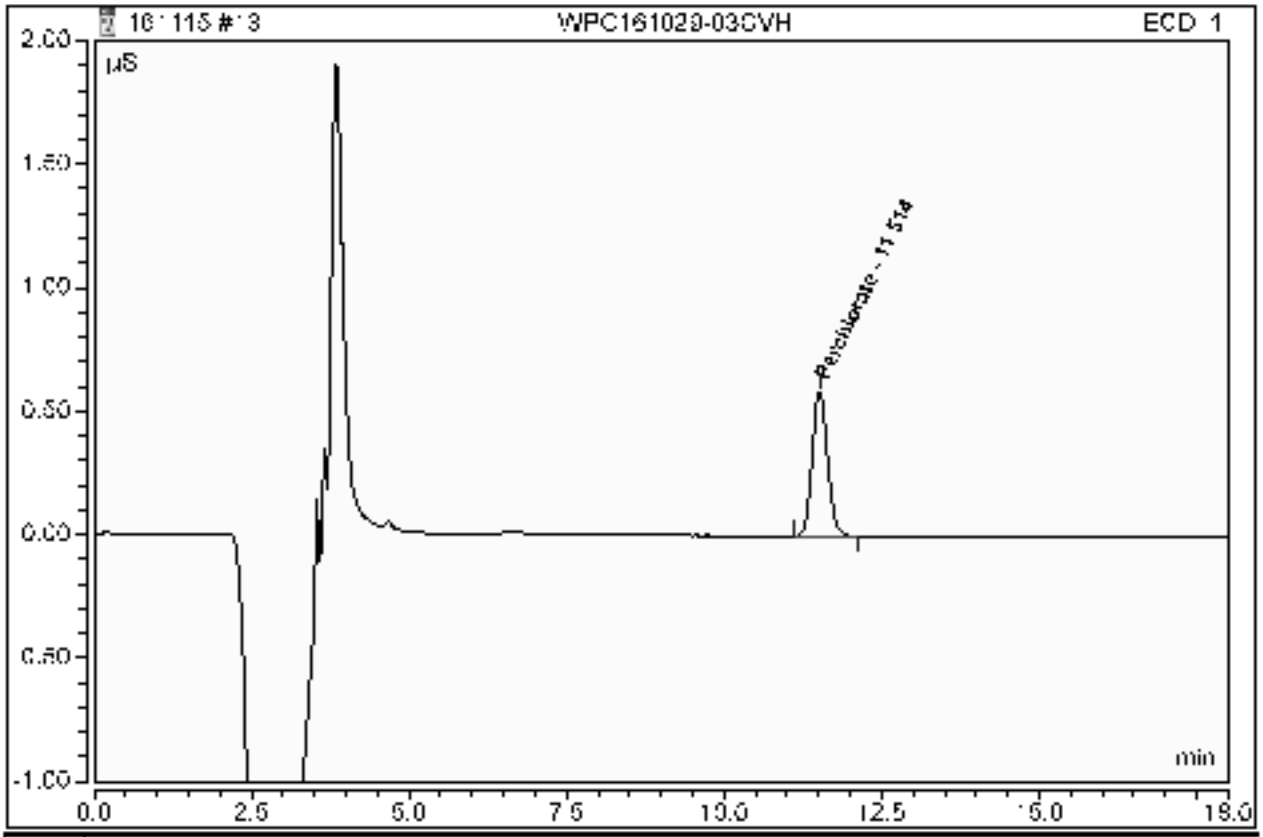
Sample Name:	PQL	*Injection Volume:*	5000.0
Vial Number:	5	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 15:17	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.53	Perchlorate	n.a.	4.5857	FALSE	0.00818	100.00
Total:				4.5857	0.000	0.008	100.00

13 WPC161029-03CVH

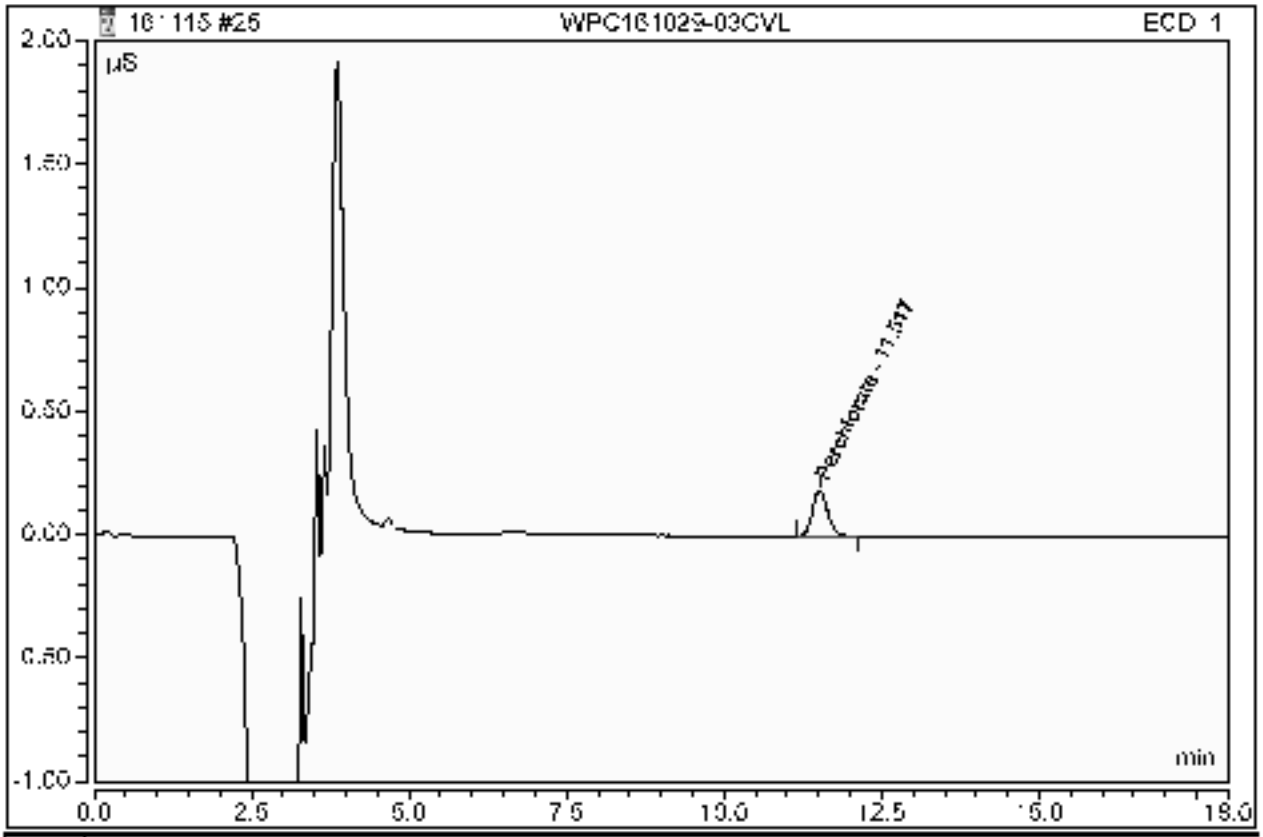
Sample Name:	WPC161029-03CVH	*Injection Volume:*	5000.0
Vial Number:	6	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 15:38	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.51	Perchlorate	n.a.	73.9836	FALSE	0.16553	100.00
Total:				73.9836	0.000	0.166	100.00

25 WPC161029-03CVL

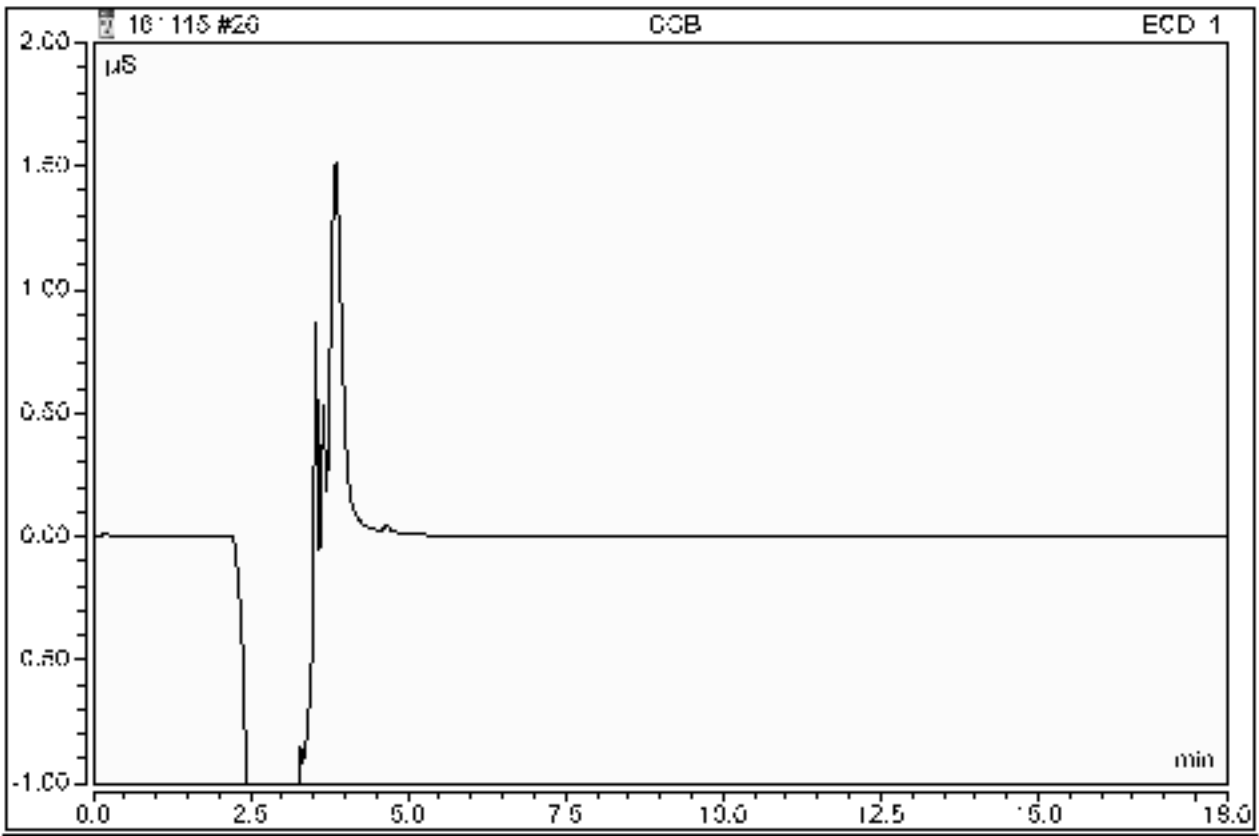
Sample Name:	WPC161029-03CVL	*Injection Volume:*	5000.0
Vial Number:	18	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 19:46	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.52	Perchlorate	n.a.	23.9378	FALSE	0.05205	100.00
Total:				23.9378	0.000	0.052	100.00

26 CCB

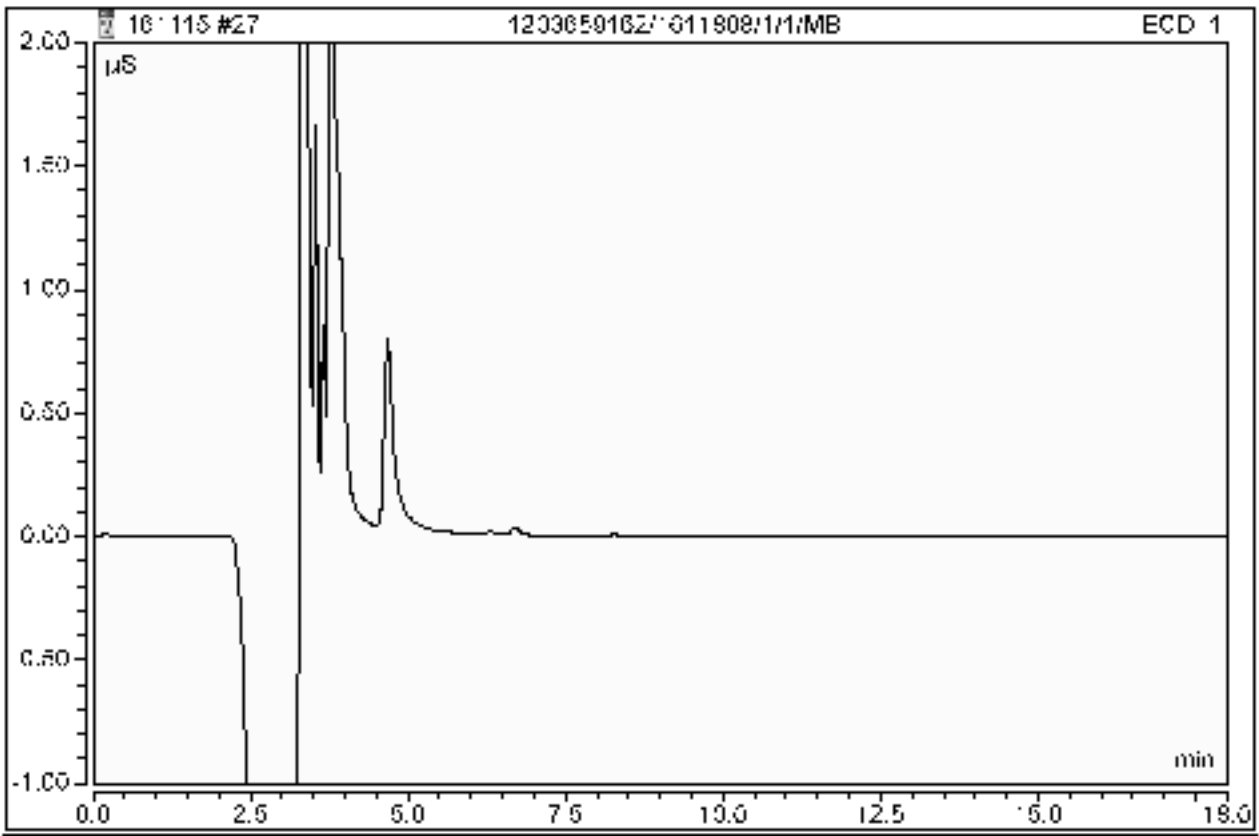
Sample Name:	CCB	*Injection Volume:*	5000.0
Vial Number:	19	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 20:09	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	n.a.	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

27 1203659162/1611808/1/1/MB

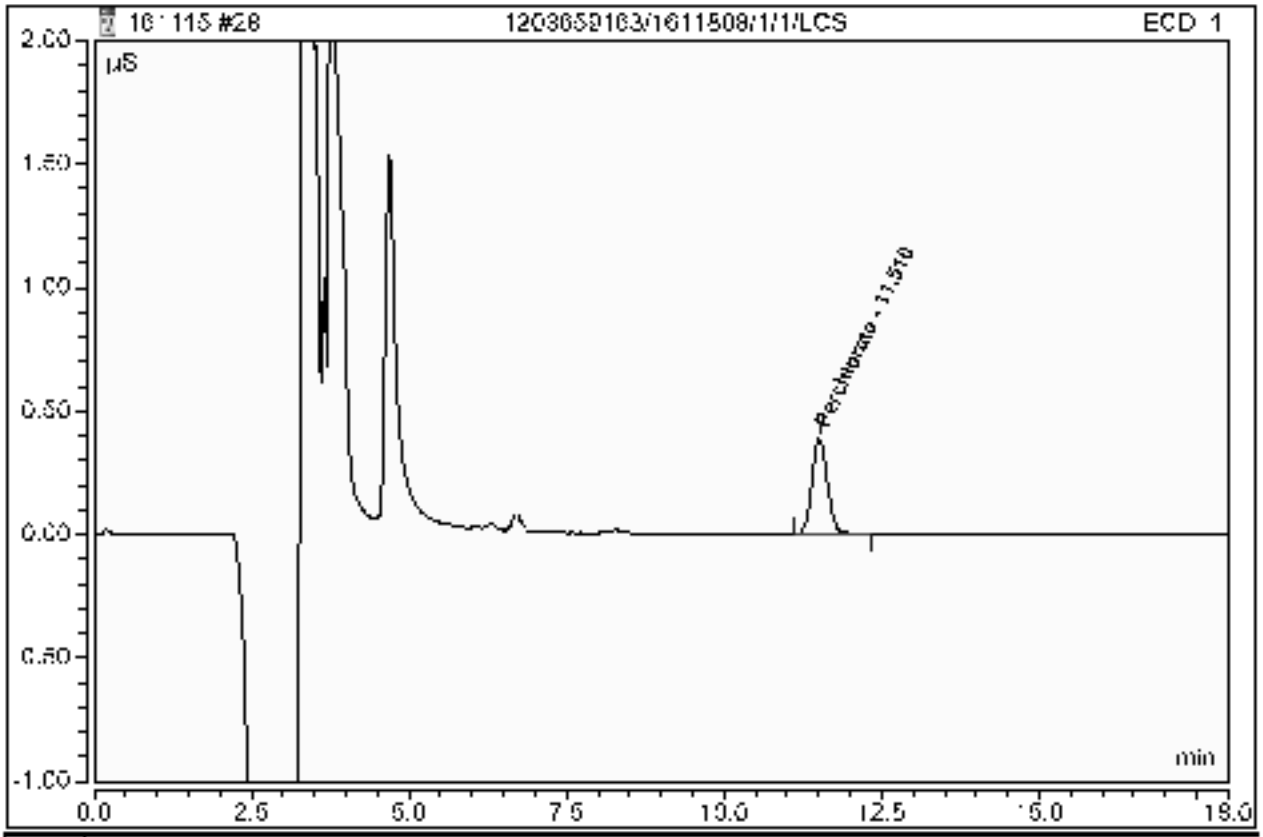
Sample Name:	1203659162/1611808/1/1/MB	*Injection Volume:*	5000.0
Vial Number:	20	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 20:30	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	n.a.	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

28 1203659163/1611808/1/1/LCS

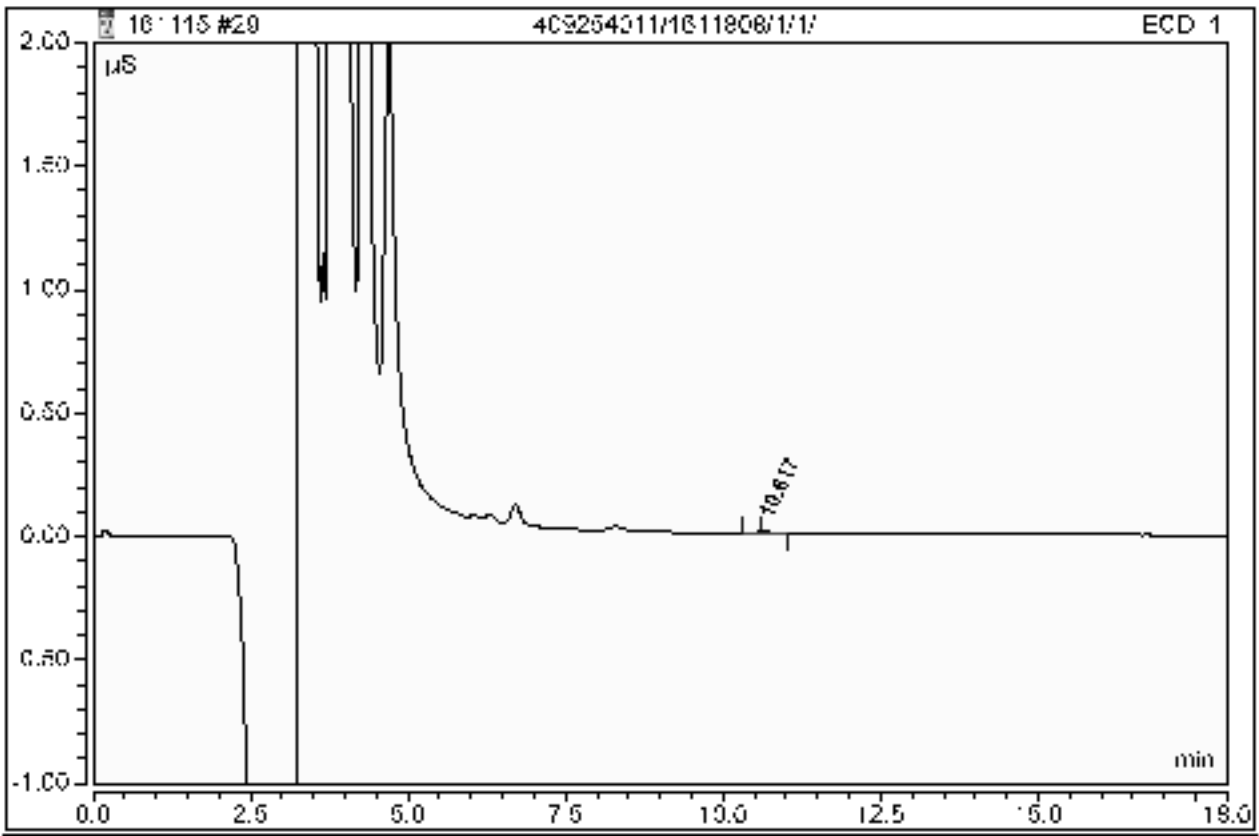
Sample Name:	1203659163/1611808/1/1/LCS	*Injection Volume:*	5000.0
Vial Number:	21	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 20:51	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
1	11.51	Perchlorate	n.a.	49.6785	FALSE	0.11042	100.00
Total:				49.6785	0.000	0.110	100.00

29 409254011/1611808/1/1/

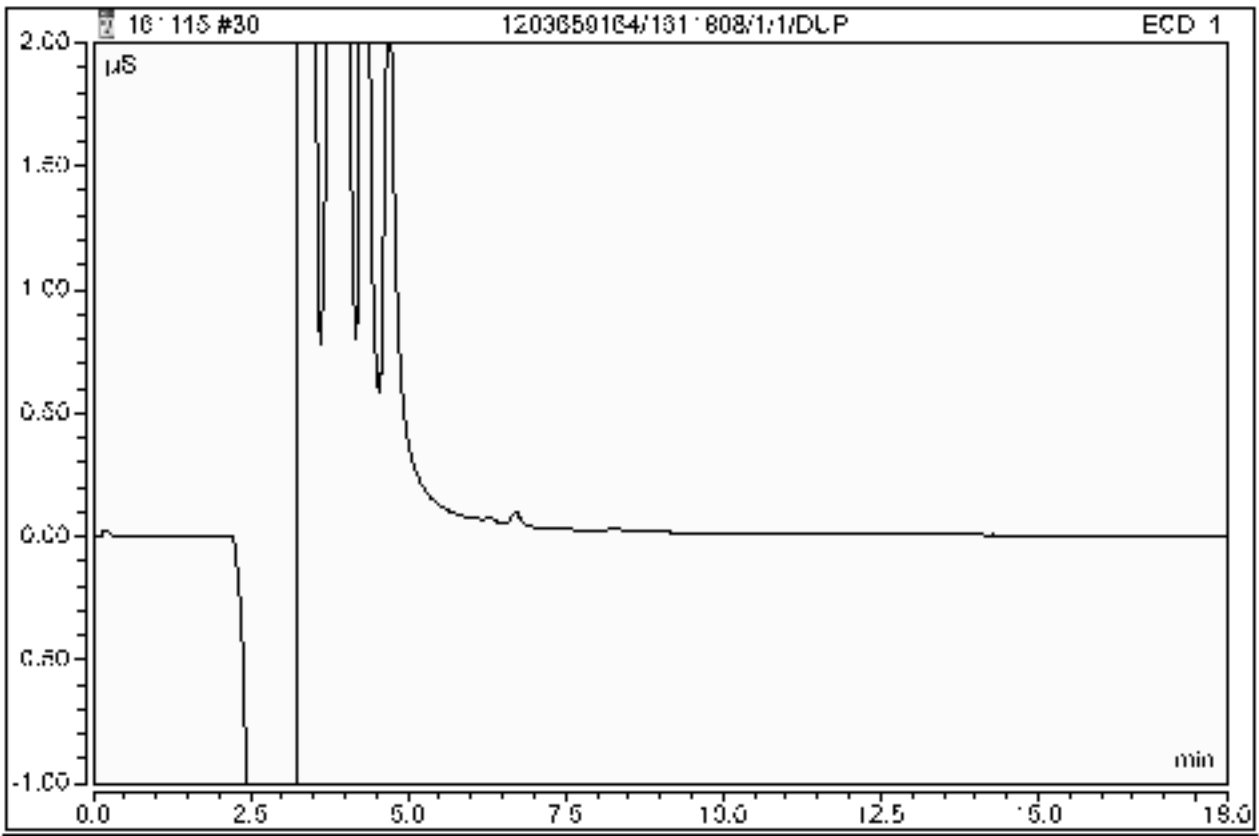
Sample Name:	409254011/1611808/1/1/	*Injection Volume:*	5000.0
Vial Number:	22	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 21:12	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	n.a.	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

30 1203659164/1611808/1/1/DUP

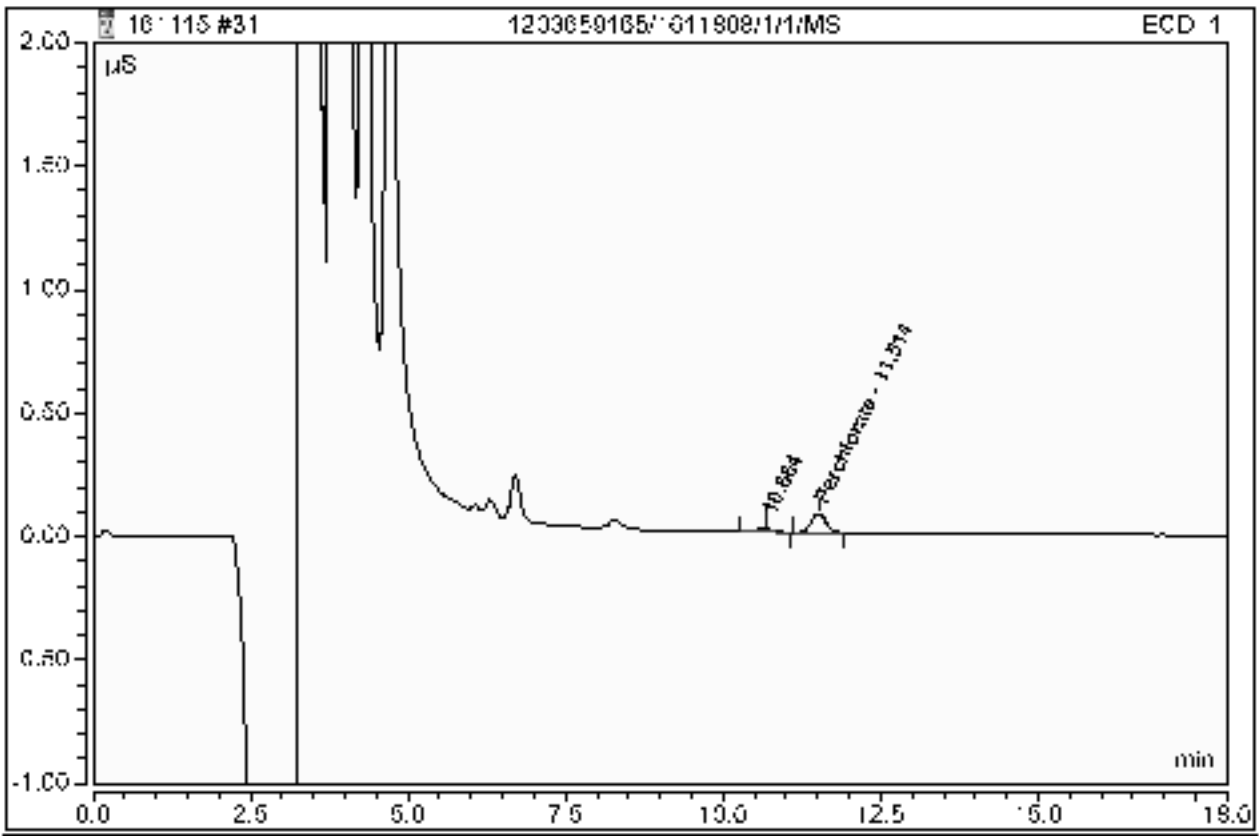
Sample Name:	1203659164/1611808/1/1/DUP	*Injection Volume:*	5000.0
Vial Number:	23	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 21:33	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	n.a.	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

31 1203659165/1611808/1/1/MS

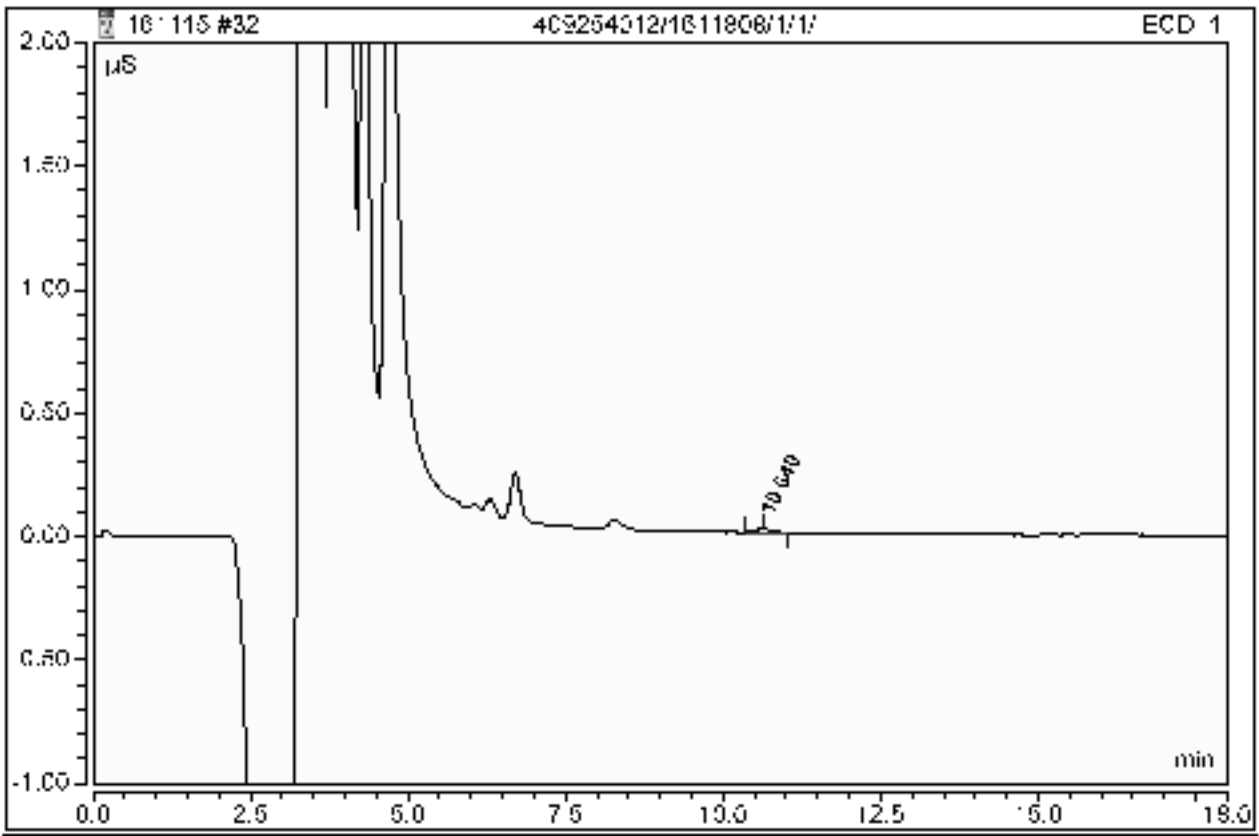
Sample Name:	1203659165/1611808/1/1/MS	*Injection Volume:*	5000.0
Vial Number:	24	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 21:53	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
2	11.51	Perchlorate	n.a.	10.2798	FALSE	0.02109	81.00
Total:				10.2798	0.000	0.021	81.00

32 409254012/1611808/1/1/

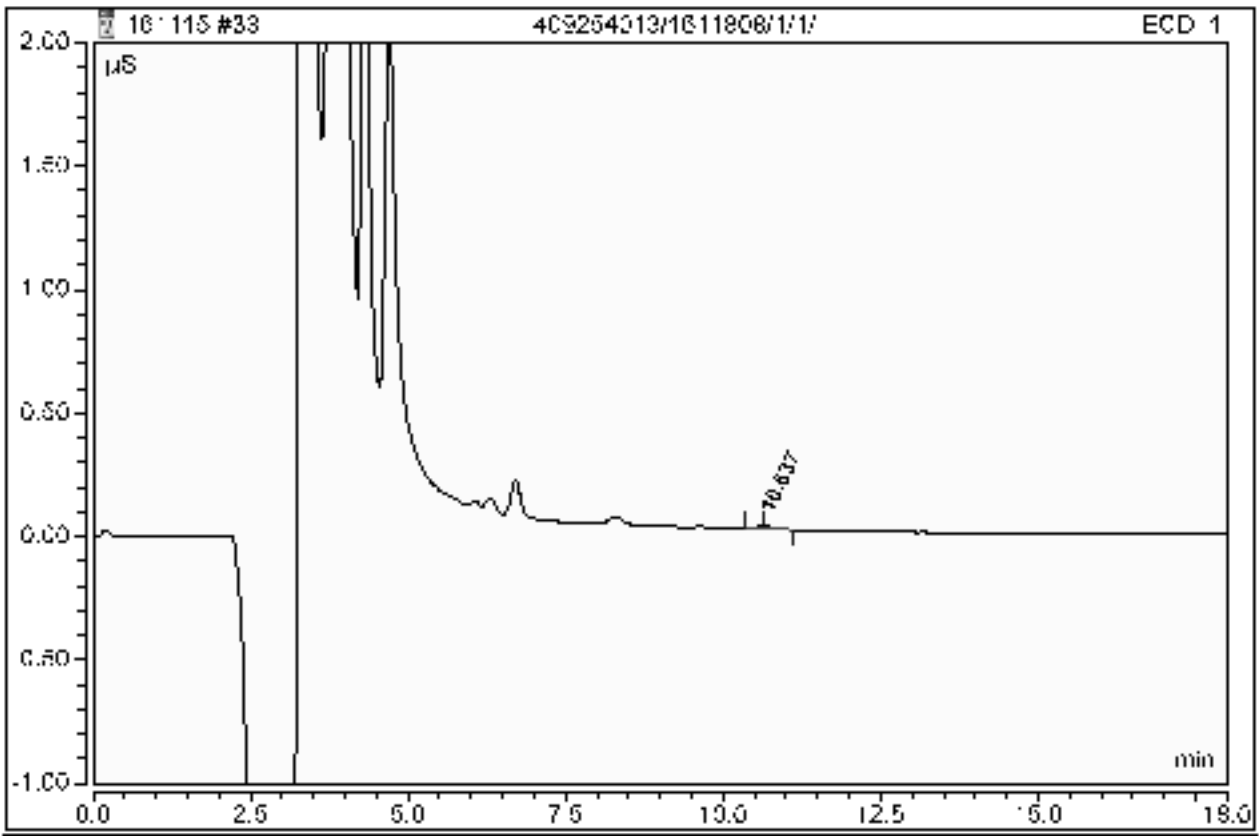
Sample Name:	409254012/1611808/1/1/	*Injection Volume:*	5000.0
Vial Number:	25	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 22:14	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	n.a.	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

33 409254013/1611808/1/1/

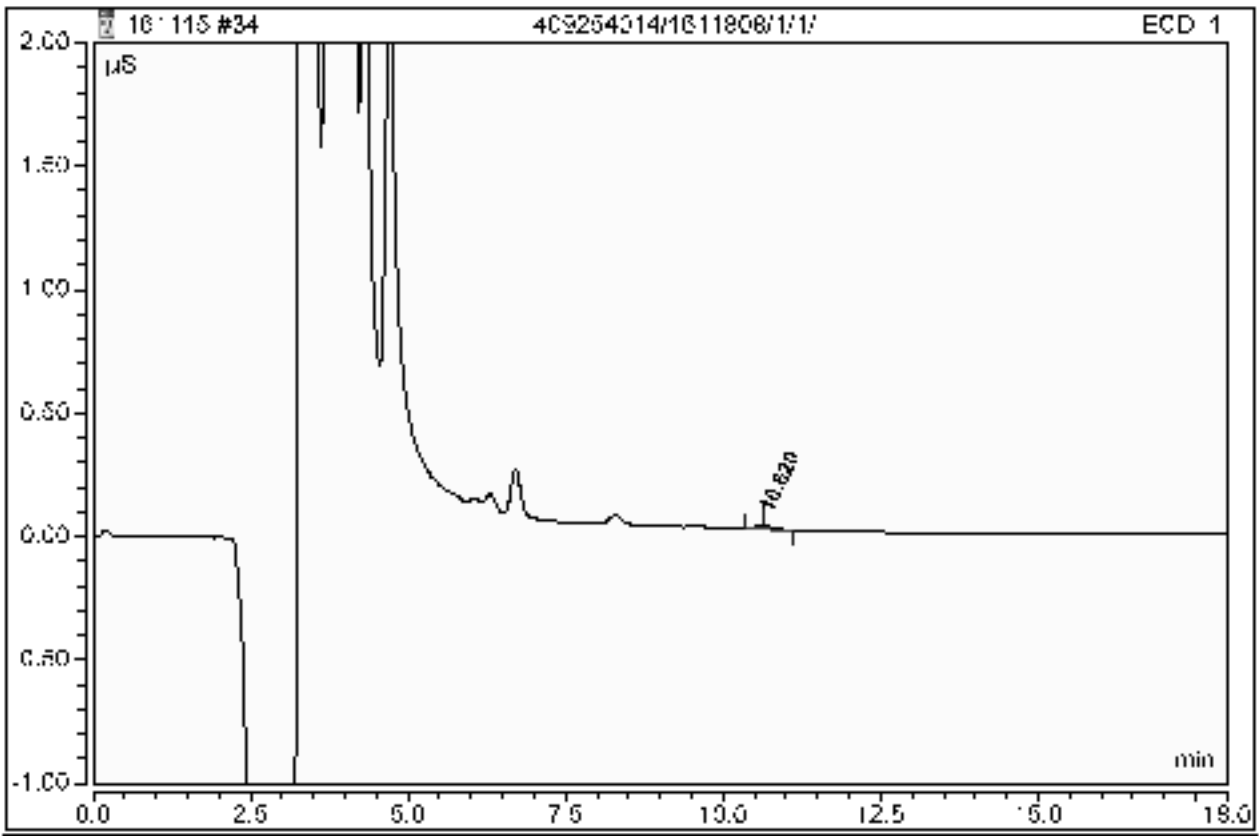
Sample Name:	409254013/1611808/1/1/	*Injection Volume:*	5000.0
Vial Number:	26	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 22:35	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528; GLGCE086;300;9056



No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	n.a.	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

34 409254014/1611808/1/1/

Sample Name:	409254014/1611808/1/1/	*Injection Volume:*	5000.0
Vial Number:	27	*Channel:*	ECD_1
Sample Type:	Unknown	*Dilution Factor:*	1.0000
Control Program:	AS16	*Sample Weight:*	1.0000
Quantif. Method:	160726CLO4	*Sample Amount:*	1.0000
Recording Time:	11/15/2016 22:56	Analyst:	MAR1
Run Time (min):	18.00	Column:	AS23-001528;GLGCE086;300;9056



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35 409254015/16118028/1/1/

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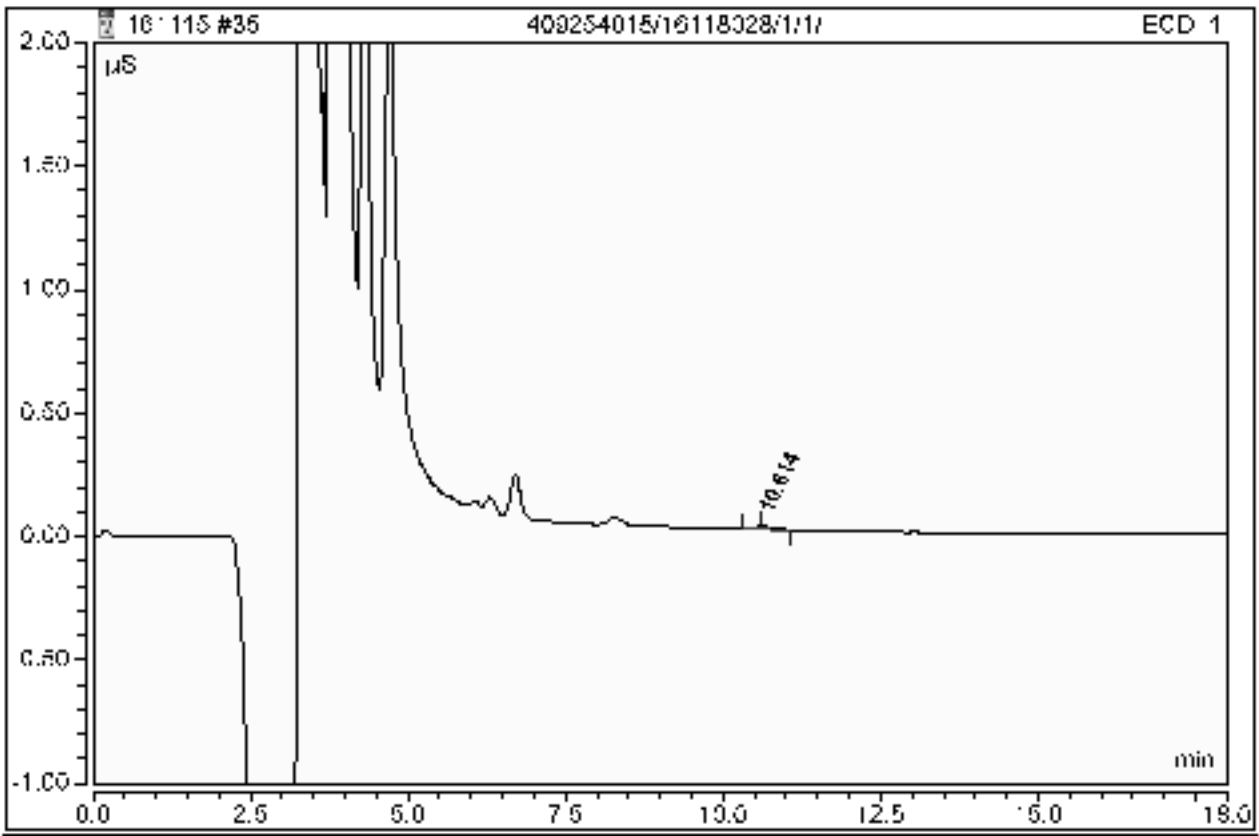

No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
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36 409254016/1611808/1/1/

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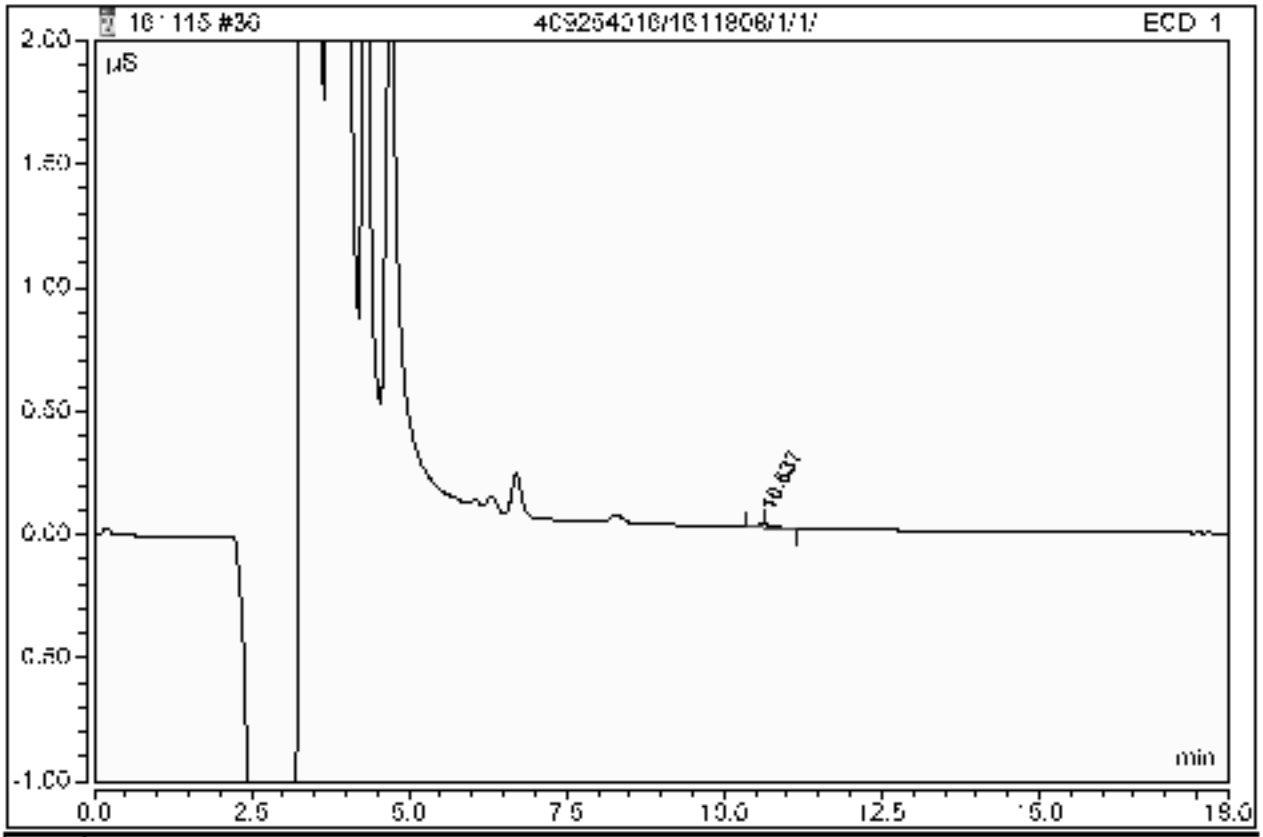

No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
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37 WPC161029-03CVH

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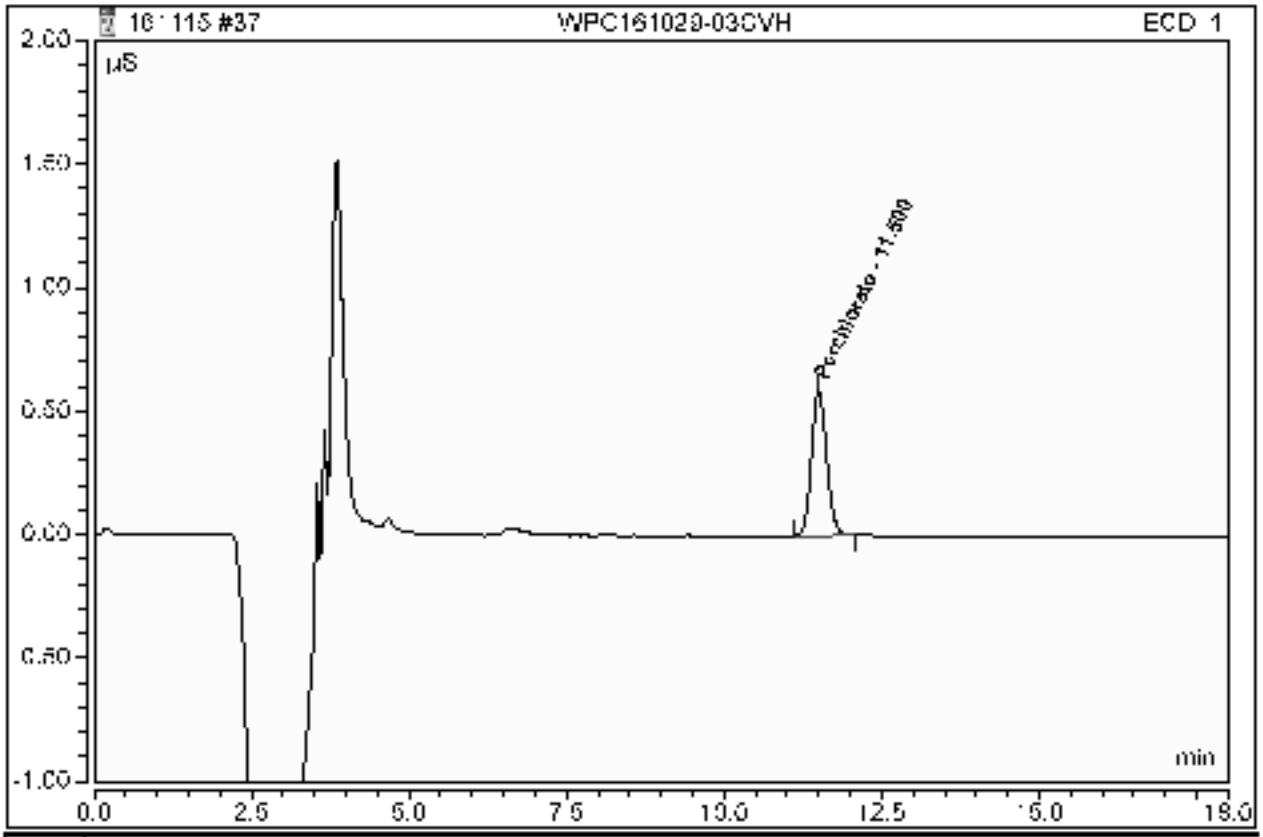

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This is runlog for Sequence 161115.seq for IC10

Sample ID	Run Time	Batch	Dilution	Dataset	Analyst
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410371001	11/16/16 01:22	1615758	1	161115	MAR1
1203669021	11/16/16 01:43	1615758	1	161115	MAR1
1203669023	11/16/16 02:04	1615758	1	161115	MAR1
410371002	11/16/16 02:25	1615758	1	161115	MAR1
410371003	11/16/16 02:45	1615758	1	161115	MAR1
410371004	11/16/16 03:06	1615758	1	161115	MAR1
410371005	11/16/16 03:27	1615758	1	161115	MAR1
410371006	11/16/16 03:48	1615758	1	161115	MAR1
CVL	11/16/16 04:09		1	161115	MAR1
CCB	11/16/16 04:30		1	161115	MAR1
410371007	11/16/16 04:51	1615758	1	161115	MAR1
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1203669024	11/16/16 06:56	1615758	1	161115	MAR1
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CVH	11/16/16 07:37		1	161115	MAR1
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38 CCB

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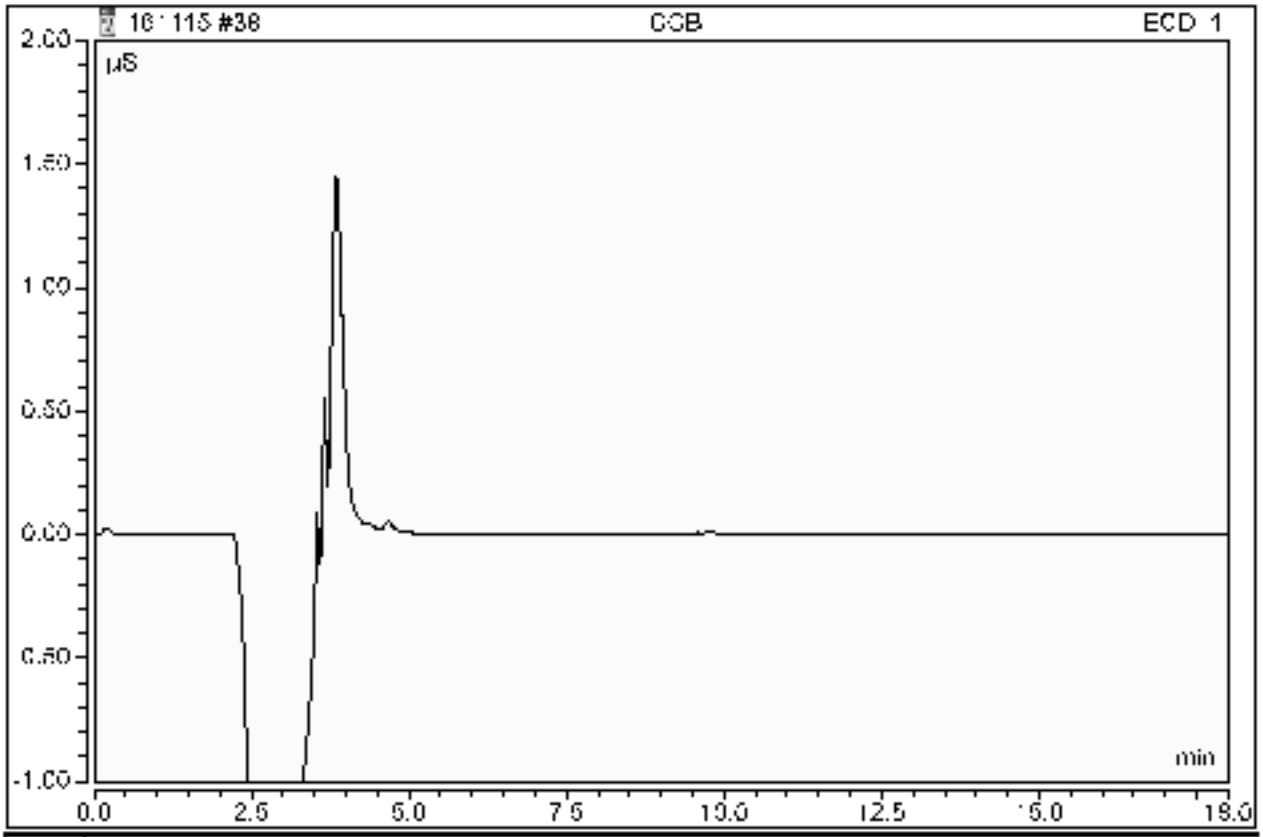

No.	Ret.Time min	Peak Name	Concentration ug/L	Amount ug/L	Modified?	Area µS*min	Rel.Area %
n.a.	n.a.	Perchlorate	n.a.	n.a.	n.a.	n.a.	n.a.
Total:				0.0000	0.000	0.000	0.00

Fort Calhoun Nuclear Station
Limited Site Radiological Characterization Survey Report
January 2017

Prepared for
Omaha Public Power District

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ACRONYMS AND ABBREVIATIONS

CoC	Chain of Custody
DAW	Dry Active Waste
DQO	Data Quality Objective
FCS	Fort Calhoun Station
FSS	Final Status Survey
HSA	Historical Site Assessment
HTD	Hard-to-Detect
ISFSI	Independent Spent Fuel Storage Installation
LRCP	Limited Radiological Characterization Plan
MDC	Minimum Detectable Concentration
NRC	(U.S.) Nuclear Regulatory Commission
OLA	Open Land Area
OPPD	Omaha Public Power District
PA	Protected Area
pCi/g	picocurie per gram
PWR	Pressurized Water Reactor
RMA	Radioactive Material Area
RP	Radiation Protection
ROC	Radionuclide-of-Concern
SIRWT	Safety Injection Refueling Water Tank
SFP	Spent Fuel Pool
TRU	Transuranic Radionuclide

EXECUTIVE SUMMARY

A limited Historical Site Assessment (HSA) [1] was conducted at the Omaha Public Power District (OPPD) Fort Calhoun Station (FCS) between August and October 2016. The HSA effort focused on environmental (open land) areas at the FCS site; assessment of potential radiological impact to FCS site buildings, structures, or systems was not included.

The review of available historical records and interviews with FCS personnel identified several areas where additional data were required in order to assess the current radiological status of environmental areas and/or identify areas that would potentially require special consideration during decommissioning planning.

As a follow-up to the HSA, a Limited Radiological Characterization Plan (LRCP) [3] was developed with the objective of closing the gaps in historical radiological data identified by the HSA. The LRCP incorporated guidance found in NUREG-1575 [2], and established requirements for survey designs and techniques, radiation detection instruments, sample analyses and for ensuring the quality of collected data.

The LRCP was implemented at the FCS site between October 19 through 28, 2016. The limited site characterization surveys included the collection of 52 soil samples (36 surface soil samples and 16 sub-surface soil samples) from potentially radiologically impacted environmental areas. All soil samples were transferred to a contracted laboratory for gamma spectroscopy analyses. Four soil samples collected from the Protected Area (PA) were also submitted for analyses to identify hard-to-detect (HTD) beta-emitting radionuclides. Additionally, several gamma scans were performed within each target environmental area.

The gamma scans did not identify any elevated radiation levels within the targeted environmental areas. Laboratory results identified low concentrations of Cs-137 (i.e., approximately 0.1 pCi/g to 0.4 pCi/g) in 5 of the 36 surface soil samples. However, the Cs-137 concentrations were small percentages (i.e., <4%) of the NRC screening value for Cs-137 (11 pCi/g) published in NUREG 1757 [4], and are well below concentrations that would require remediation or special consideration during decommissioning. Results for all other plant-related radionuclides were below the *a posteriori* minimum detectable concentration (MDC) values.

The following conclusions were reached based on the radiological data collected under the LRCP:

- The radiological data collected during the implementation of the LRCP support closure of data gaps associated with environmental areas at the FCS site, as identified in the HSA.
- The DQOs established in the LRCP to ensure the quality of the collected data were met during implementation of the plan.
- The identified concentrations of Cs-137 in 5 soil samples from the targeted environmental areas at the FCS site are small fractions of the NRC screening level for Cs-137 in soil, which provides evidence that remediation or special consideration will not likely be required for the environmental areas during decommissioning planning. This conclusion is also supported by the reported results for all other plant-related radionuclides (i.e., all were below the *a posteriori* MDC values).
- The collected radiological data are insufficient for use as release basis for the potentially impacted environmental (open land) areas.

SECTION 1 INTRODUCTION

A limited Historical Site Assessment (HSA) was conducted at the Omaha Public Power District (OPPD) Fort Calhoun Station (FCS) between August and October 2016. The HSA effort was designed and conducted in accordance with guidance found in NUREG-1575, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*. The HSA effort was limited in the sense that it focused on identifying environmental (open land) areas across the FCS site that have been or potentially have been impacted by the historic use of radioactive materials; assessment of potential radiological impact to FCS site buildings, structures, or systems was not included.

Based on reviews of available historical records and information, coupled with anecdotal information obtained during interviews with FCS site personnel, the HSA effort identified nine environmental (open land) areas as potentially impacted due to the historic use and generation of radioactive materials at the FCS site. In addition, the HSA identified gaps found in the available historical information where additional data are required in order to determine the current radiological status of the potentially impacted areas.

A limited radiological characterization plan (LRCP) was developed to guide the collection of addition radiological information that would close the data gaps identified for the nine impacted environmental areas. Development of the LRCP incorporated guidance found in NUREG-1575, including the MARSSIM data quality objective (DQO) process, which was used to establish requirements for survey designs and techniques, radiation detection instruments, sample analyses, and to ensure the quality of collected data.

The radiation surveys and soil sample analyses conducted under the LRCP targeted the potential plant-related radionuclides-of-concern (ROCs) identified for the potentially impacted open land areas. Potential ROCs included plant-related gamma emitting radionuclides (e.g., Co-60, Cs-137) as well as hard-to-detect (HTD) beta emitting radionuclides (e.g., H-3, Sr-90).

The LRCP was implemented at the FCS site in October 2016. This report summarizes the radiological findings collected during the implementation of the plan.

SECTION 2 OBJECTIVE

The primary objective of the LRCP was the closure of data gaps identified for each potential radiologically impacted environmental area in the HSA. Closure of data gaps will provide information to support a determination of the current radiological status of each impacted environmental area and may serve to identify radiological issues that would warrant special consideration during decommissioning planning. Accordingly, the radiological surveys for the environmental areas are considered limited characterization surveys (that is, equivalent to scoping surveys described in NUREG-1575), designed only to fill identified data gaps, but may provide useful information for future site characterization planning, additional decommissioning planning, and final status survey (FSS) planning.

SECTION 3 BACKGROUND

3.1 SITE HISTORY

FCS Unit 1 was a Combustion Engineering 2-loop Pressurized Water Reactor (PWR) designed to permit generation of a net electrical output of approximately 475 MW. Plant construction began in 1966. The first fuel assembly was loaded into the reactor in May – June 1973. The U.S. NRC issued an operating license on August 9, 1973. The plant officially went online on September 1, 1973 with commercial operation starting 25 days later.

FCS experienced several radiological events over the operating years that may have had a radiological impact on environmental areas at the FCS site. These historical events are described and discussed in the FCS HSA. During the late 1980s and early 1990s, new buildings, including the Radwaste Processing Building, Chemistry & Radiation Protection Facility, Cafeteria, were constructed within the protected area (PA) whereas the Training Building and Administration Building were constructed outside the PA.

In early 2011, FCS received warning of the pending flood from the U.S. Army Corp of Engineers, who had to control water from a record snowmelt via systematic releases through a network of upstream dams on the Missouri River. FCS prepared for the flood by constructing aqua berms and raised walkways to protect the plant components and provide plant access to staff. On June 6, 2011, when the reactor was shut down for scheduled refueling, FCS declared an Unusual Event due to Missouri River flooding. The FCS site remained flooded for approximately 3 months.

In June 2016, OPPD Board of Directors voted to cease operations at FCS and to pursue the SAFSTOR decommissioning method. The FCS site has ceased operations and is currently in the early stages of transition and decommissioning planning. Efforts and activities at the site are focused on preparations required for moving to a SAFSTOR status, limited characterization of the environmental areas, disposition of legacy wastes, and transfer of spent fuel to the ISFSI

3.2 ENVIRONMENTAL IMPACTED AREAS

The recent limited HSA identified 9 environmental (open land) areas within the boundaries of the FCS site that have been potentially impacted by historical use and generation of radioactive materials at FCS. The HSA report provides a discussion of the rationale and bases for classifying the 9 environmental areas as potentially impacted.

Table 3.2 identifies the radiologically impacted environmental areas and summarizes the type of missing data for area. Figure 3.2 shows the locations of the potentially impacted areas at the FCS site.

3.3 RADIONUCLIDES-OF-CONCERN

The HSA identified known or potential ROCs that may be present in each impacted area based on available historical information and work practices. Potential ROCs included plant-related gamma-emitting radionuclides and HTD beta-emitting radionuclides. Table 3.3 provides a summary of known or potential ROCs for each impacted area as identified in the HSA.

Table 3.2 Summary of Potentially Impacted Environmental Areas at the FCS Site

Environmental Area	Area Code	Data Gap
Northwest section of the Protected Area (PA)	PA1	Radiation surveys Soil analyses
Southwest section of the PA	PA2	Radiation surveys Soil analyses
East section of the PA	PA3	Radiation surveys Soil analyses
Open land area (OLA) located west and north of PA	OLA1	Radiation surveys Soil analyses
Open area lying between the Switchyard fence and the berm footprint that was underwater during the 2011 flood	OLA2	Radiation surveys Soil analyses
Northwest corner of the Switchyard area and the open land area west and south of the Switchyard	OLA3	Radiation surveys Soil analyses
Open land area south of PA surrounding the Training Building and Administration Building	OLA4	Radiation surveys Soil analyses
Open land area on south site property, including the landfill, sanitary lagoons, and sanitary lagoon water application area	OLA5	Radiation surveys Soil analyses
Open land area on hill area on west side of site property	OLA 6	Radiation surveys Soil analyses

Table 3.3 Summary of Potential ROCs in Each Impacted Environmental Area

Area Code	Potential ROC	Area Code	Potential ROC	Area Code	Potential ROC
PA1	Co-60, Cs-134, Cs-137, and HTD beta-emitters	OLA1	Co-60, Cs-134, Cs-137, and HTD beta-emitters	OLA4	Cs-137
PA2	Co-60, Cs-134, Cs-137, and HTD beta-emitters	OLA2	Cs-137	OLA5	Cs-137
PA3	Co-60, Cs-134, Cs-137, and HTD beta emitters	OLA3	Cs-137	OLA6	Cs-137

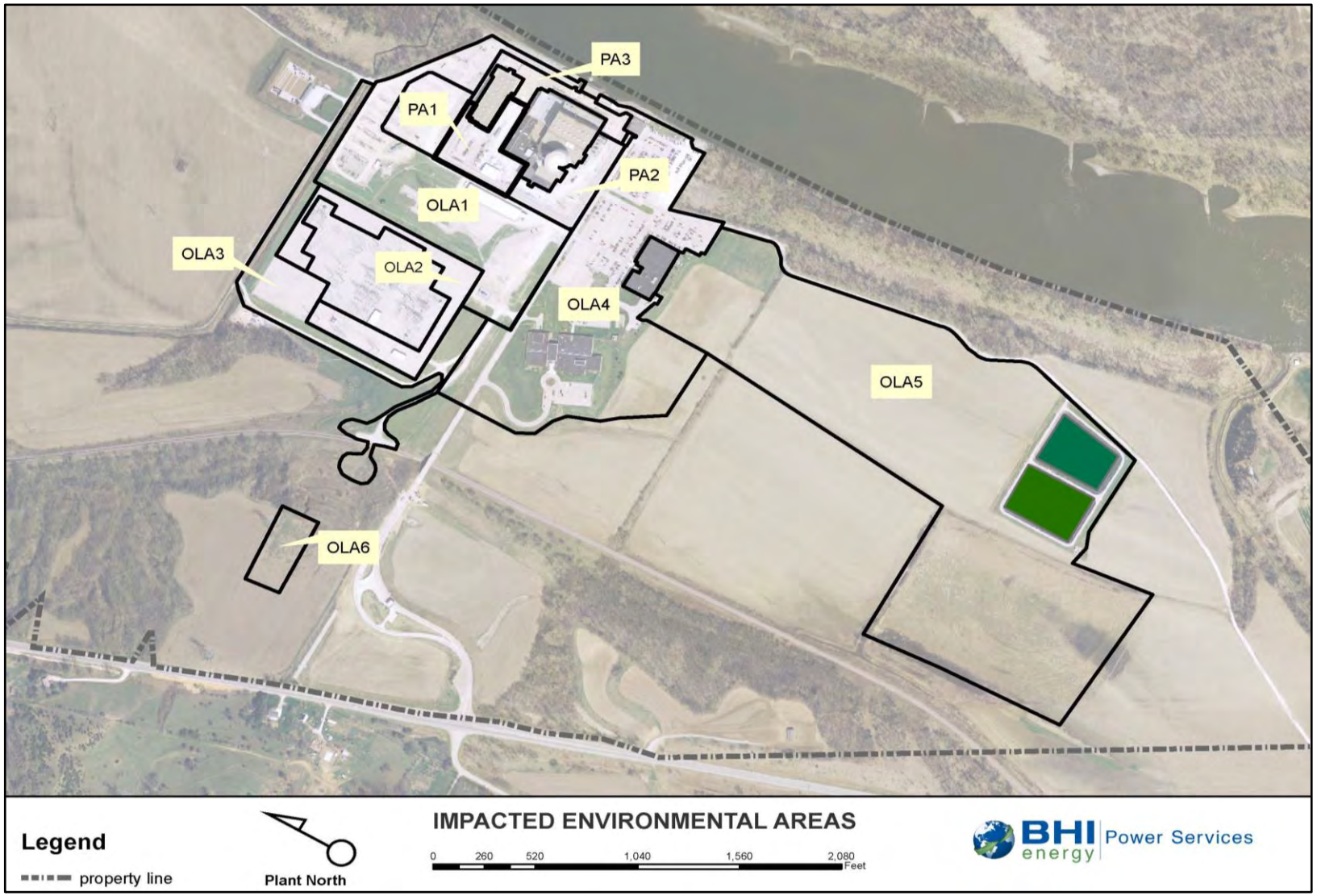


Figure 3.2 Potential Radiologically Impacted Environmental Areas at the FCS Site

SECTION 4 DATA QUALITY OBJECTIVES

The Data Quality Objective (DQO) process presented in NUREG-1575 is a 7-step systemized approach for designing surveys to collect data needed for making decisions. When applied to survey designs, the MARSSIM DQO process increases confidence in collected data and ensures that the survey results are of sufficient quality and quantity to support the decision-making process. Some portions of the MARSSIM DQO process, such as determinations of minimum number of samples and limits on decision errors to ensure adequate statistical power of the collected data, were not incorporated in development of the LRCP because the limited nature of the surveys/sampling activities. Data collected under the LRCP are neither sufficient nor intended for use as the bases for release decisions for the potentially impacted areas; however, the data serve to support decommissioning planning and/or future characterization or FSS planning.

The following requirements were established for the project:

Quality Assurance/Quality Control (QA/QC):

- Valid calibrations for all field radiation detection instruments
- Documented daily pre- and post-use operability QC checks for all field radiation detection instruments
- Collection of one QA split soil sample

Survey/sampling performance:

- Field activities performed in accordance with approved procedures referenced in the survey plan
- Constraints on data collection, personal protective equipment (PPE) requirements, and safety issues identified prior to field activities
- Investigations of all radiation levels observed with audible distinctions greater than background during gamma scans
- Maintenance of sample custody and control during transfers via use of a CoC form

Laboratory Analyses:

- Laboratory must have accredited QA program
- Sensitivities of laboratory analytical methods must be capable of detecting radioactivity at environmental levels

SECTION 5 RADIOLOGICAL SURVEY DESIGNS

The LRCP discusses the bases for the design of radiation surveys and sampling for the FCS environmental (open land) areas. The major aspects of those designs are summarized in the following sections.

5.1 MEASUREMENT TECHNIQUES

The measurement techniques included volumetric sampling and gamma scans performed in accordance with the procedures referenced in the LRCP. Collection of sub-surface soil samples was accomplished by manual digging, use of hand coring equipment, or with the support of soft dig and geo-probe processes.

5.2 MEASUREMENT LOCATIONS

All measurement locations are considered biased (or judgmental) measurement locations. Measurement locations were selected based on information in the HSA and professional judgement. The selection process for soil sampling considered (i) potential locations of residual radioactive material as identified in the HSA, (ii) potential collection points for surface run-off, (iii) likely collection locations for radioactive deposition, and (iv) professional judgement.

5.3 DETECTION LIMITS

Gamma scans over soil areas utilized a scan speed approximately equal to 0.5 m/s and an audible distinction above background as an action level to initiate an investigation and/or sampling activity. The use of an audible distinction above background was sufficient to identify environmental areas that would require special consideration during decommissioning activities and planning (i.e., areas where residual plant-related gamma-emitting radioactivity in soil exceeds the NRC screening values).

The detection limits for laboratory analyses of all soil samples were established at environmental radioactivity levels. Similar to an audible distinction above background during scans, the laboratory's standard analytical sensitivities for environmental radiation levels provided sufficient confidence for identifying plant-related radionuclide concentrations in soil that would require special consideration during decommissioning planning.

5.4 FIELD INSTRUMENTATION

Field instrumentation consisted of gamma scintillator detectors paired with data loggers. Table 5.4 provides a summary of the survey instrumentation used for gamma scans.

Table 5.4 Survey Instrumentation Summary

Instrumentation Pairing	Serial No.	Calibration Due Date	Use
Ludlum Model 2350-1 Data Logger and Ludlum Model 44-10 NaI Scintillator	221036 PR245275	10/10/2017	Gamma scans in all impacted areas
Ludlum Model 2350-1 Data Logger and Ludlum Model 44-10 NaI Scintillator	203485 PR226924	10/10/2017	Gamma scans in all impacted areas

5.5 QUALITY ASSURANCE AND QUALITY CONTROL

Section 2.0 in the LRCP established quality assurance (QA) and quality control (QC) requirements for field instruments and sampling. All field instruments were calibrated before the implementation of the plan and were within a valid calibration period when used to collect survey data. The instrumentation vender used NIST-traceable sources in the calibrations of survey instruments. The operability of field instruments was verified before and after use. Written procedures governed the field survey and sampling activities. In addition, the integrity of soil samples was ensured by a CoC form, which was used when soil samples were transferred to the contracted laboratory.

Instrument calibration records and documentation for instrument QC checks are provided in Appendix C. Copies of the CoC forms are provided in Appendix D.

SECTION 6 RADIOLOGICAL FINDINGS

The HSA identified nine potentially impacted environmental (open land) areas based on either known or potential presence of residual radioactive materials. The LRCP required sampling and gamma scans in each potentially impacted area. All field activities associated with the implementation of the LRCP were conducted at the FCS site between October 19 through October 28, 2016. Table 6.0 summarizes the sampling for each environmental area.

Table 6.0 Radiological Sampling Summary

Area Code	Approximate Area (m^2)	Number Samples (Sample Depth)
PA1	12,200	2 surface soil (0-6 inches) 1 surface soil composite (0-6 inches) 3 sub-surface soil (1ft, 3ft, 5 ft)
PA2	11,300	2 surface soil (0-6 inches) 5 surface soil composites (0-6 inches) 2 sub-surface soil (6 ft)
PA3	7,700	1 surface soil (0-6 inches) 2 surface soil composites (0-6 inches) 1 sub-surface soil (6 ft)
OLA1	67,600	1 surface soil (0-6 inches) 5 surface soil composites (0-6 inches) 1 sub-surface soil (6 ft)
OLA2	29,300	3 surface soil (0-6 inches)
OLA3	38,500	6 surface soil (0-6 inches) 4 surface soil composites (0-6 inches)
OLA4	109,000	2 surface soil (0-6 inches) 1 sub-surface soil (3 ft)
OLA5	263,000	3 surface soil (0-6 inches) 1 sub-surface soil (3 ft)
OLA6	8,100	3 surface soil (0-6 inches) 3 sub-surface soil (1.5 ft)
	Total soil samples	36 surface soil 16 sub-surface soil

The following sections provide detailed discussions of the survey and sampling activities conducted in environmental area, and present the survey results and conclusions for each environmental area.

Note that the use of "north" as a direction throughout this report refers to "plant" north rather than "true" north. The map illustrations throughout this report are oriented with true north at the top of the page. Area descriptions throughout this report rely on plant north to orient the reader to described relative positions and area boundaries. A plant north vector arrow is provided in the legend of each map illustration.

6.1 AREA PA1

Environmental area PA1 consists of the northwest area inside the PA fence and encompasses approximately 12,200 m^2. Most of this area is covered with gravel and crushed stone; however, there are also small areas covered by concrete. During plant operating years, sealand containers holding radioactive materials were staged in the open area west of the Chemistry & Radiation Protection facility. The HSA did not reveal records documenting either loss of container integrity or leakage from the staged containers. The HSA also did not reveal records for radiation surveys and/or radiological sampling within the container staging area. If residual radioactive soil contamination is present, the potential ROCs would include those associated with radioactive waste streams, such as dry active waste (DAW).

The limited characterization survey for area PA1 included several area gamma scans. The gamma scan paths are shown on the annotated field maps for PA1 provided in Appendix A. The gamma scans conducted in area PA1 did not identify any radiation levels that exceeded ambient background levels.

The limited characterization survey also included the collection of soil samples at historical staging locations for sealand containers, at a location where the north wall of the Radioactive Waste Processing Building meets the Auxiliary Building, and along the drain path of water from the New Warehouse. Figure 6.1 shows the sampling locations inside area PA1.

Six soil samples were collected in area PA1: 2 surface soil samples, 1 composite surface soil, and 3 sub-surface soil samples. Prior to transfer a contracted laboratory, FCS Radiation Protection (RP) personnel screened the PA1 soil samples for plant-related gamma-emitting radionuclides; none was identified. Sample integrity during transfer to the contracted laboratory was ensured through use a CoC form. Copies of the CoC forms are provided in Appendix D.

The contracted laboratory performed gamma analysis on each sample. In addition, the sample collected at location PA1-D1-04 was submitted for radio-chemical analyses to assess the potential present of HTD beta-emitting radionuclides and transuranic radionuclides (TRUs).

Laboratory analyses of soil samples from PA1 did not identify concentrations of plant-related ROCs that would require remediation or special consideration during decommissioning. All reported gamma analysis results were below the *a posteriori* minimum detectable concentration (MDC) values achieved in the analyses. The gamma scans conducted in area PA1, which did not identify any area of elevated radioactivity, support the laboratory data. In addition, the reported concentrations for HTD beta-emitting ROCs in the soil from area PA1 were below the *a posteriori* MDC values. Table 6.1-1 provides a summary of the results of gamma analyses for soil samples, and Table 6.1-2 summarizes the results for HTD radionuclides.

Conclusion: Results of the limited characterization efforts conducted in area PA1 did not identify any residual radiological conditions that would warrant special consideration during decommissioning planning. Although insufficient for use as the basis for releasing the area, the limited radiological data collected for area PA1 under this project will support the development of a subsequent MARSSIM characterization survey and final status survey.

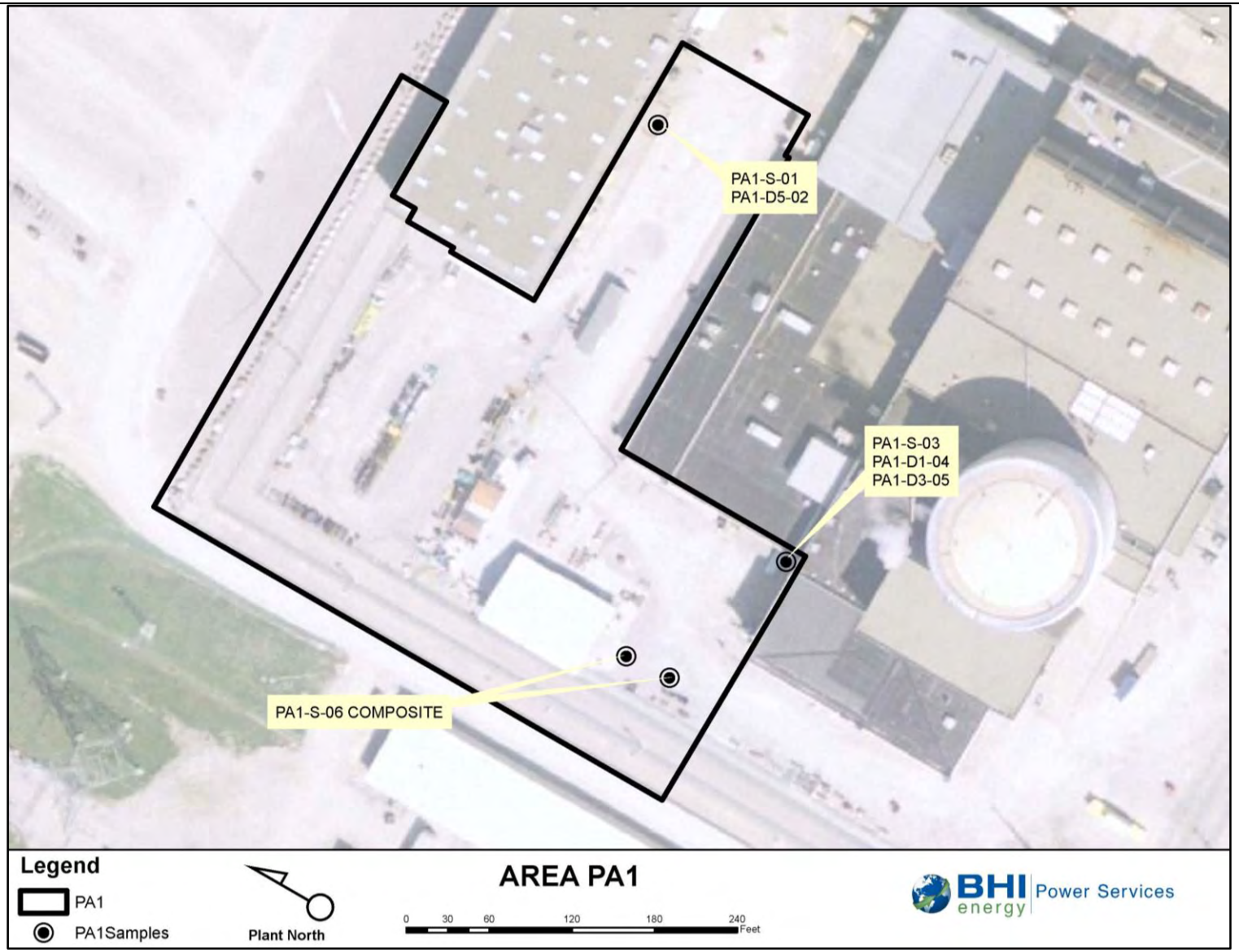


Figure 6.1 Soil Sampling Locations within Environmental Area PA1

Table 6.1-1 Summary of Gamma Analysis Results for Soil Samples Collected in Area PA1

Location Code	Cs-137[a]	
	Reported Value pCi/g	MDC[b] pCi/g
PA1-S-01	1.1 E-02	7.0 E-02
PA1-D5-02	5.4 E-02	9.6 E-02
PA1-S-03	0.0 E+00	8.3 E-02
PA1-D1-04	5.6 E-04	8.8 E-02
PA1-D3-05	-2.1 E-02	6.1 E-02
PA1-6-06	2.6 E-02	5.5 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

Table 6.1-2 Summary of Results for HTD Radionuclides in Soil from Area PA1

HTD Radionuclide	PA1-D1-04[a]	
	Reported Value pCi/g	MDC[b] pCi/g
Am-241	-9.2 E-02	2.0 E+00
Cm-242	-3.9 E-02	1.4 E+00
I-129	-8.0 E-01	3.4 E+00
Pu-241	2.9 E+01	1.5 E+02
Tc-99	2.5 E+01	1.2 E+02
H-3	4.5 E+01	1.7 E+02
C-14	-3.5 E-01	2.5 E+01
Pu-238	5.4 E-01	1.4 E+00
Pu-239/240	9.7 E-01	1.4 E+00
Np-237	8.2 E-02	1.2 E+00
Sr-90	1.5 E-01	9.1 E-01
Ni-63	-5.2 E+02	7.1 E+02

[a] Reported values and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

6.2 AREA PA2

Environmental area PA2 consists of the southwest area inside the PA fence and encompasses approximately 11,300 m^2. This area is covered with gravel and crushed stone; however, there are also small areas covered by concrete. During plant operating years, sealand containers were staged along the south fence line, opposite to the south side of the Radwaste Processing Building. In addition, the southwest corner of area PA2 was the site of a decontamination facility erected to support the 2006 steam generator (SG) replacement project. A detailed discussion of historical use of radioactive materials within area PA2 is provided in the HSA. Given that history, if residual radioactive soil contamination is present, the potential ROCs would include those associated with radioactive waste streams, such as DAW.

The limited characterization survey for area PA2 included several area gamma scans. The gamma scan paths are shown on the annotated field map for PA2 provided in Appendix A. The gamma scans conducted in area PA2 did not identify any radiation levels that exceeded ambient background levels in area PA2.

The limited characterization survey also included the collection of soil samples at the following locations:

- historical sealand container staging areas,
- the area surrounding the remaining concrete base for the SG decontamination facility,
- the bottom of the ramp adjacent to the Auxiliary Building and Containment,
- in front of the south rollup door to the Radwaste Processing Building, and
- in the east area of PA2.

Figure 6.2 shows the sampling locations inside area PA2.

Nine soil samples were collected in area PA2: 2 surface soil samples, 5 composite surface soil samples, and 2 sub-surface soil samples. Prior to transfer a contracted laboratory, FCS RP personnel screened each PA2 soil sample for plant-related gamma-emitting radionuclides; none was identified. Sample integrity during transfer to the contracted laboratory was ensured through use a CoC form. Copies of the CoC forms are provided in Appendix D.

The contracted laboratory performed gamma analysis on each sample. In addition, the sample collected at locations PA2-S-06 and PA2-D5-07 were submitted for analyses to assess the potential present of HTD beta-emitting radionuclides and TRUs.

Laboratory analyses of soil samples from PA2 did not identify concentrations of plant-related ROCs that would require remediation or special consideration during decommissioning. One soil sample showed positive results for plant-related radioactivity. The gamma analysis for sample PA2-S-03 identified Cs-137 at a concentration approximately equal to 0.2 pCi/g, which represents a small percentage (i.e., <2%) of the NRC screening value for Cs-137 (11 pCi/g) published in NUREG 1757, *Consolidated Decommissioning Guidance*, and is well below any concentration that would require remediation or special consideration during decommissioning. The reported results for all other plat-related gamma-emitting ROCs were below the *a posteriori* MDC values achieved in the analyses. The gamma scans conducted in area PA2, which did not identify any area of elevated radioactivity, support the laboratory data. In addition, the reported concentrations of HTD beta-emitting ROCs in the soil from area PA2 were below the *a posteriori* MDC values achieved during analyses. Table 6.2-1 provides a summary of the results of gamma analyses for soil samples, and Table 6.2-2 provides the results for HTD radionuclides.

Conclusion: Results of the limited characterization efforts conducted in area PA2 did not identify any radiological issue that would warrant special consideration during decommissioning planning. Although insufficient for use as the release basis for the area, the limited radiological data collected for area PA2 under this project will support the development of a subsequent MARSSIM characterization survey and final status survey.

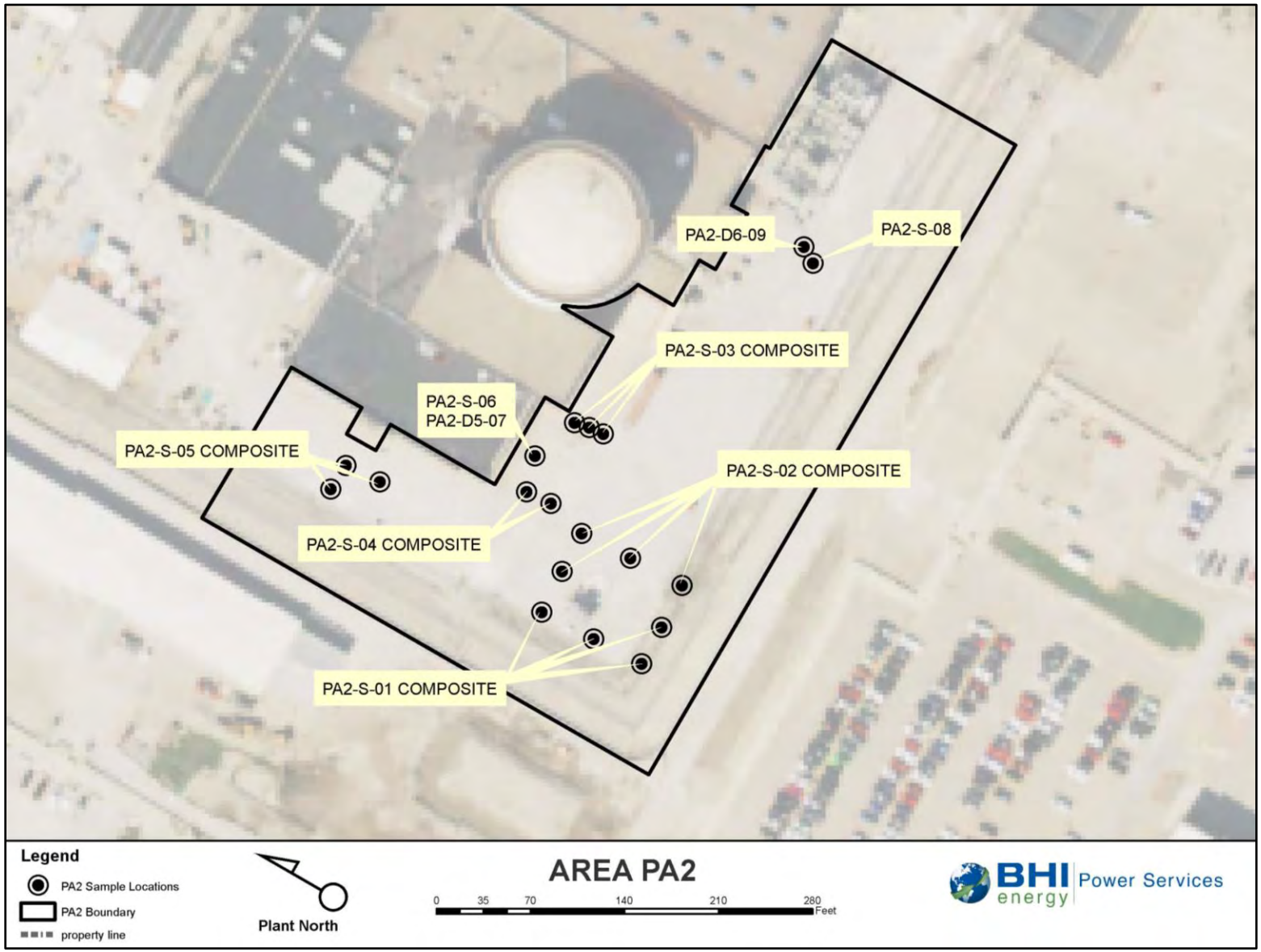


Figure 6.2 Soil Sampling Locations within Environmental Area PA2

Table 6.2-1 Summary of Gamma Analysis Results for Soil Samples Collected in Area PA2

Location Code	Cs-137[a]	
	Reported Value pCi/g	MDC[b] pCi/g
PA2-S-01	5.4 E-02	6.2 E-02
PA2-S-02	-2.9 E-03	6.5 E-02
PA2-S-03	1.7 E-01	6.5 E-02
PA2-S-04	3.1 E-02	6.4 E-02
PA2-S-05	4.2 E-02	6.3 E-02
PA2-S-06	2.7 E-02	6.7 E-02
PA2-D6-07	-1.0 E-02	6.3 E-02
PA2-S-08	-1.1 E-02	6.9 E-02
PA2-D6-09	5.7 E-03	7.5 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

Table 6.2-2 Summary of Results for HTD Radionuclides in Soil from Area PA2

HTD Radionuclide	PA2-S-06[a]		PA2-D6-07[a]	
	Reported Value pCi/g	MDC[b] pCi/g	Reported Value pCi/g	MDC[b] pCI/g
Am-241	2.5 E-01	2.0 E+00	2.2 E-01	1.0 E+00
Cm-242	0.0 E+00	8.7 E-01	2.5 E-01	1.2 E+00
I-129	-5.7 E-01	1.1 E+01	0.0 E+00	4.0 E+00
Pu-241	-1.3 E+01	1.7 E+02	-7.7 E+01	2.2 E+02
Tc-99	-1.5 E+01	7.3 E+01	3.1 E+00	2.4 E+01
H-3	-2.0 E+00	2.9 E+02	8.2 E+01	2.4 E+02
C-14	5.4 E+00	2.3 E+01	5.3 E+00	1.9 E+01
Pu-238	9.0 E-01	1.7 E+00	-3.5 E-02	1.2 E+00
Pu-239/240	6.9 E-02	1.5 E+00	5.1 E-01	1.4 E+00
Np-237	-1.6 E-01	1.3 E+00	8.6 E-03	1.4 E+00
Sr-90	7.0 E-01	8.9 E-01	5.5 E-01	1.2 E+00
Ni-63	-9.5 E+01	4.0 E+02	-2.6 E+02	6.7 E+02

[a] Reported values and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

6.3 AREA PA3

Environmental area PA3 consists of the east area inside the PA fence and encompasses approximately 7,740 m^2. A large portion of this area is covered with concrete; however, there are small areas of gravel adjacent to the Service Building open as a direct path to the soil. Unlike areas PA1 and PA2, area PA3 was not used for staging containers holding radioactive materials, and no significant radiological event was recorded in area PA3. However, there are underground pipes associated with the Discharge Structure and liquid effluent release path. If residual radioactive soil contamination is present, the potential ROCs would include those associated with liquid effluent.

The limited characterization survey for area PA3 included several area gamma scans. The gamma scan paths are shown on the annotated field maps for PA3 provided in Appendix A. The gamma scans conducted in PA3 did not identify any radiation levels that exceeded ambient background levels in area PA3.

The limited characterization survey also included the collection of soil samples at the following locations:

- seams/breaks present in the concrete in the north end of PA3,
- direct paths to soil though the gravel-covered areas adjacent to walkway in front of the Maintenance Building and Service Building, and
- in the vicinity of the excavation and inspection of the Discharge Line near the Intake Structure.

Figure 6.3 shows the sampling locations inside area PA3.

Four soil samples were collected in area PA3: 1 surface soil sample, 2 composite samples of surface soil, and 1 sub-surface soil sample. FCS RP personnel screened the PA3 soil samples for plant-related gamma-emitting radionuclides prior to release for transfer to the contracted laboratory. Sample integrity during transfer to the contracted laboratory was ensured through use a CoC form. Copies of the CoC forms are provided in Appendix D.

Laboratory analyses of soil samples from PA3 did not identify concentrations of plant-related ROCs that would require remediation or special consideration during decommissioning. One soil sample showed positive results for plant-related radioactivity. The gamma analysis for sample PA3-S-04 identified Cs-137 at a concentration approximately equal to 0.1 pCi/g, which represents a small percentage (i.e., <1%) of the NRC screening value for Cs-137 (11 pCi/g) published in NUREG 1757 and is well below any concentration that would require remediation or special consideration during decommissioning. The reported results for all other plant-related gamma-emitting ROCs were below the *a posteriori* MDC values achieved in the analyses. The gamma scans conducted in area PA3, which did not identify any area of elevated radioactivity, support the laboratory data. In addition, the reported concentrations for HTD beta-emitting ROCs in the soil from area PA3 were below the *a posteriori* MDC values. Table 6.3-1 provides a summary of the results of gamma analyses for soil samples, and Table 6.3-2 provides the results for HTD radionuclides.

Conclusion: Results of the limited characterization efforts conducted in area PA3 did not identify any radiological issue that would warrant special consideration during decommissioning planning. Although insufficient for use as the release basis for the area, the limited radiological data collected for area PA3 will support the development of a subsequent MARSSIM characterization survey and final status survey.

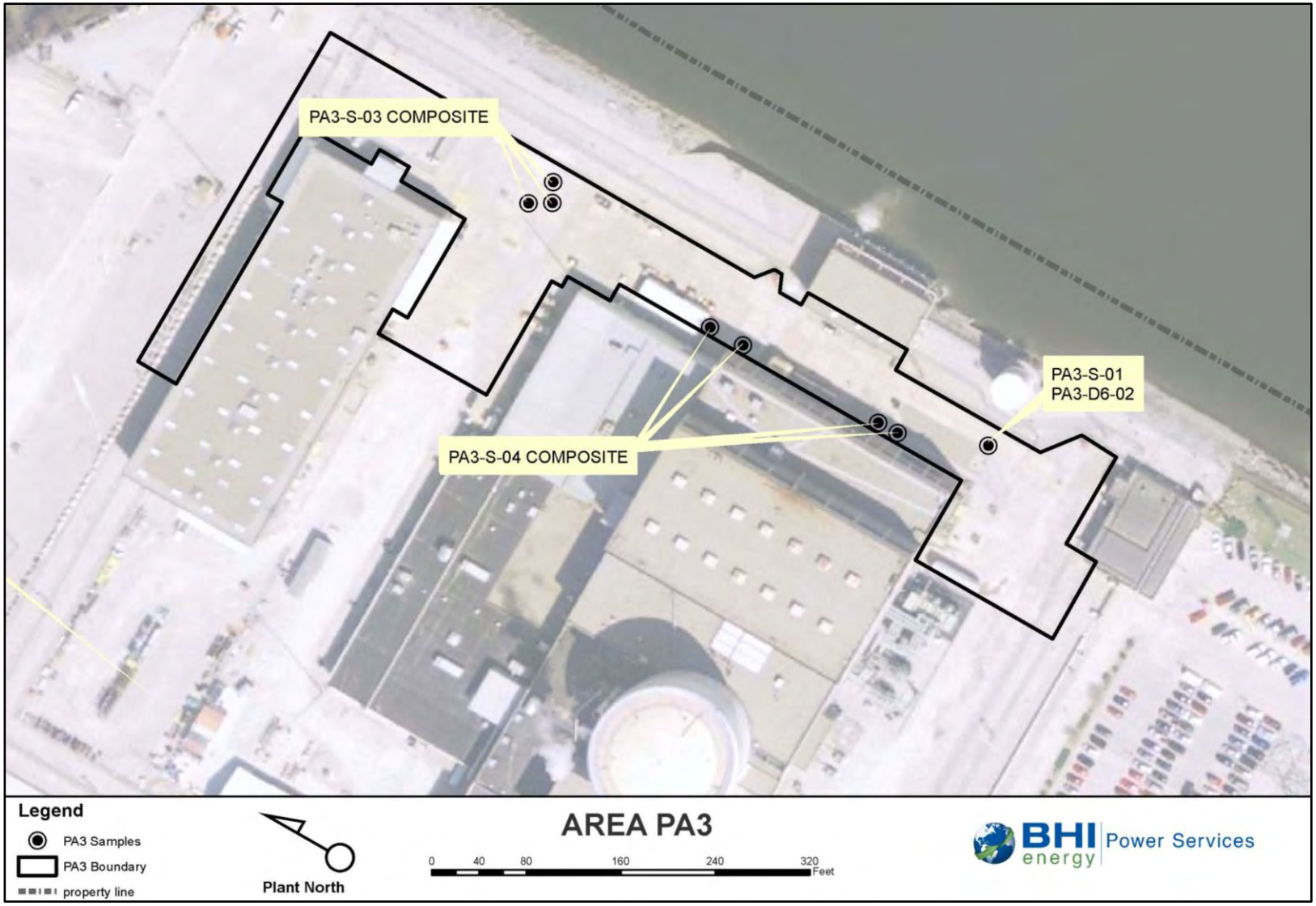


Figure 6.3 Soil Sampling Locations within Environmental Area PA3

Table 6.3-1 Summary of Gamma Analysis Results for Soil Samples Collected in Area PA3

Location Code	Cs-137[a]	
	Reported Value pCi/g	MDC[b] pCi/g
PA3-S-01	-1.6 E-02	7.6 E-02
PA3-D6-02	-3.3 E-04	8.1 E-02
PA3-S-03	1.1 E-02	6.5 E-02
PA3-S-04	9.8 E-02	6.2 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

Table 6.3-2 Summary of Results for HTD Radionuclides in Soil from Area PA3

HTD Radionuclide	PA3-S-04[a]	
	Reported Value pCi/g	MDC[b] pCi/g
Am-241	-2.2 E-02	7.7 E-01
Cm-242	0.0 E+00	6.2 E-01
I-129	-4.5 E-01	7.7 E+00
Pu-241	-7.3 E+00	1.8 E+02
Tc-99	2.2 E+01	5.3 E+01
H-3	2.1 E+00	2.7 E+02
C-14	-2.4 E+00	2.8 E+01
Pu-238	5.5 E-01	1.4 E+00
Pu-239/240	5.5 E-01	1.4 E+00
Np-237	-1.7 E-02	1.4 E+00
Sr-90	3.4 E-01	1.1 E+00
Ni-63	-5.1E+02	7.3E+02

[a] Reported values and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

6.4 AREA OLA1

Environmental area OLA1 includes the area outside the north and west PA fence and encompasses approximately 67,600 m^2. Most of this region of the site covered with gravel, crushed stone, and engineering fill material brought in to support heavy-haul route construction. The north end of the area between the PA west fence and the Switchyard was used as a staging area for sealand containers holding radioactive materials, including containers of uranium hexafluoride in the early years. RMAs were established historically inside the Old Warehouse and as of this report, still exist within the building. The Old Warehouse has a history of flooding events during which water from inside the building drained to the outside environs. The south part of OLA1 was also used as a travel path for steam generator components transferred to the mausoleum after decontamination within the PA.

The limited characterization survey for area OLA1 included several area gamma scans, including scans around the perimeter of the Old Warehouse and the haul routes to the ISFSI and the mausoleum. With the exception of observing elevated radiation levels at mid-wall height on the east wall of the Old Warehouse (due to radioactive material stored in an RMA inside the Old Warehouse), the gamma scans conducted in area OLA1 did not identify any radiation levels that exceeded ambient background levels in area OLA1. The gamma scan paths are shown on the annotated field maps for OLA1 provided in Appendix A.

The limited characterization survey also included the collection of soil samples at the following locations:

- Run-off flow path from the roll up door on the west side of the Old Warehouse,
- In front of the door on the east side of the Old Warehouse,
- The drainage ditch receiving storm water from the PA and at the junction of the storm water drainage from the PA and the storm water drainage from the east area of OLA1,
- The west side of the heavy haul route (at top of slope to the drainage ditch), and
- Between two chemical storage sheds located approximately 30 feet west of the Old Warehouse.

Figure 6.4 shows the sampling locations inside area OLA1.

Seven soil samples were collected in area OLA1: 1 surface soil sample, 5 composite samples of surface soil, and 1 sub-surface soil sample. Sample integrity during transfer to the contracted laboratory was ensured through use a CoC form. Copies of the CoC forms are provided in Appendix D.

The contracted laboratory performed gamma analysis on each sample. Laboratory analyses of soil samples from PA3 did not identify concentrations of plant-related ROCs that would require remediation or special consideration during decommissioning. Only one soil sample showed positive results for plant-related radioactivity. Gamma analysis of sample OLA1-S-06 identified Cs-137 at a concentration approximately equal to 0.2 pCi/g, which represents a small percentage (i.e., <2%) of the NRC screening value for Cs-137 (11 pCi/g) published in NUREG 1757, and is well below any concentration that would require remediation or special consideration during decommissioning. All other reported gamma analysis results were below the *a posteriori* MDC values achieved in the analyses. With the gamma scan exception noted above, the gamma scans conducted in area OLA1 support the laboratory data. Table 6.4 provides a summary of the results of gamma analyses for soil samples. Analyses for HTD radionuclides were not performed on samples from this area.

Conclusion: Results of the limited characterization efforts conducted in area OLA1 did not identify any radiological concerns that would warrant special consideration during decommissioning planning.

Although insufficient for use as the release basis for area OLA1, the collected data will support development of subsequent characterization surveys and MARSSIM final status surveys.

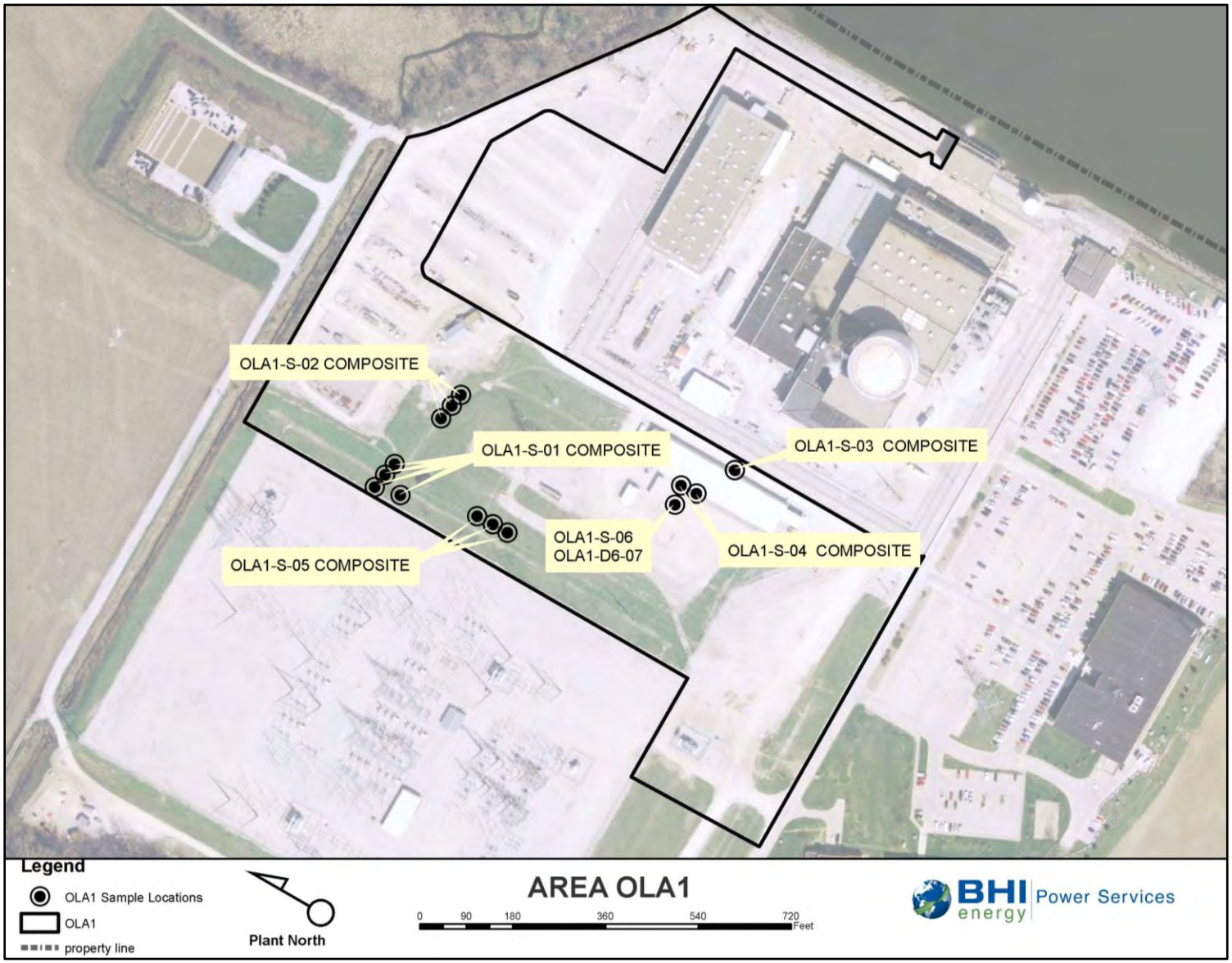


Figure 6.4 Soil Sampling Locations within Environmental Area OLA1

Table 6.4-1 Summary of Gamma Analysis Results for Soil Samples Collected in Area OLA1

Location Code	Cs-137[a]	
	Reported Value pCi/g	MDC[b] pCi/g
OLA1-S-01	3.1 E-02	9.1 E-02
OLA1-S-02	2.3 E-02	6.1 E-02
OLA1-S-03	5.9 E-03	7.7 E-02
OLA1-S-04	2.5 E-02	6.4 E-02
OLA1-S-05	1.2 E-02	8.2 E-02
OLA1-S-06	2.3 E-01	6.0 E-02
OLA1-D6-07	0.0 E+00	4.6 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

6.5 AREA OLA2

Environmental area OLA2 includes an area within the Switchyard fence that was outside the berm built to protect the Switchyard during the 2011 flood. It encompasses approximately 29,300 m^2. There is no history of use or storage of radioactive materials in area OLA2. However, area OLA2 is identified as an impacted area solely because of the potential for cross-contamination resulting from the flood and recovery efforts. Any residual contamination, if present in area OLA2, is not expected to exceed a small fraction of 10CFR20.1402 radiological criteria for unrestricted use.

The limited characterization survey for area OLA2 included several area gamma scans that focused on the east side of the OLA2, which is where 2011 flood waters travelling from the PA potentially transported licensed radioactivity to the closest eastern edge of the berm protecting the switchyard. The gamma scans conducted along the length of the east boundary of area OLA2 did not identify any radiation level that exceeded the ambient background level in the area. The gamma scan paths are shown on the annotated field map for OLA2 provided in Appendix A.

The limited characterization survey also included the collection of 3 soil samples at the following locations:

- Southeast corner of OLA2,
- Northeast corner of OLA2, and
- The storm drain located approximately 20 feet north of OLA2-S-02 sample location in the northeast corner.

Figure 6.5 shows the sampling locations inside area OLA2. Sample integrity during transfer to the contracted laboratory was ensured through use a CoC form. Copies of the CoC forms are provided in Appendix D.

The contracted laboratory performed gamma analysis on each sample. Laboratory analyses of soil samples from OLA2 did not identify concentrations of plant-related ROCs that would require remediation or special consideration during decommissioning. All reported gamma analysis results were below the *a posteriori* MDC values achieved in the analyses. The gamma scans conducted in area OLA2, which did not identify any area of elevated radioactivity, support the laboratory data. Table 6.5 provides a summary of the results of gamma analyses for soil samples.

Conclusion: Results of the limited characterization efforts conducted in area OLA2 did not identify any radiological issue that would warrant special consideration during decommissioning planning. Although insufficient for use as the release basis for area OLA2, the collected data will support development of subsequent characterization surveys and MARSSIM final status surveys.

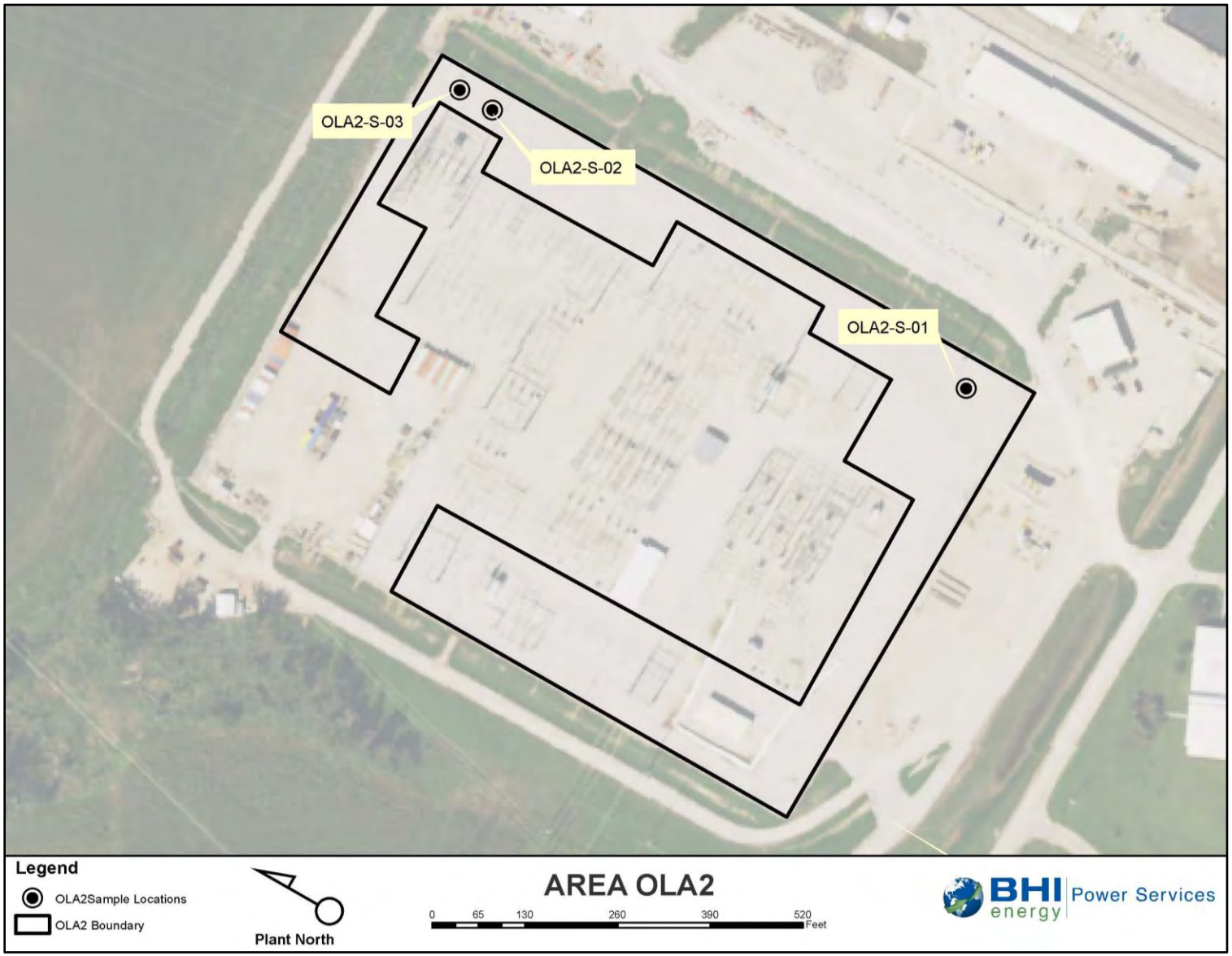


Figure 6.5 Soil Sampling Locations within Environmental Area OLA2

Table 6.5 Summary of Gamma Analysis Results for Soil Samples Collected in Area OLA2

Location Code	Cs-137[a]	
	Reported Value pCi/g	MDC[b] pCi/g
OLA2-S-01	2.8 E-02	3.8 E-02
OLA2-S-02	3.6 E-02	5.5 E-02
OLA2-S-03	1.4 E-02	5.6 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

6.6 AREA OLA3

Environmental area OLA3 is approximately 38,500 m^2 in size and includes a portion of Fish Creek, which runs west to east along the northern boundary, discharging to the Missouri River. Gravel and crushed stone covers most of OLA3; however, the road network in the southern portions of OLA3 includes engineering fill material brought in when the heavy-haul routes were constructed. Sealand containers housing outage equipment and materials were staged in the northwest corner of the switchyard area. Area OLA3 also includes the travel path to the mausoleum, which is the structure that houses the old steam generators and related components removed in 2006.

The characterization survey for area OLA3 included gamma scans on the west and south road network, the open area in front of the mausoleum, and banks of Fish Creek. The gamma scans did not identify any radiation level that exceeded the ambient background level in the area. The gamma scan paths are shown on the annotated field maps for OLA3 provided in Appendix A.

The limited characterization survey also included the collection of soil samples at the following locations:

- West end of Fish Creek,
- Mid-point of the portion of Fish Creek within OLA3,
- East end of Fish Creek,
- Storm drain outfall at the east end of Fish Creek
- Container storage area at the northwest corner of the switchyard,
- Route to the mausoleum, and
- Sand piles located near the mausoleum.

Figure 6.6 shows the sampling locations inside area OLA3.

Ten soil samples were collected in area OLA1: 4 surface soil samples from the Fish Creek area, 2 surface soil samples and 1 composite surface sample from the container staging area in the northwest corner of the switchyard, 1 composite surface soil sample from the haul route to the mausoleum, and 2 composite soil samples from the sand piles located near the mausoleum. Sample integrity during transfer to the contracted laboratory was ensured through use a CoC form. Copies of the CoC forms are provided in Appendix D.

The contracted laboratory performed gamma analysis on each sample. One soil sample showed positive results for plant-related radioactivity. Gamma analysis of sample OLA3-S-04 identified Cs-137 at a concentration approximately equal to 0.1 pCi/g, which represents a small percentage (i.e., <1%) of the NRC screening value for Cs-137 (11 pCi/g) published in NUREG 1757, and is well below any concentration that would require remediation or special consideration during decommissioning. All other reported gamma analysis results were below the *a posteriori* MDC values achieved in the analyses. The gamma scans conducted in area OLA3, which did not identify any area of elevated radioactivity, support the laboratory data. Table 6.6 provides a summary of the results of gamma analyses for soil samples.

Conclusion: Results of the limited characterization efforts conducted in area OLA3 did not identify any radiological issue that would warrant special consideration during decommissioning planning. Although insufficient for use as the release basis for area OLA3, the collected data will support development of subsequent characterization surveys and MARSSIM final status surveys.

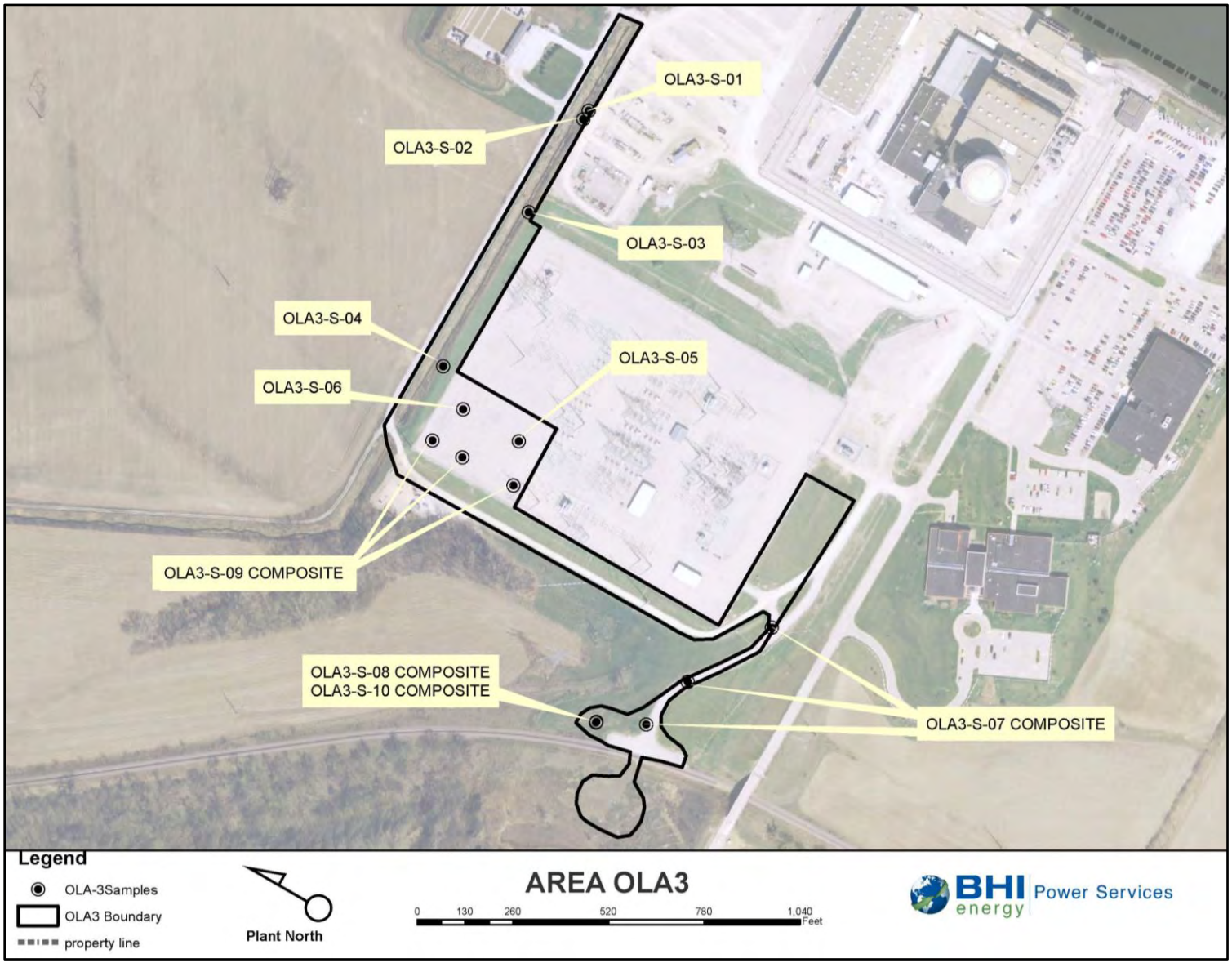


Figure 6.6 Soil Sampling Locations within Environmental Area OLA3

Table 6.6 Summary of Gamma Analysis Results for Soil Samples Collected in Area OLA3

Location Code	Cs-137[a]	
	Reported Value pCi/g	MDC[b] pCi/g
OLA3-S-01	5.8 E-02	1.2 E-01
OLA3-S-02	-9.4 E-04	6.3 E-02
OLA3-S-03	3.4 E-02	1.1 E-01
OLA3-S-04	1.2 E-01	7.5 E-02
OLA3-S-05	3.5 E-02	8.5 E-02
OLA3-S-06	9.5 E-03	5.9 E-02
OLA3-S-07	2.6 E-03	6.3 E-02
OLA3-S-08	-5.4 E-03	4.3 E-02
OLA3-S-09	4.8 E-04	4.0 E-02
OLA3-S-10	-2.0 E-03	4.4 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

6.7 AREA OLA4

Environmental area OLA4 encompasses approximately 109,000 m^2 and consists of grassy areas and parking lots surrounding the Training Building and the Administration Building, as well as the old west sanitary lagoon. This region of the site is covered with gravel, crushed stone, asphalt pavement, concrete walks, and grass covered soil. The old Chemical Pump House and Chemistry Mix Basin were located at the river's edge in the northeast section of OLA4. These structures were associated with river water processing; no radioactive materials were involved in the processing.

The characterization survey for area OLA4 included gamma scans in the north, east, and southwest sections of OLA4. The gamma scans did not identify any radiation level that exceeded the ambient background level in the area. The gamma scan paths are shown on the annotated field maps for OLA4 provided in Appendix A.

The limited characterization survey also included the collection of 3 soil samples at the following locations:

- Storm drain located east of the Training Building (surface soil), and
- In area of the now closed old west sanitary lagoon (surface and sub-surface soil).

Figure 6.7 shows the sampling locations inside area OLA4. The integrity of the soil samples was ensured during transfer to the contracted laboratory by the use a CoC form. Copies of the CoC forms are provided in Appendix D.

The contracted laboratory performed gamma analysis on each sample. One soil sample showed positive results for plant-related radioactivity. Gamma analysis of sample OLA4-D3-03, collected from the old west sanitary lagoon area, identified Cs-137 at a concentration approximately equal to 0.07 pCi/g. However, that concentration represents a small percentage (i.e., <0.7%) of the NRC screening value for Cs-137 (11 pCi/g) published in NUREG 1757, and is well below any concentration that would require remediation or special consideration during decommissioning. All other reported gamma analysis results were below the *a posteriori* MDC values achieved in the analyses. The gamma scans conducted in area OLA4, which did not identify any area of elevated radioactivity, support the laboratory data. Table 6.7 provides a summary of the results of gamma analyses for soil samples.

Conclusion: Results of the limited characterization efforts conducted in area OLA4 did not identify any radiological issue that would warrant special consideration during decommissioning planning. Although insufficient for use as the release basis for area OLA4, the collected data will support development of subsequent characterization surveys and MARSSIM final status surveys.

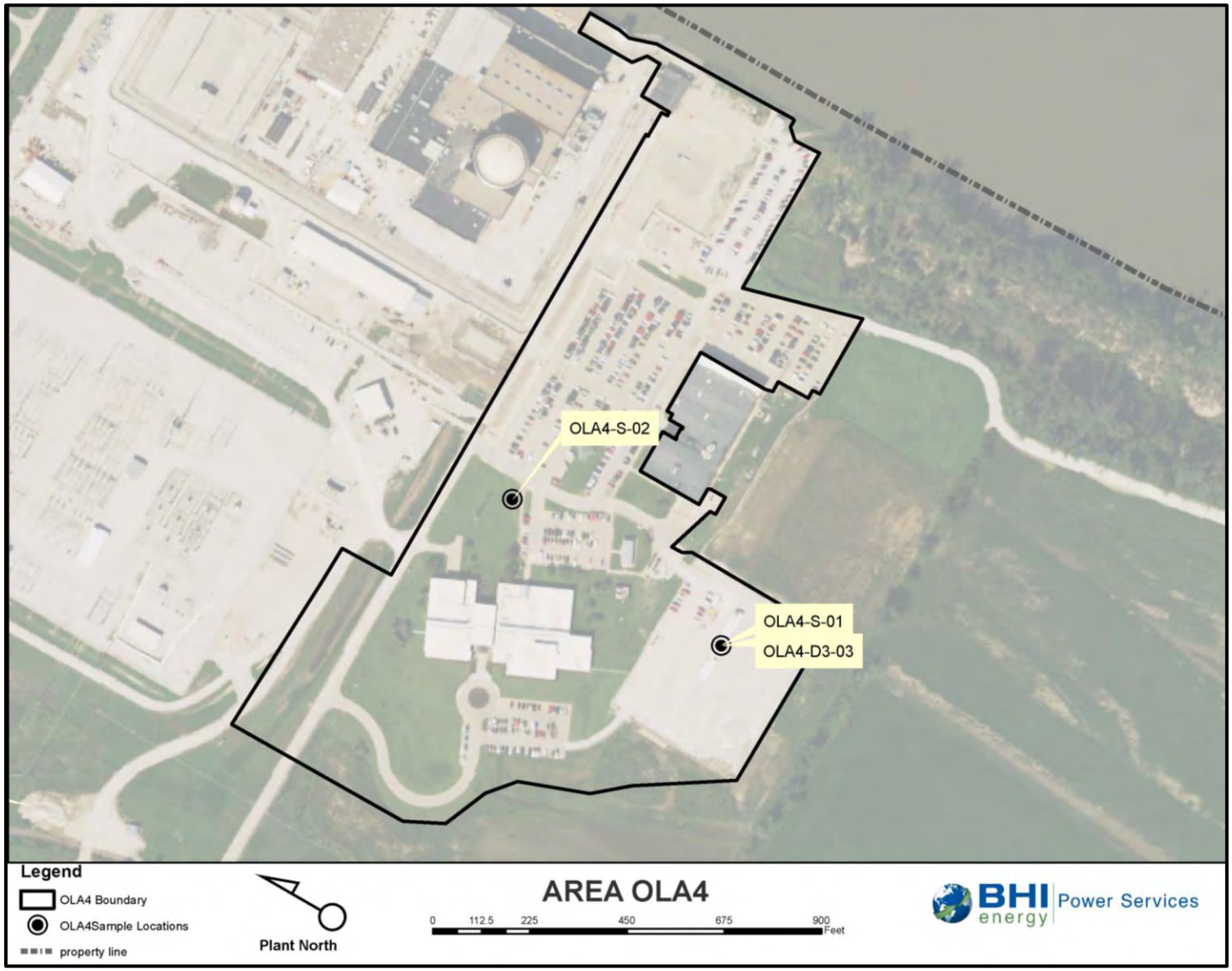


Figure 6.7 Soil Sampling Locations within Environmental Area OLA4

Table 6.7 Summary of Gamma Analysis Results for Soil Samples Collected in Area OLA4

Location Code	Cs-137[a]	
	Reported Value pCi/g	MDC[b] pCi/g
OLA4-S-01	7.5 E-03	7.3 E-02
OLA4-S-02	2.6 E-02	8.2 E-02
OLA4-D3-03	7.1 E-02	5.2 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

6.8 AREA OLA5

Environmental Area OLA5 is on the southeast section of the site property and encompasses approximately 263,000 m^2. Most of this region of the site covered with vegetative growth. OPPD leases a large portion of the area for use as agricultural land. A closed landfill that contains pre-operation construction debris and non-radioactive waste materials (e.g., resin) from the processing of river water is located in the northeast corner. The area within the northern portion of OLA5 is the site of the now closed old east sanitary lagoon. The new sanitary lagoons are located in the southeast section of OLA5. An application area is located to the west of the lagoons for disposal of lagoon water. Although detectable Cs-137 has been found in the sludge from these new lagoons, licensed radioactivity has not been detected in the lagoon water.

The characterization survey for area OLA5 included gamma scans in the local areas surrounding each soil sample location as well as walk-over gamma scan in the application area established for the lagoon water. The gamma scans did not identify any radiation levels that exceeded the observed ambient background levels in the area. The gamma scan paths are shown on the annotated field map for OLA5 provided in Appendix A.

The limited characterization survey also included the collection of soil samples at the following locations:

- Behind the Administration Building where trailers were located during the flood recovery effort,
- At a storm drain behind the Training Building where flood waters would have drained to, and
- Within the area of the now closed old east sanitary lagoon, and
- Within the lagoon water application area encompassing the crops in the southwest portion of OLA5.

Figure 6.8 shows the sampling locations inside area OLA5. Four soil samples were collected: 3 surface soils from the locations identified above and 1 sub-surface at the sample location in the old east sanitary lagoon area. The integrity of the soil samples was ensured during transfer to the contracted laboratory by the use a CoC form. Copies of the CoC forms are provided in Appendix D.

The contracted laboratory performed gamma analysis on each sample. Two soil samples showed positive results for plant-related radioactivity. Gamma analysis of sample OLA5-S-03, collected from the area where the flood recovery trailers were staged, identified Cs-137 at a concentration approximately equal to 0.2 pCi/g, and gamma analysis of sample OLA5-S-01, collected from the lagoon water application area, identified Cs-137 at a concentration approximately equal to 0.4 pCi/g. However, those concentrations represent small percentages (i.e., <2% and <4%, respectively) of the NRC screening value for Cs-137 (11 pCi/g) published in NUREG 1757, and are well below concentrations that would require remediation or special consideration during decommissioning. All other reported gamma analysis results were below the *a posteriori* MDC values achieved in the analyses. The gamma scans conducted in area OLA5, which did not identify any area of elevated radioactivity, support the laboratory data. Table 6.8 provides a summary of the results of gamma analyses for soil samples.

Conclusion: Results of the limited characterization efforts conducted in area OLA5 did not identify any radiological issue that would warrant special consideration during decommissioning planning. Although insufficient for use as the release basis for area OLA5, the collected data will support development of subsequent characterization surveys and MARSSIM final status surveys.

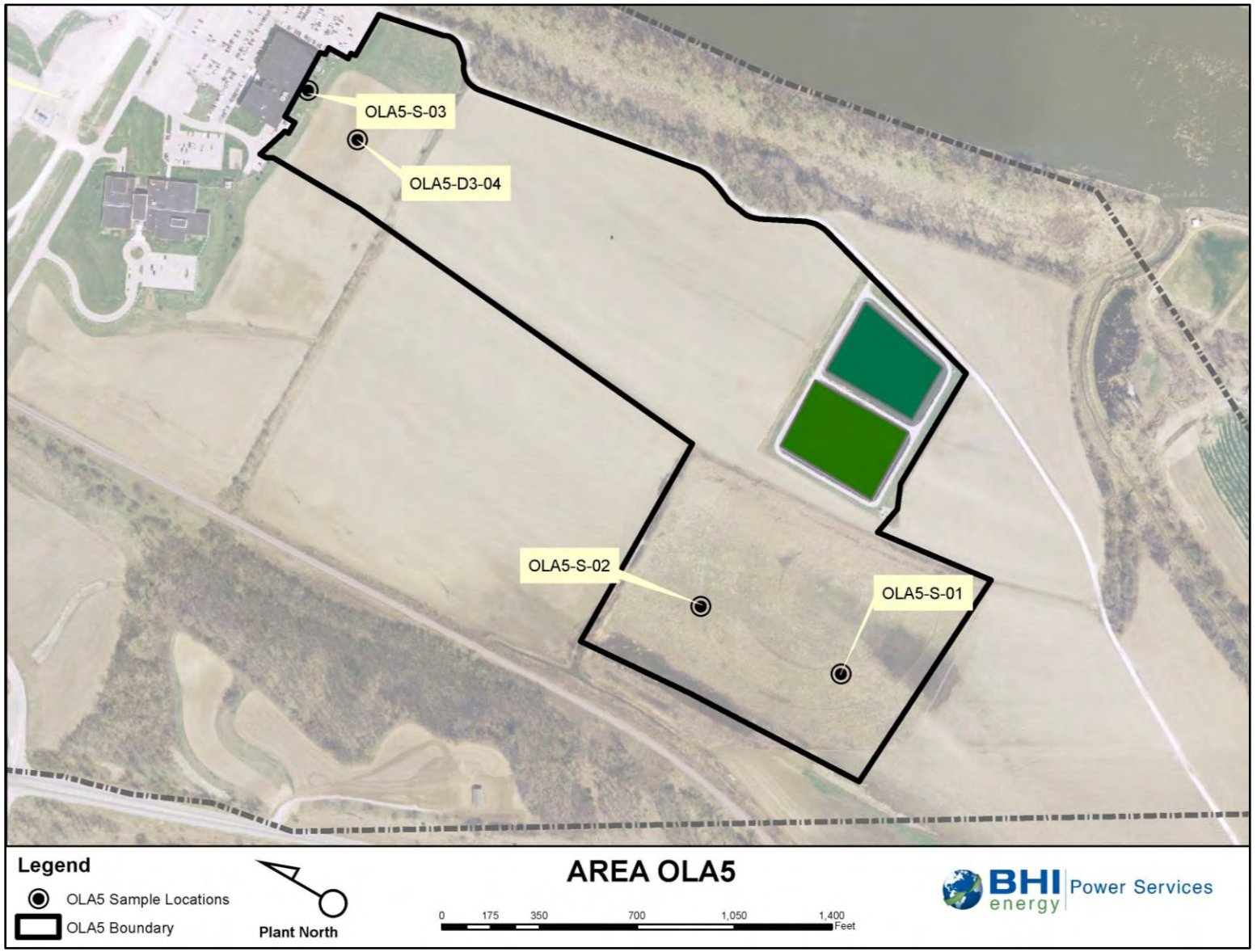


Figure 6.8 **Soil Sampling Locations within Environmental Area OLA5**

Table 6.8 Summary of Gamma Analysis Results for Soil Samples Collected in Area OLA5

Location Code	Cs-137[a]	
	Reported Value pCi/g	MDC[b] pCi/g
OLA5-S-01	3.8 E-01	9.6 E-02
OLA5-S-02	0.0E+00	7.0 E-02
OLA5-S-03	1.9 E-01	7.5 E-02
OLA5-D3-04	7.1 E-02	7.8 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

6.9 AREA OLA6

Environmental Area OLA6 is located on the hillside west of the Steam Generator Mausoleum and includes approximately 8,100 m^2. Soil from OLA6 was excavated and used to build the berm that protected the Switchyard during the 2011 flood. Prior to use, the soil from OLA6 was radiologically clean because there was no historical use or storage of radioactive materials on the west hillside. When the Switchyard berm was removed during the flood recovery project, most of soil was returned to the west hillside from where it originated. Some of the berm soil was used as a base for the flood recovery trailers behind the Administration Building, which was subsequently returned to the west hillside when the flood recovery trailers were removed. In addition, silt and sandbags from parking lots and radiologically released silt and sand from the PA was placed in area OLA6 (post flood recovery).

The characterization survey for area OLA6 included gamma scans in the local areas surrounding each soil sample location. Each scanned area was approximately 100 ft^2. The gamma scans did not identify any radiation levels that exceeded the observed ambient background levels in the area. The gamma scan paths are shown on the annotated field map for OLA6 provided in Appendix A.

Area OLA6 was visually divided into 3 sections of similar size, and 1 surface soil sample and 1 sub-surface soil sample were collected at the center of each section. Figure 6.9 shows the sampling locations inside area OLA6. The integrity of the soil samples was ensured during transfer to the contracted laboratory by the use a CoC form. Copies of the CoC forms are provided in Appendix D.

The contracted laboratory performed gamma analysis on each sample. Laboratory analyses of soil samples from OLA6 did not identify concentrations of plant-related ROCs that would require remediation or special consideration during decommissioning. All reported gamma analysis results were below the *a posteriori* MDC values achieved in the analyses. The gamma scans conducted around the sample locations did not identify elevated radioactivity, supporting the laboratory results. Table 6.9 provides a summary of the results of gamma analyses for soil samples.

Conclusion: Results of the limited characterization efforts conducted in area OLA6 did not identify any radiological issue that would warrant special consideration during decommissioning planning. Although insufficient for use as the release basis for area OLA6, the collected data will support development of subsequent characterization surveys and MARSSIM final status surveys.

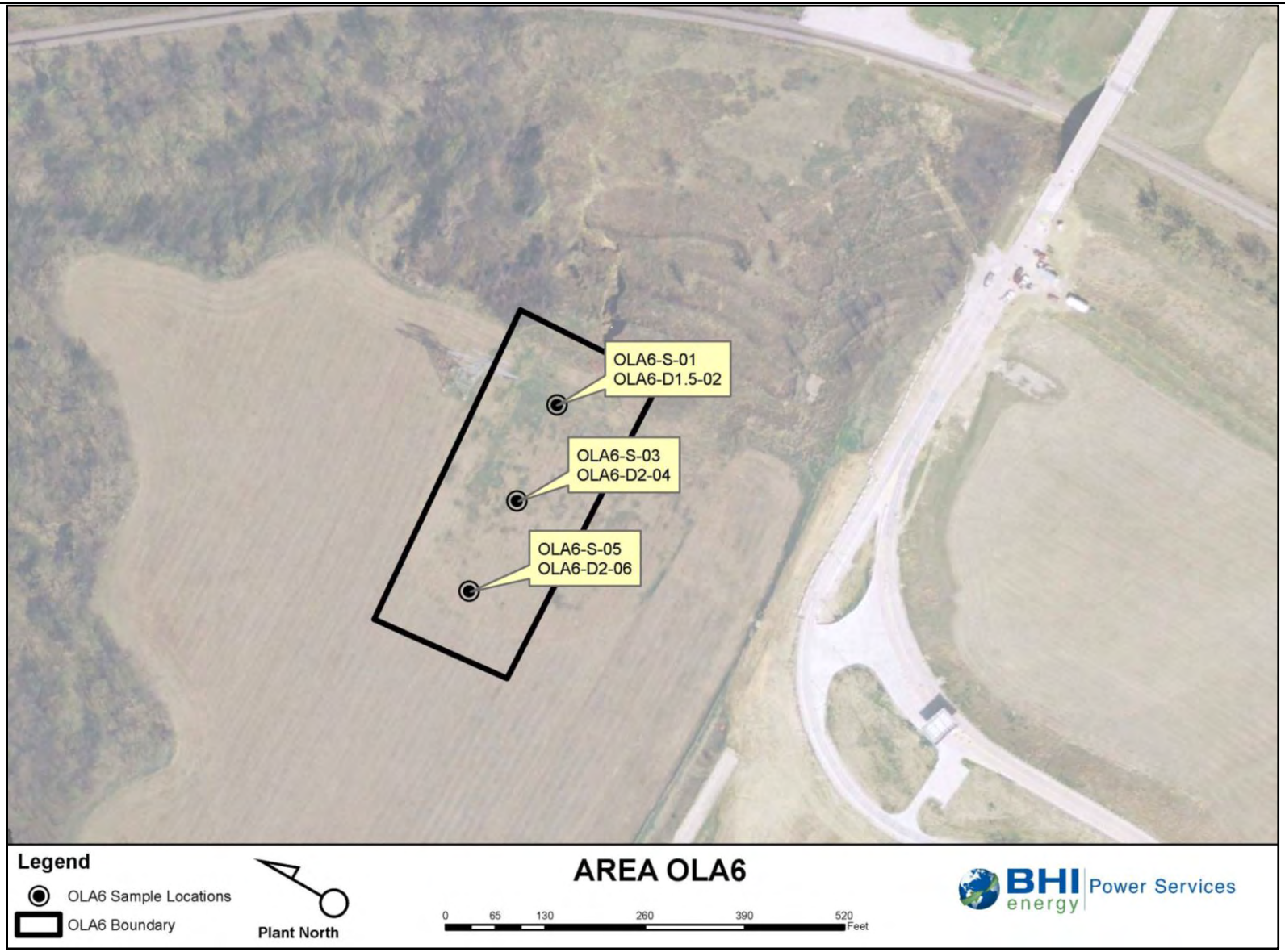


Figure 6.9 Soil Sampling Locations within Environmental Area OLA6

Table 6.9 Summary of Gamma Analysis Results for Soil Samples Collected in Area OLA6

Location Code	Cs-137[a] Reported Value pCi/g	Cs-137[a] MDC[b] pCi/g
OLA6-S-01	2.4 E-02	8.3 E-02
OLA6-D1.5-02	6.7 E-03	7.6 E-02
OLA6-S-03	2.2 E-02	6.9 E-02
OLA6-D2-04	4.3 E-02	1.1 E-01
OLA6-S-05	-3.7 E-02	8.7 E-02
OLA6-D2-06	-2.1 E-02	6.3 E-02

[a] Reported values from gamma analysis and the MDC values are rounded to two significant digits.

[b] Analysis *a posteriori* MDC value.

Note: Results for Cs-137 are shown as the expected primary ROC. However, it is important to note that no other plant-related gamma emitting radionuclides were identified by gamma spectroscopy analysis.

SECTION 7 CONCLUSIONS

The following conclusions were reached based on the radiological data collected under the LRCP:

- The radiological data collected during the limited characterization survey support closure of data gaps associated with environmental (open land) areas at the Fort Calhoun site, as identified in the *Omaha Public Power District Fort Calhoun Station Historical Site Assessment*.
- Implementation of *Limited Radiological Characterization Survey Plan for Decommissioning of the Fort Calhoun Nuclear Power Station* met the DQOs established to ensure the quality of the collected data.
- The concentrations of plant-related gamma-emitting radionuclides in soil samples from the environmental areas of the FCS site were below the *a posteriori* MDC values and/or small fractions of the NRC screening levels published in NUREG 1757, which provides evidence that remediation or special consideration will not likely be required for the environmental areas during decommissioning planning.
- Similarly, measured concentrations of hard-to-detect beta-emitting radionuclides, such as strontium-90, in soil samples from the PA were below the *a posteriori* MDC values.
- The collected radiological data during the FCS limited site radiological surveys are insufficient for use as release basis for the impacted environmental areas.

SECTION 8 RECOMMENDATIONS

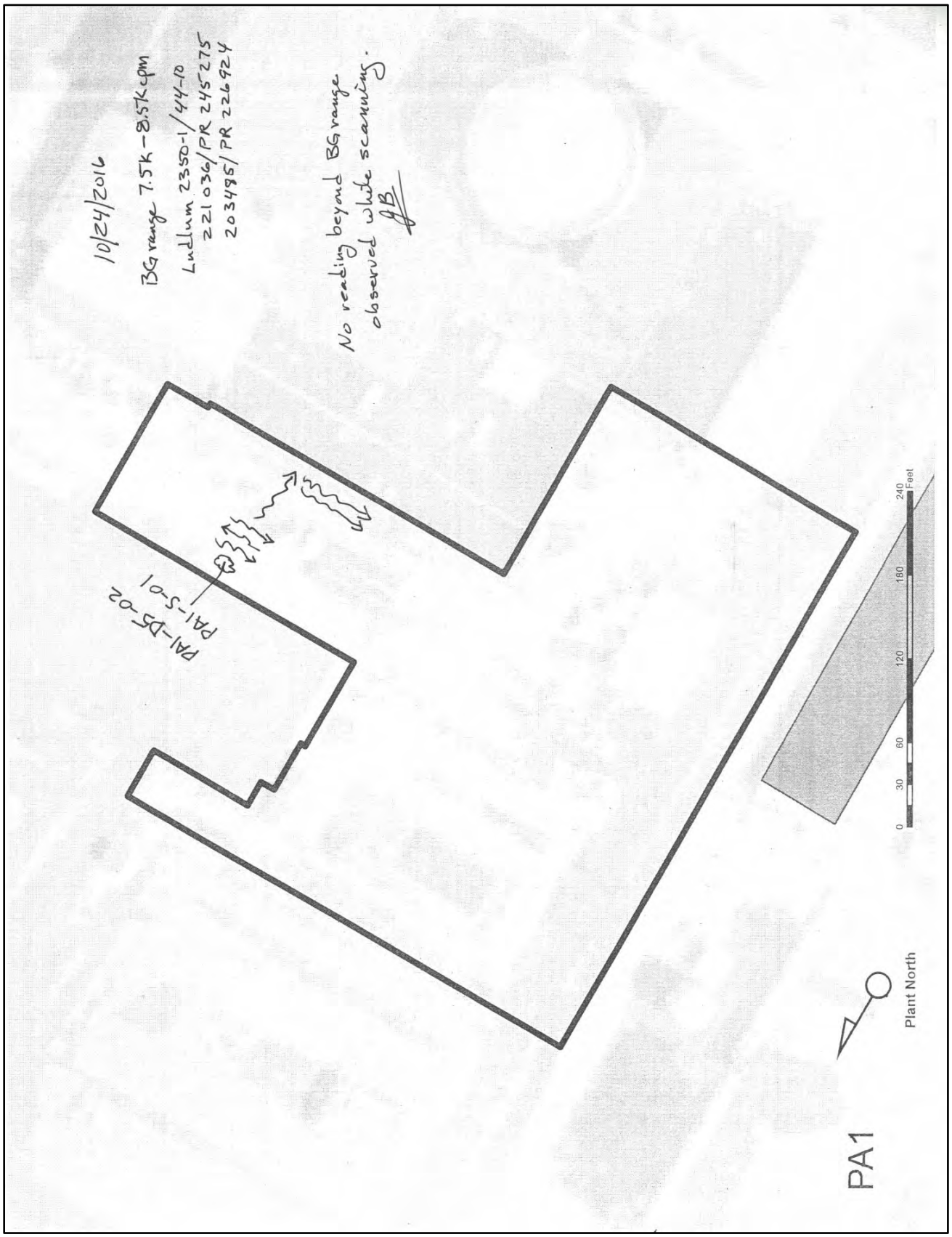
1. The scope of this survey effort focused on closing data gaps identified for each potentially impacted environmental area in the FCS HSA and identifying potential radiological conditions that would require special consideration during decommissioning planning. Given that limited scope, a MARSSIM characterization survey should be developed and implemented to document the current radiological conditions in each impacted environmental area. Implementation of MARSSIM characterization surveys would generate the statistical power necessary for FSS planning and increase confidence in a successful FSS program. Regardless of the decommissioning path selected by OPPD, this action would provide solid support for future FSS activities and license termination.
2. The limited scope of this project did not include the collection of sub-surface soil from under building foundations (e.g., Containment, SFP Building, Auxiliary Building, Radwaste Processing Building) or soil adjacent to underground systems, structures, and components (SSCs) containing radioactive materials (e.g., radioactive waste lines and sumps). Additional sub-surface sampling at, near, or under building foundations and buried SSCs would provide valuable data regarding the radiological status of site sub-surface soil, which, in turn, would further support decommissioning planning, FSS, and license termination.
3. The soil concentrations for ROCs identified by laboratory analyses of the soil sample collected during this project were assessed against the conservative NRC screening values published in NUREG-1757. However, per NUREG-1757, OPPD-FCS will likely fall into a decommissioning group required to perform site-specific dose modeling; therefore, OPPD-FCS will be expected to develop site-specific release criteria (i.e., site-specific derived concentration guideline levels (DCGLs)). Site-specific DCGL values, including a technical basis document to identify a site-specific suite of ROCs, can be developed during the early stages of decommissioning, would reduce much of the conservatism found in the NRC screening values, and support future decommissioning planning, FSS activities, and license termination planning.

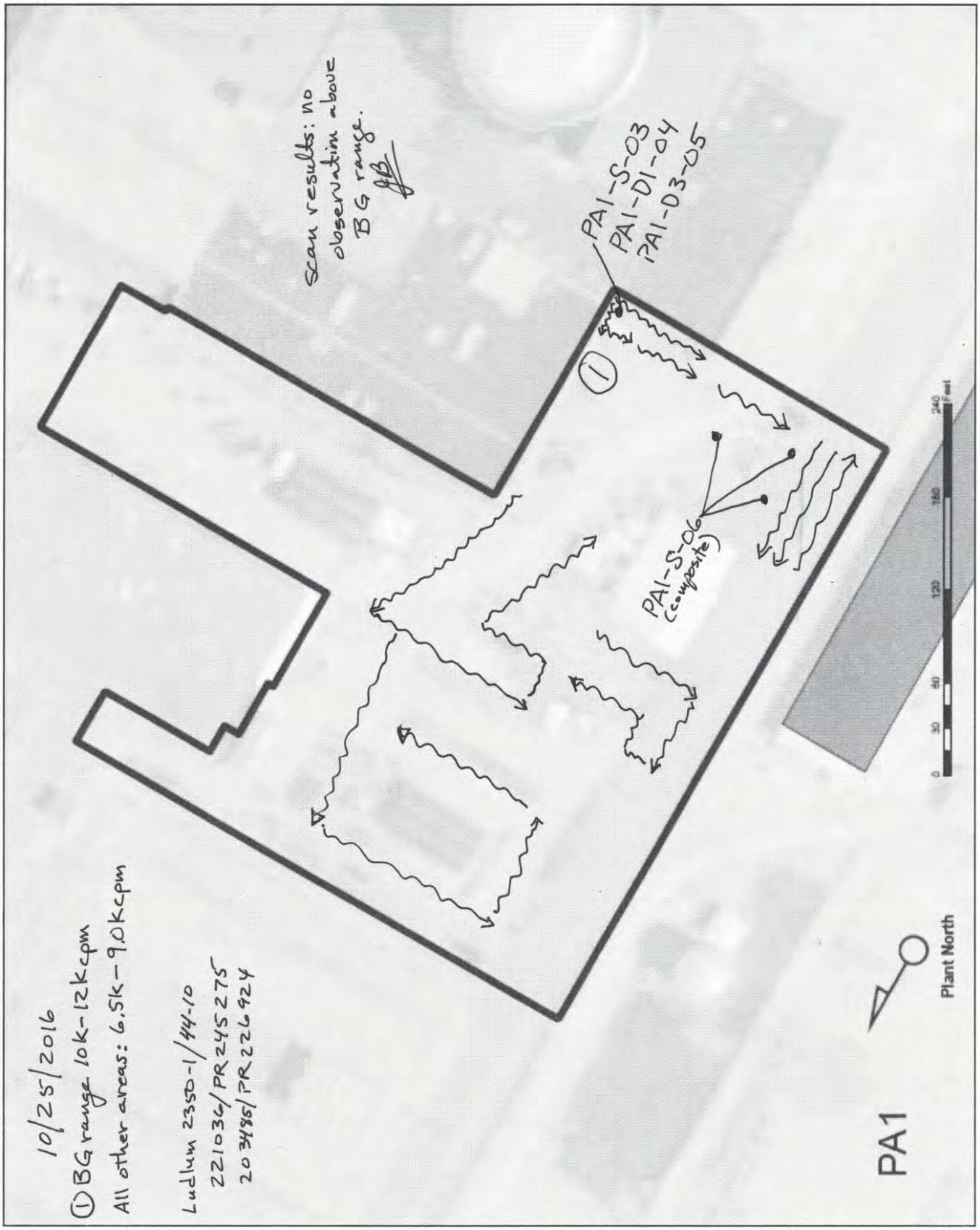
SECTION 9 REFERENCES

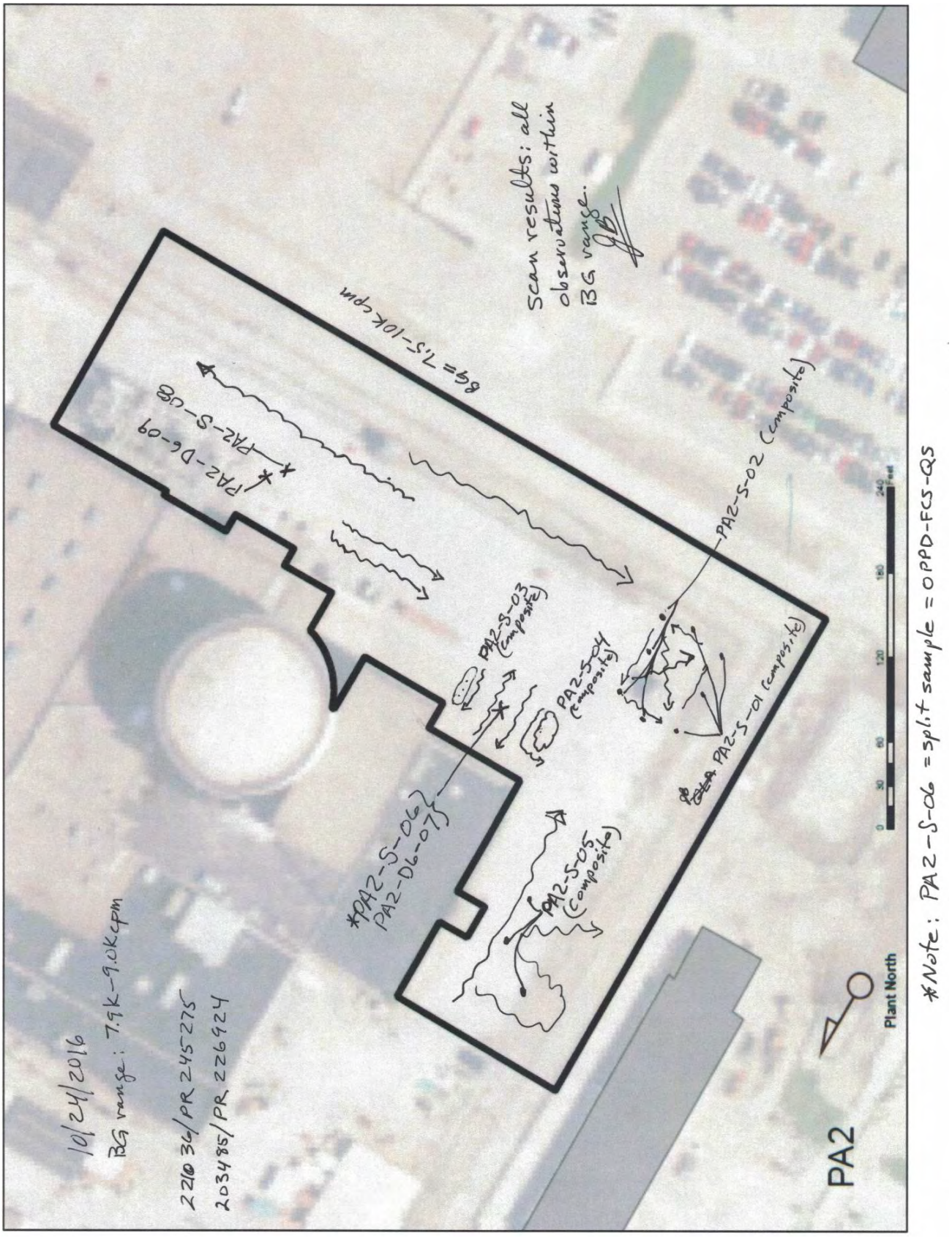
1. *Omaha Public Power District Fort Calhoun Station Historical Site Assessment*, October 2016
2. NUREG-1575, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*, Revision 1, August 2000
3. *Limited Radiological Characterization Survey Plan for Decommissioning of the Fort Calhoun Nuclear Power Station*, October 2016
4. NUREG-1757, *Consolidated Decommissioning Guidance*, Vol. 1, Rev 2

SECTION 10 APPENDICES

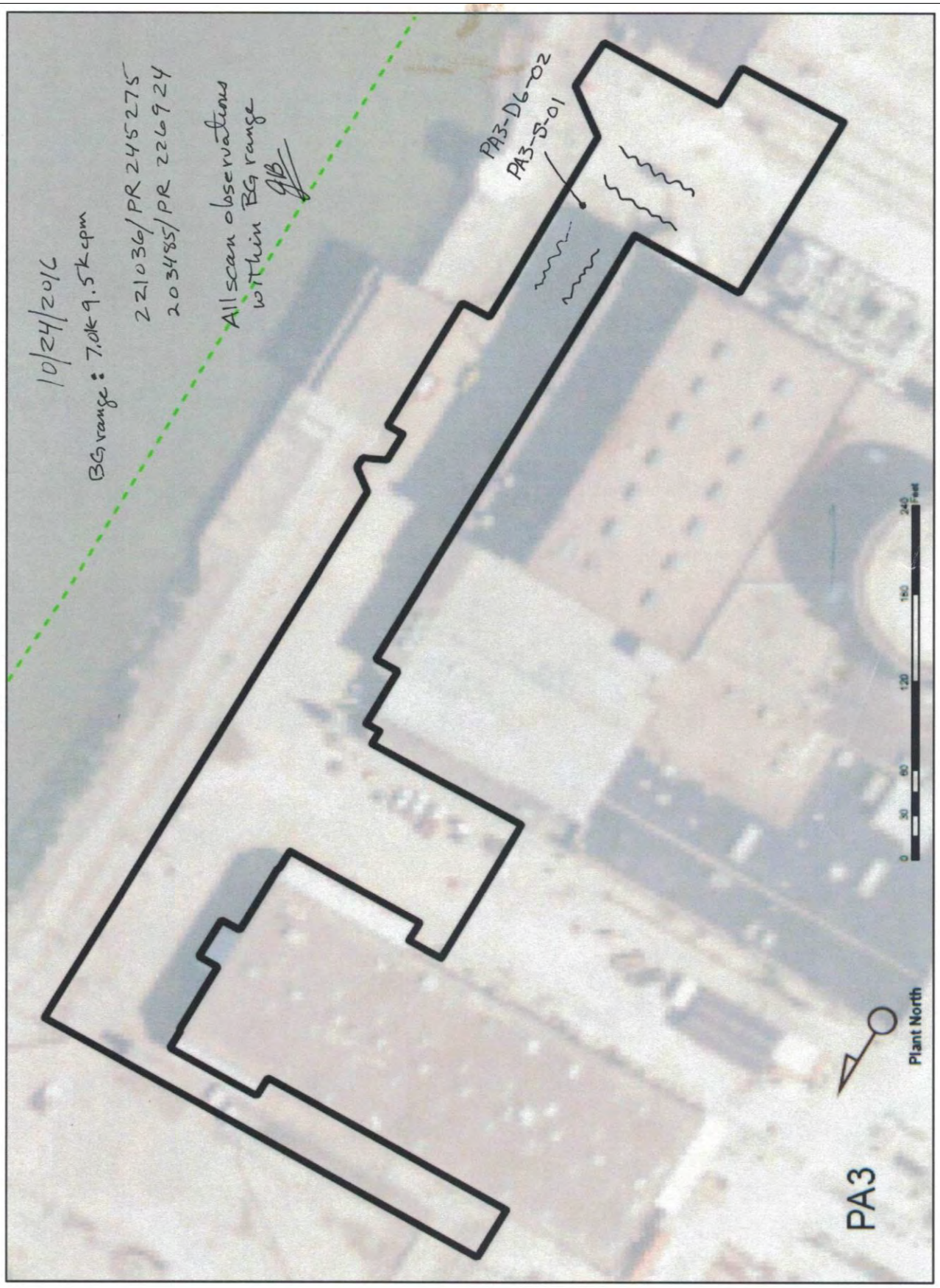
APPENDIX A ANNOTATED FIELD MAPS

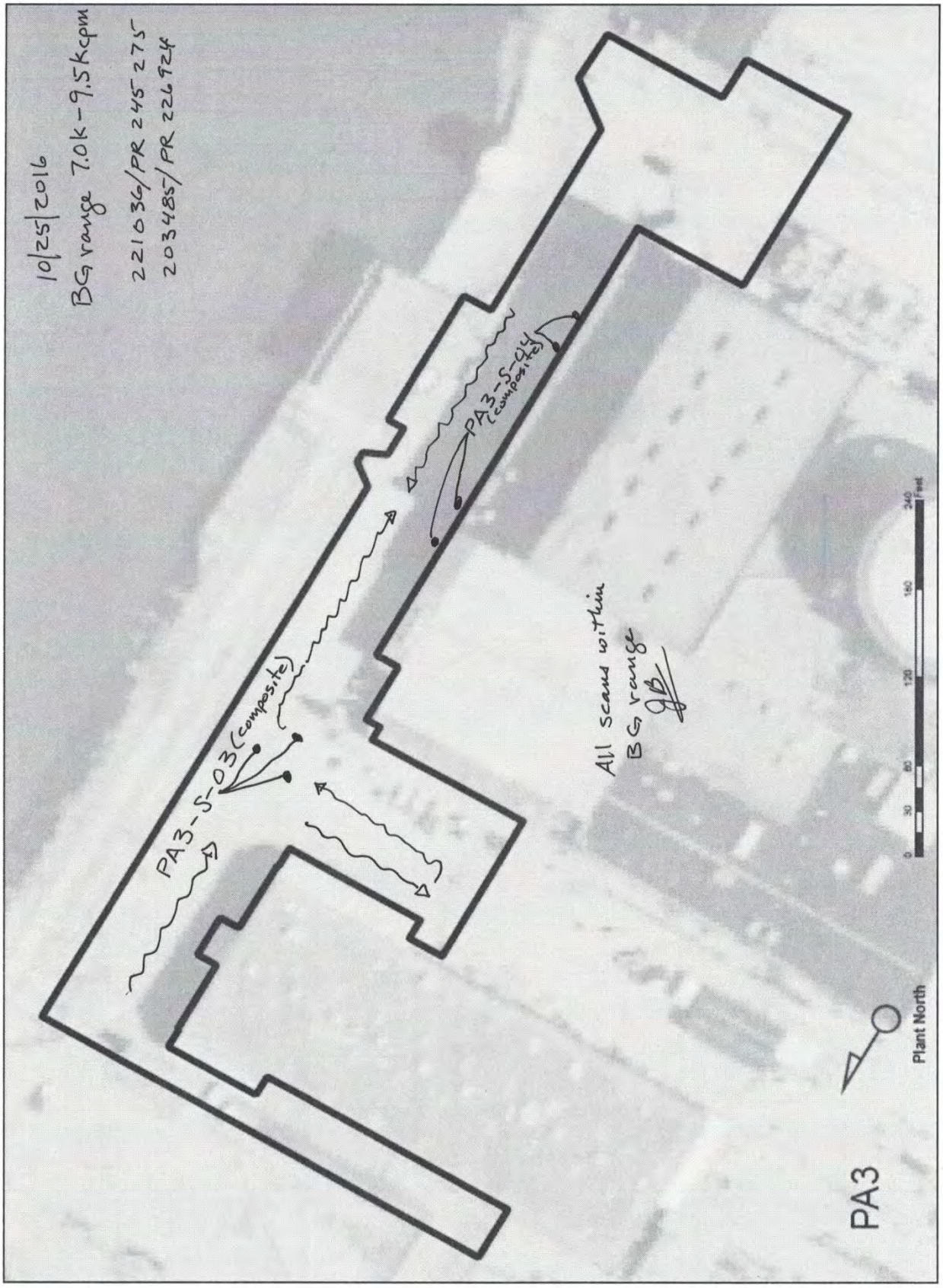

10/24/2016
BG range 7.5k-8.5k cpm
Ludlum 2350-1/44-10
221036/PR 245275
203495/PR 226924
No reading beyond BG range observed while scanning.
JB
PA1-DS-02
PA1-S-01
PA1
Plant North
0
30
60
120
180
240
Feet

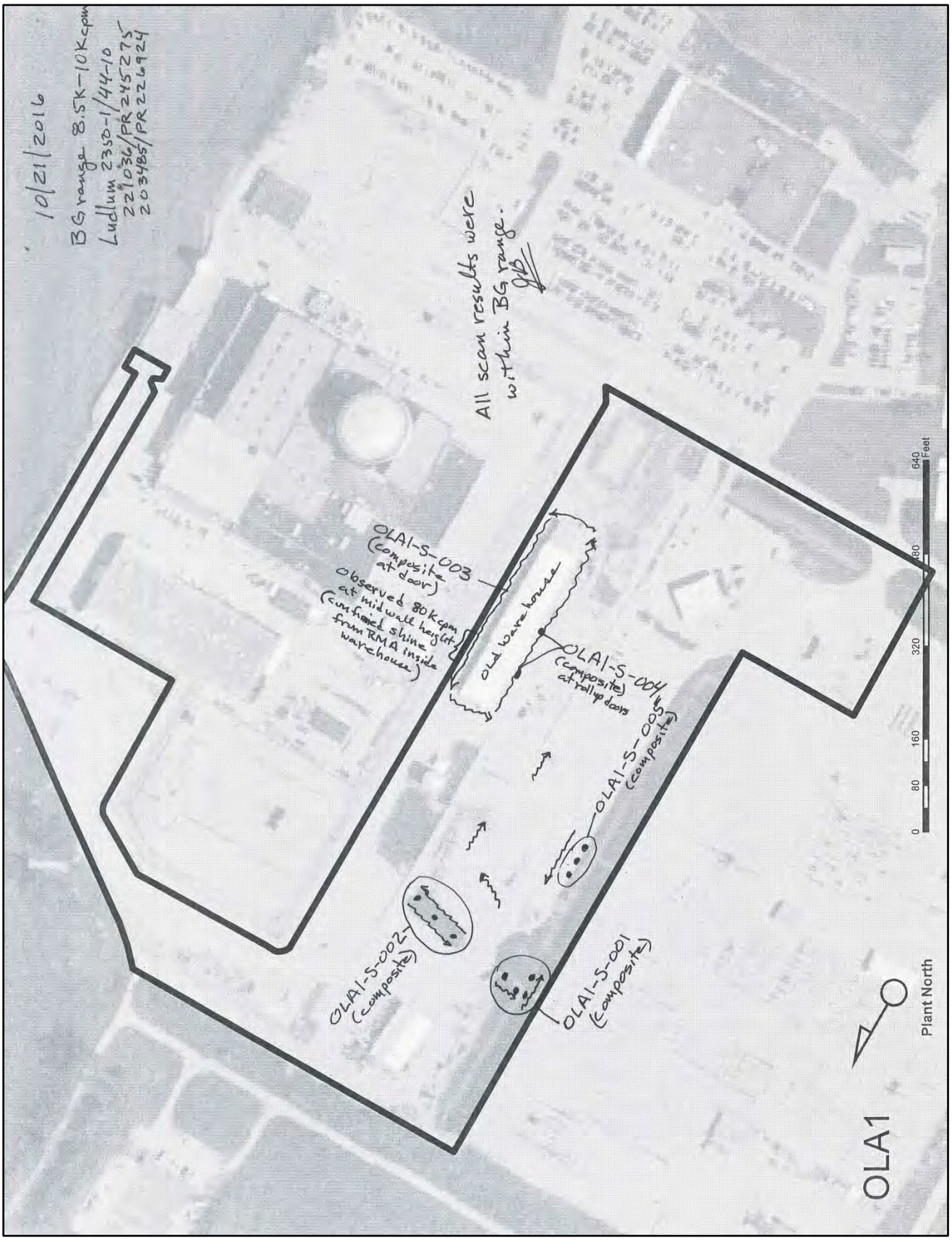

10/25/2016
① BG range 10k-12kcpm
All other areas: 6.5k-9.0kcpm
Ludlum 2350-1/44-10
221036/PR245275
203486/PR226924
Scan results: no observation above BG range.
PA1-S-03
PA1-D1-04
PA1-D3-05
PA1-S-06 (composite)
①
PA1
Plant North
0
30
60
120
180
240
Feet

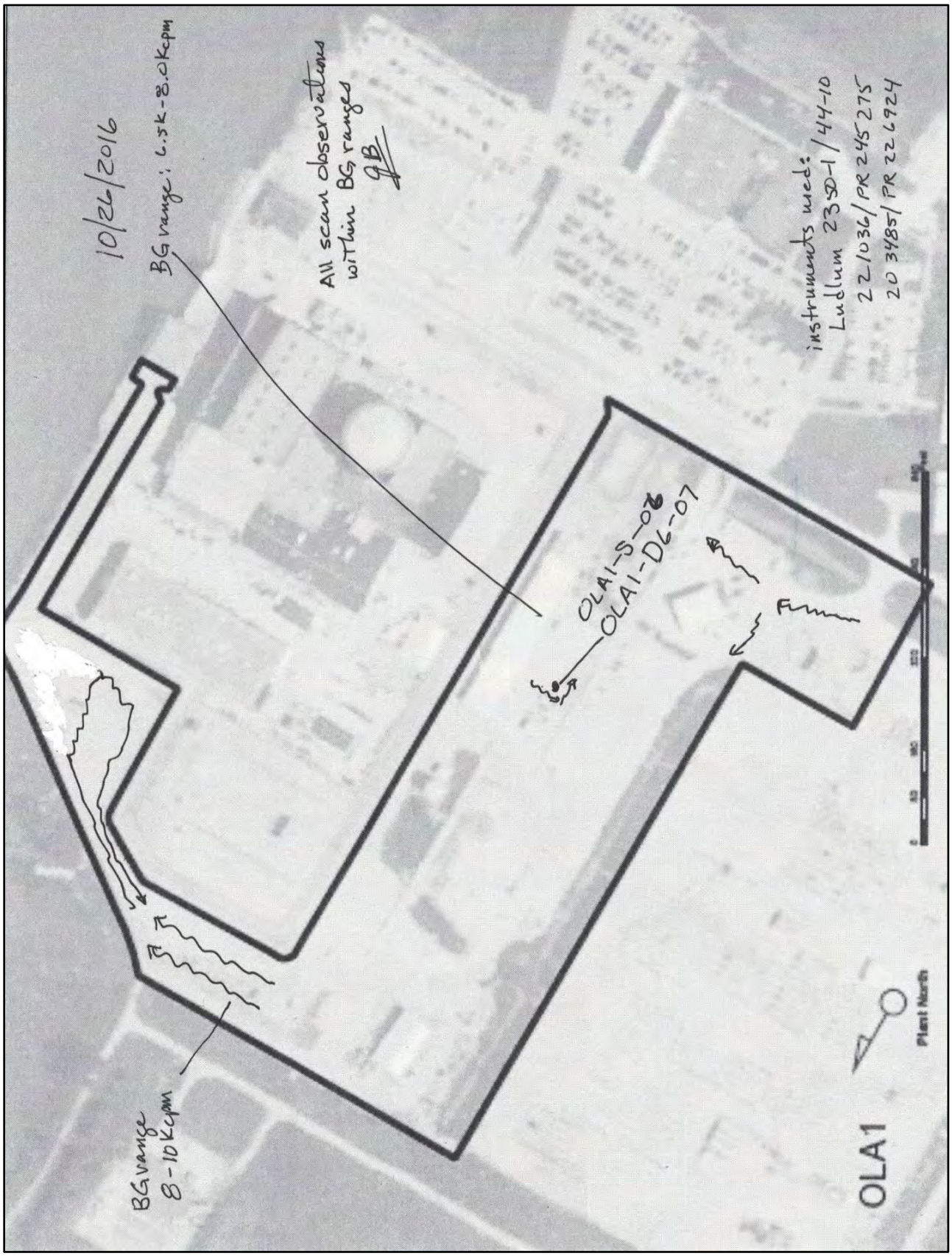


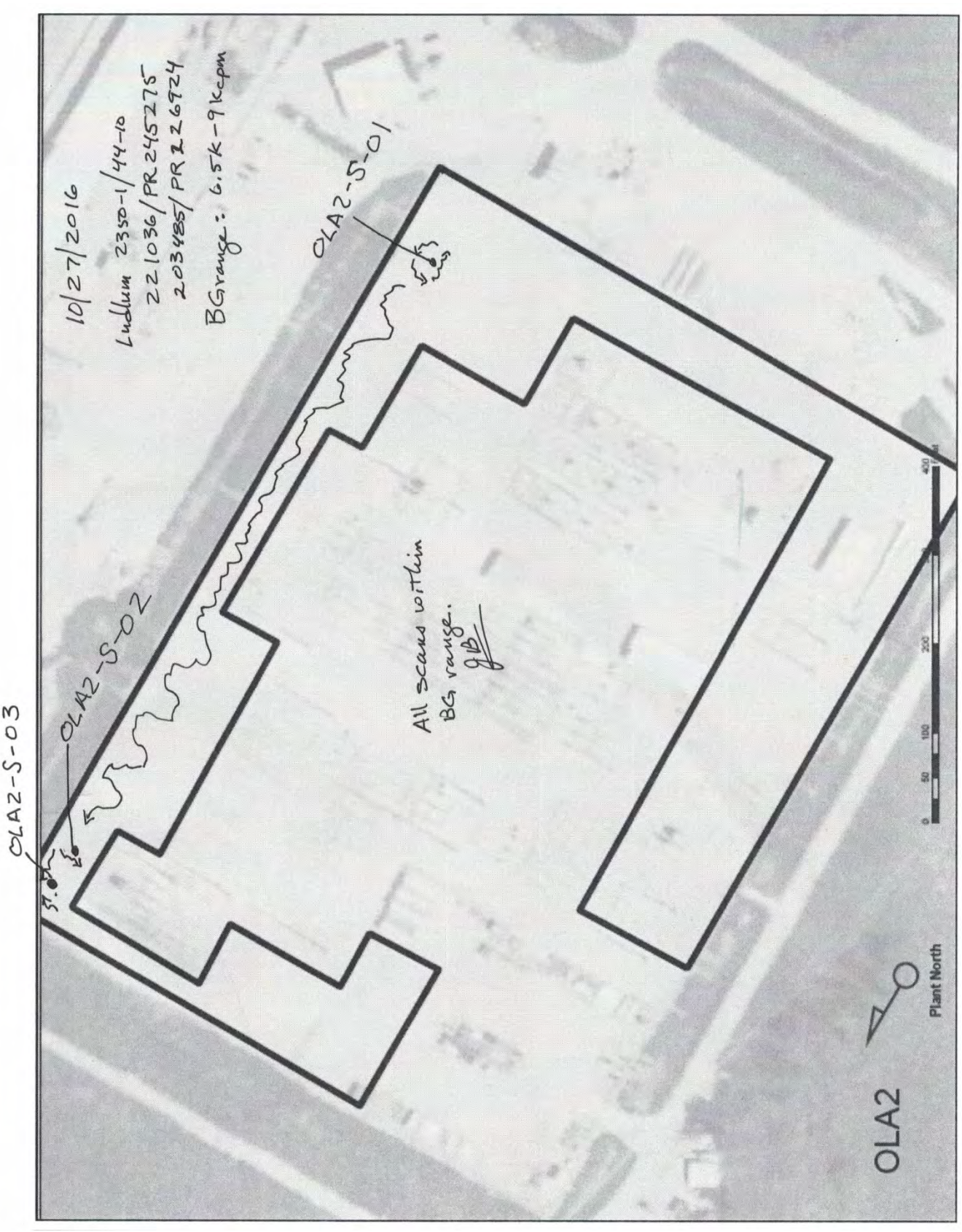
*Note: PA2-S-06 = split sample = OPPD-FCS-QS

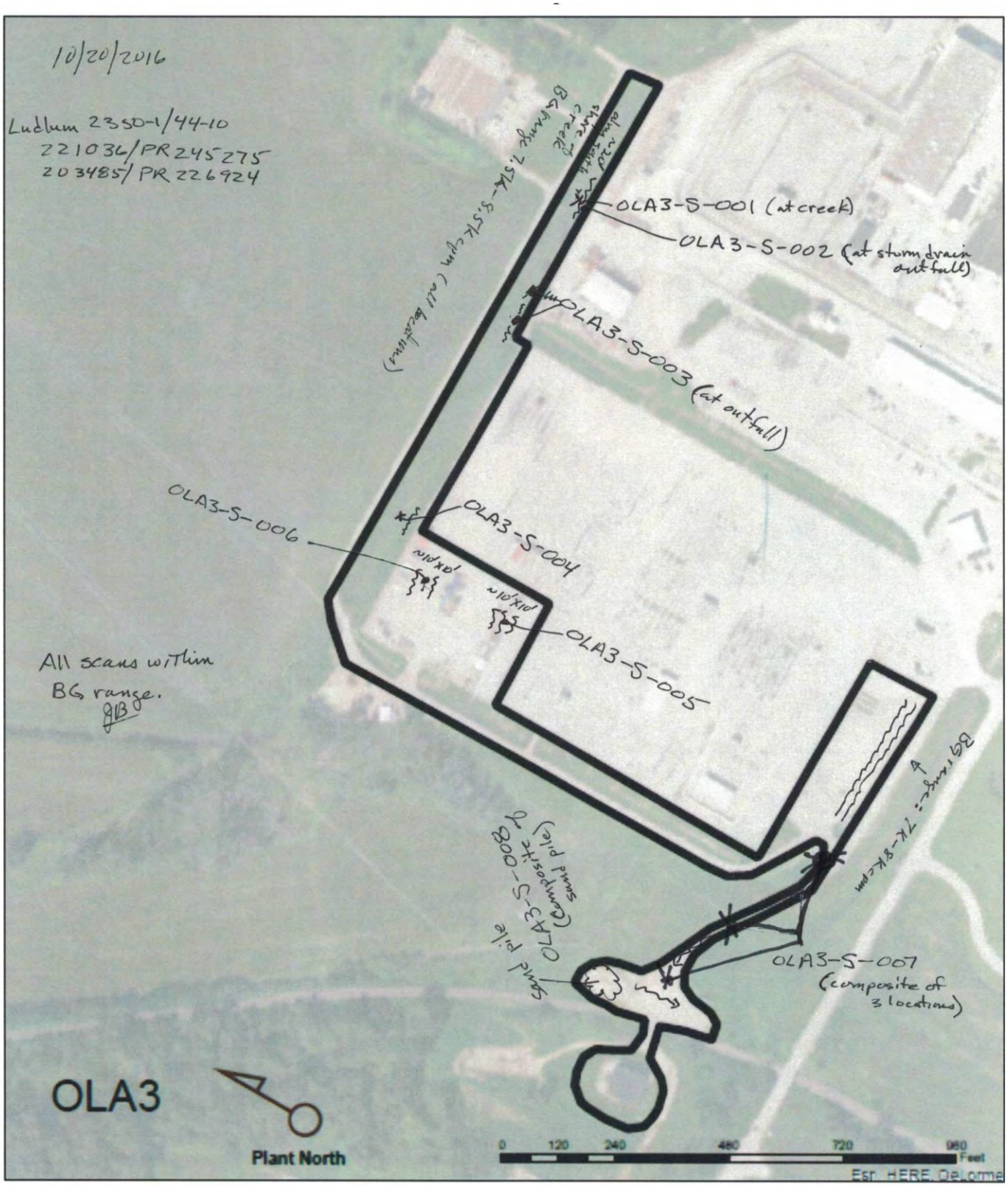

10/24/2016
BG range: 7.0k-9.5k cpm
221036/PR 245275
203485/PR 226924
All scan observations within BG range
PA3-D6-02
PA3-S-01
PA3
Plant North
0
30
60
120
150
240
Feet

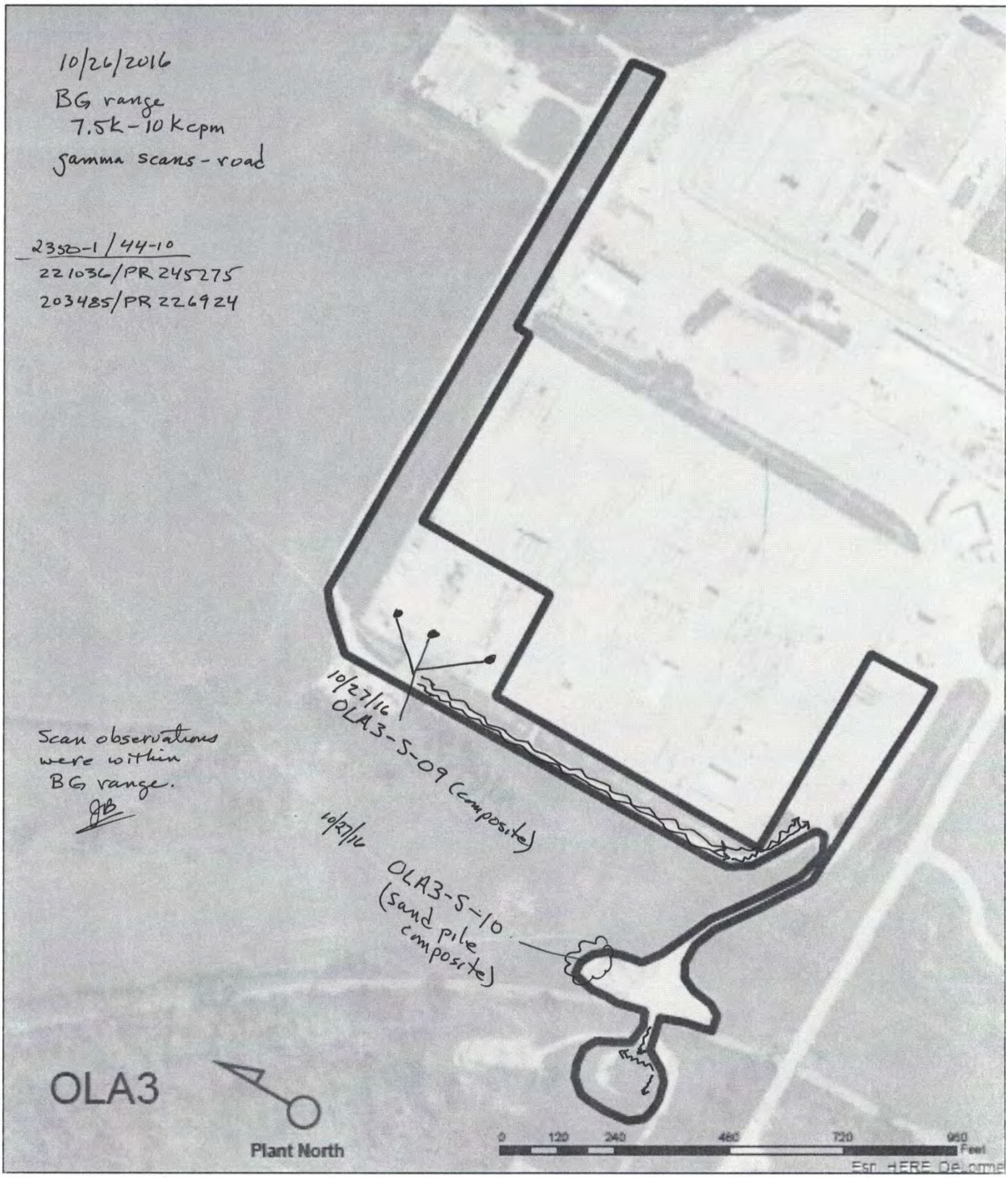

10/25/2016
BG range 7.0k-9.5kcpm
221036/PR 245275
203485/PR 226924
PA3-S-03 (composite)
PA3-S-04 (composite)
All scans within BG range
PA3
Plant North
0
30
80
120
160
240
Feet

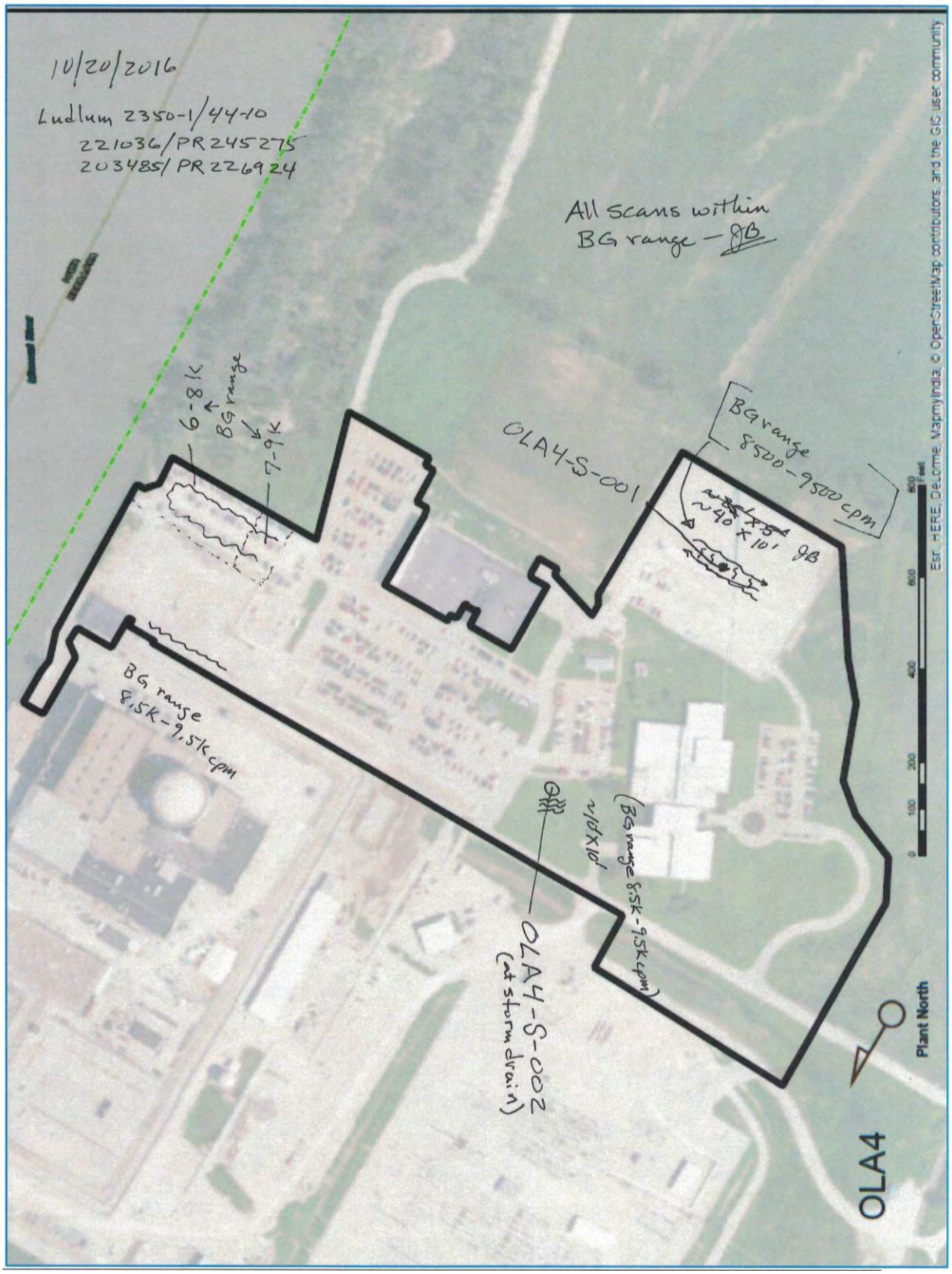

10/21/2016
BG range 8.5K-10Kcpm
Ludlum 2350-1/44-10
221036/PR245275
203485/PR226924
All scan results were within BG range.
OLA1-S-003 (composite at door)
Observed 80Kcpm at mid wall height (confined shine from RMA inside warehouse)
Old warehouse
OLA1-S-004 (composite at roll up doors)
OLA1-S-005 (composite)
OLA1-S-002 (composite)
OLA1-S-001 (composite)
0
80
160
320
480
640
Feet
Plant North
OLA1

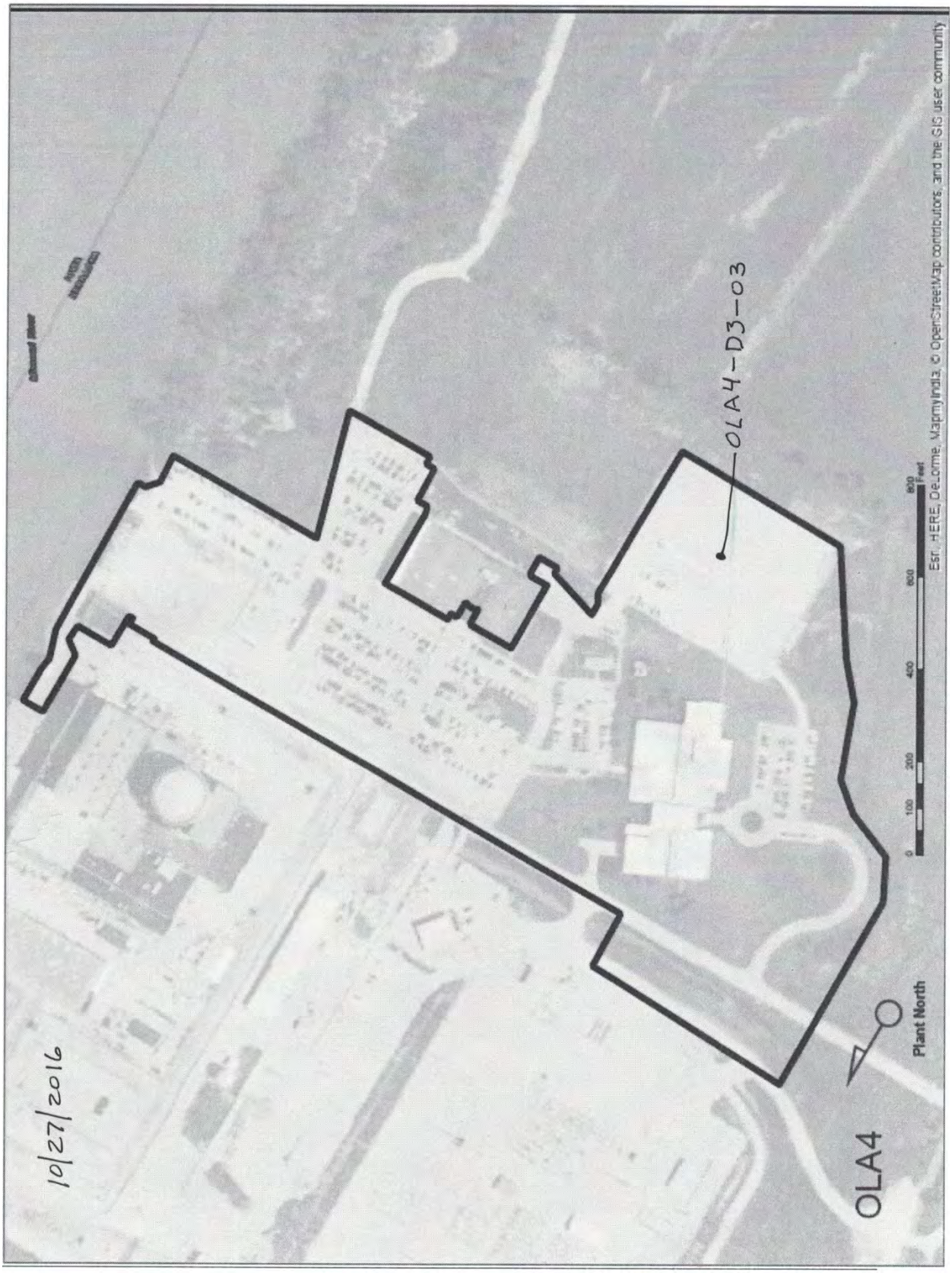

10/26/2016
BG range: 6.5k-8.0kcpm
All scan observations within BG ranges
GB
instruments used:
Ludlum 23SD-1/44-10
22/1036/PR 245275
20 3485/PR 226924
OLA1-S-06
OLA1-D6-07
BG range
8-10 kcpm
OLA1
Plant North

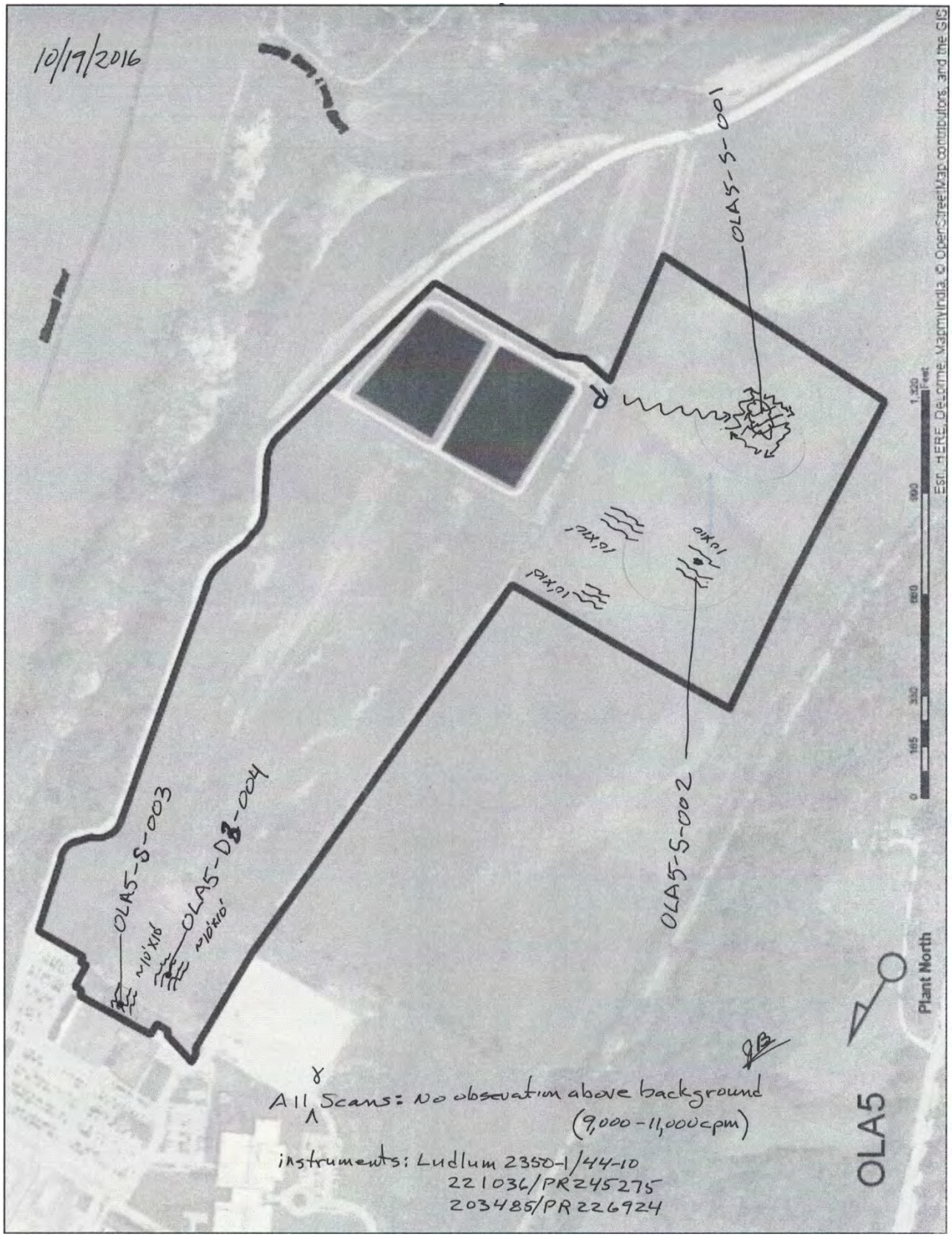

10/27/2016
Ludlum 2350-1/44-10
221036/PR245275
203485/PR226924
BGrange: 6.5K-9Kcpm
OLA2-S-01
OLA2-S-02
OLA2-S-03
All scans within BG range.
OLA2
Plant North
0
50
100
200
400

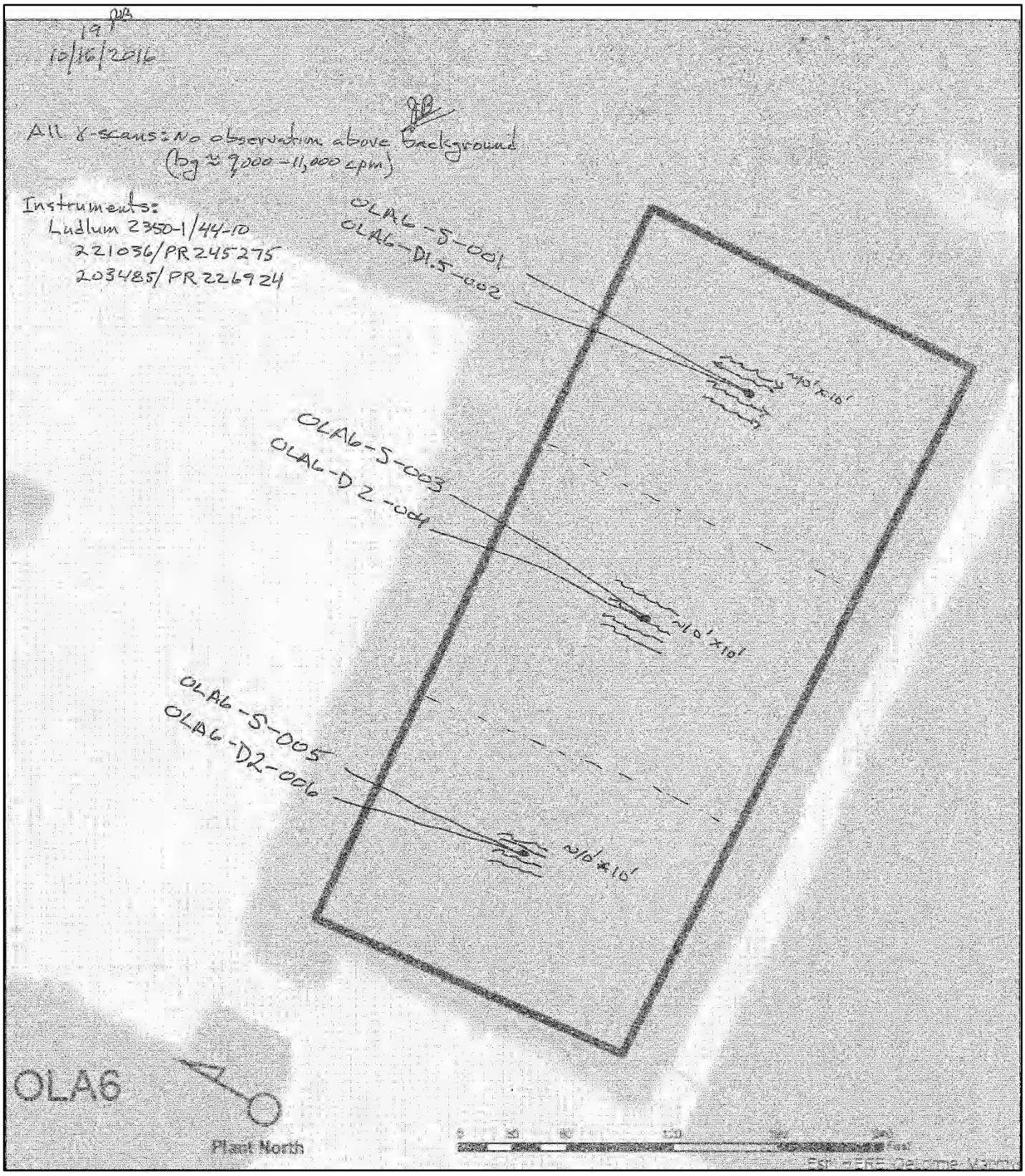

10/20/2016
Ludlum 2350-1/44-10
221036/PR245275
203485/PR226924
OLA3-S-001 (at creek)
OLA3-S-002 (at storm drain outfall)
OLA3-S-003 (at outfall)
OLA3-S-004
OLA3-S-005
OLA3-S-006
OLA3-S-007 (composite of 3 locations)
All scans within BG range.
OLA3
Plant North
0 120 240 480 720 960 Feet
Esri, HERE, DeLorme


10/26/2016
BG range
7.5k-10 kcpm
gamma scans - road
2350-1 / 44-10
221036/PR245275
203485/PR226924
Scan observations were within BG range.
JB
10/27/16
OLA3-S-09 (composite)
10/27/16
OLA3-S-10 (sand pile composite)
OLA3
Plant North
0
120
240
480
720
960
Feet


10/20/2016
Ludlum 2350-1/44-10
221036/PR245275
203485/PR226924
All scans within BG range — gB
6-8K
BG range
7-9K
OLA4-S-001
BG range 8520-9500 cpm
~40 x 10' gB
BG range 8.5K-9.5K cpm
(BG range 8.5K-9.5K cpm) ~10'x10'
OLA4-S-002 (at storm drain)
Plant North
OLA4
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community


OLA4-D3-03
10/27/2016
OLA4
Plant North
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community


10/19/2016
OLA5-S-001
OLA5-S-002
OLA5-S-003
OLA5-D8-004
10'x10'
10'x10'
10'x10'
10'x10'
10'x18'
All Scans: No observation above background
(9,000-11,000cpm)
Instruments: Ludlum 2350-1/44-10
221036/PR245275
203485/PR226924
Plant North
OLA5
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS
0
165
330
660
990
1,320
Feet


19
10/16/2016
All 8-scans: No observation above background
(bg ≈ 9,000 – 11,000 cpm)
Instruments:
Ludlum 2350-1/44-10
221036/PR245275
203485/PR226924
OLA6-S-001
OLA6-D1.5-002
OLA6-S-003
OLA6-D2-004
OLA6-S-005
OLA6-D2-006
OLA6
Plant North

APPENDIX B LABORATORY REPORTS

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

BHIE001 BHI Energy Power Services LLC

Client SDG: 409238 GEL Work Order: 409238

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Lindsay Fabra.

Reviewed by Chelsea Seagle

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238001 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA5−S−001 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	9.73E+01	11/12/16	7.79E−08	4.73E−07	9.04E−07		uCi/g	U
Na−22	9.73E+01	11/12/16	−4.80E−08	6.28E−08	1.04E−07		uCi/g	U
K−40	9.73E+01	11/12/16	2.08E−05	2.22E−06	7.82E−07		uCi/g	3
Cr−51	9.73E+01	11/12/16	−6.41E−08	6.44E−07	1.19E−06		uCi/g	U
Mn−54	9.73E+01	11/12/16	−1.57E−08	5.28E−08	9.88E−08		uCi/g	U
Fe−59	9.73E+01	11/12/16	−1.39E−07	1.33E−07	2.10E−07		uCi/g	U
Co−56	9.73E+01	11/12/16	−9.95E−09	5.32E−08	1.03E−07		uCi/g	U
Co−57	9.73E+01	11/12/16	−8.66E−09	3.26E−08	5.54E−08		uCi/g	U
Co−58	9.73E+01	11/12/16	−1.32E−08	5.81E−08	1.03E−07		uCi/g	U
Co−60	9.73E+01	11/12/16	2.39E−08	5.11E−08	1.04E−07		uCi/g	U
Zn−65	9.73E+01	11/12/16	6.26E−09	1.20E−07	2.11E−07		uCi/g	U
Y−88	9.73E+01	11/12/16	2.19E−08	4.67E−08	1.19E−07		uCi/g	U
Zr−95	9.73E+01	11/12/16	4.22E−08	1.09E−07	2.13E−07		uCi/g	U
Nb−94	9.73E+01	11/12/16	4.28E−08	4.53E−08	9.89E−08		uCi/g	U
Nb−95	9.73E+01	11/12/16	5.68E−08	5.60E−08	1.16E−07		uCi/g	U
Ru−106	9.73E+01	11/12/16	−1.28E−07	4.30E−07	7.62E−07		uCi/g	U
Ag−110m	9.73E+01	11/12/16	−7.66E−08	7.86E−08	1.32E−07		uCi/g	U
Sn−113	9.73E+01	11/12/16	−2.70E−08	6.18E−08	1.10E−07		uCi/g	U
Sb−124	9.73E+01	11/12/16	−7.87E−08	1.37E−07	2.32E−07		uCi/g	U
Sb−125	9.73E+01	11/12/16	−3.54E−08	1.22E−07	2.19E−07		uCi/g	U
Cs−134	9.73E+01	11/12/16	6.23E−08	1.10E−07	1.34E−07		uCi/g	U
Cs−136	9.73E+01	11/12/16	5.29E−10	2.14E−07	3.80E−07		uCi/g	U
Cs−137	9.73E+01	11/12/16	3.81E−07	9.80E−08	9.60E−08	1.00E−07	uCi/g	3
Ba−133	9.73E+01	11/12/16	−1.32E−08	6.12E−08	1.06E−07		uCi/g	U
Ba−140	9.73E+01	11/12/16	−3.28E−07	4.65E−07	7.74E−07		uCi/g	U
Ce−139	9.73E+01	11/12/16	−1.05E−08	3.79E−08	6.35E−08		uCi/g	U
Ce−141	9.73E+01	11/12/16	−1.27E−08	9.93E−08	1.69E−07		uCi/g	U
Ce−144	9.73E+01	11/12/16	1.36E−09	2.46E−07	4.26E−07		uCi/g	U
Nd−147	9.73E+01	11/12/16	4.68E−07	1.40E−06	2.70E−06		uCi/g	U
Pm−144	9.73E+01	11/12/16	−1.11E−08	4.73E−08	8.39E−08		uCi/g	U
Pm−146	9.73E+01	11/12/16	1.91E−08	5.36E−08	1.05E−07		uCi/g	U
Eu−152	9.73E+01	11/12/16	−1.04E−08	1.27E−07	2.35E−07		uCi/g	U
Eu−154	9.73E+01	11/12/16	−1.32E−07	1.78E−07	2.97E−07		uCi/g	U
Eu−155	9.73E+01	11/12/16	1.28E−09	1.33E−07	2.33E−07		uCi/g	U
Ir−192	9.73E+01	11/12/16	−6.56E−09	4.51E−08	8.37E−08		uCi/g	U
Hg−203	9.73E+01	11/12/16	−3.51E−09	5.60E−08	1.04E−07		uCi/g	U
Tl−208	9.73E+01	11/12/16	4.33E−07	9.32E−08	9.18E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238001
Client Sample ID: OLA5−S−001
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 19, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	9.73E+01	11/12/16	2.81E−06	5.80E−06	6.14E−06		uCi/g	U
Pb−212	9.73E+01	11/12/16	1.51E−06	1.64E−07	1.15E−07		uCi/g	3
Pb−214	9.73E+01	11/12/16	1.13E−06	2.29E−07	1.80E−07		uCi/g	3
Bi−212	9.73E+01	11/12/16	1.71E−06	1.18E−06	1.26E−06		uCi/g	
Bi−214	9.73E+01	11/12/16	1.27E−06	2.50E−07	1.70E−07		uCi/g	3
Ra−228	9.73E+01	11/12/16	1.63E−06	3.77E−07	3.44E−07		uCi/g	3
Ac−228	9.73E+01	11/12/16	1.63E−06	3.77E−07	3.44E−07		uCi/g	3
Th−234	9.73E+01	11/12/16	−6.29E−07	1.59E−06	2.83E−06		uCi/g	U
U−235	9.73E+01	11/12/16	3.22E−08	2.58E−07	4.49E−07		uCi/g	U
U−238	9.73E+01	11/12/16	−6.29E−07	1.59E−06	2.83E−06		uCi/g	U
Np−239	9.73E+01	11/12/16	−3.27E−08	3.43E−07	5.92E−07		uCi/g	U
Am−241	9.73E+01	11/12/16	−1.46E−08	1.69E−07	2.99E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238001 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA5−S−001 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.63E−06	uCi/g	005.35
Bi−212	1.71E−06	uCi/g	005.60
Bi−214	1.27E−06	uCi/g	004.16
Cs−137	3.81E−07	uCi/g	001.25
Pb−212	1.51E−06	uCi/g	004.95
Pb−214	1.13E−06	uCi/g	003.71
K−40	2.08E−05	uCi/g	068.21
Ra−228	1.63E−06	uCi/g	005.35
Tl−208	4.33E−07	uCi/g	001.42

Total Activity: 3.05E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238002 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA5−S−002 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.12E+02	11/12/16	7.43E−07	5.80E−07	7.55E−07		uCi/g	U
Na−22	1.12E+02	11/12/16	1.19E−08	4.35E−08	8.99E−08		uCi/g	U
K−40	1.12E+02	11/12/16	1.31E−05	1.55E−06	5.69E−07		uCi/g	3
Cr−51	1.12E+02	11/12/16	1.73E−07	4.78E−07	9.24E−07		uCi/g	U
Mn−54	1.12E+02	11/12/16	5.61E−08	3.90E−08	7.18E−08		uCi/g	U
Fe−59	1.12E+02	11/12/16	−3.52E−08	1.01E−07	1.89E−07		uCi/g	U
Co−56	1.12E+02	11/12/16	9.91E−09	4.32E−08	8.44E−08		uCi/g	U
Co−57	1.12E+02	11/12/16	−7.79E−09	2.83E−08	4.80E−08		uCi/g	U
Co−58	1.12E+02	11/12/16	−1.21E−08	4.71E−08	8.39E−08		uCi/g	U
Co−60	1.12E+02	11/12/16	−1.69E−09	4.21E−08	8.33E−08		uCi/g	U
Zn−65	1.12E+02	11/12/16	−1.21E−08	8.88E−08	1.52E−07		uCi/g	U
Y−88	1.12E+02	11/12/16	−9.70E−09	4.47E−08	8.79E−08		uCi/g	U
Zr−95	1.12E+02	11/12/16	7.17E−08	8.95E−08	1.85E−07		uCi/g	U
Nb−94	1.12E+02	11/12/16	−1.90E−08	4.23E−08	7.26E−08		uCi/g	U
Nb−95	1.12E+02	11/12/16	−8.42E−10	6.52E−08	1.05E−07		uCi/g	U
Ru−106	1.12E+02	11/12/16	3.66E−07	4.73E−07	5.81E−07		uCi/g	U
Ag−110m	1.12E+02	11/12/16	2.38E−08	4.86E−08	1.00E−07		uCi/g	U
Sn−113	1.12E+02	11/12/16	1.87E−08	4.93E−08	9.65E−08		uCi/g	U
Sb−124	1.12E+02	11/12/16	−1.37E−07	1.09E−07	1.49E−07		uCi/g	U
Sb−125	1.12E+02	11/12/16	−6.46E−08	1.01E−07	1.75E−07		uCi/g	U
Cs−134	1.12E+02	11/12/16	0.00E+00	7.01E−08	1.04E−07		uCi/g	UI
Cs−136	1.12E+02	11/12/16	1.20E−07	1.73E−07	3.78E−07		uCi/g	U
Cs−137	1.12E+02	11/12/16	0.00E+00	9.13E−08	7.05E−08	1.00E−07	uCi/g	UI
Ba−133	1.12E+02	11/12/16	1.28E−08	4.70E−08	8.36E−08		uCi/g	U
Ba−140	1.12E+02	11/12/16	1.60E−07	4.52E−07	8.91E−07		uCi/g	U
Ce−139	1.12E+02	11/12/16	−4.72E−09	3.48E−08	5.89E−08		uCi/g	U
Ce−141	1.12E+02	11/12/16	−1.77E−08	8.61E−08	1.45E−07		uCi/g	U
Ce−144	1.12E+02	11/12/16	−8.31E−09	2.37E−07	3.75E−07		uCi/g	U
Nd−147	1.12E+02	11/12/16	−7.70E−07	1.00E−06	1.68E−06		uCi/g	U
Pm−144	1.12E+02	11/12/16	1.46E−08	4.23E−08	8.11E−08		uCi/g	U
Pm−146	1.12E+02	11/12/16	3.21E−08	4.57E−08	9.26E−08		uCi/g	U
Eu−152	1.12E+02	11/12/16	5.54E−11	9.36E−08	1.77E−07		uCi/g	U
Eu−154	1.12E+02	11/12/16	4.82E−08	1.21E−07	2.55E−07		uCi/g	U
Eu−155	1.12E+02	11/12/16	1.68E−07	1.95E−07	2.02E−07		uCi/g	U
Ir−192	1.12E+02	11/12/16	−1.64E−09	3.50E−08	6.62E−08		uCi/g	U
Hg−203	1.12E+02	11/12/16	2.53E−08	4.88E−08	8.75E−08		uCi/g	U
Tl−208	1.12E+02	11/12/16	4.65E−07	1.04E−07	6.65E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238002
Client Sample ID: OLA5−S−002
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 19, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.12E+02	11/12/16	0.00E+00	3.71E−06	3.69E−06		uCi/g	UI
Pb−212	1.12E+02	11/12/16	1.48E−06	1.52E−07	1.07E−07		uCi/g	3
Pb−214	1.12E+02	11/12/16	1.75E−06	2.51E−07	4.48E−07		uCi/g	3
Bi−212	1.12E+02	11/12/16	0.00E+00	1.31E−06	1.65E−06		uCi/g	UI
Bi−214	1.12E+02	11/12/16	1.42E−06	2.26E−07	1.26E−07		uCi/g	3
Ra−228	1.12E+02	11/12/16	1.43E−06	3.36E−07	3.07E−07		uCi/g	3
Ac−228	1.12E+02	11/12/16	1.43E−06	3.36E−07	3.07E−07		uCi/g	3
Th−234	1.12E+02	11/12/16	0.00E+00	2.53E−06	1.83E−06		uCi/g	UI
U−235	1.12E+02	11/12/16	6.75E−08	2.43E−07	4.25E−07		uCi/g	U
U−238	1.12E+02	11/12/16	0.00E+00	2.53E−06	1.83E−06		uCi/g	UI
Np−239	1.12E+02	11/12/16	2.25E−07	2.98E−07	5.46E−07		uCi/g	U
Am−241	1.12E+02	11/12/16	9.34E−08	1.38E−07	2.38E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238002 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA5−S−002 **Collect Date:** October 19, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.43E−06	uCi/g	006.78
Bi−214	1.42E−06	uCi/g	006.76
Pb−212	1.48E−06	uCi/g	007.02
Pb−214	1.75E−06	uCi/g	008.33
K−40	1.31E−05	uCi/g	062.12
Ra−228	1.43E−06	uCi/g	006.78
Tl−208	4.65E−07	uCi/g	002.21

Total Activity: **2.10E−05** **Total % Abundance:** **100.00**

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238003 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA5−S−003 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.11E+02	11/12/16	3.26E−08	5.24E−07	8.98E−07		uCi/g	U
Na−22	1.11E+02	11/12/16	3.61E−08	5.15E−08	1.17E−07		uCi/g	U
K−40	1.11E+02	11/12/16	1.59E−05	1.97E−06	8.22E−07		uCi/g	3
Cr−51	1.11E+02	11/12/16	4.20E−07	5.55E−07	1.13E−06		uCi/g	U
Mn−54	1.11E+02	11/12/16	2.70E−08	4.39E−08	9.11E−08		uCi/g	U
Fe−59	1.11E+02	11/12/16	9.61E−08	1.20E−07	2.67E−07		uCi/g	U
Co−56	1.11E+02	11/12/16	5.65E−08	5.60E−08	1.19E−07		uCi/g	U
Co−57	1.11E+02	11/12/16	2.66E−08	2.94E−08	5.97E−08		uCi/g	U
Co−58	1.11E+02	11/12/16	7.99E−09	4.99E−08	9.57E−08		uCi/g	U
Co−60	1.11E+02	11/12/16	−1.23E−08	5.21E−08	1.02E−07		uCi/g	U
Zn−65	1.11E+02	11/12/16	−3.79E−08	1.43E−07	2.21E−07		uCi/g	U
Y−88	1.11E+02	11/12/16	3.08E−08	4.43E−08	1.21E−07		uCi/g	U
Zr−95	1.11E+02	11/12/16	1.14E−08	9.83E−08	1.92E−07		uCi/g	U
Nb−94	1.11E+02	11/12/16	2.77E−08	3.99E−08	8.45E−08		uCi/g	U
Nb−95	1.11E+02	11/12/16	−1.47E−08	6.97E−08	1.25E−07		uCi/g	U
Ru−106	1.11E+02	11/12/16	−7.74E−08	4.07E−07	7.53E−07		uCi/g	U
Ag−110m	1.11E+02	11/12/16	2.30E−08	5.80E−08	1.22E−07		uCi/g	U
Sn−113	1.11E+02	11/12/16	1.11E−08	6.17E−08	1.18E−07		uCi/g	U
Sb−124	1.11E+02	11/12/16	7.22E−08	1.28E−07	3.11E−07		uCi/g	U
Sb−125	1.11E+02	11/12/16	−4.19E−08	1.18E−07	2.14E−07		uCi/g	U
Cs−134	1.11E+02	11/12/16	−3.67E−09	5.45E−08	1.03E−07		uCi/g	U
Cs−136	1.11E+02	11/12/16	−3.12E−07	2.46E−07	3.40E−07		uCi/g	U
Cs−137	1.11E+02	11/12/16	1.95E−07	1.16E−07	7.49E−08	1.00E−07	uCi/g	3
Ba−133	1.11E+02	11/12/16	1.39E−08	6.13E−08	1.07E−07		uCi/g	U
Ba−140	1.11E+02	11/12/16	3.38E−07	5.14E−07	1.08E−06		uCi/g	U
Ce−139	1.11E+02	11/12/16	5.38E−09	3.73E−08	7.11E−08		uCi/g	U
Ce−141	1.11E+02	11/12/16	2.16E−10	9.13E−08	1.72E−07		uCi/g	U
Ce−144	1.11E+02	11/12/16	6.22E−08	2.31E−07	4.48E−07		uCi/g	U
Nd−147	1.11E+02	11/12/16	5.01E−07	1.19E−06	2.41E−06		uCi/g	U
Pm−144	1.11E+02	11/12/16	1.20E−08	4.87E−08	9.44E−08		uCi/g	U
Pm−146	1.11E+02	11/12/16	−2.43E−09	5.39E−08	1.02E−07		uCi/g	U
Eu−152	1.11E+02	11/12/16	3.65E−08	1.26E−07	2.44E−07		uCi/g	U
Eu−154	1.11E+02	11/12/16	7.02E−08	1.52E−07	3.31E−07		uCi/g	U
Eu−155	1.11E+02	11/12/16	6.35E−08	1.45E−07	2.59E−07		uCi/g	U
Ir−192	1.11E+02	11/12/16	−4.62E−08	4.70E−08	7.93E−08		uCi/g	U
Hg−203	1.11E+02	11/12/16	−1.23E−08	5.27E−08	9.71E−08		uCi/g	U
Tl−208	1.11E+02	11/12/16	3.90E−07	1.19E−07	8.41E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238003 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA5−S−003 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.11E+02	11/12/16	1.16E−06	6.17E−06	1.12E−05		uCi/g	U
Pb−212	1.11E+02	11/12/16	1.15E−06	1.60E−07	1.25E−07		uCi/g	3
Pb−214	1.11E+02	11/12/16	1.01E−06	2.53E−07	1.94E−07		uCi/g	3
Bi−212	1.11E+02	11/12/16	0.00E+00	1.18E−06	1.69E−06		uCi/g	UI
Bi−214	1.11E+02	11/12/16	7.61E−07	2.69E−07	1.91E−07		uCi/g	3
Ra−228	1.11E+02	11/12/16	1.43E−06	3.57E−07	3.13E−07		uCi/g	3
Ac−228	1.11E+02	11/12/16	1.43E−06	3.57E−07	3.13E−07		uCi/g	3
Th−234	1.11E+02	11/12/16	3.07E−06	3.60E−06	3.23E−06		uCi/g	U
U−235	1.11E+02	11/12/16	1.92E−07	2.51E−07	4.94E−07		uCi/g	U
U−238	1.11E+02	11/12/16	3.07E−06	3.60E−06	3.23E−06		uCi/g	U
Np−239	1.11E+02	11/12/16	1.79E−07	3.23E−07	5.90E−07		uCi/g	U
Am−241	1.11E+02	11/12/16	1.37E−07	2.59E−07	4.42E−07		uCi/g	U

Note(s): **1. Calculated MDAs are a−posteriori values.**
2. Activity concentration net +/− 2 sigma overall on reference date.
3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238003 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA5−S−003 **Collect Date:** October 19, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.43E−06	uCi/g	006.40
Bi−214	7.61E−07	uCi/g	003.42
Cs−137	1.95E−07	uCi/g	000.88
Pb−212	1.15E−06	uCi/g	005.15
Pb−214	1.01E−06	uCi/g	004.51
K−40	1.59E−05	uCi/g	071.49
Ra−228	1.43E−06	uCi/g	006.40
Tl−208	3.90E−07	uCi/g	001.75

Total Activity: 2.23E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238004 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA5−D3−004 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.25E+02	11/12/16	−1.66E−07	3.48E−07	6.36E−07		uCi/g	U
Na−22	1.25E+02	11/12/16	−4.93E−08	4.89E−08	7.80E−08		uCi/g	U
K−40	1.25E+02	11/12/16	1.57E−05	1.81E−06	6.08E−07		uCi/g	3
Cr−51	1.25E+02	11/12/16	2.07E−07	4.87E−07	9.59E−07		uCi/g	U
Mn−54	1.25E+02	11/12/16	2.86E−08	4.42E−08	8.80E−08		uCi/g	U
Fe−59	1.25E+02	11/12/16	−3.65E−08	1.13E−07	2.13E−07		uCi/g	U
Co−56	1.25E+02	11/12/16	−2.71E−08	4.82E−08	8.52E−08		uCi/g	U
Co−57	1.25E+02	11/12/16	−9.33E−09	2.52E−08	4.54E−08		uCi/g	U
Co−58	1.25E+02	11/12/16	5.57E−08	4.97E−08	6.15E−08		uCi/g	U
Co−60	1.25E+02	11/12/16	−1.45E−11	4.04E−08	8.48E−08		uCi/g	U
Zn−65	1.25E+02	11/12/16	3.10E−08	1.23E−07	2.23E−07		uCi/g	U
Y−88	1.25E+02	11/12/16	2.55E−08	2.88E−08	9.10E−08		uCi/g	U
Zr−95	1.25E+02	11/12/16	1.04E−08	8.91E−08	1.72E−07		uCi/g	U
Nb−94	1.25E+02	11/12/16	−9.57E−09	3.81E−08	6.93E−08		uCi/g	U
Nb−95	1.25E+02	11/12/16	1.02E−09	5.00E−08	9.49E−08		uCi/g	U
Ru−106	1.25E+02	11/12/16	9.28E−08	3.80E−07	7.46E−07		uCi/g	U
Ag−110m	1.25E+02	11/12/16	−1.52E−08	5.39E−08	9.72E−08		uCi/g	U
Sn−113	1.25E+02	11/12/16	−4.35E−09	5.02E−08	9.67E−08		uCi/g	U
Sb−124	1.25E+02	11/12/16	−4.66E−09	9.30E−08	2.00E−07		uCi/g	U
Sb−125	1.25E+02	11/12/16	2.31E−08	9.15E−08	1.85E−07		uCi/g	U
Cs−134	1.25E+02	11/12/16	8.38E−08	8.15E−08	1.04E−07		uCi/g	U
Cs−136	1.25E+02	11/12/16	2.21E−09	1.73E−07	3.52E−07		uCi/g	U
Cs−137	1.25E+02	11/12/16	7.11E−08	5.24E−08	7.77E−08	1.00E−07	uCi/g	U
Ba−133	1.25E+02	11/12/16	5.46E−10	4.31E−08	7.69E−08		uCi/g	U
Ba−140	1.25E+02	11/12/16	1.31E−07	4.45E−07	8.98E−07		uCi/g	U
Ce−139	1.25E+02	11/12/16	−6.34E−09	3.05E−08	5.47E−08		uCi/g	U
Ce−141	1.25E+02	11/12/16	−3.82E−09	7.72E−08	1.41E−07		uCi/g	U
Ce−144	1.25E+02	11/12/16	−2.61E−08	2.07E−07	3.78E−07		uCi/g	U
Nd−147	1.25E+02	11/12/16	5.64E−07	1.05E−06	2.17E−06		uCi/g	U
Pm−144	1.25E+02	11/12/16	7.11E−09	4.00E−08	7.10E−08		uCi/g	U
Pm−146	1.25E+02	11/12/16	−2.28E−08	4.75E−08	8.63E−08		uCi/g	U
Eu−152	1.25E+02	11/12/16	1.35E−07	1.44E−07	2.12E−07		uCi/g	U
Eu−154	1.25E+02	11/12/16	−1.36E−07	1.39E−07	2.23E−07		uCi/g	U
Eu−155	1.25E+02	11/12/16	1.46E−07	1.89E−07	1.87E−07		uCi/g	U
Ir−192	1.25E+02	11/12/16	−9.60E−09	3.97E−08	7.59E−08		uCi/g	U
Hg−203	1.25E+02	11/12/16	−2.95E−08	4.97E−08	8.18E−08		uCi/g	U
Tl−208	1.25E+02	11/12/16	2.60E−07	1.25E−07	8.46E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238004
Client Sample ID: OLA5−D3−004
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 19, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.25E+02	11/12/16	4.05E−06	5.08E−06	1.04E−05		uCi/g	U
Pb−212	1.25E+02	11/12/16	1.23E−06	1.54E−07	1.03E−07		uCi/g	3
Pb−214	1.25E+02	11/12/16	1.25E−06	2.28E−07	4.04E−07		uCi/g	3
Bi−212	1.25E+02	11/12/16	0.00E+00	1.09E−06	1.36E−06		uCi/g	UI
Bi−214	1.25E+02	11/12/16	9.43E−07	2.27E−07	1.70E−07		uCi/g	3
Ra−228	1.25E+02	11/12/16	1.24E−06	4.01E−07	2.27E−07		uCi/g	3
Ac−228	1.25E+02	11/12/16	1.24E−06	4.01E−07	2.27E−07		uCi/g	3
Th−234	1.25E+02	11/12/16	2.46E−06	3.03E−06	2.52E−06		uCi/g	U
U−235	1.25E+02	11/12/16	1.17E−07	2.09E−07	4.02E−07		uCi/g	U
U−238	1.25E+02	11/12/16	2.46E−06	3.03E−06	2.52E−06		uCi/g	U
Np−239	1.25E+02	11/12/16	−5.47E−08	2.74E−07	5.01E−07		uCi/g	U
Am−241	1.25E+02	11/12/16	−3.41E−08	1.85E−07	3.27E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238004 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA5−D3−004 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.24E−06	uCi/g	005.67
Bi−214	9.43E−07	uCi/g	004.32
Pb−212	1.23E−06	uCi/g	005.62
Pb−214	1.25E−06	uCi/g	005.74
K−40	1.57E−05	uCi/g	071.78
Ra−228	1.24E−06	uCi/g	005.67
Tl−208	2.60E−07	uCi/g	001.19
Total Activity:	**2.18E−05**	**Total % Abundance:**	**100.00**

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238005 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA6−S−001 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.18E+02	11/12/16	1.48E−07	3.99E−07	8.04E−07		uCi/g	U
Na−22	1.18E+02	11/12/16	−1.10E−08	3.63E−08	7.10E−08		uCi/g	U
K−40	1.18E+02	11/12/16	1.45E−05	1.76E−06	6.69E−07		uCi/g	3
Cr−51	1.18E+02	11/12/16	−7.13E−08	4.55E−07	8.05E−07		uCi/g	U
Mn−54	1.18E+02	11/12/16	−9.20E−09	3.85E−08	7.10E−08		uCi/g	U
Fe−59	1.18E+02	11/12/16	−3.09E−09	9.77E−08	1.87E−07		uCi/g	U
Co−56	1.18E+02	11/12/16	1.78E−09	4.47E−08	8.68E−08		uCi/g	U
Co−57	1.18E+02	11/12/16	1.48E−08	2.49E−08	4.93E−08		uCi/g	U
Co−58	1.18E+02	11/12/16	−1.79E−08	4.36E−08	7.83E−08		uCi/g	U
Co−60	1.18E+02	11/12/16	−5.58E−09	3.20E−08	5.81E−08		uCi/g	U
Zn−65	1.18E+02	11/12/16	5.56E−08	1.00E−07	1.92E−07		uCi/g	U
Y−88	1.18E+02	11/12/16	−1.69E−08	5.64E−08	1.07E−07		uCi/g	U
Zr−95	1.18E+02	11/12/16	1.65E−08	8.21E−08	1.64E−07		uCi/g	U
Nb−94	1.18E+02	11/12/16	−9.26E−09	3.02E−08	5.63E−08		uCi/g	U
Nb−95	1.18E+02	11/12/16	2.99E−08	5.69E−08	1.06E−07		uCi/g	U
Ru−106	1.18E+02	11/12/16	−2.14E−08	3.24E−07	6.27E−07		uCi/g	U
Ag−110m	1.18E+02	11/12/16	−1.60E−09	4.99E−08	9.66E−08		uCi/g	U
Sn−113	1.18E+02	11/12/16	−8.53E−09	4.67E−08	9.04E−08		uCi/g	U
Sb−124	1.18E+02	11/12/16	1.23E−08	7.49E−08	1.81E−07		uCi/g	U
Sb−125	1.18E+02	11/12/16	−5.05E−09	9.85E−08	1.92E−07		uCi/g	U
Cs−134	1.18E+02	11/12/16	6.74E−08	8.78E−08	9.18E−08		uCi/g	U
Cs−136	1.18E+02	11/12/16	3.83E−08	1.86E−07	3.66E−07		uCi/g	U
Cs−137	1.18E+02	11/12/16	2.45E−08	3.97E−08	8.33E−08	1.00E−07	uCi/g	U
Ba−133	1.18E+02	11/12/16	−5.18E−08	5.35E−08	7.30E−08		uCi/g	U
Ba−140	1.18E+02	11/12/16	−1.13E−07	4.38E−07	8.30E−07		uCi/g	U
Ce−139	1.18E+02	11/12/16	−7.38E−09	2.95E−08	5.33E−08		uCi/g	U
Ce−141	1.18E+02	11/12/16	−3.89E−08	7.32E−08	1.30E−07		uCi/g	U
Ce−144	1.18E+02	11/12/16	−3.01E−08	1.73E−07	3.21E−07		uCi/g	U
Nd−147	1.18E+02	11/12/16	0.00E+00	1.33E−06	1.50E−06		uCi/g	UI
Pm−144	1.18E+02	11/12/16	−8.91E−09	4.27E−08	7.03E−08		uCi/g	U
Pm−146	1.18E+02	11/12/16	−1.26E−08	3.86E−08	7.35E−08		uCi/g	U
Eu−152	1.18E+02	11/12/16	1.14E−08	1.06E−07	1.93E−07		uCi/g	U
Eu−154	1.18E+02	11/12/16	−1.84E−08	9.90E−08	2.00E−07		uCi/g	U
Eu−155	1.18E+02	11/12/16	−1.36E−08	1.05E−07	1.97E−07		uCi/g	U
Ir−192	1.18E+02	11/12/16	1.23E−08	3.86E−08	7.24E−08		uCi/g	U
Hg−203	1.18E+02	11/12/16	1.55E−08	4.34E−08	8.18E−08		uCi/g	U
Tl−208	1.18E+02	11/12/16	4.04E−07	9.51E−08	6.91E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238005 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA6−S−001 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.18E+02	11/12/16	3.13E−06	6.78E−06	1.40E−05		uCi/g	U
Pb−212	1.18E+02	11/12/16	1.11E−06	1.40E−07	1.05E−07		uCi/g	3
Pb−214	1.18E+02	11/12/16	1.19E−06	2.32E−07	3.95E−07		uCi/g	3
Bi−212	1.18E+02	11/12/16	2.09E−06	8.21E−07	8.70E−07		uCi/g	3
Bi−214	1.18E+02	11/12/16	1.03E−06	2.21E−07	1.50E−07		uCi/g	3
Ra−228	1.18E+02	11/12/16	1.23E−06	3.19E−07	1.99E−07		uCi/g	3
Ac−228	1.18E+02	11/12/16	1.23E−06	3.19E−07	1.99E−07		uCi/g	3
Th−234	1.18E+02	11/12/16	−9.22E−07	1.62E−06	3.19E−06		uCi/g	U
U−235	1.18E+02	11/12/16	6.60E−08	1.95E−07	3.76E−07		uCi/g	U
U−238	1.18E+02	11/12/16	−9.22E−07	1.62E−06	3.19E−06		uCi/g	U
Np−239	1.18E+02	11/12/16	−6.99E−08	2.66E−07	4.91E−07		uCi/g	U
Am−241	1.18E+02	11/12/16	1.29E−07	1.88E−07	3.85E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238005 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA6−S−001 **Collect Date:** October 19, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.23E−06	uCi/g	005.42
Bi−212	2.09E−06	uCi/g	009.19
Bi−214	1.03E−06	uCi/g	004.54
Pb−212	1.11E−06	uCi/g	004.87
Pb−214	1.19E−06	uCi/g	005.24
K−40	1.45E−05	uCi/g	063.55
Ra−228	1.23E−06	uCi/g	005.42
Tl−208	4.04E−07	uCi/g	001.78

Total Activity: 2.28E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238006
Client Sample ID: OLA6−D1.5−002
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 19, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.18E+02	11/12/16	−1.31E−07	3.08E−07	5.62E−07		uCi/g	U
Na−22	1.18E+02	11/12/16	−3.21E−08	4.65E−08	7.74E−08		uCi/g	U
K−40	1.18E+02	11/12/16	1.71E−05	1.85E−06	6.06E−07		uCi/g	3
Cr−51	1.18E+02	11/12/16	−7.10E−08	4.27E−07	8.18E−07		uCi/g	U
Mn−54	1.18E+02	11/12/16	3.54E−08	4.92E−08	9.50E−08		uCi/g	U
Fe−59	1.18E+02	11/12/16	−2.27E−08	9.75E−08	1.85E−07		uCi/g	U
Co−56	1.18E+02	11/12/16	1.30E−08	5.15E−08	1.04E−07		uCi/g	U
Co−57	1.18E+02	11/12/16	1.57E−08	1.86E−08	3.74E−08		uCi/g	U
Co−58	1.18E+02	11/12/16	−2.16E−08	4.81E−08	8.90E−08		uCi/g	U
Co−60	1.18E+02	11/12/16	2.53E−08	3.47E−08	8.27E−08		uCi/g	U
Zn−65	1.18E+02	11/12/16	−1.25E−07	1.29E−07	1.75E−07		uCi/g	U
Y−88	1.18E+02	11/12/16	3.30E−10	2.32E−08	6.17E−08		uCi/g	U
Zr−95	1.18E+02	11/12/16	4.27E−08	8.76E−08	1.75E−07		uCi/g	U
Nb−94	1.18E+02	11/12/16	−3.81E−09	3.96E−08	7.19E−08		uCi/g	U
Nb−95	1.18E+02	11/12/16	2.93E−08	6.24E−08	1.10E−07		uCi/g	U
Ru−106	1.18E+02	11/12/16	2.20E−07	3.13E−07	6.60E−07		uCi/g	U
Ag−110m	1.18E+02	11/12/16	−8.11E−09	5.17E−08	1.01E−07		uCi/g	U
Sn−113	1.18E+02	11/12/16	4.02E−08	7.81E−08	8.08E−08		uCi/g	U
Sb−124	1.18E+02	11/12/16	−8.98E−09	7.98E−08	1.77E−07		uCi/g	U
Sb−125	1.18E+02	11/12/16	3.28E−08	9.01E−08	1.81E−07		uCi/g	U
Cs−134	1.18E+02	11/12/16	8.00E−08	8.50E−08	1.06E−07		uCi/g	U
Cs−136	1.18E+02	11/12/16	1.11E−07	2.20E−07	3.53E−07		uCi/g	U
Cs−137	1.18E+02	11/12/16	6.71E−09	4.38E−08	7.56E−08	1.00E−07	uCi/g	U
Ba−133	1.18E+02	11/12/16	5.53E−08	4.06E−08	8.45E−08		uCi/g	U
Ba−140	1.18E+02	11/12/16	3.43E−08	3.36E−07	6.74E−07		uCi/g	U
Ce−139	1.18E+02	11/12/16	−1.11E−08	2.62E−08	4.62E−08		uCi/g	U
Ce−141	1.18E+02	11/12/16	3.75E−09	6.64E−08	1.24E−07		uCi/g	U
Ce−144	1.18E+02	11/12/16	1.55E−08	1.60E−07	3.00E−07		uCi/g	U
Nd−147	1.18E+02	11/12/16	4.94E−07	1.00E−06	2.04E−06		uCi/g	U
Pm−144	1.18E+02	11/12/16	5.98E−09	4.36E−08	8.13E−08		uCi/g	U
Pm−146	1.18E+02	11/12/16	1.88E−08	4.17E−08	8.44E−08		uCi/g	U
Eu−152	1.18E+02	11/12/16	−5.58E−08	1.00E−07	1.82E−07		uCi/g	U
Eu−154	1.18E+02	11/12/16	−7.46E−08	1.28E−07	2.19E−07		uCi/g	U
Eu−155	1.18E+02	11/12/16	0.00E+00	1.52E−07	1.31E−07		uCi/g	UI
Ir−192	1.18E+02	11/12/16	−1.71E−09	3.44E−08	6.69E−08		uCi/g	U
Hg−203	1.18E+02	11/12/16	−1.73E−08	4.66E−08	7.86E−08		uCi/g	U
Tl−208	1.18E+02	11/12/16	3.57E−07	1.06E−07	7.94E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238006
Client Sample ID: OLA6−D1.5−002
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 19, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.18E+02	11/12/16	0.00E+00	8.96E−07	6.64E−07		uCi/g	UI
Pb−212	1.18E+02	11/12/16	1.08E−06	1.32E−07	1.05E−07		uCi/g	3
Pb−214	1.18E+02	11/12/16	1.18E−06	1.98E−07	1.48E−07		uCi/g	3
Bi−212	1.18E+02	11/12/16	1.15E−06	7.51E−07	1.59E−06		uCi/g	U
Bi−214	1.18E+02	11/12/16	1.02E−06	2.14E−07	1.81E−07		uCi/g	3
Ra−228	1.18E+02	11/12/16	8.56E−07	4.33E−07	2.87E−07		uCi/g	3
Ac−228	1.18E+02	11/12/16	8.56E−07	4.33E−07	2.87E−07		uCi/g	3
Th−234	1.18E+02	11/12/16	0.00E+00	1.18E−06	8.79E−07		uCi/g	UI
U−235	1.18E+02	11/12/16	−1.02E−07	1.74E−07	3.08E−07		uCi/g	U
U−238	1.18E+02	11/12/16	0.00E+00	1.18E−06	8.79E−07		uCi/g	UI
Np−239	1.18E+02	11/12/16	−1.64E−07	1.86E−07	3.25E−07		uCi/g	U
Am−241	1.18E+02	11/12/16	3.48E−09	4.85E−08	8.89E−08		uCi/g	U

Note(s):
1. Calculated MDAs are a−posteriori values.
2. Activity concentration net +/− 2 sigma overall on reference date.
3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238006 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA6−D1.5−002 **Collect Date:** October 19, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	8.56E−07	uCi/g	003.82
Bi−214	1.02E−06	uCi/g	004.56
Pb−212	1.08E−06	uCi/g	004.83
Pb−214	1.18E−06	uCi/g	005.26
K−40	1.71E−05	uCi/g	076.11
Ra−228	8.56E−07	uCi/g	003.82
Tl−208	3.57E−07	uCi/g	001.59

Total Activity: 2.24E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238007
Client Sample ID: OLA6−S−003
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 19, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.23E+02	11/12/16	6.80E−08	3.23E−07	6.43E−07		uCi/g	U
Na−22	1.23E+02	11/12/16	−5.71E−09	3.08E−08	6.22E−08		uCi/g	U
K−40	1.23E+02	11/12/16	1.53E−05	1.58E−06	5.99E−07		uCi/g	3
Cr−51	1.23E+02	11/12/16	−1.18E−07	3.95E−07	7.44E−07		uCi/g	U
Mn−54	1.23E+02	11/12/16	5.42E−08	4.93E−08	6.12E−08		uCi/g	U
Fe−59	1.23E+02	11/12/16	−2.33E−09	8.04E−08	1.55E−07		uCi/g	U
Co−56	1.23E+02	11/12/16	4.03E−08	4.15E−08	8.84E−08		uCi/g	U
Co−57	1.23E+02	11/12/16	1.55E−08	2.36E−08	4.54E−08		uCi/g	U
Co−58	1.23E+02	11/12/16	4.52E−08	3.78E−08	5.18E−08		uCi/g	U
Co−60	1.23E+02	11/12/16	1.72E−08	2.32E−08	6.04E−08		uCi/g	U
Zn−65	1.23E+02	11/12/16	6.38E−09	9.45E−08	1.60E−07		uCi/g	U
Y−88	1.23E+02	11/12/16	6.65E−09	2.24E−08	6.11E−08		uCi/g	U
Zr−95	1.23E+02	11/12/16	2.78E−08	6.99E−08	1.43E−07		uCi/g	U
Nb−94	1.23E+02	11/12/16	2.06E−08	3.38E−08	6.87E−08		uCi/g	U
Nb−95	1.23E+02	11/12/16	6.33E−09	4.94E−08	9.39E−08		uCi/g	U
Ru−106	1.23E+02	11/12/16	2.95E−07	2.94E−07	4.02E−07		uCi/g	U
Ag−110m	1.23E+02	11/12/16	−5.62E−09	4.40E−08	8.32E−08		uCi/g	U
Sn−113	1.23E+02	11/12/16	1.05E−08	4.18E−08	8.37E−08		uCi/g	U
Sb−124	1.23E+02	11/12/16	1.55E−08	6.31E−08	1.56E−07		uCi/g	U
Sb−125	1.23E+02	11/12/16	−2.60E−09	7.80E−08	1.52E−07		uCi/g	U
Cs−134	1.23E+02	11/12/16	2.70E−08	4.01E−08	8.33E−08		uCi/g	U
Cs−136	1.23E+02	11/12/16	8.31E−08	1.31E−07	2.74E−07		uCi/g	U
Cs−137	1.23E+02	11/12/16	2.17E−08	3.55E−08	6.86E−08	1.00E−07	uCi/g	U
Ba−133	1.23E+02	11/12/16	−3.02E−08	4.28E−08	6.78E−08		uCi/g	U
Ba−140	1.23E+02	11/12/16	−1.77E−07	3.53E−07	6.43E−07		uCi/g	U
Ce−139	1.23E+02	11/12/16	2.52E−08	2.74E−08	5.36E−08		uCi/g	U
Ce−141	1.23E+02	11/12/16	−5.51E−08	7.20E−08	1.22E−07		uCi/g	U
Ce−144	1.23E+02	11/12/16	6.85E−08	1.92E−07	3.58E−07		uCi/g	U
Nd−147	1.23E+02	11/12/16	2.12E−07	8.60E−07	1.73E−06		uCi/g	U
Pm−144	1.23E+02	11/12/16	9.05E−09	3.25E−08	6.45E−08		uCi/g	U
Pm−146	1.23E+02	11/12/16	7.10E−08	6.85E−08	7.98E−08		uCi/g	U
Eu−152	1.23E+02	11/12/16	5.46E−08	8.61E−08	1.78E−07		uCi/g	U
Eu−154	1.23E+02	11/12/16	−1.37E−08	8.74E−08	1.78E−07		uCi/g	U
Eu−155	1.23E+02	11/12/16	2.21E−08	8.96E−08	1.69E−07		uCi/g	U
Ir−192	1.23E+02	11/12/16	−1.60E−08	3.28E−08	6.13E−08		uCi/g	U
Hg−203	1.23E+02	11/12/16	−4.83E−08	4.38E−08	6.71E−08		uCi/g	U
Tl−208	1.23E+02	11/12/16	3.38E−07	7.30E−08	6.12E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238007
Client Sample ID: OLA6−S−003
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 19, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.23E+02	11/12/16	−4.17E−07	2.75E−06	5.12E−06		uCi/g	U
Pb−212	1.23E+02	11/12/16	1.08E−06	1.30E−07	9.71E−08		uCi/g	3
Pb−214	1.23E+02	11/12/16	1.33E−06	1.95E−07	1.20E−07		uCi/g	3
Bi−212	1.23E+02	11/12/16	8.52E−07	7.25E−07	1.26E−06		uCi/g	U
Bi−214	1.23E+02	11/12/16	9.75E−07	1.61E−07	1.15E−07		uCi/g	3
Ra−228	1.23E+02	11/12/16	9.57E−07	2.82E−07	2.44E−07		uCi/g	3
Ac−228	1.23E+02	11/12/16	9.57E−07	2.82E−07	2.44E−07		uCi/g	3
Th−234	1.23E+02	11/12/16	1.40E−06	2.09E−06	1.96E−06		uCi/g	U
U−235	1.23E+02	11/12/16	−9.08E−09	1.84E−07	3.31E−07		uCi/g	U
U−238	1.23E+02	11/12/16	1.40E−06	2.09E−06	1.96E−06		uCi/g	U
Np−239	1.23E+02	11/12/16	−4.62E−08	2.34E−07	4.22E−07		uCi/g	U
Am−241	1.23E+02	11/12/16	−9.15E−08	1.35E−07	2.21E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238007 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA6−S−003 **Collect Date:** October 19, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	9.57E−07	uCi/g	004.56
Bi−214	9.75E−07	uCi/g	004.65
Pb−212	1.08E−06	uCi/g	005.15
Pb−214	1.33E−06	uCi/g	006.35
K−40	1.53E−05	uCi/g	073.12
Ra−228	9.57E−07	uCi/g	004.56
Tl−208	3.38E−07	uCi/g	001.61
Total Activity:	**2.10E−05**	**Total % Abundance:**	**100.00**

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238008 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA6−D2−004 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.17E+02	11/12/16	−1.10E−08	5.18E−07	9.64E−07		uCi/g	U
Na−22	1.17E+02	11/12/16	6.20E−08	6.29E−08	1.02E−07		uCi/g	U
K−40	1.17E+02	11/12/16	1.60E−05	2.02E−06	1.02E−06		uCi/g	3
Cr−51	1.17E+02	11/12/16	2.66E−07	6.29E−07	1.18E−06		uCi/g	U
Mn−54	1.17E+02	11/12/16	1.21E−08	4.83E−08	9.96E−08		uCi/g	U
Fe−59	1.17E+02	11/12/16	5.15E−09	1.54E−07	3.01E−07		uCi/g	U
Co−56	1.17E+02	11/12/16	1.65E−08	5.25E−08	1.11E−07		uCi/g	U
Co−57	1.17E+02	11/12/16	5.25E−09	2.90E−08	5.14E−08		uCi/g	U
Co−58	1.17E+02	11/12/16	7.74E−09	5.70E−08	1.16E−07		uCi/g	U
Co−60	1.17E+02	11/12/16	4.67E−08	4.71E−08	1.16E−07		uCi/g	U
Zn−65	1.17E+02	11/12/16	2.89E−08	1.50E−07	2.66E−07		uCi/g	U
Y−88	1.17E+02	11/12/16	2.92E−08	5.62E−08	1.37E−07		uCi/g	U
Zr−95	1.17E+02	11/12/16	1.06E−07	1.18E−07	2.47E−07		uCi/g	U
Nb−94	1.17E+02	11/12/16	1.54E−08	4.94E−08	9.52E−08		uCi/g	U
Nb−95	1.17E+02	11/12/16	−3.41E−09	7.55E−08	1.22E−07		uCi/g	U
Ru−106	1.17E+02	11/12/16	−1.68E−07	4.77E−07	8.38E−07		uCi/g	U
Ag−110m	1.17E+02	11/12/16	1.87E−08	6.22E−08	1.32E−07		uCi/g	U
Sn−113	1.17E+02	11/12/16	5.57E−08	1.27E−07	1.17E−07		uCi/g	U
Sb−124	1.17E+02	11/12/16	−1.49E−07	1.35E−07	1.66E−07		uCi/g	U
Sb−125	1.17E+02	11/12/16	−7.14E−08	1.28E−07	2.24E−07		uCi/g	U
Cs−134	1.17E+02	11/12/16	8.11E−08	6.99E−08	1.51E−07		uCi/g	U
Cs−136	1.17E+02	11/12/16	−1.94E−08	2.02E−07	4.00E−07		uCi/g	U
Cs−137	1.17E+02	11/12/16	4.30E−08	5.24E−08	1.09E−07	1.00E−07	uCi/g	U
Ba−133	1.17E+02	11/12/16	5.71E−08	4.30E−08	8.70E−08		uCi/g	U
Ba−140	1.17E+02	11/12/16	6.32E−07	5.73E−07	1.24E−06		uCi/g	U
Ce−139	1.17E+02	11/12/16	9.02E−09	3.30E−08	6.44E−08		uCi/g	U
Ce−141	1.17E+02	11/12/16	3.94E−08	1.30E−07	1.67E−07		uCi/g	U
Ce−144	1.17E+02	11/12/16	−1.53E−07	2.09E−07	3.80E−07		uCi/g	U
Nd−147	1.17E+02	11/12/16	−7.34E−07	1.39E−06	2.40E−06		uCi/g	U
Pm−144	1.17E+02	11/12/16	−2.36E−08	5.56E−08	9.52E−08		uCi/g	U
Pm−146	1.17E+02	11/12/16	3.84E−08	6.57E−08	1.29E−07		uCi/g	U
Eu−152	1.17E+02	11/12/16	4.51E−10	1.18E−07	2.23E−07		uCi/g	U
Eu−154	1.17E+02	11/12/16	1.75E−07	1.78E−07	3.57E−07		uCi/g	U
Eu−155	1.17E+02	11/12/16	0.00E+00	2.18E−07	2.28E−07		uCi/g	UI
Ir−192	1.17E+02	11/12/16	−1.22E−08	4.93E−08	8.07E−08		uCi/g	U
Hg−203	1.17E+02	11/12/16	−7.55E−09	6.80E−08	1.12E−07		uCi/g	U
Tl−208	1.17E+02	11/12/16	2.99E−07	1.18E−07	1.07E−07		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238008 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA6−D2−004 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.17E+02	11/12/16	9.50E−07	1.24E−06	1.02E−06		uCi/g	U
Pb−212	1.17E+02	11/12/16	9.90E−07	1.63E−07	1.31E−07		uCi/g	3
Pb−214	1.17E+02	11/12/16	1.58E−06	2.74E−07	4.74E−07		uCi/g	3
Bi−212	1.17E+02	11/12/16	1.67E−06	1.34E−06	1.88E−06		uCi/g	U
Bi−214	1.17E+02	11/12/16	1.13E−06	2.24E−07	1.85E−07		uCi/g	3
Ra−228	1.17E+02	11/12/16	1.08E−06	4.62E−07	4.43E−07		uCi/g	3
Ac−228	1.17E+02	11/12/16	1.08E−06	4.62E−07	4.43E−07		uCi/g	3
Th−234	1.17E+02	11/12/16	0.00E+00	1.59E−06	1.23E−06		uCi/g	UI
U−235	1.17E+02	11/12/16	−1.47E−07	2.58E−07	4.25E−07		uCi/g	U
U−238	1.17E+02	11/12/16	0.00E+00	1.59E−06	1.23E−06		uCi/g	UI
Np−239	1.17E+02	11/12/16	−1.42E−07	3.15E−07	5.24E−07		uCi/g	U
Am−241	1.17E+02	11/12/16	−4.78E−09	8.03E−08	1.30E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238008 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA6−D2−004 **Collect Date:** October 19, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.08E−06	uCi/g	004.88
Bi−214	1.13E−06	uCi/g	005.09
Pb−212	9.90E−07	uCi/g	004.46
Pb−214	1.58E−06	uCi/g	007.14
K−40	1.60E−05	uCi/g	072.19
Ra−228	1.08E−06	uCi/g	004.88
Tl−208	2.99E−07	uCi/g	001.35

Total Activity: 2.22E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID:	**409238009**	**Client:**	**BHI Energy Power Services LLC**
Client Sample ID:	**OLA6−S−005**	**Collect Date:**	**October 19, 2016**
Matrix:	**Soil**	**Receive Date:**	**October 27, 2016**
Geometry Received:		**Report Date:**	**November 23, 2016**

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.13E+02	11/12/16	−4.48E−08	4.11E−07	7.60E−07		uCi/g	U
Na−22	1.13E+02	11/12/16	4.59E−09	7.42E−08	1.27E−07		uCi/g	U
K−40	1.13E+02	11/12/16	1.33E−05	2.12E−06	1.19E−06		uCi/g	3
Cr−51	1.13E+02	11/12/16	−1.10E−07	5.61E−07	1.01E−06		uCi/g	U
Mn−54	1.13E+02	11/12/16	2.93E−08	5.06E−08	1.07E−07		uCi/g	U
Fe−59	1.13E+02	11/12/16	−1.10E−07	1.38E−07	2.30E−07		uCi/g	U
Co−56	1.13E+02	11/12/16	−5.05E−09	6.69E−08	1.14E−07		uCi/g	U
Co−57	1.13E+02	11/12/16	1.76E−08	2.83E−08	5.56E−08		uCi/g	U
Co−58	1.13E+02	11/12/16	3.59E−09	4.91E−08	1.00E−07		uCi/g	U
Co−60	1.13E+02	11/12/16	−6.91E−09	5.48E−08	1.06E−07		uCi/g	U
Zn−65	1.13E+02	11/12/16	5.88E−08	1.01E−07	2.11E−07		uCi/g	U
Y−88	1.13E+02	11/12/16	−4.89E−08	4.29E−08	2.84E−08		uCi/g	U
Zr−95	1.13E+02	11/12/16	1.32E−08	8.68E−08	1.80E−07		uCi/g	U
Nb−94	1.13E+02	11/12/16	−1.84E−08	4.63E−08	8.56E−08		uCi/g	U
Nb−95	1.13E+02	11/12/16	−6.95E−09	6.59E−08	1.26E−07		uCi/g	U
Ru−106	1.13E+02	11/12/16	0.00E+00	5.38E−07	5.42E−07		uCi/g	UI
Ag−110m	1.13E+02	11/12/16	−1.30E−08	6.15E−08	1.19E−07		uCi/g	U
Sn−113	1.13E+02	11/12/16	−7.91E−09	5.81E−08	1.06E−07		uCi/g	U
Sb−124	1.13E+02	11/12/16	−1.87E−08	7.38E−08	1.70E−07		uCi/g	U
Sb−125	1.13E+02	11/12/16	8.41E−08	1.08E−07	2.22E−07		uCi/g	U
Cs−134	1.13E+02	11/12/16	3.87E−08	5.07E−08	1.12E−07		uCi/g	U
Cs−136	1.13E+02	11/12/16	−7.91E−08	2.25E−07	4.14E−07		uCi/g	U
Cs−137	1.13E+02	11/12/16	−3.70E−08	4.93E−08	8.69E−08	1.00E−07	uCi/g	U
Ba−133	1.13E+02	11/12/16	−5.55E−09	6.65E−08	1.08E−07		uCi/g	U
Ba−140	1.13E+02	11/12/16	−4.24E−07	6.25E−07	1.03E−06		uCi/g	U
Ce−139	1.13E+02	11/12/16	−3.67E−08	3.47E−08	5.94E−08		uCi/g	U
Ce−141	1.13E+02	11/12/16	3.93E−08	8.40E−08	1.62E−07		uCi/g	U
Ce−144	1.13E+02	11/12/16	−2.25E−08	2.18E−07	4.08E−07		uCi/g	U
Nd−147	1.13E+02	11/12/16	−1.21E−06	1.43E−06	1.90E−06		uCi/g	U
Pm−144	1.13E+02	11/12/16	−2.27E−08	4.97E−08	9.10E−08		uCi/g	U
Pm−146	1.13E+02	11/12/16	4.48E−09	4.66E−08	8.11E−08		uCi/g	U
Eu−152	1.13E+02	11/12/16	−7.71E−08	1.47E−07	2.22E−07		uCi/g	U
Eu−154	1.13E+02	11/12/16	−1.91E−08	2.18E−07	3.59E−07		uCi/g	U
Eu−155	1.13E+02	11/12/16	0.00E+00	1.85E−07	1.71E−07		uCi/g	UI
Ir−192	1.13E+02	11/12/16	1.07E−08	4.43E−08	8.48E−08		uCi/g	U
Hg−203	1.13E+02	11/12/16	3.05E−08	5.80E−08	1.12E−07		uCi/g	U
Tl−208	1.13E+02	11/12/16	3.94E−07	1.03E−07	7.61E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238009
Client Sample ID: OLA6−S−005
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 19, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.13E+02	11/12/16	7.18E−07	9.70E−07	1.02E−06		uCi/g	U
Pb−212	1.13E+02	11/12/16	1.11E−06	1.43E−07	1.11E−07		uCi/g	3
Pb−214	1.13E+02	11/12/16	1.21E−06	2.66E−07	1.79E−07		uCi/g	3
Bi−212	1.13E+02	11/12/16	1.02E−06	7.93E−07	1.74E−06		uCi/g	U
Bi−214	1.13E+02	11/12/16	1.11E−06	2.47E−07	1.68E−07		uCi/g	3
Ra−228	1.13E+02	11/12/16	1.03E−06	3.68E−07	3.94E−07		uCi/g	3
Ac−228	1.13E+02	11/12/16	1.03E−06	3.68E−07	3.94E−07		uCi/g	3
Th−234	1.13E+02	11/12/16	6.26E−07	1.34E−06	1.14E−06		uCi/g	U
U−235	1.13E+02	11/12/16	2.70E−08	2.36E−07	4.42E−07		uCi/g	U
U−238	1.13E+02	11/12/16	6.26E−07	1.34E−06	1.14E−06		uCi/g	U
Np−239	1.13E+02	11/12/16	4.88E−07	3.47E−07	4.91E−07		uCi/g	U
Am−241	1.13E+02	11/12/16	−3.71E−08	7.41E−08	1.13E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238009 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA6−S−005 **Collect Date:** October 19, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.03E−06	uCi/g	005.37
Bi−214	1.11E−06	uCi/g	005.77
Pb−212	1.11E−06	uCi/g	005.81
Pb−214	1.21E−06	uCi/g	006.29
K−40	1.33E−05	uCi/g	069.33
Ra−228	1.03E−06	uCi/g	005.37
Tl−208	3.94E−07	uCi/g	002.06

Total Activity: 1.92E−05 **Total % Abundance:** 100.00

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238010 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA6−D2−006 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.17E+02	11/12/16	7.07E−08	4.93E−07	8.61E−07		uCi/g	U
Na−22	1.17E+02	11/12/16	5.57E−09	4.79E−08	9.77E−08		uCi/g	U
K−40	1.17E+02	11/12/16	1.56E−05	1.89E−06	8.34E−07		uCi/g	3
Cr−51	1.17E+02	11/12/16	2.51E−07	4.51E−07	9.33E−07		uCi/g	U
Mn−54	1.17E+02	11/12/16	3.40E−08	5.05E−08	9.20E−08		uCi/g	U
Fe−59	1.17E+02	11/12/16	1.11E−07	1.47E−07	2.91E−07		uCi/g	U
Co−56	1.17E+02	11/12/16	−1.82E−08	5.81E−08	1.02E−07		uCi/g	U
Co−57	1.17E+02	11/12/16	−1.47E−08	2.90E−08	5.04E−08		uCi/g	U
Co−58	1.17E+02	11/12/16	−3.13E−08	5.25E−08	8.76E−08		uCi/g	U
Co−60	1.17E+02	11/12/16	2.69E−08	4.37E−08	9.95E−08		uCi/g	U
Zn−65	1.17E+02	11/12/16	−2.64E−08	1.29E−07	2.12E−07		uCi/g	U
Y−88	1.17E+02	11/12/16	−4.60E−09	3.81E−08	8.63E−08		uCi/g	U
Zr−95	1.17E+02	11/12/16	−2.74E−08	1.13E−07	2.00E−07		uCi/g	U
Nb−94	1.17E+02	11/12/16	1.08E−08	5.22E−08	9.78E−08		uCi/g	U
Nb−95	1.17E+02	11/12/16	7.85E−08	5.57E−08	1.13E−07		uCi/g	U
Ru−106	1.17E+02	11/12/16	1.77E−07	4.05E−07	8.10E−07		uCi/g	U
Ag−110m	1.17E+02	11/12/16	2.19E−08	5.94E−08	1.26E−07		uCi/g	U
Sn−113	1.17E+02	11/12/16	9.19E−09	5.56E−08	1.08E−07		uCi/g	U
Sb−124	1.17E+02	11/12/16	−6.46E−08	1.10E−07	1.87E−07		uCi/g	U
Sb−125	1.17E+02	11/12/16	8.48E−08	1.18E−07	2.41E−07		uCi/g	U
Cs−134	1.17E+02	11/12/16	7.07E−08	5.60E−08	1.22E−07		uCi/g	U
Cs−136	1.17E+02	11/12/16	−3.96E−08	2.02E−07	3.89E−07		uCi/g	U
Cs−137	1.17E+02	11/12/16	−2.06E−08	3.65E−08	6.30E−08	1.00E−07	uCi/g	U
Ba−133	1.17E+02	11/12/16	1.82E−08	5.00E−08	9.14E−08		uCi/g	U
Ba−140	1.17E+02	11/12/16	2.44E−07	4.43E−07	9.30E−07		uCi/g	U
Ce−139	1.17E+02	11/12/16	1.41E−08	3.58E−08	6.60E−08		uCi/g	U
Ce−141	1.17E+02	11/12/16	2.12E−08	8.59E−08	1.58E−07		uCi/g	U
Ce−144	1.17E+02	11/12/16	−1.29E−07	2.18E−07	3.74E−07		uCi/g	U
Nd−147	1.17E+02	11/12/16	−6.41E−07	1.06E−06	1.85E−06		uCi/g	U
Pm−144	1.17E+02	11/12/16	−1.09E−08	4.31E−08	7.77E−08		uCi/g	U
Pm−146	1.17E+02	11/12/16	4.12E−08	4.97E−08	1.04E−07		uCi/g	U
Eu−152	1.17E+02	11/12/16	1.33E−08	1.03E−07	2.01E−07		uCi/g	U
Eu−154	1.17E+02	11/12/16	9.32E−09	1.34E−07	2.71E−07		uCi/g	U
Eu−155	1.17E+02	11/12/16	4.88E−09	1.21E−07	2.23E−07		uCi/g	U
Ir−192	1.17E+02	11/12/16	−3.34E−11	3.70E−08	7.23E−08		uCi/g	U
Hg−203	1.17E+02	11/12/16	−2.10E−08	4.64E−08	8.62E−08		uCi/g	U
Tl−208	1.17E+02	11/12/16	3.71E−07	1.08E−07	9.18E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238010 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA6−D2−006 **Collect Date:** October 19, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.17E+02	11/12/16	7.68E−06	9.24E−06	1.89E−05		uCi/g	U
Pb−212	1.17E+02	11/12/16	1.14E−06	1.45E−07	1.12E−07		uCi/g	3
Pb−214	1.17E+02	11/12/16	1.30E−06	2.41E−07	1.57E−07		uCi/g	3
Bi−212	1.17E+02	11/12/16	9.42E−07	7.51E−07	1.59E−06		uCi/g	U
Bi−214	1.17E+02	11/12/16	1.32E−06	2.32E−07	1.69E−07		uCi/g	3
Ra−228	1.17E+02	11/12/16	1.34E−06	3.63E−07	3.03E−07		uCi/g	3
Ac−228	1.17E+02	11/12/16	1.34E−06	3.63E−07	3.03E−07		uCi/g	3
Th−234	1.17E+02	11/12/16	2.32E−06	3.44E−06	3.28E−06		uCi/g	U
U−235	1.17E+02	11/12/16	−1.08E−07	2.35E−07	4.07E−07		uCi/g	U
U−238	1.17E+02	11/12/16	2.32E−06	3.44E−06	3.28E−06		uCi/g	U
Np−239	1.17E+02	11/12/16	9.05E−08	3.02E−07	5.66E−07		uCi/g	U
Am−241	1.17E+02	11/12/16	2.78E−08	2.43E−07	4.63E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238010 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA6−D2−006 **Collect Date:** October 19, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.34E−06	uCi/g	005.96
Bi−214	1.32E−06	uCi/g	005.90
Pb−212	1.14E−06	uCi/g	005.08
Pb−214	1.30E−06	uCi/g	005.78
K−40	1.56E−05	uCi/g	069.66
Ra−228	1.34E−06	uCi/g	005.96
Tl−208	3.71E−07	uCi/g	001.66

Total Activity: 2.24E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238011 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA4−S−001 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.16E+02	11/12/16	1.77E−07	3.18E−07	6.64E−07		uCi/g	U
Na−22	1.16E+02	11/12/16	2.79E−08	3.84E−08	8.73E−08		uCi/g	U
K−40	1.16E+02	11/12/16	1.57E−05	1.77E−06	7.81E−07		uCi/g	3
Cr−51	1.16E+02	11/12/16	−1.41E−08	4.02E−07	7.16E−07		uCi/g	U
Mn−54	1.16E+02	11/12/16	1.25E−08	4.19E−08	7.47E−08		uCi/g	U
Fe−59	1.16E+02	11/12/16	−3.95E−08	1.08E−07	1.74E−07		uCi/g	U
Co−56	1.16E+02	11/12/16	2.03E−08	4.88E−08	9.62E−08		uCi/g	U
Co−57	1.16E+02	11/12/16	−9.19E−09	1.90E−08	3.41E−08		uCi/g	U
Co−58	1.16E+02	11/12/16	3.50E−08	4.41E−08	9.33E−08		uCi/g	U
Co−60	1.16E+02	11/12/16	−6.10E−09	3.55E−08	6.48E−08		uCi/g	U
Zn−65	1.16E+02	11/12/16	−2.89E−08	9.26E−08	1.51E−07		uCi/g	U
Y−88	1.16E+02	11/12/16	1.49E−08	4.52E−08	1.02E−07		uCi/g	U
Zr−95	1.16E+02	11/12/16	8.46E−08	7.55E−08	1.68E−07		uCi/g	U
Nb−94	1.16E+02	11/12/16	1.43E−08	4.00E−08	7.76E−08		uCi/g	U
Nb−95	1.16E+02	11/12/16	−3.69E−08	4.80E−08	7.88E−08		uCi/g	U
Ru−106	1.16E+02	11/12/16	−1.69E−07	3.08E−07	5.40E−07		uCi/g	U
Ag−110m	1.16E+02	11/12/16	5.65E−09	5.14E−08	9.89E−08		uCi/g	U
Sn−113	1.16E+02	11/12/16	−3.00E−08	4.74E−08	8.42E−08		uCi/g	U
Sb−124	1.16E+02	11/12/16	−1.38E−08	9.24E−08	1.87E−07		uCi/g	U
Sb−125	1.16E+02	11/12/16	−1.99E−09	8.17E−08	1.59E−07		uCi/g	U
Cs−134	1.16E+02	11/12/16	5.89E−08	5.82E−08	9.78E−08		uCi/g	U
Cs−136	1.16E+02	11/12/16	−5.13E−08	2.01E−07	3.31E−07		uCi/g	U
Cs−137	1.16E+02	11/12/16	7.55E−09	3.70E−08	7.27E−08	1.00E−07	uCi/g	U
Ba−133	1.16E+02	11/12/16	3.68E−08	4.17E−08	8.20E−08		uCi/g	U
Ba−140	1.16E+02	11/12/16	1.56E−07	4.41E−07	8.77E−07		uCi/g	U
Ce−139	1.16E+02	11/12/16	−1.21E−08	2.70E−08	4.73E−08		uCi/g	U
Ce−141	1.16E+02	11/12/16	−5.36E−08	5.97E−08	9.94E−08		uCi/g	U
Ce−144	1.16E+02	11/12/16	1.34E−08	1.67E−07	2.90E−07		uCi/g	U
Nd−147	1.16E+02	11/12/16	2.73E−07	9.00E−07	1.80E−06		uCi/g	U
Pm−144	1.16E+02	11/12/16	−6.41E−11	3.37E−08	6.41E−08		uCi/g	U
Pm−146	1.16E+02	11/12/16	6.25E−09	3.90E−08	7.74E−08		uCi/g	U
Eu−152	1.16E+02	11/12/16	3.35E−08	8.75E−08	1.65E−07		uCi/g	U
Eu−154	1.16E+02	11/12/16	7.87E−08	1.08E−07	2.47E−07		uCi/g	U
Eu−155	1.16E+02	11/12/16	−2.29E−08	6.89E−08	1.27E−07		uCi/g	U
Ir−192	1.16E+02	11/12/16	2.72E−08	3.31E−08	6.57E−08		uCi/g	U
Hg−203	1.16E+02	11/12/16	−4.01E−08	4.55E−08	7.25E−08		uCi/g	U
Tl−208	1.16E+02	11/12/16	3.39E−07	8.94E−08	6.86E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238011
Client Sample ID: OLA4−S−001
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 20, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.16E+02	11/12/16	1.87E−06	8.56E−07	6.22E−07		uCi/g	3
Pb−212	1.16E+02	11/12/16	1.19E−06	1.30E−07	9.00E−08		uCi/g	3
Pb−214	1.16E+02	11/12/16	1.31E−06	2.03E−07	3.73E−07		uCi/g	3
Bi−212	1.16E+02	11/12/16	1.22E−06	8.16E−07	1.43E−06		uCi/g	U
Bi−214	1.16E+02	11/12/16	8.07E−07	1.72E−07	1.44E−07		uCi/g	3
Ra−228	1.16E+02	11/12/16	9.72E−07	2.90E−07	2.14E−07		uCi/g	3
Ac−228	1.16E+02	11/12/16	9.72E−07	2.90E−07	2.14E−07		uCi/g	3
Th−234	1.16E+02	11/12/16	0.00E+00	1.10E−06	8.41E−07		uCi/g	UI
U−235	1.16E+02	11/12/16	5.20E−08	1.67E−07	3.10E−07		uCi/g	U
U−238	1.16E+02	11/12/16	0.00E+00	1.10E−06	8.41E−07		uCi/g	UI
Np−239	1.16E+02	11/12/16	−3.03E−08	1.99E−07	3.69E−07		uCi/g	U
Am−241	1.16E+02	11/12/16	1.22E−08	4.46E−08	7.51E−08		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238011 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA4−S−001 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	9.72E−07	uCi/g	004.19
Bi−214	8.07E−07	uCi/g	003.48
Pb−210	1.87E−06	uCi/g	008.07
Pb−212	1.19E−06	uCi/g	005.14
Pb−214	1.31E−06	uCi/g	005.64
K−40	1.57E−05	uCi/g	067.81
Ra−228	9.72E−07	uCi/g	004.19
Tl−208	3.39E−07	uCi/g	001.46
Total Activity:	**2.32E−05**	**Total % Abundance:**	**100.00**

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238012 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA4−S−002 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.13E+02	11/12/16	1.39E−07	3.76E−07	7.51E−07		uCi/g	U
Na−22	1.13E+02	11/12/16	−3.08E−08	4.41E−08	7.09E−08		uCi/g	U
K−40	1.13E+02	11/12/16	1.52E−05	1.81E−06	6.63E−07		uCi/g	3
Cr−51	1.13E+02	11/12/16	−1.51E−08	4.40E−07	8.48E−07		uCi/g	U
Mn−54	1.13E+02	11/12/16	0.00E+00	3.50E−08	8.97E−09		uCi/g	UI
Fe−59	1.13E+02	11/12/16	−8.47E−08	9.92E−08	1.56E−07		uCi/g	U
Co−56	1.13E+02	11/12/16	2.11E−08	4.03E−08	8.47E−08		uCi/g	U
Co−57	1.13E+02	11/12/16	−8.93E−09	2.57E−08	4.48E−08		uCi/g	U
Co−58	1.13E+02	11/12/16	1.93E−08	3.88E−08	5.51E−08		uCi/g	U
Co−60	1.13E+02	11/12/16	1.68E−08	3.25E−08	7.23E−08		uCi/g	U
Zn−65	1.13E+02	11/12/16	−4.95E−08	8.85E−08	1.27E−07		uCi/g	U
Y−88	1.13E+02	11/12/16	2.14E−09	2.84E−08	6.88E−08		uCi/g	U
Zr−95	1.13E+02	11/12/16	−1.88E−08	8.05E−08	1.48E−07		uCi/g	U
Nb−94	1.13E+02	11/12/16	2.52E−09	3.44E−08	6.61E−08		uCi/g	U
Nb−95	1.13E+02	11/12/16	−6.24E−09	5.33E−08	8.82E−08		uCi/g	U
Ru−106	1.13E+02	11/12/16	−2.07E−07	3.09E−07	5.39E−07		uCi/g	U
Ag−110m	1.13E+02	11/12/16	3.46E−08	4.66E−08	1.01E−07		uCi/g	U
Sn−113	1.13E+02	11/12/16	1.63E−08	4.51E−08	9.05E−08		uCi/g	U
Sb−124	1.13E+02	11/12/16	−5.16E−09	7.99E−08	1.74E−07		uCi/g	U
Sb−125	1.13E+02	11/12/16	6.09E−08	9.06E−08	1.87E−07		uCi/g	U
Cs−134	1.13E+02	11/12/16	1.84E−08	4.57E−08	9.11E−08		uCi/g	U
Cs−136	1.13E+02	11/12/16	−3.23E−08	1.48E−07	2.73E−07		uCi/g	U
Cs−137	1.13E+02	11/12/16	2.61E−08	4.37E−08	8.22E−08	1.00E−07	uCi/g	U
Ba−133	1.13E+02	11/12/16	7.31E−11	4.36E−08	7.63E−08		uCi/g	U
Ba−140	1.13E+02	11/12/16	−2.07E−07	4.01E−07	7.22E−07		uCi/g	U
Ce−139	1.13E+02	11/12/16	2.21E−08	3.04E−08	5.73E−08		uCi/g	U
Ce−141	1.13E+02	11/12/16	−4.20E−08	7.12E−08	1.20E−07		uCi/g	U
Ce−144	1.13E+02	11/12/16	2.43E−08	2.07E−07	3.73E−07		uCi/g	U
Nd−147	1.13E+02	11/12/16	−4.02E−07	1.08E−06	1.75E−06		uCi/g	U
Pm−144	1.13E+02	11/12/16	−2.05E−10	3.95E−08	7.44E−08		uCi/g	U
Pm−146	1.13E+02	11/12/16	−3.76E−09	4.25E−08	8.01E−08		uCi/g	U
Eu−152	1.13E+02	11/12/16	1.27E−07	1.70E−07	1.84E−07		uCi/g	U
Eu−154	1.13E+02	11/12/16	−8.20E−08	1.25E−07	2.04E−07		uCi/g	U
Eu−155	1.13E+02	11/12/16	1.31E−07	1.08E−07	2.11E−07		uCi/g	U
Ir−192	1.13E+02	11/12/16	2.21E−09	4.38E−08	7.09E−08		uCi/g	U
Hg−203	1.13E+02	11/12/16	−3.29E−09	4.64E−08	8.04E−08		uCi/g	U
Tl−208	1.13E+02	11/12/16	3.52E−07	9.42E−08	7.05E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238012 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA4−S−002 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.13E+02	11/12/16	3.37E−06	6.20E−06	5.99E−06		uCi/g	U
Pb−212	1.13E+02	11/12/16	1.09E−06	1.35E−07	1.06E−07		uCi/g	3
Pb−214	1.13E+02	11/12/16	1.12E−06	2.12E−07	1.39E−07		uCi/g	3
Bi−212	1.13E+02	11/12/16	1.22E−06	8.19E−07	1.30E−06		uCi/g	U
Bi−214	1.13E+02	11/12/16	9.02E−07	1.72E−07	1.29E−07		uCi/g	3
Ra−228	1.13E+02	11/12/16	8.21E−07	3.10E−07	2.76E−07		uCi/g	3
Ac−228	1.13E+02	11/12/16	8.21E−07	3.10E−07	2.76E−07		uCi/g	3
Th−234	1.13E+02	11/12/16	−6.07E−07	1.47E−06	2.66E−06		uCi/g	U
U−235	1.13E+02	11/12/16	8.21E−08	1.95E−07	3.55E−07		uCi/g	U
U−238	1.13E+02	11/12/16	−6.07E−07	1.47E−06	2.66E−06		uCi/g	U
Np−239	1.13E+02	11/12/16	9.01E−08	2.49E−07	4.63E−07		uCi/g	U
Am−241	1.13E+02	11/12/16	−2.59E−08	1.65E−07	2.98E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238012 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA4−S−002 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	8.21E−07	uCi/g	004.04
Bi−214	9.02E−07	uCi/g	004.44
Pb−212	1.09E−06	uCi/g	005.37
Pb−214	1.12E−06	uCi/g	005.52
K−40	1.52E−05	uCi/g	074.85
Ra−228	8.21E−07	uCi/g	004.04
Tl−208	3.52E−07	uCi/g	001.73

Total Activity: 2.03E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238013 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−001 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.03E+02	11/12/16	3.26E−07	5.35E−07	1.09E−06		uCi/g	U
Na−22	1.03E+02	11/12/16	−4.31E−08	4.66E−08	7.35E−08		uCi/g	U
K−40	1.03E+02	11/12/16	1.13E−05	1.94E−06	7.95E−07		uCi/g	3
Cr−51	1.03E+02	11/12/16	−3.97E−07	5.89E−07	1.04E−06		uCi/g	U
Mn−54	1.03E+02	11/12/16	5.90E−09	6.17E−08	1.16E−07		uCi/g	U
Fe−59	1.03E+02	11/12/16	−3.02E−08	1.30E−07	2.54E−07		uCi/g	U
Co−56	1.03E+02	11/12/16	2.24E−08	5.92E−08	1.21E−07		uCi/g	U
Co−57	1.03E+02	11/12/16	−1.84E−08	3.95E−08	6.64E−08		uCi/g	U
Co−58	1.03E+02	11/12/16	1.32E−08	5.62E−08	1.13E−07		uCi/g	U
Co−60	1.03E+02	11/12/16	3.80E−08	5.19E−08	1.23E−07		uCi/g	U
Zn−65	1.03E+02	11/12/16	8.80E−08	1.10E−07	2.42E−07		uCi/g	U
Y−88	1.03E+02	11/12/16	1.94E−08	5.52E−08	1.34E−07		uCi/g	U
Zr−95	1.03E+02	11/12/16	1.18E−08	1.12E−07	2.16E−07		uCi/g	U
Nb−94	1.03E+02	11/12/16	−5.29E−09	4.95E−08	9.15E−08		uCi/g	U
Nb−95	1.03E+02	11/12/16	0.00E+00	9.86E−08	1.19E−07		uCi/g	UI
Ru−106	1.03E+02	11/12/16	4.56E−07	4.02E−07	9.23E−07		uCi/g	U
Ag−110m	1.03E+02	11/12/16	−2.45E−09	7.89E−08	1.47E−07		uCi/g	U
Sn−113	1.03E+02	11/12/16	3.93E−08	6.04E−08	1.25E−07		uCi/g	U
Sb−124	1.03E+02	11/12/16	−1.79E−09	1.22E−07	2.66E−07		uCi/g	U
Sb−125	1.03E+02	11/12/16	6.26E−08	1.30E−07	2.62E−07		uCi/g	U
Cs−134	1.03E+02	11/12/16	6.67E−08	1.05E−07	1.26E−07		uCi/g	U
Cs−136	1.03E+02	11/12/16	3.68E−08	2.34E−07	4.80E−07		uCi/g	U
Cs−137	1.03E+02	11/12/16	5.76E−08	6.99E−08	1.19E−07	1.00E−07	uCi/g	U
Ba−133	1.03E+02	11/12/16	−4.36E−08	5.73E−08	9.35E−08		uCi/g	U
Ba−140	1.03E+02	11/12/16	−4.56E−08	6.27E−07	1.17E−06		uCi/g	U
Ce−139	1.03E+02	11/12/16	−7.84E−10	4.33E−08	7.52E−08		uCi/g	U
Ce−141	1.03E+02	11/12/16	4.67E−09	1.06E−07	1.86E−07		uCi/g	U
Ce−144	1.03E+02	11/12/16	2.31E−07	2.86E−07	5.39E−07		uCi/g	U
Nd−147	1.03E+02	11/12/16	3.41E−07	1.41E−06	2.75E−06		uCi/g	U
Pm−144	1.03E+02	11/12/16	−4.01E−09	5.67E−08	1.05E−07		uCi/g	U
Pm−146	1.03E+02	11/12/16	1.30E−08	6.15E−08	1.20E−07		uCi/g	U
Eu−152	1.03E+02	11/12/16	−4.43E−08	1.43E−07	2.62E−07		uCi/g	U
Eu−154	1.03E+02	11/12/16	−1.22E−07	1.31E−07	2.08E−07		uCi/g	U
Eu−155	1.03E+02	11/12/16	1.17E−07	1.60E−07	3.01E−07		uCi/g	U
Ir−192	1.03E+02	11/12/16	3.47E−08	4.93E−08	1.01E−07		uCi/g	U
Hg−203	1.03E+02	11/12/16	3.12E−08	5.77E−08	1.15E−07		uCi/g	U
Tl−208	1.03E+02	11/12/16	3.28E−07	1.02E−07	1.02E−07		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238013 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−001 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.03E+02	11/12/16	−1.94E−05	1.78E−05	2.95E−05		uCi/g	U
Pb−212	1.03E+02	11/12/16	8.69E−07	1.64E−07	1.38E−07		uCi/g	3
Pb−214	1.03E+02	11/12/16	1.16E−06	2.59E−07	1.92E−07		uCi/g	3
Bi−212	1.03E+02	11/12/16	8.56E−07	8.68E−07	1.82E−06		uCi/g	U
Bi−214	1.03E+02	11/12/16	1.25E−06	2.64E−07	1.47E−07		uCi/g	3
Ra−228	1.03E+02	11/12/16	1.38E−06	4.36E−07	4.20E−07		uCi/g	3
Ac−228	1.03E+02	11/12/16	1.38E−06	4.36E−07	4.20E−07		uCi/g	3
Th−234	1.03E+02	11/12/16	4.77E−07	3.04E−06	5.24E−06		uCi/g	U
U−235	1.03E+02	11/12/16	1.58E−07	3.07E−07	5.53E−07		uCi/g	U
U−238	1.03E+02	11/12/16	4.77E−07	3.04E−06	5.24E−06		uCi/g	U
Np−239	1.03E+02	11/12/16	1.71E−07	3.76E−07	6.95E−07		uCi/g	U
Am−241	1.03E+02	11/12/16	5.34E−07	5.85E−07	5.42E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238013 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA3−S−001 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.38E−06	uCi/g	007.79
Bi−214	1.25E−06	uCi/g	007.06
Pb−212	8.69E−07	uCi/g	004.91
Pb−214	1.16E−06	uCi/g	006.56
K−40	1.13E−05	uCi/g	064.04
Ra−228	1.38E−06	uCi/g	007.79
Tl−208	3.28E−07	uCi/g	001.85

Total Activity: 1.77E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238014 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−002 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.32E+02	11/12/16	9.59E−07	5.52E−07	5.78E−07		uCi/g	3
Na−22	1.32E+02	11/12/16	−1.80E−08	4.81E−08	7.55E−08		uCi/g	U
K−40	1.32E+02	11/12/16	8.87E−06	1.20E−06	6.13E−07		uCi/g	3
Cr−51	1.32E+02	11/12/16	−1.93E−07	3.63E−07	6.08E−07		uCi/g	U
Mn−54	1.32E+02	11/12/16	−3.16E−09	3.19E−08	5.97E−08		uCi/g	U
Fe−59	1.32E+02	11/12/16	−2.03E−08	7.33E−08	1.43E−07		uCi/g	U
Co−56	1.32E+02	11/12/16	−1.30E−08	3.76E−08	6.72E−08		uCi/g	U
Co−57	1.32E+02	11/12/16	3.67E−09	1.74E−08	3.17E−08		uCi/g	U
Co−58	1.32E+02	11/12/16	−2.28E−08	3.93E−08	6.70E−08		uCi/g	U
Co−60	1.32E+02	11/12/16	9.92E−09	3.60E−08	6.99E−08		uCi/g	U
Zn−65	1.32E+02	11/12/16	−5.26E−08	8.64E−08	1.30E−07		uCi/g	U
Y−88	1.32E+02	11/12/16	2.62E−08	3.30E−08	8.81E−08		uCi/g	U
Zr−95	1.32E+02	11/12/16	3.54E−08	5.90E−08	1.27E−07		uCi/g	U
Nb−94	1.32E+02	11/12/16	2.06E−09	3.06E−08	5.88E−08		uCi/g	U
Nb−95	1.32E+02	11/12/16	−5.70E−08	4.43E−08	6.59E−08		uCi/g	U
Ru−106	1.32E+02	11/12/16	3.49E−09	2.55E−07	5.01E−07		uCi/g	U
Ag−110m	1.32E+02	11/12/16	2.38E−08	4.67E−08	9.60E−08		uCi/g	U
Sn−113	1.32E+02	11/12/16	−1.68E−08	3.64E−08	6.70E−08		uCi/g	U
Sb−124	1.32E+02	11/12/16	9.54E−09	8.83E−08	1.89E−07		uCi/g	U
Sb−125	1.32E+02	11/12/16	1.39E−08	6.83E−08	1.40E−07		uCi/g	U
Cs−134	1.32E+02	11/12/16	3.53E−08	3.68E−08	7.00E−08		uCi/g	U
Cs−136	1.32E+02	11/12/16	7.90E−08	1.23E−07	2.76E−07		uCi/g	U
Cs−137	1.32E+02	11/12/16	−9.36E−10	3.72E−08	6.35E−08	1.00E−07	uCi/g	U
Ba−133	1.32E+02	11/12/16	−2.03E−09	3.72E−08	6.61E−08		uCi/g	U
Ba−140	1.32E+02	11/12/16	−1.55E−07	3.60E−07	6.61E−07		uCi/g	U
Ce−139	1.32E+02	11/12/16	−8.47E−09	2.22E−08	4.01E−08		uCi/g	U
Ce−141	1.32E+02	11/12/16	−2.13E−08	6.34E−08	1.05E−07		uCi/g	U
Ce−144	1.32E+02	11/12/16	6.04E−08	1.32E−07	2.47E−07		uCi/g	U
Nd−147	1.32E+02	11/12/16	2.70E−07	8.31E−07	1.68E−06		uCi/g	U
Pm−144	1.32E+02	11/12/16	4.25E−09	3.28E−08	5.78E−08		uCi/g	U
Pm−146	1.32E+02	11/12/16	−8.55E−10	3.02E−08	6.03E−08		uCi/g	U
Eu−152	1.32E+02	11/12/16	2.84E−08	6.89E−08	1.45E−07		uCi/g	U
Eu−154	1.32E+02	11/12/16	−4.61E−08	1.36E−07	2.16E−07		uCi/g	U
Eu−155	1.32E+02	11/12/16	−5.05E−09	6.20E−08	1.19E−07		uCi/g	U
Ir−192	1.32E+02	11/12/16	−9.79E−09	3.43E−08	5.94E−08		uCi/g	U
Hg−203	1.32E+02	11/12/16	−1.90E−08	3.64E−08	6.18E−08		uCi/g	U
Tl−208	1.32E+02	11/12/16	1.30E−07	7.70E−08	5.69E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238014 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−002 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.32E+02	11/12/16	1.76E−06	8.65E−07	5.49E−07		uCi/g	3
Pb−212	1.32E+02	11/12/16	5.34E−07	9.84E−08	8.61E−08		uCi/g	3
Pb−214	1.32E+02	11/12/16	1.53E−06	2.23E−07	3.88E−07		uCi/g	3
Bi−212	1.32E+02	11/12/16	1.78E−07	4.84E−07	9.62E−07		uCi/g	U
Bi−214	1.32E+02	11/12/16	1.16E−06	2.03E−07	1.05E−07		uCi/g	3
Ra−228	1.32E+02	11/12/16	4.33E−07	2.70E−07	2.85E−07		uCi/g	3
Ac−228	1.32E+02	11/12/16	4.33E−07	2.70E−07	2.85E−07		uCi/g	3
Th−234	1.32E+02	11/12/16	1.21E−06	7.32E−07	7.50E−07		uCi/g	3
U−235	1.32E+02	11/12/16	4.40E−08	2.26E−07	2.50E−07		uCi/g	U
U−238	1.32E+02	11/12/16	1.21E−06	7.32E−07	7.50E−07		uCi/g	3
Np−239	1.32E+02	11/12/16	−1.00E−07	1.54E−07	2.80E−07		uCi/g	U
Am−241	1.32E+02	11/12/16	1.58E−08	3.91E−08	7.52E−08		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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UI Gamma Spectroscopy−−Uncertain identification

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2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238014 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA3−S−002 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	4.33E−07	uCi/g	002.38
Be−7	9.59E−07	uCi/g	005.26
Bi−214	1.16E−06	uCi/g	006.38
Pb−210	1.76E−06	uCi/g	009.66
Pb−212	5.34E−07	uCi/g	002.93
Pb−214	1.53E−06	uCi/g	008.37
K−40	8.87E−06	uCi/g	048.69
Ra−228	4.33E−07	uCi/g	002.38
Tl−208	1.30E−07	uCi/g	000.71
Th−234	1.21E−06	uCi/g	006.62
U−238	1.21E−06	uCi/g	006.62

Total Activity: 1.82E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238015 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−003 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.03E+02	11/12/16	−1.26E−07	4.61E−07	8.36E−07		uCi/g	U
Na−22	1.03E+02	11/12/16	−2.48E−08	6.36E−08	1.16E−07		uCi/g	U
K−40	1.03E+02	11/12/16	1.55E−05	1.97E−06	4.99E−07		uCi/g	3
Cr−51	1.03E+02	11/12/16	5.14E−08	5.32E−07	1.04E−06		uCi/g	U
Mn−54	1.03E+02	11/12/16	2.66E−08	5.19E−08	1.01E−07		uCi/g	U
Fe−59	1.03E+02	11/12/16	−3.36E−09	1.16E−07	2.34E−07		uCi/g	U
Co−56	1.03E+02	11/12/16	−1.28E−08	6.34E−08	1.17E−07		uCi/g	U
Co−57	1.03E+02	11/12/16	9.49E−09	2.66E−08	5.02E−08		uCi/g	U
Co−58	1.03E+02	11/12/16	−1.60E−08	4.75E−08	8.50E−08		uCi/g	U
Co−60	1.03E+02	11/12/16	3.88E−08	5.91E−08	1.19E−07		uCi/g	U
Zn−65	1.03E+02	11/12/16	−9.62E−09	1.25E−07	2.16E−07		uCi/g	U
Y−88	1.03E+02	11/12/16	−9.83E−09	5.76E−08	1.15E−07		uCi/g	U
Zr−95	1.03E+02	11/12/16	−4.04E−08	9.31E−08	1.63E−07		uCi/g	U
Nb−94	1.03E+02	11/12/16	2.01E−08	4.31E−08	8.66E−08		uCi/g	U
Nb−95	1.03E+02	11/12/16	3.00E−08	6.45E−08	1.27E−07		uCi/g	U
Ru−106	1.03E+02	11/12/16	−1.17E−07	3.71E−07	6.75E−07		uCi/g	U
Ag−110m	1.03E+02	11/12/16	−3.61E−08	5.77E−08	9.48E−08		uCi/g	U
Sn−113	1.03E+02	11/12/16	−1.76E−08	5.23E−08	9.71E−08		uCi/g	U
Sb−124	1.03E+02	11/12/16	1.11E−07	1.18E−07	3.14E−07		uCi/g	U
Sb−125	1.03E+02	11/12/16	−8.49E−09	1.07E−07	2.05E−07		uCi/g	U
Cs−134	1.03E+02	11/12/16	0.00E+00	6.17E−08	1.25E−07		uCi/g	UI
Cs−136	1.03E+02	11/12/16	8.38E−08	1.75E−07	3.89E−07		uCi/g	U
Cs−137	1.03E+02	11/12/16	3.42E−08	5.24E−08	1.07E−07	1.00E−07	uCi/g	U
Ba−133	1.03E+02	11/12/16	1.54E−08	4.81E−08	8.91E−08		uCi/g	U
Ba−140	1.03E+02	11/12/16	5.20E−08	4.97E−07	9.67E−07		uCi/g	U
Ce−139	1.03E+02	11/12/16	1.49E−08	5.61E−08	6.42E−08		uCi/g	U
Ce−141	1.03E+02	11/12/16	−5.81E−08	8.52E−08	1.43E−07		uCi/g	U
Ce−144	1.03E+02	11/12/16	−1.97E−08	2.53E−07	4.49E−07		uCi/g	U
Nd−147	1.03E+02	11/12/16	1.48E−06	1.43E−06	2.50E−06		uCi/g	U
Pm−144	1.03E+02	11/12/16	1.30E−09	4.13E−08	7.89E−08		uCi/g	U
Pm−146	1.03E+02	11/12/16	1.31E−08	5.25E−08	1.03E−07		uCi/g	U
Eu−152	1.03E+02	11/12/16	−1.93E−08	1.07E−07	2.03E−07		uCi/g	U
Eu−154	1.03E+02	11/12/16	−6.28E−08	1.81E−07	3.33E−07		uCi/g	U
Eu−155	1.03E+02	11/12/16	7.62E−08	1.09E−07	2.12E−07		uCi/g	U
Ir−192	1.03E+02	11/12/16	−2.10E−08	4.39E−08	8.05E−08		uCi/g	U
Hg−203	1.03E+02	11/12/16	1.13E−08	7.44E−08	8.90E−08		uCi/g	U
Tl−208	1.03E+02	11/12/16	3.63E−07	1.02E−07	7.42E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238015 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−003 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.03E+02	11/12/16	2.34E−06	9.58E−06	9.49E−06		uCi/g	U
Pb−212	1.03E+02	11/12/16	1.17E−06	1.55E−07	1.05E−07		uCi/g	3
Pb−214	1.03E+02	11/12/16	1.40E−06	2.34E−07	4.63E−07		uCi/g	3
Bi−212	1.03E+02	11/12/16	8.00E−07	1.33E−06	9.94E−07		uCi/g	U
Bi−214	1.03E+02	11/12/16	1.14E−06	2.43E−07	1.82E−07		uCi/g	3
Ra−228	1.03E+02	11/12/16	6.40E−07	3.48E−07	3.64E−07		uCi/g	3
Ac−228	1.03E+02	11/12/16	6.40E−07	3.48E−07	3.64E−07		uCi/g	3
Th−234	1.03E+02	11/12/16	2.62E−06	3.30E−06	3.12E−06		uCi/g	U
U−235	1.03E+02	11/12/16	−9.70E−08	2.34E−07	4.05E−07		uCi/g	U
U−238	1.03E+02	11/12/16	2.62E−06	3.30E−06	3.12E−06		uCi/g	U
Np−239	1.03E+02	11/12/16	1.47E−08	2.76E−07	5.07E−07		uCi/g	U
Am−241	1.03E+02	11/12/16	5.09E−08	2.28E−07	3.62E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238015 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA3−S−003 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	6.40E−07	uCi/g	003.07
Bi−214	1.14E−06	uCi/g	005.47
Pb−212	1.17E−06	uCi/g	005.62
Pb−214	1.40E−06	uCi/g	006.74
K−40	1.55E−05	uCi/g	074.29
Ra−228	6.40E−07	uCi/g	003.07
Tl−208	3.63E−07	uCi/g	001.74

Total Activity: **2.08E−05** **Total % Abundance:** **100.00**

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238016 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−004 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.12E+02	11/12/16	−3.43E−07	4.28E−07	7.19E−07		uCi/g	U
Na−22	1.12E+02	11/12/16	7.16E−08	3.75E−08	8.56E−08		uCi/g	3,U
K−40	1.12E+02	11/12/16	1.64E−05	1.85E−06	6.83E−07		uCi/g	3
Cr−51	1.12E+02	11/12/16	−6.55E−08	4.49E−07	8.47E−07		uCi/g	U
Mn−54	1.12E+02	11/12/16	−3.18E−10	4.75E−08	8.32E−08		uCi/g	U
Fe−59	1.12E+02	11/12/16	4.04E−09	9.12E−08	1.88E−07		uCi/g	U
Co−56	1.12E+02	11/12/16	−1.77E−08	4.70E−08	8.86E−08		uCi/g	U
Co−57	1.12E+02	11/12/16	3.02E−09	2.69E−08	4.85E−08		uCi/g	U
Co−58	1.12E+02	11/12/16	−1.22E−08	3.80E−08	6.83E−08		uCi/g	U
Co−60	1.12E+02	11/12/16	1.77E−08	4.30E−08	9.36E−08		uCi/g	U
Zn−65	1.12E+02	11/12/16	−3.25E−08	1.04E−07	1.67E−07		uCi/g	U
Y−88	1.12E+02	11/12/16	−3.81E−09	5.35E−08	1.13E−07		uCi/g	U
Zr−95	1.12E+02	11/12/16	2.13E−08	7.99E−08	1.59E−07		uCi/g	U
Nb−94	1.12E+02	11/12/16	−8.36E−09	4.43E−08	7.91E−08		uCi/g	U
Nb−95	1.12E+02	11/12/16	1.58E−08	5.80E−08	1.11E−07		uCi/g	U
Ru−106	1.12E+02	11/12/16	1.81E−07	3.63E−07	7.36E−07		uCi/g	U
Ag−110m	1.12E+02	11/12/16	1.69E−08	5.48E−08	1.15E−07		uCi/g	U
Sn−113	1.12E+02	11/12/16	1.46E−09	5.40E−08	1.02E−07		uCi/g	U
Sb−124	1.12E+02	11/12/16	1.38E−08	8.50E−08	1.99E−07		uCi/g	U
Sb−125	1.12E+02	11/12/16	2.83E−08	1.04E−07	2.03E−07		uCi/g	U
Cs−134	1.12E+02	11/12/16	4.39E−08	8.91E−08	9.55E−08		uCi/g	U
Cs−136	1.12E+02	11/12/16	6.33E−08	1.99E−07	4.08E−07		uCi/g	U
Cs−137	1.12E+02	11/12/16	1.18E−07	8.27E−08	7.50E−08	1.00E−07	uCi/g	
Ba−133	1.12E+02	11/12/16	1.49E−08	4.16E−08	7.69E−08		uCi/g	U
Ba−140	1.12E+02	11/12/16	−1.54E−07	4.57E−07	8.22E−07		uCi/g	U
Ce−139	1.12E+02	11/12/16	2.21E−09	3.14E−08	5.56E−08		uCi/g	U
Ce−141	1.12E+02	11/12/16	−9.95E−08	8.94E−08	1.42E−07		uCi/g	U
Ce−144	1.12E+02	11/12/16	−1.72E−07	2.20E−07	3.61E−07		uCi/g	U
Nd−147	1.12E+02	11/12/16	1.87E−07	1.08E−06	2.09E−06		uCi/g	U
Pm−144	1.12E+02	11/12/16	−2.89E−08	4.78E−08	7.97E−08		uCi/g	U
Pm−146	1.12E+02	11/12/16	0.00E+00	8.57E−08	8.97E−08		uCi/g	UI
Eu−152	1.12E+02	11/12/16	−1.06E−09	1.10E−07	2.08E−07		uCi/g	U
Eu−154	1.12E+02	11/12/16	2.02E−07	1.06E−07	3.01E−07		uCi/g	3,U
Eu−155	1.12E+02	11/12/16	8.25E−08	1.14E−07	2.16E−07		uCi/g	U
Ir−192	1.12E+02	11/12/16	−4.24E−09	3.96E−08	7.47E−08		uCi/g	U
Hg−203	1.12E+02	11/12/16	4.89E−09	4.69E−08	8.21E−08		uCi/g	U
Tl−208	1.12E+02	11/12/16	2.96E−07	1.02E−07	8.24E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238016 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−004 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.12E+02	11/12/16	−1.46E−06	3.37E−06	6.11E−06		uCi/g	U
Pb−212	1.12E+02	11/12/16	1.06E−06	1.44E−07	1.10E−07		uCi/g	3
Pb−214	1.12E+02	11/12/16	1.26E−06	2.38E−07	1.37E−07		uCi/g	3
Bi−212	1.12E+02	11/12/16	1.15E−06	8.04E−07	1.51E−06		uCi/g	U
Bi−214	1.12E+02	11/12/16	1.13E−06	2.24E−07	1.50E−07		uCi/g	3
Ra−228	1.12E+02	11/12/16	1.10E−06	3.25E−07	2.92E−07		uCi/g	3
Ac−228	1.12E+02	11/12/16	1.10E−06	3.25E−07	2.92E−07		uCi/g	3
Th−234	1.12E+02	11/12/16	1.61E−06	2.11E−06	2.44E−06		uCi/g	U
U−235	1.12E+02	11/12/16	5.75E−08	2.21E−07	3.98E−07		uCi/g	U
U−238	1.12E+02	11/12/16	1.61E−06	2.11E−06	2.44E−06		uCi/g	U
Np−239	1.12E+02	11/12/16	1.57E−08	2.92E−07	5.23E−07		uCi/g	U
Am−241	1.12E+02	11/12/16	−2.49E−08	1.64E−07	2.74E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238016 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA3−S−004 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.10E−06	uCi/g	004.90
Bi−214	1.13E−06	uCi/g	005.01
Cs−137	1.18E−07	uCi/g	000.52
Pb−212	1.06E−06	uCi/g	004.73
Pb−214	1.26E−06	uCi/g	005.62
K−40	1.64E−05	uCi/g	073.00
Ra−228	1.10E−06	uCi/g	004.90
Tl−208	2.96E−07	uCi/g	001.32

Total Activity: 2.25E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238017
Client Sample ID: OLA3−S−005
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 20, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.31E+02	11/12/16	0.00E+00	8.77E−07	7.56E−07		uCi/g	UI
Na−22	1.31E+02	11/12/16	−5.48E−09	4.59E−08	8.84E−08		uCi/g	U
K−40	1.31E+02	11/12/16	1.13E−05	1.60E−06	7.64E−07		uCi/g	3
Cr−51	1.31E+02	11/12/16	−1.65E−07	4.75E−07	8.79E−07		uCi/g	U
Mn−54	1.31E+02	11/12/16	1.12E−08	4.65E−08	9.41E−08		uCi/g	U
Fe−59	1.31E+02	11/12/16	7.08E−08	1.15E−07	2.49E−07		uCi/g	U
Co−56	1.31E+02	11/12/16	−1.34E−08	4.73E−08	9.02E−08		uCi/g	U
Co−57	1.31E+02	11/12/16	2.74E−08	3.11E−08	6.01E−08		uCi/g	U
Co−58	1.31E+02	11/12/16	−7.81E−09	4.74E−08	9.23E−08		uCi/g	U
Co−60	1.31E+02	11/12/16	−4.78E−09	4.20E−08	8.21E−08		uCi/g	U
Zn−65	1.31E+02	11/12/16	8.96E−09	1.17E−07	2.03E−07		uCi/g	U
Y−88	1.31E+02	11/12/16	−1.45E−08	4.79E−08	1.02E−07		uCi/g	U
Zr−95	1.31E+02	11/12/16	1.89E−07	1.88E−07	2.22E−07		uCi/g	U
Nb−94	1.31E+02	11/12/16	−6.53E−09	4.20E−08	8.11E−08		uCi/g	U
Nb−95	1.31E+02	11/12/16	−2.83E−08	5.82E−08	1.07E−07		uCi/g	U
Ru−106	1.31E+02	11/12/16	−2.04E−07	3.55E−07	6.02E−07		uCi/g	U
Ag−110m	1.31E+02	11/12/16	3.65E−08	6.29E−08	1.34E−07		uCi/g	U
Sn−113	1.31E+02	11/12/16	4.02E−08	5.33E−08	1.10E−07		uCi/g	U
Sb−124	1.31E+02	11/12/16	7.52E−08	8.79E−08	2.42E−07		uCi/g	U
Sb−125	1.31E+02	11/12/16	−3.45E−08	1.11E−07	2.02E−07		uCi/g	U
Cs−134	1.31E+02	11/12/16	4.28E−08	5.16E−08	1.12E−07		uCi/g	U
Cs−136	1.31E+02	11/12/16	7.59E−08	1.90E−07	3.96E−07		uCi/g	U
Cs−137	1.31E+02	11/12/16	3.50E−08	4.21E−08	8.50E−08	1.00E−07	uCi/g	U
Ba−133	1.31E+02	11/12/16	−2.43E−08	6.94E−08	8.56E−08		uCi/g	U
Ba−140	1.31E+02	11/12/16	5.42E−08	5.74E−07	1.08E−06		uCi/g	U
Ce−139	1.31E+02	11/12/16	7.24E−09	3.45E−08	6.24E−08		uCi/g	U
Ce−141	1.31E+02	11/12/16	−1.83E−08	9.17E−08	1.47E−07		uCi/g	U
Ce−144	1.31E+02	11/12/16	−6.17E−08	2.62E−07	4.56E−07		uCi/g	U
Nd−147	1.31E+02	11/12/16	−7.69E−07	1.17E−06	1.99E−06		uCi/g	U
Pm−144	1.31E+02	11/12/16	2.31E−08	4.20E−08	8.86E−08		uCi/g	U
Pm−146	1.31E+02	11/12/16	−1.58E−08	5.59E−08	1.01E−07		uCi/g	U
Eu−152	1.31E+02	11/12/16	1.99E−08	1.13E−07	2.19E−07		uCi/g	U
Eu−154	1.31E+02	11/12/16	−1.24E−08	1.30E−07	2.52E−07		uCi/g	U
Eu−155	1.31E+02	11/12/16	1.11E−07	1.20E−07	2.36E−07		uCi/g	U
Ir−192	1.31E+02	11/12/16	2.14E−08	3.95E−08	8.04E−08		uCi/g	U
Hg−203	1.31E+02	11/12/16	7.61E−09	5.00E−08	9.67E−08		uCi/g	U
Tl−208	1.31E+02	11/12/16	2.81E−07	1.04E−07	7.24E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238017 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−005 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.31E+02	11/12/16	5.09E−06	7.39E−06	1.47E−05		uCi/g	U
Pb−212	1.31E+02	11/12/16	7.73E−07	1.39E−07	1.17E−07		uCi/g	3
Pb−214	1.31E+02	11/12/16	1.80E−06	2.91E−07	4.87E−07		uCi/g	3
Bi−212	1.31E+02	11/12/16	1.25E−06	9.65E−07	1.11E−06		uCi/g	
Bi−214	1.31E+02	11/12/16	1.49E−06	2.42E−07	1.53E−07		uCi/g	3
Ra−228	1.31E+02	11/12/16	5.88E−07	3.01E−07	2.94E−07		uCi/g	3
Ac−228	1.31E+02	11/12/16	5.88E−07	3.01E−07	2.94E−07		uCi/g	3
Th−234	1.31E+02	11/12/16	1.57E−06	4.36E−06	3.56E−06		uCi/g	U
U−235	1.31E+02	11/12/16	1.76E−07	3.30E−07	3.96E−07		uCi/g	U
U−238	1.31E+02	11/12/16	1.57E−06	4.36E−06	3.56E−06		uCi/g	U
Np−239	1.31E+02	11/12/16	−1.50E−07	3.19E−07	5.51E−07		uCi/g	U
Am−241	1.31E+02	11/12/16	−2.95E−09	2.27E−07	3.89E−07		uCi/g	U

Note(s): **1. Calculated MDAs are a−posteriori values.**
2. Activity concentration net +/− 2 sigma overall on reference date.
3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238017 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA3−S−005 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	5.88E−07	uCi/g	003.25
Bi−212	1.25E−06	uCi/g	006.88
Bi−214	1.49E−06	uCi/g	008.25
Pb−212	7.73E−07	uCi/g	004.27
Pb−214	1.80E−06	uCi/g	009.92
K−40	1.13E−05	uCi/g	062.63
Ra−228	5.88E−07	uCi/g	003.25
Tl−208	2.81E−07	uCi/g	001.55
Total Activity:	**1.81E−05**	**Total % Abundance:**	**100.00**

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238018 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−006 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.31E+02	11/12/16	1.45E−07	3.80E−07	7.69E−07		uCi/g	U
Na−22	1.31E+02	11/12/16	2.40E−08	3.89E−08	8.72E−08		uCi/g	U
K−40	1.31E+02	11/12/16	5.99E−06	1.08E−06	5.53E−07		uCi/g	3
Cr−51	1.31E+02	11/12/16	2.14E−07	4.09E−07	7.97E−07		uCi/g	U
Mn−54	1.31E+02	11/12/16	−1.42E−10	3.24E−08	5.74E−08		uCi/g	U
Fe−59	1.31E+02	11/12/16	−4.20E−08	8.89E−08	1.54E−07		uCi/g	U
Co−56	1.31E+02	11/12/16	2.78E−09	3.29E−08	6.70E−08		uCi/g	U
Co−57	1.31E+02	11/12/16	1.36E−08	2.09E−08	4.27E−08		uCi/g	U
Co−58	1.31E+02	11/12/16	−6.76E−09	4.50E−08	8.42E−08		uCi/g	U
Co−60	1.31E+02	11/12/16	−1.50E−08	3.27E−08	6.17E−08		uCi/g	U
Zn−65	1.31E+02	11/12/16	9.44E−08	6.59E−08	1.65E−07		uCi/g	U
Y−88	1.31E+02	11/12/16	6.90E−09	2.48E−08	6.66E−08		uCi/g	U
Zr−95	1.31E+02	11/12/16	3.45E−08	4.94E−08	1.17E−07		uCi/g	U
Nb−94	1.31E+02	11/12/16	−2.20E−08	3.35E−08	5.85E−08		uCi/g	U
Nb−95	1.31E+02	11/12/16	1.52E−08	3.91E−08	7.57E−08		uCi/g	U
Ru−106	1.31E+02	11/12/16	−1.37E−07	3.21E−07	5.88E−07		uCi/g	U
Ag−110m	1.31E+02	11/12/16	2.86E−08	4.42E−08	9.70E−08		uCi/g	U
Sn−113	1.31E+02	11/12/16	3.53E−08	4.06E−08	8.77E−08		uCi/g	U
Sb−124	1.31E+02	11/12/16	1.07E−08	9.06E−08	1.99E−07		uCi/g	U
Sb−125	1.31E+02	11/12/16	−7.55E−08	7.96E−08	1.40E−07		uCi/g	U
Cs−134	1.31E+02	11/12/16	2.54E−08	3.71E−08	7.60E−08		uCi/g	U
Cs−136	1.31E+02	11/12/16	−6.99E−08	1.30E−07	2.22E−07		uCi/g	U
Cs−137	1.31E+02	11/12/16	9.48E−09	3.04E−08	5.92E−08	1.00E−07	uCi/g	U
Ba−133	1.31E+02	11/12/16	−1.24E−08	4.06E−08	6.44E−08		uCi/g	U
Ba−140	1.31E+02	11/12/16	−1.32E−07	3.40E−07	6.42E−07		uCi/g	U
Ce−139	1.31E+02	11/12/16	−6.70E−09	2.56E−08	4.71E−08		uCi/g	U
Ce−141	1.31E+02	11/12/16	9.16E−09	6.42E−08	1.23E−07		uCi/g	U
Ce−144	1.31E+02	11/12/16	4.16E−08	1.78E−07	3.44E−07		uCi/g	U
Nd−147	1.31E+02	11/12/16	−1.02E−07	7.76E−07	1.53E−06		uCi/g	U
Pm−144	1.31E+02	11/12/16	4.79E−10	3.10E−08	6.10E−08		uCi/g	U
Pm−146	1.31E+02	11/12/16	−1.16E−08	3.78E−08	7.26E−08		uCi/g	U
Eu−152	1.31E+02	11/12/16	−6.52E−08	9.88E−08	1.46E−07		uCi/g	U
Eu−154	1.31E+02	11/12/16	4.66E−08	1.15E−07	2.48E−07		uCi/g	U
Eu−155	1.31E+02	11/12/16	−1.17E−08	9.36E−08	1.79E−07		uCi/g	U
Ir−192	1.31E+02	11/12/16	2.83E−08	3.51E−08	7.03E−08		uCi/g	U
Hg−203	1.31E+02	11/12/16	−8.36E−09	3.91E−08	6.99E−08		uCi/g	U
Tl−208	1.31E+02	11/12/16	0.00E+00	8.64E−08	6.57E−08		uCi/g	UI

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238018 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−006 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.31E+02	11/12/16	9.74E−07	6.81E−06	1.40E−05		uCi/g	U
Pb−212	1.31E+02	11/12/16	3.81E−07	1.00E−07	7.89E−08		uCi/g	3
Pb−214	1.31E+02	11/12/16	2.03E−06	2.12E−07	4.54E−07		uCi/g	3
Bi−212	1.31E+02	11/12/16	2.85E−07	4.35E−07	9.42E−07		uCi/g	U
Bi−214	1.31E+02	11/12/16	2.03E−06	2.33E−07	1.19E−07		uCi/g	3
Ra−228	1.31E+02	11/12/16	2.20E−07	2.77E−07	2.29E−07		uCi/g	U
Ac−228	1.31E+02	11/12/16	2.20E−07	2.77E−07	2.29E−07		uCi/g	U
Th−234	1.31E+02	11/12/16	3.88E−07	2.93E−06	2.83E−06		uCi/g	U
U−235	1.31E+02	11/12/16	−5.87E−08	1.73E−07	3.22E−07		uCi/g	U
U−238	1.31E+02	11/12/16	3.88E−07	2.93E−06	2.83E−06		uCi/g	U
Np−239	1.31E+02	11/12/16	−5.55E−08	2.20E−07	4.16E−07		uCi/g	U
Am−241	1.31E+02	11/12/16	−1.59E−07	1.60E−07	2.91E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238018 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA3−S−006 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Bi−214	2.03E−06	uCi/g	019.45
Pb−212	3.81E−07	uCi/g	003.65
Pb−214	2.03E−06	uCi/g	019.42
K−40	5.99E−06	uCi/g	057.48
Total Activity:	**1.04E−05**	**Total % Abundance:**	**100.00**

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238019 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−007 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.64E+02	11/12/16	0.00E+00	9.78E−07	4.84E−07		uCi/g	UI
Na−22	1.64E+02	11/12/16	1.16E−08	3.71E−08	7.79E−08		uCi/g	U
K−40	1.64E+02	11/12/16	1.27E−05	1.39E−06	4.34E−07		uCi/g	3
Cr−51	1.64E+02	11/12/16	2.56E−07	3.48E−07	7.36E−07		uCi/g	U
Mn−54	1.64E+02	11/12/16	4.64E−09	2.79E−08	5.89E−08		uCi/g	U
Fe−59	1.64E+02	11/12/16	−3.11E−08	7.80E−08	1.48E−07		uCi/g	U
Co−56	1.64E+02	11/12/16	−1.64E−08	3.21E−08	6.08E−08		uCi/g	U
Co−57	1.64E+02	11/12/16	−5.67E−09	2.00E−08	3.95E−08		uCi/g	U
Co−58	1.64E+02	11/12/16	−1.76E−08	3.12E−08	5.88E−08		uCi/g	U
Co−60	1.64E+02	11/12/16	7.83E−09	2.87E−08	6.33E−08		uCi/g	U
Zn−65	1.64E+02	11/12/16	2.14E−08	6.58E−08	1.30E−07		uCi/g	U
Y−88	1.64E+02	11/12/16	5.70E−09	2.12E−08	5.70E−08		uCi/g	U
Zr−95	1.64E+02	11/12/16	1.01E−08	5.70E−08	1.15E−07		uCi/g	U
Nb−94	1.64E+02	11/12/16	7.35E−09	2.65E−08	5.33E−08		uCi/g	U
Nb−95	1.64E+02	11/12/16	−1.01E−08	3.73E−08	7.31E−08		uCi/g	U
Ru−106	1.64E+02	11/12/16	−1.79E−07	2.42E−07	4.07E−07		uCi/g	U
Ag−110m	1.64E+02	11/12/16	−1.02E−08	4.05E−08	7.98E−08		uCi/g	U
Sn−113	1.64E+02	11/12/16	−6.56E−09	3.03E−08	5.85E−08		uCi/g	U
Sb−124	1.64E+02	11/12/16	2.58E−08	5.25E−08	1.43E−07		uCi/g	U
Sb−125	1.64E+02	11/12/16	−3.29E−08	7.78E−08	1.42E−07		uCi/g	U
Cs−134	1.64E+02	11/12/16	0.00E+00	5.43E−08	7.41E−08		uCi/g	UI
Cs−136	1.64E+02	11/12/16	7.11E−08	1.12E−07	2.57E−07		uCi/g	U
Cs−137	1.64E+02	11/12/16	2.63E−09	3.27E−08	6.32E−08	1.00E−07	uCi/g	U
Ba−133	1.64E+02	11/12/16	1.92E−08	3.91E−08	7.26E−08		uCi/g	U
Ba−140	1.64E+02	11/12/16	2.50E−07	2.95E−07	6.25E−07		uCi/g	U
Ce−139	1.64E+02	11/12/16	3.62E−09	2.37E−08	4.76E−08		uCi/g	U
Ce−141	1.64E+02	11/12/16	5.81E−10	5.34E−08	1.07E−07		uCi/g	U
Ce−144	1.64E+02	11/12/16	−1.06E−07	1.66E−07	3.16E−07		uCi/g	U
Nd−147	1.64E+02	11/12/16	5.41E−07	6.97E−07	1.53E−06		uCi/g	U
Pm−144	1.64E+02	11/12/16	−7.71E−09	3.16E−08	5.79E−08		uCi/g	U
Pm−146	1.64E+02	11/12/16	3.88E−08	3.65E−08	7.95E−08		uCi/g	U
Eu−152	1.64E+02	11/12/16	1.04E−08	8.02E−08	1.58E−07		uCi/g	U
Eu−154	1.64E+02	11/12/16	3.70E−08	1.06E−07	2.23E−07		uCi/g	U
Eu−155	1.64E+02	11/12/16	−2.77E−08	8.48E−08	1.69E−07		uCi/g	U
Ir−192	1.64E+02	11/12/16	−1.90E−08	2.75E−08	4.97E−08		uCi/g	U
Hg−203	1.64E+02	11/12/16	2.19E−08	2.96E−08	6.32E−08		uCi/g	U
Tl−208	1.64E+02	11/12/16	1.57E−07	7.98E−08	5.55E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238019 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−007 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.64E+02	11/12/16	−5.59E−07	6.41E−06	1.21E−05		uCi/g	U
Pb−212	1.64E+02	11/12/16	6.43E−07	1.15E−07	7.80E−08		uCi/g	3
Pb−214	1.64E+02	11/12/16	7.94E−07	1.68E−07	1.17E−07		uCi/g	3
Bi−212	1.64E+02	11/12/16	1.34E−07	4.42E−07	8.79E−07		uCi/g	U
Bi−214	1.64E+02	11/12/16	8.95E−07	1.50E−07	9.83E−08		uCi/g	3
Ra−228	1.64E+02	11/12/16	4.59E−07	2.75E−07	2.41E−07		uCi/g	3
Ac−228	1.64E+02	11/12/16	4.59E−07	2.75E−07	2.41E−07		uCi/g	3
Th−234	1.64E+02	11/12/16	1.02E−06	2.88E−06	2.97E−06		uCi/g	U
U−235	1.64E+02	11/12/16	−1.64E−08	1.59E−07	3.14E−07		uCi/g	U
U−238	1.64E+02	11/12/16	1.02E−06	2.88E−06	2.97E−06		uCi/g	U
Np−239	1.64E+02	11/12/16	4.73E−08	2.22E−07	4.38E−07		uCi/g	U
Am−241	1.64E+02	11/12/16	7.53E−08	2.10E−07	4.06E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238019 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA3−S−007 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	4.59E−07	uCi/g	002.84
Bi−214	8.95E−07	uCi/g	005.55
Pb−212	6.43E−07	uCi/g	003.98
Pb−214	7.94E−07	uCi/g	004.92
K−40	1.27E−05	uCi/g	078.88
Ra−228	4.59E−07	uCi/g	002.84
Tl−208	1.57E−07	uCi/g	000.97

Total Activity: 1.61E−05 **Total % Abundance:** 100.00

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238020 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA3−S−008 **Collect Date:** October 20, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.72E+02	11/12/16	0.00E+00	6.19E−07	4.74E−07		uCi/g	UI
Na−22	1.72E+02	11/12/16	−1.05E−08	2.67E−08	5.07E−08		uCi/g	U
K−40	1.72E+02	11/12/16	1.56E−05	1.38E−06	4.11E−07		uCi/g	3
Cr−51	1.72E+02	11/12/16	1.36E−07	2.68E−07	5.64E−07		uCi/g	U
Mn−54	1.72E+02	11/12/16	−2.50E−09	2.68E−08	5.04E−08		uCi/g	U
Fe−59	1.72E+02	11/12/16	−1.94E−08	6.26E−08	1.22E−07		uCi/g	U
Co−56	1.72E+02	11/12/16	−2.21E−08	2.75E−08	3.63E−08		uCi/g	U
Co−57	1.72E+02	11/12/16	−9.56E−09	1.53E−08	2.72E−08		uCi/g	U
Co−58	1.72E+02	11/12/16	−1.63E−08	2.89E−08	5.02E−08		uCi/g	U
Co−60	1.72E+02	11/12/16	−3.84E−09	2.54E−08	5.08E−08		uCi/g	U
Zn−65	1.72E+02	11/12/16	−5.37E−09	5.41E−08	9.67E−08		uCi/g	U
Y−88	1.72E+02	11/12/16	8.19E−09	2.68E−08	6.24E−08		uCi/g	U
Zr−95	1.72E+02	11/12/16	2.26E−08	4.61E−08	9.89E−08		uCi/g	U
Nb−94	1.72E+02	11/12/16	1.38E−08	2.28E−08	4.79E−08		uCi/g	U
Nb−95	1.72E+02	11/12/16	−2.77E−08	2.99E−08	4.84E−08		uCi/g	U
Ru−106	1.72E+02	11/12/16	1.13E−08	2.00E−07	3.99E−07		uCi/g	U
Ag−110m	1.72E+02	11/12/16	−3.56E−09	3.40E−08	6.45E−08		uCi/g	U
Sn−113	1.72E+02	11/12/16	−6.43E−09	2.79E−08	5.44E−08		uCi/g	U
Sb−124	1.72E+02	11/12/16	−5.54E−08	4.37E−08	2.83E−08		uCi/g	U
Sb−125	1.72E+02	11/12/16	5.42E−10	5.58E−08	1.12E−07		uCi/g	U
Cs−134	1.72E+02	11/12/16	1.31E−08	3.06E−08	6.21E−08		uCi/g	U
Cs−136	1.72E+02	11/12/16	−1.77E−08	1.02E−07	2.06E−07		uCi/g	U
Cs−137	1.72E+02	11/12/16	−5.41E−09	2.26E−08	4.29E−08	1.00E−07	uCi/g	U
Ba−133	1.72E+02	11/12/16	1.88E−08	2.76E−08	5.56E−08		uCi/g	U
Ba−140	1.72E+02	11/12/16	2.05E−08	2.73E−07	5.44E−07		uCi/g	U
Ce−139	1.72E+02	11/12/16	−8.50E−09	2.04E−08	3.62E−08		uCi/g	U
Ce−141	1.72E+02	11/12/16	−2.02E−08	5.10E−08	8.36E−08		uCi/g	U
Ce−144	1.72E+02	11/12/16	5.74E−08	1.47E−07	2.82E−07		uCi/g	U
Nd−147	1.72E+02	11/12/16	−2.06E−07	6.06E−07	1.14E−06		uCi/g	U
Pm−144	1.72E+02	11/12/16	−1.40E−08	2.47E−08	4.36E−08		uCi/g	U
Pm−146	1.72E+02	11/12/16	7.79E−09	2.23E−08	4.78E−08		uCi/g	U
Eu−152	1.72E+02	11/12/16	1.31E−08	6.16E−08	1.26E−07		uCi/g	U
Eu−154	1.72E+02	11/12/16	−1.04E−08	7.27E−08	1.46E−07		uCi/g	U
Eu−155	1.72E+02	11/12/16	4.23E−08	6.28E−08	1.28E−07		uCi/g	U
Ir−192	1.72E+02	11/12/16	−6.88E−09	2.34E−08	4.56E−08		uCi/g	U
Hg−203	1.72E+02	11/12/16	6.10E−09	2.55E−08	5.26E−08		uCi/g	U
Tl−208	1.72E+02	11/12/16	1.61E−07	6.11E−08	4.16E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238020
Client Sample ID: OLA3−S−008
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 20, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.72E+02	11/12/16	0.00E+00	3.29E−06	2.32E−06		uCi/g	UI
Pb−212	1.72E+02	11/12/16	5.85E−07	1.22E−07	8.36E−08		uCi/g	3
Pb−214	1.72E+02	11/12/16	4.52E−07	1.56E−07	1.94E−07		uCi/g	3
Bi−212	1.72E+02	11/12/16	7.79E−07	5.27E−07	8.88E−07		uCi/g	U
Bi−214	1.72E+02	11/12/16	3.10E−07	1.37E−07	8.07E−08		uCi/g	3
Ra−228	1.72E+02	11/12/16	5.26E−07	1.99E−07	1.53E−07		uCi/g	3
Ac−228	1.72E+02	11/12/16	5.26E−07	1.99E−07	1.53E−07		uCi/g	3
Th−234	1.72E+02	11/12/16	0.00E+00	2.05E−06	1.17E−06		uCi/g	UI
U−235	1.72E+02	11/12/16	9.82E−08	2.84E−07	2.54E−07		uCi/g	U
U−238	1.72E+02	11/12/16	0.00E+00	2.05E−06	1.17E−06		uCi/g	UI
Np−239	1.72E+02	11/12/16	−9.38E−08	1.60E−07	2.87E−07		uCi/g	U
Am−241	1.72E+02	11/12/16	2.45E−08	7.62E−08	1.42E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238020 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA3−S−008 **Collect Date:** October 20, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	5.26E−07	uCi/g	002.90
Bi−214	3.10E−07	uCi/g	001.71
Pb−212	5.85E−07	uCi/g	003.22
Pb−214	4.52E−07	uCi/g	002.49
K−40	1.56E−05	uCi/g	085.91
Ra−228	5.26E−07	uCi/g	002.90
Tl−208	1.61E−07	uCi/g	000.89

Total Activity: 1.82E−05 **Total % Abundance:** 100.00

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238021 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−001 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.24E+02	11/12/16	5.16E−07	4.24E−07	9.23E−07		uCi/g	U
Na−22	1.24E+02	11/12/16	2.26E−08	4.38E−08	9.89E−08		uCi/g	U
K−40	1.24E+02	11/12/16	1.33E−05	1.78E−06	7.40E−07		uCi/g	3
Cr−51	1.24E+02	11/12/16	1.58E−07	4.64E−07	9.23E−07		uCi/g	U
Mn−54	1.24E+02	11/12/16	−6.18E−09	4.41E−08	8.19E−08		uCi/g	U
Fe−59	1.24E+02	11/12/16	−3.71E−09	1.05E−07	2.02E−07		uCi/g	U
Co−56	1.24E+02	11/12/16	6.42E−09	4.16E−08	8.42E−08		uCi/g	U
Co−57	1.24E+02	11/12/16	−1.86E−08	2.85E−08	5.27E−08		uCi/g	U
Co−58	1.24E+02	11/12/16	2.19E−08	3.95E−08	8.68E−08		uCi/g	U
Co−60	1.24E+02	11/12/16	4.59E−09	4.32E−08	9.18E−08		uCi/g	U
Zn−65	1.24E+02	11/12/16	−6.92E−08	1.14E−07	1.58E−07		uCi/g	U
Y−88	1.24E+02	11/12/16	1.83E−08	3.51E−08	9.66E−08		uCi/g	U
Zr−95	1.24E+02	11/12/16	6.30E−09	8.92E−08	1.73E−07		uCi/g	U
Nb−94	1.24E+02	11/12/16	1.64E−08	4.29E−08	8.50E−08		uCi/g	U
Nb−95	1.24E+02	11/12/16	5.92E−08	5.56E−08	1.15E−07		uCi/g	U
Ru−106	1.24E+02	11/12/16	9.28E−08	3.69E−07	7.34E−07		uCi/g	U
Ag−110m	1.24E+02	11/12/16	4.94E−08	6.55E−08	1.39E−07		uCi/g	U
Sn−113	1.24E+02	11/12/16	9.29E−08	1.44E−07	9.73E−08		uCi/g	U
Sb−124	1.24E+02	11/12/16	3.39E−08	1.03E−07	2.45E−07		uCi/g	U
Sb−125	1.24E+02	11/12/16	4.78E−08	9.51E−08	1.96E−07		uCi/g	U
Cs−134	1.24E+02	11/12/16	4.45E−08	5.97E−08	1.03E−07		uCi/g	U
Cs−136	1.24E+02	11/12/16	1.18E−07	1.57E−07	3.51E−07		uCi/g	U
Cs−137	1.24E+02	11/12/16	3.09E−08	4.71E−08	9.12E−08	1.00E−07	uCi/g	U
Ba−133	1.24E+02	11/12/16	1.04E−08	4.60E−08	8.29E−08		uCi/g	U
Ba−140	1.24E+02	11/12/16	−2.62E−07	4.44E−07	6.71E−07		uCi/g	U
Ce−139	1.24E+02	11/12/16	−1.56E−08	2.98E−08	5.50E−08		uCi/g	U
Ce−141	1.24E+02	11/12/16	6.86E−08	7.99E−08	1.62E−07		uCi/g	U
Ce−144	1.24E+02	11/12/16	1.77E−08	2.30E−07	4.45E−07		uCi/g	U
Nd−147	1.24E+02	11/12/16	−5.91E−07	1.00E−06	1.76E−06		uCi/g	U
Pm−144	1.24E+02	11/12/16	−1.24E−08	4.10E−08	7.44E−08		uCi/g	U
Pm−146	1.24E+02	11/12/16	−6.04E−09	4.61E−08	8.35E−08		uCi/g	U
Eu−152	1.24E+02	11/12/16	−9.04E−08	9.92E−08	1.70E−07		uCi/g	U
Eu−154	1.24E+02	11/12/16	7.63E−08	1.20E−07	2.78E−07		uCi/g	U
Eu−155	1.24E+02	11/12/16	1.12E−07	1.22E−07	2.32E−07		uCi/g	U
Ir−192	1.24E+02	11/12/16	7.53E−09	4.18E−08	7.43E−08		uCi/g	U
Hg−203	1.24E+02	11/12/16	7.37E−08	7.21E−08	7.57E−08		uCi/g	U
Tl−208	1.24E+02	11/12/16	2.37E−07	1.01E−07	8.18E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238021 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−001 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.24E+02	11/12/16	−8.17E−07	5.43E−06	9.81E−06		uCi/g	U
Pb−212	1.24E+02	11/12/16	9.08E−07	1.33E−07	1.06E−07		uCi/g	3
Pb−214	1.24E+02	11/12/16	1.42E−06	2.19E−07	4.22E−07		uCi/g	3
Bi−212	1.24E+02	11/12/16	1.34E−06	7.20E−07	1.64E−06		uCi/g	3,U
Bi−214	1.24E+02	11/12/16	1.18E−06	2.34E−07	1.44E−07		uCi/g	3
Ra−228	1.24E+02	11/12/16	1.03E−06	3.68E−07	3.08E−07		uCi/g	3
Ac−228	1.24E+02	11/12/16	1.03E−06	3.68E−07	3.08E−07		uCi/g	3
Th−234	1.24E+02	11/12/16	2.81E−06	3.48E−06	3.94E−06		uCi/g	U
U−235	1.24E+02	11/12/16	1.38E−08	2.27E−07	4.37E−07		uCi/g	U
U−238	1.24E+02	11/12/16	2.81E−06	3.48E−06	3.94E−06		uCi/g	U
Np−239	1.24E+02	11/12/16	−1.43E−07	3.20E−07	5.36E−07		uCi/g	U
Am−241	1.24E+02	11/12/16	8.13E−08	2.35E−07	4.01E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238021 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA1−S−001 **Collect Date:** October 21, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	1.03E−06	uCi/g	005.38
Bi−214	1.18E−06	uCi/g	006.20
Pb−212	9.08E−07	uCi/g	004.76
Pb−214	1.42E−06	uCi/g	007.46
K−40	1.33E−05	uCi/g	069.58
Ra−228	1.03E−06	uCi/g	005.38
Tl−208	2.37E−07	uCi/g	001.24
Total Activity:	**1.91E−05**	**Total % Abundance:**	**100.00**

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238022 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−002 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.36E+02	11/12/16	0.00E+00	6.68E−07	4.67E−07		uCi/g	UI
Na−22	1.36E+02	11/12/16	−5.64E−09	2.76E−08	5.60E−08		uCi/g	U
K−40	1.36E+02	11/12/16	1.42E−05	1.45E−06	5.78E−07		uCi/g	3
Cr−51	1.36E+02	11/12/16	−8.99E−08	3.51E−07	6.71E−07		uCi/g	U
Mn−54	1.36E+02	11/12/16	3.35E−08	2.82E−08	6.48E−08		uCi/g	U
Fe−59	1.36E+02	11/12/16	1.96E−08	7.53E−08	1.53E−07		uCi/g	U
Co−56	1.36E+02	11/12/16	−1.34E−08	3.74E−08	6.90E−08		uCi/g	U
Co−57	1.36E+02	11/12/16	1.03E−08	1.89E−08	3.72E−08		uCi/g	U
Co−58	1.36E+02	11/12/16	−1.66E−08	2.96E−08	5.22E−08		uCi/g	U
Co−60	1.36E+02	11/12/16	1.14E−08	2.98E−08	6.65E−08		uCi/g	U
Zn−65	1.36E+02	11/12/16	8.46E−08	7.03E−08	1.56E−07		uCi/g	U
Y−88	1.36E+02	11/12/16	−1.76E−08	1.99E−08	1.60E−08		uCi/g	U
Zr−95	1.36E+02	11/12/16	7.78E−08	8.89E−08	1.12E−07		uCi/g	U
Nb−94	1.36E+02	11/12/16	−7.62E−09	2.87E−08	5.31E−08		uCi/g	U
Nb−95	1.36E+02	11/12/16	−4.16E−08	3.73E−08	4.63E−08		uCi/g	U
Ru−106	1.36E+02	11/12/16	−3.31E−08	2.66E−07	5.09E−07		uCi/g	U
Ag−110m	1.36E+02	11/12/16	2.73E−08	4.07E−08	8.76E−08		uCi/g	U
Sn−113	1.36E+02	11/12/16	3.40E−09	3.23E−08	6.56E−08		uCi/g	U
Sb−124	1.36E+02	11/12/16	−9.57E−09	7.49E−08	1.56E−07		uCi/g	U
Sb−125	1.36E+02	11/12/16	−6.22E−08	7.34E−08	1.30E−07		uCi/g	U
Cs−134	1.36E+02	11/12/16	4.69E−08	4.55E−08	7.74E−08		uCi/g	U
Cs−136	1.36E+02	11/12/16	−6.77E−09	1.31E−07	2.47E−07		uCi/g	U
Cs−137	1.36E+02	11/12/16	2.30E−08	2.78E−08	6.11E−08	1.00E−07	uCi/g	U
Ba−133	1.36E+02	11/12/16	−1.65E−08	3.03E−08	5.00E−08		uCi/g	U
Ba−140	1.36E+02	11/12/16	−6.76E−08	3.08E−07	5.89E−07		uCi/g	U
Ce−139	1.36E+02	11/12/16	−1.40E−08	2.46E−08	4.28E−08		uCi/g	U
Ce−141	1.36E+02	11/12/16	−4.32E−08	5.71E−08	9.84E−08		uCi/g	U
Ce−144	1.36E+02	11/12/16	−7.05E−08	1.59E−07	2.83E−07		uCi/g	U
Nd−147	1.36E+02	11/12/16	3.54E−07	7.63E−07	1.56E−06		uCi/g	U
Pm−144	1.36E+02	11/12/16	2.87E−09	2.60E−08	5.18E−08		uCi/g	U
Pm−146	1.36E+02	11/12/16	−1.21E−08	3.47E−08	6.54E−08		uCi/g	U
Eu−152	1.36E+02	11/12/16	−5.69E−09	7.85E−08	1.48E−07		uCi/g	U
Eu−154	1.36E+02	11/12/16	−1.16E−08	7.92E−08	1.62E−07		uCi/g	U
Eu−155	1.36E+02	11/12/16	6.99E−08	8.20E−08	1.64E−07		uCi/g	U
Ir−192	1.36E+02	11/12/16	−6.91E−09	2.71E−08	5.28E−08		uCi/g	U
Hg−203	1.36E+02	11/12/16	1.01E−08	3.22E−08	6.08E−08		uCi/g	U
Tl−208	1.36E+02	11/12/16	2.44E−07	7.85E−08	5.82E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238022 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−002 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.36E+02	11/12/16	−1.73E−06	2.09E−06	3.76E−06		uCi/g	U
Pb−212	1.36E+02	11/12/16	8.65E−07	1.14E−07	9.18E−08		uCi/g	3
Pb−214	1.36E+02	11/12/16	1.23E−06	1.88E−07	3.33E−07		uCi/g	3
Bi−212	1.36E+02	11/12/16	4.75E−07	4.68E−07	1.00E−06		uCi/g	U
Bi−214	1.36E+02	11/12/16	8.71E−07	1.59E−07	1.17E−07		uCi/g	3
Ra−228	1.36E+02	11/12/16	9.75E−07	2.82E−07	1.90E−07		uCi/g	3
Ac−228	1.36E+02	11/12/16	9.75E−07	2.82E−07	1.90E−07		uCi/g	3
Th−234	1.36E+02	11/12/16	1.07E−06	1.95E−06	1.77E−06		uCi/g	U
U−235	1.36E+02	11/12/16	−1.87E−08	1.67E−07	3.04E−07		uCi/g	U
U−238	1.36E+02	11/12/16	1.07E−06	1.95E−06	1.77E−06		uCi/g	U
Np−239	1.36E+02	11/12/16	−7.54E−08	1.96E−07	3.55E−07		uCi/g	U
Am−241	1.36E+02	11/12/16	−4.37E−08	1.11E−07	2.06E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238022 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA1−S−002 **Collect Date:** October 21, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	9.75E−07	uCi/g	005.03
Bi−214	8.71E−07	uCi/g	004.49
Pb−212	8.65E−07	uCi/g	004.46
Pb−214	1.23E−06	uCi/g	006.33
K−40	1.42E−05	uCi/g	073.39
Ra−228	9.75E−07	uCi/g	005.03
Tl−208	2.44E−07	uCi/g	001.26

Total Activity: 1.94E−05 **Total % Abundance:** 100.00

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238023 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−003 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.53E+02	11/12/16	0.00E+00	9.07E−07	7.48E−07		uCi/g	UI
Na−22	1.53E+02	11/12/16	−2.60E−08	4.56E−08	8.12E−08		uCi/g	U
K−40	1.53E+02	11/12/16	7.67E−06	1.36E−06	6.85E−07		uCi/g	3
Cr−51	1.53E+02	11/12/16	1.38E−07	4.60E−07	9.16E−07		uCi/g	U
Mn−54	1.53E+02	11/12/16	−2.01E−09	3.21E−08	6.58E−08		uCi/g	U
Fe−59	1.53E+02	11/12/16	−3.31E−08	8.16E−08	1.56E−07		uCi/g	U
Co−56	1.53E+02	11/12/16	1.59E−08	4.14E−08	8.92E−08		uCi/g	U
Co−57	1.53E+02	11/12/16	−7.43E−09	2.26E−08	4.00E−08		uCi/g	U
Co−58	1.53E+02	11/12/16	3.65E−09	4.22E−08	8.71E−08		uCi/g	U
Co−60	1.53E+02	11/12/16	4.03E−08	4.22E−08	9.96E−08		uCi/g	U
Zn−65	1.53E+02	11/12/16	−8.48E−08	8.96E−08	1.15E−07		uCi/g	U
Y−88	1.53E+02	11/12/16	1.03E−09	3.39E−08	7.79E−08		uCi/g	U
Zr−95	1.53E+02	11/12/16	3.71E−08	8.12E−08	1.66E−07		uCi/g	U
Nb−94	1.53E+02	11/12/16	3.25E−09	4.16E−08	7.83E−08		uCi/g	U
Nb−95	1.53E+02	11/12/16	4.59E−09	4.91E−08	8.51E−08		uCi/g	U
Ru−106	1.53E+02	11/12/16	1.29E−07	2.88E−07	6.06E−07		uCi/g	U
Ag−110m	1.53E+02	11/12/16	2.24E−08	4.89E−08	1.07E−07		uCi/g	U
Sn−113	1.53E+02	11/12/16	3.95E−08	4.71E−08	9.97E−08		uCi/g	U
Sb−124	1.53E+02	11/12/16	−1.96E−08	6.06E−08	1.25E−07		uCi/g	U
Sb−125	1.53E+02	11/12/16	5.14E−08	8.82E−08	1.84E−07		uCi/g	U
Cs−134	1.53E+02	11/12/16	8.54E−09	4.62E−08	9.47E−08		uCi/g	U
Cs−136	1.53E+02	11/12/16	−8.93E−08	1.54E−07	2.80E−07		uCi/g	U
Cs−137	1.53E+02	11/12/16	5.89E−09	4.41E−08	7.69E−08	1.00E−07	uCi/g	U
Ba−133	1.53E+02	11/12/16	−3.43E−08	4.72E−08	7.28E−08		uCi/g	U
Ba−140	1.53E+02	11/12/16	5.20E−08	3.53E−07	7.07E−07		uCi/g	U
Ce−139	1.53E+02	11/12/16	−1.56E−09	3.02E−08	5.95E−08		uCi/g	U
Ce−141	1.53E+02	11/12/16	0.00E+00	1.28E−07	1.16E−07		uCi/g	UI
Ce−144	1.53E+02	11/12/16	−1.43E−07	1.72E−07	3.25E−07		uCi/g	U
Nd−147	1.53E+02	11/12/16	9.31E−07	9.16E−07	2.00E−06		uCi/g	U
Pm−144	1.53E+02	11/12/16	−4.96E−09	3.76E−08	6.98E−08		uCi/g	U
Pm−146	1.53E+02	11/12/16	1.83E−08	4.17E−08	8.56E−08		uCi/g	U
Eu−152	1.53E+02	11/12/16	−1.31E−08	1.07E−07	2.04E−07		uCi/g	U
Eu−154	1.53E+02	11/12/16	−7.62E−08	1.28E−07	2.27E−07		uCi/g	U
Eu−155	1.53E+02	11/12/16	−2.31E−08	9.00E−08	1.61E−07		uCi/g	U
Ir−192	1.53E+02	11/12/16	−2.73E−08	3.67E−08	6.58E−08		uCi/g	U
Hg−203	1.53E+02	11/12/16	2.85E−08	4.09E−08	8.46E−08		uCi/g	U
Tl−208	1.53E+02	11/12/16	1.68E−07	9.36E−08	6.93E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238023 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−003 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.53E+02	11/12/16	1.79E−06	1.11E−06	8.23E−07		uCi/g	3
Pb−212	1.53E+02	11/12/16	5.23E−07	1.27E−07	1.01E−07		uCi/g	3
Pb−214	1.53E+02	11/12/16	1.35E−06	2.58E−07	1.45E−07		uCi/g	3
Bi−212	1.53E+02	11/12/16	6.43E−07	6.03E−07	1.29E−06		uCi/g	U
Bi−214	1.53E+02	11/12/16	1.32E−06	2.39E−07	1.46E−07		uCi/g	3
Ra−228	1.53E+02	11/12/16	1.09E−07	2.80E−07	2.60E−07		uCi/g	U
Ac−228	1.53E+02	11/12/16	1.09E−07	2.80E−07	2.60E−07		uCi/g	U
Th−234	1.53E+02	11/12/16	0.00E+00	1.36E−06	1.08E−06		uCi/g	UI
U−235	1.53E+02	11/12/16	0.00E+00	3.39E−07	4.05E−07		uCi/g	UI
U−238	1.53E+02	11/12/16	0.00E+00	1.36E−06	1.08E−06		uCi/g	UI
Np−239	1.53E+02	11/12/16	−1.09E−07	2.65E−07	4.25E−07		uCi/g	U
Am−241	1.53E+02	11/12/16	2.26E−08	6.19E−08	1.10E−07		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238023 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA1−S−003 **Collect Date:** October 21, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Bi−214	1.32E−06	uCi/g	010.26
Pb−210	1.79E−06	uCi/g	013.98
Pb−212	5.23E−07	uCi/g	004.08
Pb−214	1.35E−06	uCi/g	010.52
K−40	7.67E−06	uCi/g	059.85
Tl−208	1.68E−07	uCi/g	001.31
Total Activity:	**1.28E−05**	**Total % Abundance:**	**100.00**

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238024 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−004 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.69E+02	11/12/16	2.78E−06	6.70E−07	5.12E−07		uCi/g	3
Na−22	1.69E+02	11/12/16	9.97E−09	4.34E−08	7.71E−08		uCi/g	U
K−40	1.69E+02	11/12/16	9.20E−06	1.21E−06	5.37E−07		uCi/g	3
Cr−51	1.69E+02	11/12/16	1.85E−07	3.02E−07	6.47E−07		uCi/g	U
Mn−54	1.69E+02	11/12/16	1.80E−08	2.82E−08	6.18E−08		uCi/g	U
Fe−59	1.69E+02	11/12/16	−5.04E−08	8.55E−08	1.52E−07		uCi/g	U
Co−56	1.69E+02	11/12/16	2.04E−08	3.31E−08	7.22E−08		uCi/g	U
Co−57	1.69E+02	11/12/16	1.17E−08	1.32E−08	2.84E−08		uCi/g	U
Co−58	1.69E+02	11/12/16	8.05E−09	3.01E−08	6.42E−08		uCi/g	U
Co−60	1.69E+02	11/12/16	1.90E−09	2.88E−08	5.88E−08		uCi/g	U
Zn−65	1.69E+02	11/12/16	−5.26E−09	5.76E−08	1.08E−07		uCi/g	U
Y−88	1.69E+02	11/12/16	1.74E−08	2.98E−08	7.60E−08		uCi/g	U
Zr−95	1.69E+02	11/12/16	−3.02E−08	4.93E−08	8.42E−08		uCi/g	U
Nb−94	1.69E+02	11/12/16	−8.61E−09	2.45E−08	4.45E−08		uCi/g	U
Nb−95	1.69E+02	11/12/16	−1.82E−08	3.95E−08	5.96E−08		uCi/g	U
Ru−106	1.69E+02	11/12/16	1.94E−07	2.25E−07	4.97E−07		uCi/g	U
Ag−110m	1.69E+02	11/12/16	8.50E−09	3.49E−08	7.45E−08		uCi/g	U
Sn−113	1.69E+02	11/12/16	−5.65E−09	3.24E−08	6.39E−08		uCi/g	U
Sb−124	1.69E+02	11/12/16	−1.18E−08	2.31E−08	3.36E−08		uCi/g	U
Sb−125	1.69E+02	11/12/16	4.50E−08	6.60E−08	1.42E−07		uCi/g	U
Cs−134	1.69E+02	11/12/16	1.07E−08	3.13E−08	6.63E−08		uCi/g	U
Cs−136	1.69E+02	11/12/16	5.50E−08	9.69E−08	2.19E−07		uCi/g	U
Cs−137	1.69E+02	11/12/16	2.48E−08	5.17E−08	6.40E−08	1.00E−07	uCi/g	U
Ba−133	1.69E+02	11/12/16	−1.08E−08	3.00E−08	5.20E−08		uCi/g	U
Ba−140	1.69E+02	11/12/16	−5.90E−08	2.23E−07	4.32E−07		uCi/g	U
Ce−139	1.69E+02	11/12/16	−4.17E−09	1.85E−08	3.52E−08		uCi/g	U
Ce−141	1.69E+02	11/12/16	−1.83E−08	4.47E−08	8.56E−08		uCi/g	U
Ce−144	1.69E+02	11/12/16	−8.90E−08	1.05E−07	1.94E−07		uCi/g	U
Nd−147	1.69E+02	11/12/16	9.70E−08	6.81E−07	1.36E−06		uCi/g	U
Pm−144	1.69E+02	11/12/16	−1.05E−08	2.90E−08	5.22E−08		uCi/g	U
Pm−146	1.69E+02	11/12/16	3.67E−08	6.35E−08	5.64E−08		uCi/g	U
Eu−152	1.69E+02	11/12/16	−4.05E−08	6.04E−08	1.15E−07		uCi/g	U
Eu−154	1.69E+02	11/12/16	4.55E−08	1.18E−07	2.18E−07		uCi/g	U
Eu−155	1.69E+02	11/12/16	3.57E−08	5.13E−08	1.10E−07		uCi/g	U
Ir−192	1.69E+02	11/12/16	5.81E−09	2.45E−08	5.11E−08		uCi/g	U
Hg−203	1.69E+02	11/12/16	1.38E−09	3.05E−08	5.68E−08		uCi/g	U
Tl−208	1.69E+02	11/12/16	1.62E−07	5.31E−08	4.32E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238024 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−004 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.69E+02	11/12/16	1.77E−06	8.57E−07	4.76E−07		uCi/g	3
Pb−212	1.69E+02	11/12/16	3.98E−07	1.15E−07	7.34E−08		uCi/g	3
Pb−214	1.69E+02	11/12/16	1.14E−06	1.74E−07	9.01E−08		uCi/g	3
Bi−212	1.69E+02	11/12/16	8.72E−07	6.19E−07	9.12E−07		uCi/g	U
Bi−214	1.69E+02	11/12/16	9.47E−07	1.69E−07	9.21E−08		uCi/g	3
Ra−228	1.69E+02	11/12/16	5.56E−07	1.70E−07	1.94E−07		uCi/g	3
Ac−228	1.69E+02	11/12/16	5.56E−07	1.70E−07	1.94E−07		uCi/g	3
Th−234	1.69E+02	11/12/16	0.00E+00	7.60E−07	6.31E−07		uCi/g	UI
U−235	1.69E+02	11/12/16	−1.07E−07	1.20E−07	2.22E−07		uCi/g	U
U−238	1.69E+02	11/12/16	0.00E+00	7.60E−07	6.31E−07		uCi/g	UI
Np−239	1.69E+02	11/12/16	1.01E−07	1.24E−07	2.69E−07		uCi/g	U
Am−241	1.69E+02	11/12/16	−8.94E−09	2.85E−08	5.96E−08		uCi/g	U

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238024 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA1−S−004 **Collect Date:** October 21, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Ac−228	5.56E−07	uCi/g	003.18
Be−7	2.78E−06	uCi/g	015.86
Bi−214	9.47E−07	uCi/g	005.41
Pb−210	1.77E−06	uCi/g	010.09
Pb−212	3.98E−07	uCi/g	002.27
Pb−214	1.14E−06	uCi/g	006.51
K−40	9.20E−06	uCi/g	052.58
Ra−228	5.56E−07	uCi/g	003.18
Tl−208	1.62E−07	uCi/g	000.92

Total Activity: 1.75E−05 **Total % Abundance:** 100.00

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238025 **Client:** BHI Energy Power Services LLC
Client Sample ID: OLA1−S−005 **Collect Date:** October 21, 2016
Matrix: Soil **Receive Date:** October 27, 2016
Geometry Received: **Report Date:** November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity [2]	2 Sigma Uncertainty	MDA [1]	RL	Units	Qualifier
Gamma Spec								
Be−7	1.29E+02	11/12/16	3.69E−07	4.25E−07	8.79E−07		uCi/g	U
Na−22	1.29E+02	11/12/16	−7.97E−09	4.58E−08	8.88E−08		uCi/g	U
K−40	1.29E+02	11/12/16	5.37E−06	1.19E−06	1.09E−06		uCi/g	3
Cr−51	1.29E+02	11/12/16	−1.77E−07	4.15E−07	7.41E−07		uCi/g	U
Mn−54	1.29E+02	11/12/16	−4.43E−09	3.42E−08	6.08E−08		uCi/g	U
Fe−59	1.29E+02	11/12/16	5.60E−08	9.44E−08	2.16E−07		uCi/g	U
Co−56	1.29E+02	11/12/16	1.37E−08	4.82E−08	9.21E−08		uCi/g	U
Co−57	1.29E+02	11/12/16	5.37E−09	2.36E−08	4.64E−08		uCi/g	U
Co−58	1.29E+02	11/12/16	2.95E−08	5.62E−08	1.09E−07		uCi/g	U
Co−60	1.29E+02	11/12/16	−8.89E−09	4.06E−08	7.91E−08		uCi/g	U
Zn−65	1.29E+02	11/12/16	5.62E−08	6.51E−08	1.61E−07		uCi/g	U
Y−88	1.29E+02	11/12/16	0.00E+00	1.80E−08	2.48E−08		uCi/g	U
Zr−95	1.29E+02	11/12/16	−1.89E−08	8.93E−08	1.72E−07		uCi/g	U
Nb−94	1.29E+02	11/12/16	3.25E−09	3.41E−08	6.97E−08		uCi/g	U
Nb−95	1.29E+02	11/12/16	3.08E−08	6.89E−08	1.26E−07		uCi/g	U
Ru−106	1.29E+02	11/12/16	−3.87E−08	3.62E−07	6.66E−07		uCi/g	U
Ag−110m	1.29E+02	11/12/16	4.67E−09	4.87E−08	9.94E−08		uCi/g	U
Sn−113	1.29E+02	11/12/16	4.34E−08	6.06E−08	8.79E−08		uCi/g	U
Sb−124	1.29E+02	11/12/16	−3.42E−08	7.28E−08	1.47E−07		uCi/g	U
Sb−125	1.29E+02	11/12/16	−8.09E−09	1.02E−07	1.89E−07		uCi/g	U
Cs−134	1.29E+02	11/12/16	6.65E−08	8.74E−08	1.22E−07		uCi/g	U
Cs−136	1.29E+02	11/12/16	5.98E−08	1.88E−07	3.90E−07		uCi/g	U
Cs−137	1.29E+02	11/12/16	1.22E−08	3.92E−08	8.23E−08	1.00E−07	uCi/g	U
Ba−133	1.29E+02	11/12/16	3.16E−08	4.13E−08	8.04E−08		uCi/g	U
Ba−140	1.29E+02	11/12/16	−2.06E−07	4.54E−07	7.87E−07		uCi/g	U
Ce−139	1.29E+02	11/12/16	−2.26E−08	3.00E−08	5.38E−08		uCi/g	U
Ce−141	1.29E+02	11/12/16	−7.03E−09	8.27E−08	1.42E−07		uCi/g	U
Ce−144	1.29E+02	11/12/16	−1.01E−07	1.81E−07	3.35E−07		uCi/g	U
Nd−147	1.29E+02	11/12/16	−3.64E−07	1.24E−06	1.93E−06		uCi/g	U
Pm−144	1.29E+02	11/12/16	1.24E−08	3.48E−08	7.40E−08		uCi/g	U
Pm−146	1.29E+02	11/12/16	5.79E−09	4.24E−08	8.24E−08		uCi/g	U
Eu−152	1.29E+02	11/12/16	8.12E−08	9.85E−08	2.04E−07		uCi/g	U
Eu−154	1.29E+02	11/12/16	−8.03E−09	1.24E−07	2.48E−07		uCi/g	U
Eu−155	1.29E+02	11/12/16	−2.76E−08	9.38E−08	1.60E−07		uCi/g	U
Ir−192	1.29E+02	11/12/16	−6.44E−09	3.50E−08	6.53E−08		uCi/g	U
Hg−203	1.29E+02	11/12/16	3.84E−08	1.39E−07	8.70E−08		uCi/g	U
Tl−208	1.29E+02	11/12/16	1.23E−07	7.86E−08	7.25E−08		uCi/g	3

Note(s):1. Calculated MDAs are a−posteriori values.

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES LLC

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10 CFR Part 50/61 Certificate of Analysis

GEL Sample ID: 409238025
Client Sample ID: OLA1−S−005
Matrix: Soil
Geometry Received:

Client: BHI Energy Power Services LLC
Collect Date: October 21, 2016
Receive Date: October 27, 2016
Report Date: November 23, 2016

Analyte	Aliquot (g)	Run Date	Activity	2 Sigma Uncertainty	MDA	RL	Units	Qualifier
Pb−210	1.29E+02	11/12/16	2.15E−06	9.72E−07	8.49E−07		uCi/g	3
Pb−212	1.29E+02	11/12/16	2.78E−07	1.14E−07	1.06E−07		uCi/g	3
Pb−214	1.29E+02	11/12/16	1.90E−06	2.39E−07	4.83E−07		uCi/g	3
Bi−212	1.29E+02	11/12/16	0.00E+00	8.26E−07	1.33E−06		uCi/g	UI
Bi−214	1.29E+02	11/12/16	1.42E−06	2.41E−07	1.37E−07		uCi/g	3
Ra−228	1.29E+02	11/12/16	4.22E−07	2.17E−07	4.50E−07		uCi/g	3,U
Ac−228	1.29E+02	11/12/16	4.22E−07	2.17E−07	4.50E−07		uCi/g	3,U
Th−234	1.29E+02	11/12/16	0.00E+00	9.69E−07	1.06E−06		uCi/g	UI
U−235	1.29E+02	11/12/16	1.28E−07	2.17E−07	4.27E−07		uCi/g	U
U−238	1.29E+02	11/12/16	0.00E+00	9.69E−07	1.06E−06		uCi/g	UI
Np−239	1.29E+02	11/12/16	1.12E−07	2.33E−07	4.66E−07		uCi/g	U
Am−241	1.29E+02	11/12/16	1.17E−08	6.69E−08	1.11E−07		uCi/g	U

Note(s): **1. Calculated MDAs are a−posteriori values.**

2. Activity concentration net +/− 2 sigma overall on reference date.

3. Results are statistically positive at the 99.9% confidence level (activity is greater than three times the one sigma uncertainty)

U Analyte was analyzed for but not detected above the Lc

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

UI Gamma Spectroscopy−−Uncertain identification

GEL LABORATORIES, LLC

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10 CFR Part 50/61 Isotope Abundance Report

GEL Sample ID: 409238025 **Client:** BHI Energy Power Services LLC

Client Sample ID: OLA1−S−005 **Collect Date:** October 21, 2016

Matrix: Soil **Receive Date:** October 27, 2016

Analyte	Activity	Units	% Abundance
Gamma Spec			
Bi−214	1.42E−06	uCi/g	012.64
Pb−210	2.15E−06	uCi/g	019.15
Pb−212	2.78E−07	uCi/g	002.47
Pb−214	1.90E−06	uCi/g	016.90
K−40	5.37E−06	uCi/g	047.75
Tl−208	1.23E−07	uCi/g	001.10
Total Activity:	**1.12E−05**	**Total % Abundance:**	**100.00**

GEL LABORATORIES LLC

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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515001	PA1-S-01	Solid	24-OCT-16 13:50:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	0.00E+00 +/- 2.98E-07	uCi/g	D	2.98E-07	2.13E-07		UI
08-NOV-16	Am-241	6.10E-08 +/- 1.60E-07	uCi/g	D	1.62E-07	3.00E-07		U
08-NOV-16	Sb-124	1.53E-08 +/- 7.21E-08	uCi/g	D	7.25E-08	1.66E-07		U
08-NOV-16	Sb-125	-2.19E-08 +/- 7.38E-08	uCi/g	D	7.45E-08	1.38E-07		U
08-NOV-16	Ba-133	-1.24E-08 +/- 4.26E-08	uCi/g	D	4.30E-08	7.13E-08		U
08-NOV-16	Ba-140	-9.45E-08 +/- 2.65E-07	uCi/g	D	2.68E-07	4.77E-07		U
08-NOV-16	Be-7	6.19E-07 +/- 4.47E-07	uCi/g	D	4.48E-07	6.18E-07		
08-NOV-16	Bi-212	9.24E-07 +/- 6.38E-07	uCi/g	D	7.63E-07	1.12E-06		U
08-NOV-16	Bi-214	1.25E-06 +/- 1.97E-07	uCi/g	D	2.04E-07	1.29E-07		
08-NOV-16	Ce-139	5.08E-09 +/- 2.34E-08	uCi/g	D	2.36E-08	4.79E-08		U
08-NOV-16	Ce-141	8.26E-09 +/- 5.89E-08	uCi/g	D	5.90E-08	1.01E-07		U
08-NOV-16	Ce-144	1.12E-08 +/- 1.68E-07	uCi/g	D	1.68E-07	3.12E-07		U
08-NOV-16	Cs-134	6.39E-09 +/- 4.42E-08	uCi/g	D	4.43E-08	8.67E-08		U
08-NOV-16	Cs-136	-3.52E-08 +/- 8.19E-08	uCi/g	D	8.35E-08	1.52E-07		U
08-NOV-16	Cs-137	1.12E-08 +/- 3.43E-08	uCi/g	D	3.46E-08	7.03E-08	1.00E-07	U
08-NOV-16	Cr-51	-5.31E-10 +/- 2.97E-07	uCi/g	D	2.97E-07	5.84E-07		U
08-NOV-16	Co-56	2.36E-09 +/- 3.79E-08	uCi/g	D	3.79E-08	7.58E-08		U
08-NOV-16	Co-57	-6.57E-09 +/- 2.22E-08	uCi/g	D	2.24E-08	4.02E-08		U
08-NOV-16	Co-58	1.25E-08 +/- 3.62E-08	uCi/g	D	3.67E-08	6.94E-08		U
08-NOV-16	Co-60	-2.05E-08 +/- 2.93E-08	uCi/g	D	3.07E-08	4.86E-08		U
08-NOV-16	Eu-152	-3.62E-08 +/- 8.94E-08	uCi/g	D	9.09E-08	1.47E-07		U
08-NOV-16	Eu-154	-7.99E-08 +/- 9.23E-08	uCi/g	D	9.91E-08	1.47E-07		U
08-NOV-16	Eu-155	3.13E-09 +/- 9.29E-08	uCi/g	D	9.29E-08	1.75E-07		U
08-NOV-16	Ir-192	3.26E-09 +/- 2.94E-08	uCi/g	D	2.95E-08	5.82E-08		U
08-NOV-16	Fe-59	9.96E-08 +/- 1.23E-07	uCi/g	D	1.31E-07	1.46E-07		U
08-NOV-16	Pb-210	1.24E-06 +/- 4.76E-06	uCi/g	D	4.79E-06	9.51E-06		U
08-NOV-16	Pb-212	4.55E-07 +/- 1.06E-07	uCi/g	D	1.09E-07	8.85E-08		
08-NOV-16	Pb-214	1.30E-06 +/- 2.22E-07	uCi/g	D	2.29E-07	3.51E-07		
08-NOV-16	Mn-54	-2.02E-08 +/- 3.08E-08	uCi/g	D	3.22E-08	5.56E-08		U
08-NOV-16	Hg-203	-3.21E-08 +/- 3.32E-08	uCi/g	D	3.63E-08	5.92E-08		U
08-NOV-16	Nd-147	3.12E-07 +/- 4.90E-07	uCi/g	D	5.10E-07	1.03E-06		U
08-NOV-16	Np-239	-8.50E-09 +/- 2.44E-07	uCi/g	D	2.44E-07	4.53E-07		U
08-NOV-16	Nb-94	-1.72E-09 +/- 2.69E-08	uCi/g	D	2.69E-08	5.42E-08		U
08-NOV-16	Nb-95	2.12E-08 +/- 4.18E-08	uCi/g	D	4.29E-08	8.24E-08		U
08-NOV-16	K-40	9.28E-06 +/- 1.31E-06	uCi/g	D	1.40E-06	5.26E-07		
08-NOV-16	Pm-144	-9.33E-09 +/- 2.98E-08	uCi/g	D	3.01E-08	5.76E-08		U
08-NOV-16	Pm-146	1.28E-08 +/- 3.75E-08	uCi/g	D	3.79E-08	7.53E-08		U

Notes:
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515001	PA1-S-01	Solid	24-OCT-16 13:50:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	0.00E+00 +/- 2.98E-07	uCi/g	D	2.98E-07	2.13E-07		UI
08-NOV-16	Ru-106	3.45E-08 +/- 2.88E-07	uCi/g	D	2.88E-07	5.56E-07		U
08-NOV-16	Ag-110m	1.79E-08 +/- 4.54E-08	uCi/g	D	4.62E-08	9.11E-08		U
08-NOV-16	Na-22	-2.66E-08 +/- 3.29E-08	uCi/g	D	3.51E-08	5.35E-08		U
08-NOV-16	Tl-208	1.36E-07 +/- 6.29E-08	uCi/g	D	6.32E-08	5.60E-08		
08-NOV-16	Th-234	1.71E-06 +/- 2.99E-06	uCi/g	D	3.11E-06	3.12E-06		U
08-NOV-16	Sn-113	-3.26E-08 +/- 4.01E-08	uCi/g	D	4.27E-08	7.00E-08		U
08-NOV-16	U-235	1.01E-07 +/- 3.88E-07	uCi/g	D	3.88E-07	3.44E-07		U
08-NOV-16	U-238	1.71E-06 +/- 2.99E-06	uCi/g	D	3.11E-06	3.12E-06		U
08-NOV-16	Y-88	-1.16E-08 +/- 2.32E-08	uCi/g	D	2.38E-08	4.46E-08		U
08-NOV-16	Zn-65	-4.79E-08 +/- 8.67E-08	uCi/g	D	8.94E-08	1.28E-07		U
08-NOV-16	Zr-95	-4.98E-08 +/- 5.79E-08	uCi/g	D	6.21E-08	1.02E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515002	PA1-D5-02	Solid	24-OCT-16 13:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	1.00E-06 +/- 4.10E-07	uCi/g	D	4.14E-07	2.98E-07		
08-NOV-16	Am-241	1.84E-07 +/- 2.66E-07	uCi/g	D	2.79E-07	5.20E-07		U
08-NOV-16	Sb-124	-5.37E-08 +/- 9.55E-08	uCi/g	D	9.85E-08	1.69E-07		U
08-NOV-16	Sb-125	-3.22E-08 +/- 1.00E-07	uCi/g	D	1.01E-07	1.79E-07		U
08-NOV-16	Ba-133	-2.19E-08 +/- 4.25E-08	uCi/g	D	4.37E-08	7.08E-08		U
08-NOV-16	Ba-140	-9.74E-08 +/- 2.92E-07	uCi/g	D	2.95E-07	5.52E-07		U
08-NOV-16	Be-7	-1.21E-07 +/- 4.07E-07	uCi/g	D	4.11E-07	6.32E-07		U
08-NOV-16	Bi-212	9.05E-07 +/- 8.76E-07	uCi/g	D	8.77E-07	9.84E-07		U
08-NOV-16	Bi-214	9.61E-07 +/- 2.06E-07	uCi/g	D	2.10E-07	1.58E-07		
08-NOV-16	Ce-139	2.35E-08 +/- 3.05E-08	uCi/g	D	3.27E-08	6.15E-08		U
08-NOV-16	Ce-141	3.72E-08 +/- 6.18E-08	uCi/g	D	6.41E-08	1.15E-07		U
08-NOV-16	Ce-144	-7.20E-08 +/- 1.87E-07	uCi/g	D	1.90E-07	3.58E-07		U
08-NOV-16	Cs-134	1.67E-08 +/- 4.89E-08	uCi/g	D	4.95E-08	9.82E-08		U
08-NOV-16	Cs-136	3.26E-08 +/- 9.79E-08	uCi/g	D	9.91E-08	2.06E-07		U
08-NOV-16	Cs-137	5.37E-08 +/- 3.88E-08	uCi/g	D	3.89E-08	9.59E-08	1.00E-07	U
08-NOV-16	Cr-51	-8.50E-08 +/- 4.00E-07	uCi/g	D	4.02E-07	7.32E-07		U
08-NOV-16	Co-56	-6.69E-09 +/- 4.66E-08	uCi/g	D	4.67E-08	8.78E-08		U
08-NOV-16	Co-57	-7.68E-09 +/- 2.86E-08	uCi/g	D	2.88E-08	4.97E-08		U

Notes:
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

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M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515002	PA1-D5-02	Solid	24-OCT-16 13:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	-8.16E-10 +/- 4.21E-08	uCi/g	D	4.21E-08	8.20E-08		U
08-NOV-16	Co-60	-2.51E-08 +/- 4.44E-08	uCi/g	D	4.58E-08	8.01E-08		U
08-NOV-16	Eu-152	2.33E-08 +/- 9.75E-08	uCi/g	D	9.81E-08	1.88E-07		U
08-NOV-16	Eu-154	-4.81E-08 +/- 1.58E-07	uCi/g	D	1.60E-07	2.54E-07		U
08-NOV-16	Eu-155	-2.38E-08 +/- 1.27E-07	uCi/g	D	1.28E-07	2.25E-07		U
08-NOV-16	Ir-192	-1.14E-08 +/- 3.47E-08	uCi/g	D	3.51E-08	6.31E-08		U
08-NOV-16	Fe-59	2.33E-08 +/- 1.17E-07	uCi/g	D	1.17E-07	2.26E-07		U
08-NOV-16	Pb-210	5.67E-06 +/- 1.13E-05	uCi/g	D	1.16E-05	2.23E-05		U
08-NOV-16	Pb-212	1.10E-06 +/- 1.34E-07	uCi/g	D	1.47E-07	1.05E-07		
08-NOV-16	Pb-214	1.10E-06 +/- 2.03E-07	uCi/g	D	2.09E-07	1.33E-07		
08-NOV-16	Mn-54	1.48E-08 +/- 4.59E-08	uCi/g	D	4.64E-08	9.11E-08		U
08-NOV-16	Hg-203	-4.46E-08 +/- 3.90E-08	uCi/g	D	4.40E-08	6.53E-08		U
08-NOV-16	Nd-147	-1.04E-07 +/- 6.15E-07	uCi/g	D	6.16E-07	1.19E-06		U
08-NOV-16	Np-239	-2.13E-07 +/- 2.82E-07	uCi/g	D	2.98E-07	4.68E-07		U
08-NOV-16	Nb-94	4.36E-09 +/- 4.01E-08	uCi/g	D	4.01E-08	7.82E-08		U
08-NOV-16	Nb-95	1.04E-08 +/- 4.91E-08	uCi/g	D	4.94E-08	9.68E-08		U
08-NOV-16	K-40	1.73E-05 +/- 1.84E-06	uCi/g	D	2.05E-06	5.84E-07		
08-NOV-16	Pm-144	-1.67E-08 +/- 4.20E-08	uCi/g	D	4.27E-08	7.69E-08		U
08-NOV-16	Pm-146	3.96E-08 +/- 4.72E-08	uCi/g	D	5.06E-08	9.65E-08		U
08-NOV-16	Ra-228	1.00E-06 +/- 4.10E-07	uCi/g	D	4.14E-07	2.98E-07		
08-NOV-16	Ru-106	2.90E-07 +/- 3.59E-07	uCi/g	D	3.83E-07	7.28E-07		U
08-NOV-16	Ag-110m	3.49E-08 +/- 5.94E-08	uCi/g	D	6.15E-08	1.24E-07		U
08-NOV-16	Na-22	-1.76E-08 +/- 5.57E-08	uCi/g	D	5.63E-08	8.93E-08		U
08-NOV-16	Tl-208	4.18E-07 +/- 1.04E-07	uCi/g	D	1.06E-07	6.88E-08		
08-NOV-16	Th-234	1.56E-06 +/- 2.10E-06	uCi/g	D	2.24E-06	4.10E-06		U
08-NOV-16	Sn-113	3.52E-08 +/- 4.28E-08	uCi/g	D	4.57E-08	8.90E-08		U
08-NOV-16	U-235	1.20E-07 +/- 4.35E-07	uCi/g	D	4.35E-07	3.78E-07		U
08-NOV-16	U-238	1.56E-06 +/- 2.10E-06	uCi/g	D	2.24E-06	4.10E-06		U
08-NOV-16	Y-88	1.86E-08 +/- 3.25E-08	uCi/g	D	3.36E-08	8.78E-08		U
08-NOV-16	Zn-65	2.28E-09 +/- 1.26E-07	uCi/g	D	1.26E-07	2.06E-07		U
08-NOV-16	Zr-95	-7.85E-09 +/- 8.91E-08	uCi/g	D	8.92E-08	1.69E-07		U

Notes:
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GEL LABORATORIES LLC
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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515003	PA2-S-01	Solid	24-OCT-16 09:10:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	9.99E-07 +/- 3.79E-07	uCi/g	D	3.83E-07	2.39E-07		
08-NOV-16	Am-241	9.45E-08 +/- 1.94E-07	uCi/g	D	1.99E-07	3.55E-07		U
08-NOV-16	Sb-124	-2.39E-08 +/- 8.57E-08	uCi/g	D	8.64E-08	1.72E-07		U
08-NOV-16	Sb-125	8.10E-08 +/- 9.77E-08	uCi/g	D	1.04E-07	2.01E-07		U
08-NOV-16	Ba-133	-1.64E-08 +/- 4.71E-08	uCi/g	D	4.77E-08	7.70E-08		U
08-NOV-16	Ba-140	-9.47E-08 +/- 2.50E-07	uCi/g	D	2.54E-07	4.48E-07		U
08-NOV-16	Be-7	1.28E-06 +/- 7.43E-07	uCi/g	D	7.45E-07	6.12E-07		
08-NOV-16	Bi-212	3.20E-07 +/- 5.62E-07	uCi/g	D	5.81E-07	1.17E-06		U
08-NOV-16	Bi-214	9.46E-07 +/- 2.65E-07	uCi/g	D	2.68E-07	1.50E-07		
08-NOV-16	Ce-139	-1.34E-08 +/- 2.80E-08	uCi/g	D	2.88E-08	5.32E-08		U
08-NOV-16	Ce-141	7.87E-08 +/- 9.68E-08	uCi/g	D	9.69E-08	1.06E-07		U
08-NOV-16	Ce-144	-1.53E-07 +/- 1.96E-07	uCi/g	D	2.08E-07	3.28E-07		U
08-NOV-16	Cs-134	-1.50E-08 +/- 3.96E-08	uCi/g	D	4.02E-08	7.24E-08		U
08-NOV-16	Cs-136	2.75E-08 +/- 1.12E-07	uCi/g	D	1.13E-07	2.27E-07		U
08-NOV-16	Cs-137	5.42E-08 +/- 5.89E-08	uCi/g	D	5.90E-08	6.20E-08	1.00E-07	U
08-NOV-16	Cr-51	1.48E-07 +/- 3.52E-07	uCi/g	D	3.58E-07	7.05E-07		U
08-NOV-16	Co-56	-1.87E-08 +/- 3.69E-08	uCi/g	D	3.79E-08	6.77E-08		U
08-NOV-16	Co-57	-5.81E-09 +/- 2.68E-08	uCi/g	D	2.69E-08	4.76E-08		U
08-NOV-16	Co-58	-2.71E-08 +/- 4.74E-08	uCi/g	D	4.89E-08	7.26E-08		U
08-NOV-16	Co-60	2.56E-08 +/- 3.49E-08	uCi/g	D	3.67E-08	8.10E-08		U
08-NOV-16	Eu-152	5.76E-08 +/- 9.73E-08	uCi/g	D	1.01E-07	1.90E-07		U
08-NOV-16	Eu-154	1.60E-07 +/- 1.16E-07	uCi/g	D	1.37E-07	2.80E-07		U
08-NOV-16	Eu-155	-3.47E-09 +/- 1.11E-07	uCi/g	D	1.11E-07	2.02E-07		U
08-NOV-16	Ir-192	-1.89E-08 +/- 3.30E-08	uCi/g	D	3.41E-08	5.96E-08		U
08-NOV-16	Fe-59	2.91E-08 +/- 9.22E-08	uCi/g	D	9.32E-08	1.89E-07		U
08-NOV-16	Pb-210	1.20E-06 +/- 6.22E-06	uCi/g	D	6.24E-06	1.19E-05		U
08-NOV-16	Pb-212	5.77E-07 +/- 1.23E-07	uCi/g	D	1.27E-07	1.13E-07		
08-NOV-16	Pb-214	1.64E-06 +/- 2.19E-07	uCi/g	D	2.30E-07	4.08E-07		
08-NOV-16	Mn-54	-1.57E-08 +/- 3.73E-08	uCi/g	D	3.80E-08	6.91E-08		U
08-NOV-16	Hg-203	9.54E-09 +/- 4.12E-08	uCi/g	D	4.14E-08	7.99E-08		U
08-NOV-16	Nd-147	2.36E-07 +/- 5.61E-07	uCi/g	D	5.71E-07	1.13E-06		U
08-NOV-16	Np-239	-7.43E-10 +/- 2.75E-07	uCi/g	D	2.75E-07	4.99E-07		U
08-NOV-16	Nb-94	-1.50E-08 +/- 3.15E-08	uCi/g	D	3.22E-08	5.88E-08		U
08-NOV-16	Nb-95	1.34E-08 +/- 4.78E-08	uCi/g	D	4.82E-08	8.99E-08		U
08-NOV-16	K-40	1.05E-05 +/- 1.39E-06	uCi/g	D	1.49E-06	5.93E-07		
08-NOV-16	Pm-144	2.84E-08 +/- 3.68E-08	uCi/g	D	3.90E-08	7.89E-08		U
08-NOV-16	Pm-146	2.62E-09 +/- 4.44E-08	uCi/g	D	4.44E-08	8.44E-08		U

Notes:
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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515003	PA2-S-01	Solid	24-OCT-16 09:10:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	9.99E-07 +/- 3.79E-07	uCi/g	D	3.83E-07	2.39E-07		
08-NOV-16	Ru-106	2.44E-07 +/- 3.65E-07	uCi/g	D	3.82E-07	7.36E-07		U
08-NOV-16	Ag-110m	-8.04E-09 +/- 4.45E-08	uCi/g	D	4.46E-08	8.69E-08		U
08-NOV-16	Na-22	5.56E-08 +/- 4.07E-08	uCi/g	D	4.79E-08	9.84E-08		U
08-NOV-16	Tl-208	1.95E-07 +/- 8.46E-08	uCi/g	D	8.50E-08	6.62E-08		
08-NOV-16	Th-234	1.31E-06 +/- 3.80E-06	uCi/g	D	3.81E-06	2.75E-06		U
08-NOV-16	Sn-113	3.74E-08 +/- 4.30E-08	uCi/g	D	4.62E-08	9.02E-08		U
08-NOV-16	U-235	2.79E-07 +/- 3.21E-07	uCi/g	D	3.21E-07	3.38E-07		U
08-NOV-16	U-238	1.31E-06 +/- 3.80E-06	uCi/g	D	3.81E-06	2.75E-06		U
08-NOV-16	Y-88	-1.32E-08 +/- 2.63E-08	uCi/g	D	2.70E-08	5.05E-08		U
08-NOV-16	Zn-65	5.52E-09 +/- 1.13E-07	uCi/g	D	1.13E-07	1.91E-07		U
08-NOV-16	Zr-95	2.70E-08 +/- 6.88E-08	uCi/g	D	6.99E-08	1.45E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515004	PA2-S-02	Solid	24-OCT-16 09:20:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	4.86E-07 +/- 2.25E-07	uCi/g	D	2.26E-07	1.71E-07		
08-NOV-16	Am-241	3.42E-08 +/- 1.68E-07	uCi/g	D	1.68E-07	3.23E-07		U
08-NOV-16	Sb-124	1.40E-08 +/- 7.99E-08	uCi/g	D	8.02E-08	1.78E-07		U
08-NOV-16	Sb-125	5.33E-09 +/- 7.19E-08	uCi/g	D	7.20E-08	1.47E-07		U
08-NOV-16	Ba-133	9.76E-10 +/- 3.73E-08	uCi/g	D	3.73E-08	6.36E-08		U
08-NOV-16	Ba-140	-1.48E-07 +/- 2.21E-07	uCi/g	D	2.30E-07	3.74E-07		U
08-NOV-16	Be-7	1.71E-06 +/- 6.74E-07	uCi/g	D	6.77E-07	5.05E-07		
08-NOV-16	Bi-212	0.00E+00 +/- 7.22E-07	uCi/g	D	1.10E-06	1.29E-06		UI
08-NOV-16	Bi-214	1.19E-06 +/- 1.87E-07	uCi/g	D	1.94E-07	1.04E-07		
08-NOV-16	Ce-139	1.18E-08 +/- 2.54E-08	uCi/g	D	2.61E-08	5.00E-08		U
08-NOV-16	Ce-141	2.82E-08 +/- 1.10E-07	uCi/g	D	1.10E-07	1.02E-07		U
08-NOV-16	Ce-144	7.32E-08 +/- 1.58E-07	uCi/g	D	1.61E-07	2.98E-07		U
08-NOV-16	Cs-134	3.05E-08 +/- 5.24E-08	uCi/g	D	5.41E-08	7.21E-08		U
08-NOV-16	Cs-136	6.52E-08 +/- 8.47E-08	uCi/g	D	8.98E-08	1.92E-07		U
08-NOV-16	Cs-137	-2.95E-09 +/- 3.36E-08	uCi/g	D	3.36E-08	6.51E-08	1.00E-07	U
08-NOV-16	Cr-51	6.13E-08 +/- 2.88E-07	uCi/g	D	2.89E-07	4.68E-07		U
08-NOV-16	Co-56	3.39E-08 +/- 3.70E-08	uCi/g	D	3.71E-08	7.50E-08		U
08-NOV-16	Co-57	-7.44E-09 +/- 2.03E-08	uCi/g	D	2.05E-08	3.81E-08		U

Notes:
1. LLDs are a-priori values.
2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
U - Target isotope was analyzed for but not detected above the MDC and LLD.
UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515004	PA2-S-02	Solid	24-OCT-16 09:20:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	1.47E-09 +/- 2.81E-08	uCi/g	D	2.81E-08	5.74E-08		U
08-NOV-16	Co-60	1.46E-08 +/- 2.78E-08	uCi/g	D	2.86E-08	6.64E-08		U
08-NOV-16	Eu-152	1.77E-08 +/- 8.40E-08	uCi/g	D	8.44E-08	1.59E-07		U
08-NOV-16	Eu-154	7.06E-08 +/- 9.63E-08	uCi/g	D	1.02E-07	2.13E-07		U
08-NOV-16	Eu-155	-2.30E-08 +/- 8.78E-08	uCi/g	D	8.85E-08	1.68E-07		U
08-NOV-16	Ir-192	-3.19E-09 +/- 2.90E-08	uCi/g	D	2.90E-08	4.88E-08		U
08-NOV-16	Fe-59	-2.97E-08 +/- 7.57E-08	uCi/g	D	7.69E-08	1.34E-07		U
08-NOV-16	Pb-210	7.86E-06 +/- 1.12E-05	uCi/g	D	1.13E-05	1.16E-05		U
08-NOV-16	Pb-212	4.88E-07 +/- 1.05E-07	uCi/g	D	1.08E-07	8.85E-08		
08-NOV-16	Pb-214	1.36E-06 +/- 2.08E-07	uCi/g	D	2.15E-07	3.72E-07		
08-NOV-16	Mn-54	-1.26E-08 +/- 3.48E-08	uCi/g	D	3.52E-08	5.53E-08		U
08-NOV-16	Hg-203	-2.85E-08 +/- 3.32E-08	uCi/g	D	3.56E-08	5.48E-08		U
08-NOV-16	Nd-147	0.00E+00 +/- 8.39E-07	uCi/g	D	1.05E-06	1.10E-06		UI
08-NOV-16	Np-239	-1.93E-07 +/- 1.99E-07	uCi/g	D	2.18E-07	3.55E-07		U
08-NOV-16	Nb-94	1.32E-08 +/- 2.86E-08	uCi/g	D	2.93E-08	6.01E-08		U
08-NOV-16	Nb-95	2.40E-08 +/- 3.69E-08	uCi/g	D	3.85E-08	6.65E-08		U
08-NOV-16	K-40	9.59E-06 +/- 1.38E-06	uCi/g	D	1.46E-06	6.55E-07		
08-NOV-16	Pm-144	-1.44E-08 +/- 3.46E-08	uCi/g	D	3.53E-08	5.53E-08		U
08-NOV-16	Pm-146	3.24E-08 +/- 3.51E-08	uCi/g	D	3.81E-08	7.80E-08		U
08-NOV-16	Ra-228	4.86E-07 +/- 2.25E-07	uCi/g	D	2.26E-07	1.71E-07		
08-NOV-16	Ru-106	-6.06E-08 +/- 2.87E-07	uCi/g	D	2.88E-07	5.49E-07		U
08-NOV-16	Ag-110m	7.64E-08 +/- 4.24E-08	uCi/g	D	5.47E-08	1.06E-07		U
08-NOV-16	Na-22	2.31E-08 +/- 3.36E-08	uCi/g	D	3.51E-08	7.39E-08		U
08-NOV-16	Tl-208	2.02E-07 +/- 7.26E-08	uCi/g	D	7.31E-08	5.66E-08		
08-NOV-16	Th-234	3.64E-07 +/- 3.74E-06	uCi/g	D	3.74E-06	2.70E-06		U
08-NOV-16	Sn-113	1.21E-08 +/- 3.62E-08	uCi/g	D	3.66E-08	7.56E-08		U
08-NOV-16	U-235	2.62E-07 +/- 3.44E-07	uCi/g	D	3.44E-07	3.51E-07		U
08-NOV-16	U-238	3.64E-07 +/- 3.74E-06	uCi/g	D	3.74E-06	2.70E-06		U
08-NOV-16	Y-88	-6.29E-09 +/- 3.48E-08	uCi/g	D	3.49E-08	7.12E-08		U
08-NOV-16	Zn-65	-7.32E-08 +/- 8.84E-08	uCi/g	D	9.44E-08	1.13E-07		U
08-NOV-16	Zr-95	-4.68E-08 +/- 5.69E-08	uCi/g	D	6.07E-08	9.50E-08		U

Notes:
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515005	PA2-S-03	Solid	24-OCT-16 09:25:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	7.92E-07 +/- 3.18E-07	uCi/g	D	3.21E-07	2.80E-07		
08-NOV-16	Am-241	-7.65E-08 +/- 1.76E-07	uCi/g	D	1.80E-07	2.90E-07		U
08-NOV-16	Sb-124	1.48E-08 +/- 9.07E-08	uCi/g	D	9.09E-08	2.00E-07		U
08-NOV-16	Sb-125	-7.01E-08 +/- 9.68E-08	uCi/g	D	1.02E-07	1.66E-07		U
08-NOV-16	Ba-133	-1.21E-09 +/- 4.77E-08	uCi/g	D	4.77E-08	8.12E-08		U
08-NOV-16	Ba-140	1.19E-07 +/- 2.48E-07	uCi/g	D	2.54E-07	5.14E-07		U
08-NOV-16	Be-7	8.92E-06 +/- 1.16E-06	uCi/g	D	1.21E-06	7.15E-07		
08-NOV-16	Bi-212	8.57E-07 +/- 7.63E-07	uCi/g	D	7.64E-07	1.11E-06		U
08-NOV-16	Bi-214	9.97E-07 +/- 2.34E-07	uCi/g	D	2.38E-07	1.57E-07		
08-NOV-16	Ce-139	-3.88E-09 +/- 3.11E-08	uCi/g	D	3.12E-08	5.40E-08		U
08-NOV-16	Ce-141	-1.61E-08 +/- 6.93E-08	uCi/g	D	6.97E-08	1.20E-07		U
08-NOV-16	Ce-144	-1.05E-08 +/- 2.14E-07	uCi/g	D	2.14E-07	3.77E-07		U
08-NOV-16	Cs-134	3.07E-09 +/- 4.74E-08	uCi/g	D	4.74E-08	8.02E-08		U
08-NOV-16	Cs-136	3.46E-08 +/- 8.25E-08	uCi/g	D	8.40E-08	1.87E-07		U
08-NOV-16	Cs-137	1.66E-07 +/- 9.12E-08	uCi/g	D	9.15E-08	6.55E-08	1.00E-07	
08-NOV-16	Cr-51	-7.50E-08 +/- 3.78E-07	uCi/g	D	3.80E-07	7.06E-07		U
08-NOV-16	Co-56	-6.57E-09 +/- 3.21E-08	uCi/g	D	3.22E-08	6.40E-08		U
08-NOV-16	Co-57	-2.38E-08 +/- 2.73E-08	uCi/g	D	2.94E-08	4.49E-08		U
08-NOV-16	Co-58	4.44E-10 +/- 4.28E-08	uCi/g	D	4.28E-08	8.53E-08		U
08-NOV-16	Co-60	-2.99E-09 +/- 3.90E-08	uCi/g	D	3.91E-08	7.76E-08		U
08-NOV-16	Eu-152	-5.86E-08 +/- 1.30E-07	uCi/g	D	1.32E-07	2.06E-07		U
08-NOV-16	Eu-154	3.94E-08 +/- 9.42E-08	uCi/g	D	9.59E-08	2.15E-07		U
08-NOV-16	Eu-155	1.85E-08 +/- 1.20E-07	uCi/g	D	1.20E-07	2.17E-07		U
08-NOV-16	Ir-192	-9.67E-09 +/- 3.64E-08	uCi/g	D	3.67E-08	6.74E-08		U
08-NOV-16	Fe-59	-2.62E-08 +/- 9.69E-08	uCi/g	D	9.76E-08	1.68E-07		U
08-NOV-16	Pb-210	9.51E-07 +/- 5.25E-06	uCi/g	D	5.27E-06	9.91E-06		U
08-NOV-16	Pb-212	7.58E-07 +/- 1.27E-07	uCi/g	D	1.33E-07	1.08E-07		
08-NOV-16	Pb-214	1.20E-06 +/- 2.46E-07	uCi/g	D	2.51E-07	1.33E-07		
08-NOV-16	Mn-54	-8.66E-10 +/- 3.53E-08	uCi/g	D	3.53E-08	7.06E-08		U
08-NOV-16	Hg-203	-2.44E-08 +/- 4.06E-08	uCi/g	D	4.20E-08	7.29E-08		U
08-NOV-16	Nd-147	-1.70E-07 +/- 5.95E-07	uCi/g	D	6.00E-07	1.08E-06		U
08-NOV-16	Np-239	-3.36E-07 +/- 3.02E-07	uCi/g	D	3.39E-07	4.85E-07		U
08-NOV-16	Nb-94	1.38E-08 +/- 3.92E-08	uCi/g	D	3.97E-08	7.61E-08		U
08-NOV-16	Nb-95	1.02E-08 +/- 4.65E-08	uCi/g	D	4.68E-08	8.16E-08		U
08-NOV-16	K-40	9.38E-06 +/- 1.51E-06	uCi/g	D	1.59E-06	7.70E-07		
08-NOV-16	Pm-144	1.91E-08 +/- 3.85E-08	uCi/g	D	3.94E-08	7.68E-08		U
08-NOV-16	Pm-146	8.99E-10 +/- 4.43E-08	uCi/g	D	4.43E-08	8.42E-08		U

Notes:

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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

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- X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
- M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515005	PA2-S-03	Solid	24-OCT-16 09:25:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	7.92E-07 +/- 3.18E-07	uCi/g	D	3.21E-07	2.80E-07		
08-NOV-16	Ru-106	-3.89E-08 +/- 2.94E-07	uCi/g	D	2.95E-07	5.51E-07		U
08-NOV-16	Ag-110m	1.70E-08 +/- 6.28E-08	uCi/g	D	6.33E-08	1.16E-07		U
08-NOV-16	Na-22	1.49E-08 +/- 3.36E-08	uCi/g	D	3.42E-08	7.66E-08		U
08-NOV-16	Tl-208	1.08E-07 +/- 1.01E-07	uCi/g	D	1.01E-07	6.80E-08		
08-NOV-16	Th-234	7.76E-07 +/- 2.45E-06	uCi/g	D	2.46E-06	2.39E-06		U
08-NOV-16	Sn-113	-9.98E-09 +/- 4.53E-08	uCi/g	D	4.55E-08	8.40E-08		U
08-NOV-16	U-235	1.58E-07 +/- 2.13E-07	uCi/g	D	2.25E-07	4.00E-07		U
08-NOV-16	U-238	7.76E-07 +/- 2.45E-06	uCi/g	D	2.46E-06	2.39E-06		U
08-NOV-16	Y-88	-6.02E-09 +/- 3.28E-08	uCi/g	D	3.29E-08	7.24E-08		U
08-NOV-16	Zn-65	7.47E-08 +/- 8.99E-08	uCi/g	D	9.61E-08	1.89E-07		U
08-NOV-16	Zr-95	2.60E-09 +/- 8.38E-08	uCi/g	D	8.38E-08	1.56E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515006	PA2-S-04	Solid	24-OCT-16 09:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	3.30E-07 +/- 2.33E-07	uCi/g	D	2.34E-07	1.91E-07		
08-NOV-16	Am-241	6.87E-08 +/- 1.64E-07	uCi/g	D	1.67E-07	2.79E-07		U
08-NOV-16	Sb-124	5.96E-09 +/- 6.69E-08	uCi/g	D	6.69E-08	1.37E-07		U
08-NOV-16	Sb-125	8.57E-09 +/- 7.02E-08	uCi/g	D	7.03E-08	1.32E-07		U
08-NOV-16	Ba-133	7.38E-09 +/- 3.20E-08	uCi/g	D	3.21E-08	5.54E-08		U
08-NOV-16	Ba-140	9.17E-09 +/- 1.74E-07	uCi/g	D	1.74E-07	3.44E-07		U
08-NOV-16	Be-7	5.41E-06 +/- 7.34E-07	uCi/g	D	7.66E-07	4.73E-07		
08-NOV-16	Bi-212	4.88E-07 +/- 7.51E-07	uCi/g	D	7.52E-07	6.25E-07		U
08-NOV-16	Bi-214	1.30E-06 +/- 1.83E-07	uCi/g	D	1.91E-07	1.08E-07		
08-NOV-16	Ce-139	-1.11E-08 +/- 2.53E-08	uCi/g	D	2.59E-08	4.34E-08		U
08-NOV-16	Ce-141	-7.47E-09 +/- 5.51E-08	uCi/g	D	5.52E-08	9.05E-08		U
08-NOV-16	Ce-144	-4.73E-08 +/- 1.78E-07	uCi/g	D	1.79E-07	2.92E-07		U
08-NOV-16	Cs-134	6.49E-09 +/- 2.92E-08	uCi/g	D	2.93E-08	5.66E-08		U
08-NOV-16	Cs-136	6.60E-08 +/- 7.16E-08	uCi/g	D	7.77E-08	1.56E-07		U
08-NOV-16	Cs-137	3.13E-08 +/- 3.11E-08	uCi/g	D	3.41E-08	6.44E-08	1.00E-07	U
08-NOV-16	Cr-51	1.11E-07 +/- 2.68E-07	uCi/g	D	2.72E-07	5.24E-07		U
08-NOV-16	Co-56	1.49E-08 +/- 3.45E-08	uCi/g	D	3.51E-08	6.05E-08		U
08-NOV-16	Co-57	-2.23E-09 +/- 1.92E-08	uCi/g	D	1.92E-08	3.51E-08		U

Notes:
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2. MDCs are calculated a-posteriori values.
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Qualifiers:
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M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515006	PA2-S-04	Solid	24-OCT-16 09:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	-2.30E-10 +/- 3.03E-08	uCi/g	D	3.03E-08	5.66E-08		U
08-NOV-16	Co-60	2.31E-08 +/- 4.99E-08	uCi/g	D	5.10E-08	5.55E-08		U
08-NOV-16	Eu-152	-2.65E-08 +/- 6.90E-08	uCi/g	D	7.00E-08	1.24E-07		U
08-NOV-16	Eu-154	-3.40E-08 +/- 7.76E-08	uCi/g	D	7.91E-08	1.39E-07		U
08-NOV-16	Eu-155	4.12E-08 +/- 8.43E-08	uCi/g	D	8.64E-08	1.54E-07		U
08-NOV-16	Ir-192	-8.37E-09 +/- 2.61E-08	uCi/g	D	2.64E-08	4.77E-08		U
08-NOV-16	Fe-59	7.89E-09 +/- 6.68E-08	uCi/g	D	6.69E-08	1.30E-07		U
08-NOV-16	Pb-210	1.07E-06 +/- 4.60E-06	uCi/g	D	4.62E-06	9.36E-06		U
08-NOV-16	Pb-212	5.26E-07 +/- 9.35E-08	uCi/g	D	9.75E-08	8.24E-08		
08-NOV-16	Pb-214	1.84E-06 +/- 1.78E-07	uCi/g	D	1.94E-07	3.53E-07		
08-NOV-16	Mn-54	-2.10E-08 +/- 3.32E-08	uCi/g	D	3.45E-08	5.22E-08		U
08-NOV-16	Hg-203	2.57E-08 +/- 2.94E-08	uCi/g	D	3.16E-08	5.92E-08		U
08-NOV-16	Nd-147	4.09E-07 +/- 4.01E-07	uCi/g	D	4.41E-07	8.63E-07		U
08-NOV-16	Np-239	-3.92E-09 +/- 2.09E-07	uCi/g	D	2.09E-07	3.88E-07		U
08-NOV-16	Nb-94	2.13E-08 +/- 2.52E-08	uCi/g	D	2.70E-08	5.15E-08		U
08-NOV-16	Nb-95	2.82E-08 +/- 3.15E-08	uCi/g	D	3.40E-08	6.05E-08		U
08-NOV-16	K-40	7.98E-06 +/- 1.08E-06	uCi/g	D	1.16E-06	5.05E-07		
08-NOV-16	Pm-144	3.10E-08 +/- 2.68E-08	uCi/g	D	3.03E-08	5.67E-08		U
08-NOV-16	Pm-146	2.69E-08 +/- 3.71E-08	uCi/g	D	3.91E-08	7.21E-08		U
08-NOV-16	Ra-228	3.30E-07 +/- 2.33E-07	uCi/g	D	2.34E-07	1.91E-07		
08-NOV-16	Ru-106	2.24E-07 +/- 2.18E-07	uCi/g	D	2.40E-07	4.70E-07		U
08-NOV-16	Ag-110m	-2.62E-08 +/- 4.49E-08	uCi/g	D	4.64E-08	7.00E-08		U
08-NOV-16	Na-22	-1.42E-08 +/- 2.80E-08	uCi/g	D	2.87E-08	4.93E-08		U
08-NOV-16	Tl-208	1.35E-07 +/- 7.02E-08	uCi/g	D	7.04E-08	5.02E-08		
08-NOV-16	Th-234	3.63E-06 +/- 2.44E-06	uCi/g	D	2.57E-06	2.15E-06		
08-NOV-16	Sn-113	-2.98E-08 +/- 3.24E-08	uCi/g	D	3.51E-08	5.37E-08		U
08-NOV-16	U-235	2.27E-07 +/- 2.27E-07	uCi/g	D	2.27E-07	2.95E-07		U
08-NOV-16	U-238	3.63E-06 +/- 2.44E-06	uCi/g	D	2.57E-06	2.15E-06		
08-NOV-16	Y-88	7.84E-09 +/- 2.83E-08	uCi/g	D	2.86E-08	6.11E-08		U
08-NOV-16	Zn-65	1.33E-08 +/- 6.64E-08	uCi/g	D	6.66E-08	1.15E-07		U
08-NOV-16	Zr-95	1.81E-08 +/- 5.28E-08	uCi/g	D	5.34E-08	9.45E-08		U

Notes:
1. LLDs are a-priori values.
2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
U - Target isotope was analyzed for but not detected above the MDC and LLD.
UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515007	PA2-S-05	Solid	24-OCT-16 10:05:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	0.00E+00 +/- 2.56E-07	uCi/g	D	3.16E-07	4.05E-07		UI
08-NOV-16	Am-241	7.34E-09 +/- 3.45E-08	uCi/g	D	3.46E-08	7.15E-08		U
08-NOV-16	Sb-124	-2.01E-08 +/- 8.92E-08	uCi/g	D	8.97E-08	1.78E-07		U
08-NOV-16	Sb-125	-7.78E-09 +/- 8.36E-08	uCi/g	D	8.37E-08	1.45E-07		U
08-NOV-16	Ba-133	1.93E-08 +/- 3.57E-08	uCi/g	D	3.68E-08	6.86E-08		U
08-NOV-16	Ba-140	-7.54E-08 +/- 2.44E-07	uCi/g	D	2.46E-07	4.50E-07		U
08-NOV-16	Be-7	2.27E-06 +/- 7.01E-07	uCi/g	D	7.07E-07	5.77E-07		
08-NOV-16	Bi-212	2.86E-07 +/- 4.15E-07	uCi/g	D	4.35E-07	8.79E-07		U
08-NOV-16	Bi-214	1.23E-06 +/- 1.85E-07	uCi/g	D	1.93E-07	1.09E-07		
08-NOV-16	Ce-139	9.60E-10 +/- 2.03E-08	uCi/g	D	2.03E-08	3.59E-08		U
08-NOV-16	Ce-141	-4.80E-08 +/- 4.27E-08	uCi/g	D	4.79E-08	7.47E-08		U
08-NOV-16	Ce-144	1.18E-08 +/- 1.16E-07	uCi/g	D	1.16E-07	2.27E-07		U
08-NOV-16	Cs-134	4.78E-08 +/- 3.00E-08	uCi/g	D	3.69E-08	6.76E-08		U
08-NOV-16	Cs-136	1.37E-08 +/- 9.97E-08	uCi/g	D	9.99E-08	2.00E-07		U
08-NOV-16	Cs-137	4.18E-08 +/- 5.78E-08	uCi/g	D	5.78E-08	6.33E-08	1.00E-07	U
08-NOV-16	Cr-51	5.26E-08 +/- 3.07E-07	uCi/g	D	3.08E-07	6.18E-07		U
08-NOV-16	Co-56	1.14E-08 +/- 3.66E-08	uCi/g	D	3.69E-08	7.59E-08		U
08-NOV-16	Co-57	5.89E-09 +/- 1.59E-08	uCi/g	D	1.61E-08	3.18E-08		U
08-NOV-16	Co-58	9.02E-09 +/- 2.89E-08	uCi/g	D	2.92E-08	6.25E-08		U
08-NOV-16	Co-60	1.82E-08 +/- 3.52E-08	uCi/g	D	3.61E-08	7.69E-08		U
08-NOV-16	Eu-152	2.67E-08 +/- 7.11E-08	uCi/g	D	7.22E-08	1.48E-07		U
08-NOV-16	Eu-154	-5.07E-08 +/- 1.01E-07	uCi/g	D	1.04E-07	1.79E-07		U
08-NOV-16	Eu-155	1.72E-08 +/- 5.74E-08	uCi/g	D	5.79E-08	1.16E-07		U
08-NOV-16	Ir-192	-9.25E-09 +/- 2.76E-08	uCi/g	D	2.79E-08	5.33E-08		U
08-NOV-16	Fe-59	2.31E-08 +/- 8.85E-08	uCi/g	D	8.91E-08	1.63E-07		U
08-NOV-16	Pb-210	1.05E-06 +/- 7.76E-07	uCi/g	D	7.81E-07	5.94E-07		
08-NOV-16	Pb-212	6.20E-07 +/- 1.03E-07	uCi/g	D	1.08E-07	8.25E-08		
08-NOV-16	Pb-214	1.48E-06 +/- 2.09E-07	uCi/g	D	2.18E-07	1.16E-07		
08-NOV-16	Mn-54	9.33E-09 +/- 2.36E-08	uCi/g	D	2.40E-08	4.92E-08		U
08-NOV-16	Hg-203	-1.77E-08 +/- 3.31E-08	uCi/g	D	3.41E-08	5.62E-08		U
08-NOV-16	Nd-147	1.84E-07 +/- 5.05E-07	uCi/g	D	5.12E-07	1.02E-06		U
08-NOV-16	Np-239	4.41E-08 +/- 1.56E-07	uCi/g	D	1.57E-07	3.11E-07		U
08-NOV-16	Nb-94	1.51E-08 +/- 2.61E-08	uCi/g	D	2.70E-08	5.50E-08		U
08-NOV-16	Nb-95	-1.87E-08 +/- 3.67E-08	uCi/g	D	3.77E-08	5.38E-08		U
08-NOV-16	K-40	8.62E-06 +/- 1.33E-06	uCi/g	D	1.41E-06	5.87E-07		
08-NOV-16	Pm-144	7.48E-09 +/- 2.64E-08	uCi/g	D	2.66E-08	5.33E-08		U
08-NOV-16	Pm-146	5.22E-09 +/- 3.40E-08	uCi/g	D	3.41E-08	6.81E-08		U

Notes:
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515007	PA2-S-05	Solid	24-OCT-16 10:05:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	0.00E+00 +/- 2.56E-07	uCi/g	D	3.16E-07	4.05E-07		UI
08-NOV-16	Ru-106	-1.12E-08 +/- 2.07E-07	uCi/g	D	2.08E-07	4.09E-07		U
08-NOV-16	Ag-110m	-3.86E-08 +/- 4.87E-08	uCi/g	D	5.18E-08	7.01E-08		U
08-NOV-16	Na-22	-2.64E-08 +/- 3.87E-08	uCi/g	D	4.05E-08	6.19E-08		U
08-NOV-16	Tl-208	2.08E-07 +/- 7.89E-08	uCi/g	D	7.94E-08	5.30E-08		
08-NOV-16	Th-234	1.49E-06 +/- 1.05E-06	uCi/g	D	1.10E-06	7.04E-07		
08-NOV-16	Sn-113	-1.72E-08 +/- 4.07E-08	uCi/g	D	4.15E-08	6.75E-08		U
08-NOV-16	U-235	3.04E-08 +/- 1.41E-07	uCi/g	D	1.41E-07	2.75E-07		U
08-NOV-16	U-238	1.49E-06 +/- 1.05E-06	uCi/g	D	1.10E-06	7.04E-07		
08-NOV-16	Y-88	-6.30E-09 +/- 2.82E-08	uCi/g	D	2.84E-08	6.02E-08		U
08-NOV-16	Zn-65	-1.03E-08 +/- 7.78E-08	uCi/g	D	7.80E-08	1.38E-07		U
08-NOV-16	Zr-95	1.77E-08 +/- 6.07E-08	uCi/g	D	6.12E-08	1.21E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515008	PA2-S-06	Solid	24-OCT-16 14:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	8.17E-07 +/- 2.52E-07	uCi/g	D	2.55E-07	1.95E-07		
08-NOV-16	Am-241	-3.90E-08 +/- 1.29E-07	uCi/g	D	1.30E-07	2.26E-07		U
08-NOV-16	Sb-124	1.39E-09 +/- 4.10E-08	uCi/g	D	4.10E-08	1.01E-07		U
08-NOV-16	Sb-125	4.39E-08 +/- 7.60E-08	uCi/g	D	7.85E-08	1.58E-07		U
08-NOV-16	Ba-133	4.79E-09 +/- 3.71E-08	uCi/g	D	3.71E-08	6.74E-08		U
08-NOV-16	Ba-140	3.79E-09 +/- 1.83E-07	uCi/g	D	1.83E-07	3.69E-07		U
08-NOV-16	Be-7	2.59E-08 +/- 2.67E-07	uCi/g	D	2.67E-07	5.30E-07		U
08-NOV-16	Bi-212	4.53E-07 +/- 5.16E-07	uCi/g	D	5.55E-07	1.07E-06		U
08-NOV-16	Bi-214	9.14E-07 +/- 1.59E-07	uCi/g	D	1.64E-07	1.05E-07		
08-NOV-16	Ce-139	-8.06E-09 +/- 2.32E-08	uCi/g	D	2.36E-08	4.17E-08		U
08-NOV-16	Ce-141	1.52E-08 +/- 5.21E-08	uCi/g	D	5.26E-08	9.86E-08		U
08-NOV-16	Ce-144	2.67E-08 +/- 1.74E-07	uCi/g	D	1.74E-07	3.03E-07		U
08-NOV-16	Cs-134	0.00E+00 +/- 5.09E-08	uCi/g	D	6.38E-08	8.36E-08		UI
08-NOV-16	Cs-136	2.44E-08 +/- 6.75E-08	uCi/g	D	6.84E-08	1.44E-07		U
08-NOV-16	Cs-137	2.68E-08 +/- 3.15E-08	uCi/g	D	3.38E-08	6.74E-08	1.00E-07	U
08-NOV-16	Cr-51	1.07E-07 +/- 2.86E-07	uCi/g	D	2.90E-07	5.88E-07		U
08-NOV-16	Co-56	-1.85E-08 +/- 3.10E-08	uCi/g	D	3.21E-08	4.77E-08		U
08-NOV-16	Co-57	1.20E-08 +/- 2.03E-08	uCi/g	D	2.10E-08	3.98E-08		U

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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515008	PA2-S-06	Solid	24-OCT-16 14:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	-1.65E-08 +/- 2.79E-08	uCi/g	D	2.89E-08	4.93E-08		U
08-NOV-16	Co-60	1.51E-08 +/- 2.97E-08	uCi/g	D	3.05E-08	6.38E-08		U
08-NOV-16	Eu-152	1.35E-08 +/- 7.03E-08	uCi/g	D	7.06E-08	1.32E-07		U
08-NOV-16	Eu-154	-2.74E-08 +/- 8.31E-08	uCi/g	D	8.41E-08	1.50E-07		U
08-NOV-16	Eu-155	7.87E-08 +/- 8.01E-08	uCi/g	D	8.78E-08	1.63E-07		U
08-NOV-16	Ir-192	3.16E-08 +/- 3.42E-08	uCi/g	D	3.71E-08	5.26E-08		U
08-NOV-16	Fe-59	-1.65E-08 +/- 7.15E-08	uCi/g	D	7.19E-08	1.31E-07		U
08-NOV-16	Pb-210	-1.77E-07 +/- 2.81E-06	uCi/g	D	2.81E-06	5.53E-06		U
08-NOV-16	Pb-212	8.31E-07 +/- 1.10E-07	uCi/g	D	1.18E-07	7.92E-08		
08-NOV-16	Pb-214	9.43E-07 +/- 1.93E-07	uCi/g	D	1.97E-07	1.13E-07		
08-NOV-16	Mn-54	-1.20E-08 +/- 2.88E-08	uCi/g	D	2.93E-08	5.21E-08		U
08-NOV-16	Hg-203	3.25E-09 +/- 3.36E-08	uCi/g	D	3.37E-08	6.12E-08		U
08-NOV-16	Nd-147	1.27E-07 +/- 4.05E-07	uCi/g	D	4.09E-07	8.40E-07		U
08-NOV-16	Np-239	-1.90E-08 +/- 2.02E-07	uCi/g	D	2.02E-07	3.78E-07		U
08-NOV-16	Nb-94	-2.85E-09 +/- 2.92E-08	uCi/g	D	2.92E-08	5.55E-08		U
08-NOV-16	Nb-95	-2.13E-08 +/- 3.63E-08	uCi/g	D	3.76E-08	6.40E-08		U
08-NOV-16	K-40	1.50E-05 +/- 1.46E-06	uCi/g	D	1.65E-06	5.41E-07		
08-NOV-16	Pm-144	-7.84E-09 +/- 2.86E-08	uCi/g	D	2.88E-08	5.34E-08		U
08-NOV-16	Pm-146	-8.03E-09 +/- 3.33E-08	uCi/g	D	3.35E-08	6.33E-08		U
08-NOV-16	Ra-228	8.17E-07 +/- 2.52E-07	uCi/g	D	2.55E-07	1.95E-07		
08-NOV-16	Ru-106	-7.01E-08 +/- 2.22E-07	uCi/g	D	2.24E-07	4.21E-07		U
08-NOV-16	Ag-110m	8.35E-09 +/- 3.59E-08	uCi/g	D	3.61E-08	7.33E-08		U
08-NOV-16	Na-22	-1.17E-08 +/- 2.89E-08	uCi/g	D	2.94E-08	5.12E-08		U
08-NOV-16	Tl-208	2.65E-07 +/- 8.36E-08	uCi/g	D	8.44E-08	5.72E-08		
08-NOV-16	Th-234	1.41E-06 +/- 2.67E-06	uCi/g	D	2.69E-06	1.92E-06		U
08-NOV-16	Sn-113	-1.27E-08 +/- 3.20E-08	uCi/g	D	3.25E-08	6.13E-08		U
08-NOV-16	U-235	6.16E-08 +/- 1.70E-07	uCi/g	D	1.70E-07	3.20E-07		U
08-NOV-16	U-238	1.41E-06 +/- 2.67E-06	uCi/g	D	2.69E-06	1.92E-06		U
08-NOV-16	Y-88	-2.48E-08 +/- 2.61E-08	uCi/g	D	2.84E-08	3.84E-08		U
08-NOV-16	Zn-65	-3.31E-08 +/- 7.60E-08	uCi/g	D	7.75E-08	1.15E-07		U
08-NOV-16	Zr-95	3.08E-08 +/- 5.23E-08	uCi/g	D	5.41E-08	1.12E-07		U
25-NOV-16	Am-241	2.47E-07 +/- 1.04E-06	uCi/g	W	1.04E-06	2.05E-06	1.00E-04	U
25-NOV-16	Cm-242	0.00E+00 +/- 5.75E-07	uCi/g	W	5.77E-07	8.73E-07	2.00E-02	U
25-NOV-16	Cm-243/244	2.54E-07 +/- 7.08E-07	uCi/g	W	7.09E-07	7.63E-07	1.00E-04	U
25-NOV-16	Cm-245/246	1.18E-07 +/- 8.34E-07	uCi/g	W	8.35E-07	1.68E-06	1.00E-04	U
25-NOV-16	Ni-59	5.07E-04 +/- 6.37E-04	uCi/g	W	8.17E-04	6.36E-04	2.20E-01	U
29-NOV-16	I-129	-5.68E-07 +/- 5.19E-06	uCi/g	W	5.20E-06	1.12E-05	8.00E-05	U

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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515008	PA2-S-06	Solid	24-OCT-16 14:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
29-NOV-16	Pu-241	-1.27E-05 +/- 9.54E-05	uCi/g	W	9.54E-05	1.68E-04	3.50E-03	U
26-NOV-16	Fe-55	-7.93E-05 +/- 6.19E-04	uCi/g	W	6.19E-04	8.95E-04	7.00E-01	U
26-NOV-16	Tc-99	-1.46E-05 +/- 4.11E-05	uCi/g	W	4.11E-05	7.32E-05	3.00E-03	U
23-NOV-16	H-3	-1.98E-06 +/- 1.60E-04	uCi/g	W	1.60E-04	2.91E-04	4.00E-02	U
23-NOV-16	C-14	5.44E-06 +/- 1.31E-05	uCi/g	W	1.31E-05	2.26E-05	8.00E-03	U
23-NOV-16	Pu-238	9.05E-07 +/- 1.20E-06	uCi/g	W	1.21E-06	1.72E-06	1.00E-04	U
23-NOV-16	Pu-239/240	6.88E-08 +/- 6.98E-07	uCi/g	W	7.00E-07	1.46E-06	1.00E-04	U
23-NOV-16	Pu-242	1.32E-06 +/- 1.47E-06	uCi/g	W	1.49E-06	2.13E-06	1.00E-04	U
25-NOV-16	Np-237	-1.63E-07 +/- 4.65E-07	uCi/g	W	4.65E-07	1.35E-06	1.00E-04	U
29-NOV-16	Sr-89	2.96E+00 +/- 4.35E+01	pCi/g	W	4.35E+01	7.56E+01	7.00E-01	U
29-NOV-16	Sr-90	-5.00E+00 +/- 1.19E+01	pCi/g	W	1.19E+01	2.07E+01	4.00E-05	U
29-NOV-16	Ni-63	-9.49E-05 +/- 2.22E-04	uCi/g	D	2.22E-04	3.96E-04	3.50E-03	U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515009	PA2-D6-07	Solid	24-OCT-16 14:00:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	1.05E-06 +/- 2.60E-07	uCi/g	D	2.98E-07	2.40E-07		
08-NOV-16	Am-241	9.67E-08 +/- 1.23E-07	uCi/g	D	1.30E-07	2.31E-07		U
08-NOV-16	Sb-124	-1.17E-08 +/- 5.58E-08	uCi/g	D	5.60E-08	1.20E-07		U
08-NOV-16	Sb-125	6.78E-08 +/- 7.51E-08	uCi/g	D	8.13E-08	1.63E-07		U
08-NOV-16	Ba-133	9.63E-09 +/- 3.57E-08	uCi/g	D	3.60E-08	6.62E-08		U
08-NOV-16	Ba-140	2.13E-07 +/- 2.61E-07	uCi/g	D	2.79E-07	4.75E-07		U
08-NOV-16	Be-7	3.79E-08 +/- 2.91E-07	uCi/g	D	2.91E-07	5.25E-07		U
08-NOV-16	Bi-212	0.00E+00 +/- 1.30E-06	uCi/g	D	1.70E-06	1.09E-06		UI
08-NOV-16	Bi-214	9.84E-07 +/- 1.75E-07	uCi/g	D	1.92E-07	1.24E-07		
08-NOV-16	Ce-139	-2.64E-08 +/- 2.56E-08	uCi/g	D	2.88E-08	4.17E-08		U
08-NOV-16	Ce-141	1.77E-09 +/- 5.67E-08	uCi/g	D	5.67E-08	1.03E-07		U
08-NOV-16	Ce-144	-3.84E-08 +/- 1.75E-07	uCi/g	D	1.76E-07	3.13E-07		U
08-NOV-16	Cs-134	2.60E-08 +/- 3.57E-08	uCi/g	D	3.76E-08	7.60E-08		U
08-NOV-16	Cs-136	6.20E-08 +/- 9.86E-08	uCi/g	D	1.03E-07	2.07E-07		U
08-NOV-16	Cs-137	-1.01E-08 +/- 3.44E-08	uCi/g	D	3.47E-08	6.34E-08	1.00E-07	U
08-NOV-16	Cr-51	-3.04E-08 +/- 3.24E-07	uCi/g	D	3.24E-07	6.22E-07		U
08-NOV-16	Co-56	-2.50E-08 +/- 3.09E-08	uCi/g	D	3.30E-08	5.26E-08		U
08-NOV-16	Co-57	-1.28E-10 +/- 2.18E-08	uCi/g	D	2.18E-08	4.00E-08		U

Notes:
1. LLDs are a-priori values.
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
U - Target isotope was analyzed for but not detected above the MDC and LLD.
UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515009	PA2-D6-07	Solid	24-OCT-16 14:00:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	-1.36E-08 +/- 2.63E-08	uCi/g	D	2.71E-08	4.68E-08		U
08-NOV-16	Co-60	-5.38E-09 +/- 2.95E-08	uCi/g	D	2.97E-08	6.01E-08		U
08-NOV-16	Eu-152	2.16E-08 +/- 8.70E-08	uCi/g	D	8.76E-08	1.74E-07		U
08-NOV-16	Eu-154	-1.44E-08 +/- 1.11E-07	uCi/g	D	1.11E-07	2.13E-07		U
08-NOV-16	Eu-155	4.06E-08 +/- 9.69E-08	uCi/g	D	9.87E-08	1.84E-07		U
08-NOV-16	Ir-192	1.47E-08 +/- 2.71E-08	uCi/g	D	2.79E-08	5.65E-08		U
08-NOV-16	Fe-59	4.98E-08 +/- 7.18E-08	uCi/g	D	7.59E-08	1.57E-07		U
08-NOV-16	Pb-210	2.04E-07 +/- 2.48E-06	uCi/g	D	2.48E-06	4.73E-06		U
08-NOV-16	Pb-212	1.01E-06 +/- 1.33E-07	uCi/g	D	1.57E-07	1.02E-07		
08-NOV-16	Pb-214	1.13E-06 +/- 1.83E-07	uCi/g	D	2.05E-07	3.39E-07		
08-NOV-16	Mn-54	1.71E-08 +/- 3.18E-08	uCi/g	D	3.27E-08	6.20E-08		U
08-NOV-16	Hg-203	8.30E-09 +/- 3.60E-08	uCi/g	D	3.62E-08	6.56E-08		U
08-NOV-16	Nd-147	9.34E-08 +/- 4.21E-07	uCi/g	D	4.24E-07	8.63E-07		U
08-NOV-16	Np-239	7.64E-08 +/- 2.24E-07	uCi/g	D	2.26E-07	4.24E-07		U
08-NOV-16	Nb-94	-1.41E-09 +/- 3.07E-08	uCi/g	D	3.07E-08	5.84E-08		U
08-NOV-16	Nb-95	8.51E-09 +/- 4.16E-08	uCi/g	D	4.18E-08	7.37E-08		U
08-NOV-16	K-40	1.65E-05 +/- 1.66E-06	uCi/g	D	2.21E-06	4.51E-07		
08-NOV-16	Pm-144	-3.03E-08 +/- 2.75E-08	uCi/g	D	3.08E-08	4.33E-08		U
08-NOV-16	Pm-146	1.81E-08 +/- 3.53E-08	uCi/g	D	3.63E-08	7.34E-08		U
08-NOV-16	Ra-228	1.05E-06 +/- 2.60E-07	uCi/g	D	2.98E-07	2.40E-07		
08-NOV-16	Ru-106	-1.11E-07 +/- 2.42E-07	uCi/g	D	2.48E-07	4.42E-07		U
08-NOV-16	Ag-110m	-1.27E-08 +/- 4.62E-08	uCi/g	D	4.66E-08	8.42E-08		U
08-NOV-16	Na-22	-5.91E-09 +/- 3.90E-08	uCi/g	D	3.91E-08	7.44E-08		U
08-NOV-16	Tl-208	3.59E-07 +/- 8.53E-08	uCi/g	D	9.02E-08	6.28E-08		
08-NOV-16	Th-234	1.62E-06 +/- 2.18E-06	uCi/g	D	2.21E-06	1.97E-06		U
08-NOV-16	Sn-113	1.68E-09 +/- 3.74E-08	uCi/g	D	3.74E-08	7.37E-08		U
08-NOV-16	U-235	4.82E-08 +/- 1.79E-07	uCi/g	D	1.79E-07	3.31E-07		U
08-NOV-16	U-238	1.62E-06 +/- 2.18E-06	uCi/g	D	2.21E-06	1.97E-06		U
08-NOV-16	Y-88	1.01E-09 +/- 2.97E-08	uCi/g	D	2.97E-08	6.70E-08		U
08-NOV-16	Zn-65	-6.27E-08 +/- 1.01E-07	uCi/g	D	1.06E-07	1.43E-07		U
08-NOV-16	Zr-95	1.78E-08 +/- 6.13E-08	uCi/g	D	6.18E-08	1.24E-07		U
25-NOV-16	Am-241	2.19E-07 +/- 6.96E-07	uCi/g	W	6.97E-07	1.05E-06	1.00E-04	U
25-NOV-16	Cm-242	2.48E-07 +/- 7.87E-07	uCi/g	W	7.89E-07	1.19E-06	2.00E-02	U
25-NOV-16	Cm-243/244	-5.92E-08 +/- 4.93E-07	uCi/g	W	4.95E-07	1.16E-06	1.00E-04	U
25-NOV-16	Cm-245/246	-1.03E-07 +/- 5.75E-07	uCi/g	W	5.77E-07	1.45E-06	1.00E-04	U
25-NOV-16	Ni-59	6.23E-04 +/- 8.29E-04	uCi/g	W	8.77E-04	1.63E-03	2.20E-01	U
29-NOV-16	I-129	0.00E+00 +/- 2.91E-06	uCi/g	W	0.00E+00	4.02E-06	8.00E-05	U

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- X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
- M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515009	PA2-D6-07	Solid	24-OCT-16 14:00:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
29-NOV-16	Pu-241	-7.75E-05 +/- 1.24E-04	uCi/g	W	1.24E-04	2.24E-04	3.50E-03	U
26-NOV-16	Fe-55	2.21E-04 +/- 1.12E-03	uCi/g	W	1.12E-03	1.61E-03	7.00E-01	U
26-NOV-16	Tc-99	3.11E-06 +/- 1.37E-05	uCi/g	W	1.37E-05	2.38E-05	3.00E-03	U
23-NOV-16	H-3	8.25E-05 +/- 1.40E-04	uCi/g	W	1.41E-04	2.41E-04	4.00E-02	U
24-NOV-16	C-14	5.28E-06 +/- 1.10E-05	uCi/g	W	1.10E-05	1.89E-05	8.00E-03	U
23-NOV-16	Pu-238	-3.51E-08 +/- 5.82E-07	uCi/g	W	5.85E-07	1.23E-06	1.00E-04	U
23-NOV-16	Pu-239/240	5.15E-07 +/- 1.00E-06	uCi/g	W	1.01E-06	1.38E-06	1.00E-04	U
23-NOV-16	Pu-242	-1.05E-07 +/- 5.89E-07	uCi/g	W	5.92E-07	1.49E-06	1.00E-04	U
25-NOV-16	Np-237	8.63E-09 +/- 6.17E-07	uCi/g	W	6.18E-07	1.38E-06	1.00E-04	U
29-NOV-16	Sr-89	2.02E+01 +/- 6.74E+01	pCi/g	W	6.74E+01	1.16E+02	7.00E-01	U
29-NOV-16	Sr-90	-8.56E+00 +/- 1.79E+01	pCi/g	W	1.79E+01	3.11E+01	4.00E-05	U
29-NOV-16	Ni-63	-2.36E-04 +/- 3.72E-04	uCi/g	D	3.72E-04	6.70E-04	3.50E-03	U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515010	PA2-S-08	Solid	24-OCT-16 15:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	3.97E-07 +/- 2.48E-07	uCi/g	D	3.07E-07	5.66E-07		U
08-NOV-16	Am-241	8.51E-09 +/- 7.02E-08	uCi/g	D	7.03E-08	1.34E-07		U
08-NOV-16	Sb-124	-1.44E-08 +/- 8.73E-08	uCi/g	D	8.76E-08	1.82E-07		U
08-NOV-16	Sb-125	6.16E-08 +/- 1.02E-07	uCi/g	D	1.06E-07	2.20E-07		U
08-NOV-16	Ba-133	7.07E-09 +/- 4.89E-08	uCi/g	D	4.90E-08	9.16E-08		U
08-NOV-16	Ba-140	1.23E-07 +/- 2.93E-07	uCi/g	D	2.98E-07	6.23E-07		U
08-NOV-16	Be-7	2.67E-06 +/- 9.16E-07	uCi/g	D	9.22E-07	7.34E-07		
08-NOV-16	Bi-212	1.23E-06 +/- 6.20E-07	uCi/g	D	8.33E-07	1.41E-06		U
08-NOV-16	Bi-214	1.31E-06 +/- 2.36E-07	uCi/g	D	2.43E-07	1.38E-07		
08-NOV-16	Ce-139	2.89E-09 +/- 3.08E-08	uCi/g	D	3.08E-08	5.96E-08		U
08-NOV-16	Ce-141	-1.03E-08 +/- 6.05E-08	uCi/g	D	6.07E-08	1.16E-07		U
08-NOV-16	Ce-144	-7.35E-08 +/- 1.85E-07	uCi/g	D	1.88E-07	3.50E-07		U
08-NOV-16	Cs-134	-6.56E-09 +/- 5.17E-08	uCi/g	D	5.18E-08	9.74E-08		U
08-NOV-16	Cs-136	-2.93E-08 +/- 1.12E-07	uCi/g	D	1.13E-07	2.21E-07		U
08-NOV-16	Cs-137	-1.08E-08 +/- 4.13E-08	uCi/g	D	4.16E-08	6.93E-08	1.00E-07	U
08-NOV-16	Cr-51	5.94E-08 +/- 3.58E-07	uCi/g	D	3.59E-07	7.52E-07		U
08-NOV-16	Co-56	-2.36E-08 +/- 4.19E-08	uCi/g	D	4.33E-08	7.85E-08		U
08-NOV-16	Co-57	1.23E-08 +/- 2.23E-08	uCi/g	D	2.30E-08	4.62E-08		U

Notes:
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GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515010	PA2-S-08	Solid	24-OCT-16 15:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	1.57E-08 +/- 3.77E-08	uCi/g	D	3.84E-08	6.89E-08		U
08-NOV-16	Co-60	-2.67E-08 +/- 4.52E-08	uCi/g	D	4.68E-08	8.06E-08		U
08-NOV-16	Eu-152	3.91E-08 +/- 9.59E-08	uCi/g	D	9.75E-08	1.91E-07		U
08-NOV-16	Eu-154	1.59E-08 +/- 1.28E-07	uCi/g	D	1.29E-07	2.70E-07		U
08-NOV-16	Eu-155	3.94E-08 +/- 8.77E-08	uCi/g	D	8.95E-08	1.81E-07		U
08-NOV-16	Ir-192	2.04E-08 +/- 3.70E-08	uCi/g	D	3.81E-08	7.97E-08		U
08-NOV-16	Fe-59	1.15E-08 +/- 9.02E-08	uCi/g	D	9.04E-08	1.92E-07		U
08-NOV-16	Pb-210	2.44E-06 +/- 1.54E-06	uCi/g	D	1.56E-06	1.09E-06		
08-NOV-16	Pb-212	5.37E-07 +/- 1.70E-07	uCi/g	D	1.72E-07	1.10E-07		
08-NOV-16	Pb-214	1.47E-06 +/- 2.68E-07	uCi/g	D	2.75E-07	1.73E-07		
08-NOV-16	Mn-54	1.24E-08 +/- 3.80E-08	uCi/g	D	3.84E-08	7.95E-08		U
08-NOV-16	Hg-203	1.55E-08 +/- 4.23E-08	uCi/g	D	4.29E-08	8.22E-08		U
08-NOV-16	Nd-147	5.29E-08 +/- 6.33E-07	uCi/g	D	6.34E-07	1.28E-06		U
08-NOV-16	Np-239	-1.67E-08 +/- 2.11E-07	uCi/g	D	2.11E-07	4.17E-07		U
08-NOV-16	Nb-94	1.63E-08 +/- 3.78E-08	uCi/g	D	3.85E-08	7.67E-08		U
08-NOV-16	Nb-95	-1.08E-08 +/- 5.50E-08	uCi/g	D	5.52E-08	9.05E-08		U
08-NOV-16	K-40	9.77E-06 +/- 1.56E-06	uCi/g	D	1.64E-06	7.28E-07		
08-NOV-16	Pm-144	2.26E-08 +/- 3.24E-08	uCi/g	D	3.40E-08	7.33E-08		U
08-NOV-16	Pm-146	-1.45E-08 +/- 4.69E-08	uCi/g	D	4.73E-08	9.07E-08		U
08-NOV-16	Ra-228	3.97E-07 +/- 2.48E-07	uCi/g	D	3.07E-07	5.66E-07		U
08-NOV-16	Ru-106	1.47E-07 +/- 3.57E-07	uCi/g	D	3.63E-07	7.52E-07		U
08-NOV-16	Ag-110m	-1.24E-08 +/- 5.08E-08	uCi/g	D	5.11E-08	1.03E-07		U
08-NOV-16	Na-22	5.61E-09 +/- 4.53E-08	uCi/g	D	4.54E-08	9.52E-08		U
08-NOV-16	Tl-208	1.90E-07 +/- 7.80E-08	uCi/g	D	7.84E-08	6.86E-08		
08-NOV-16	Th-234	2.52E-06 +/- 2.13E-06	uCi/g	D	2.21E-06	1.29E-06		
08-NOV-16	Sn-113	-3.69E-08 +/- 4.65E-08	uCi/g	D	4.94E-08	8.52E-08		U
08-NOV-16	U-235	4.10E-08 +/- 2.14E-07	uCi/g	D	2.15E-07	3.95E-07		U
08-NOV-16	U-238	2.52E-06 +/- 2.13E-06	uCi/g	D	2.21E-06	1.29E-06		
08-NOV-16	Y-88	-1.35E-08 +/- 4.53E-08	uCi/g	D	4.58E-08	9.36E-08		U
08-NOV-16	Zn-65	-2.23E-09 +/- 1.11E-07	uCi/g	D	1.11E-07	1.97E-07		U
08-NOV-16	Zr-95	1.12E-07 +/- 1.04E-07	uCi/g	D	1.16E-07	1.71E-07		U

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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515011	PA2-D6-09	Solid	24-OCT-16 15:30:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	9.17E-07 +/- 3.20E-07	uCi/g	D	3.24E-07	2.52E-07		
08-NOV-16	Am-241	-1.18E-07 +/- 2.36E-07	uCi/g	D	2.42E-07	4.20E-07		U
08-NOV-16	Sb-124	5.22E-08 +/- 7.37E-08	uCi/g	D	7.74E-08	1.87E-07		U
08-NOV-16	Sb-125	-1.25E-08 +/- 9.06E-08	uCi/g	D	9.08E-08	1.71E-07		U
08-NOV-16	Ba-133	-2.14E-09 +/- 4.42E-08	uCi/g	D	4.42E-08	7.58E-08		U
08-NOV-16	Ba-140	-3.70E-08 +/- 2.72E-07	uCi/g	D	2.72E-07	5.09E-07		U
08-NOV-16	Be-7	-4.26E-08 +/- 3.05E-07	uCi/g	D	3.06E-07	5.77E-07		U
08-NOV-16	Bi-212	0.00E+00 +/- 8.78E-07	uCi/g	D	1.25E-06	1.36E-06		UI
08-NOV-16	Bi-214	9.04E-07 +/- 1.84E-07	uCi/g	D	1.88E-07	1.21E-07		
08-NOV-16	Ce-139	-1.84E-08 +/- 2.62E-08	uCi/g	D	2.77E-08	4.89E-08		U
08-NOV-16	Ce-141	2.08E-08 +/- 6.75E-08	uCi/g	D	6.81E-08	1.23E-07		U
08-NOV-16	Ce-144	-1.55E-07 +/- 2.33E-07	uCi/g	D	2.43E-07	3.91E-07		U
08-NOV-16	Cs-134	9.69E-08 +/- 6.36E-08	uCi/g	D	7.73E-08	1.06E-07		U
08-NOV-16	Cs-136	-2.47E-08 +/- 1.10E-07	uCi/g	D	1.10E-07	1.86E-07		U
08-NOV-16	Cs-137	5.69E-09 +/- 3.92E-08	uCi/g	D	3.93E-08	7.55E-08	1.00E-07	U
08-NOV-16	Cr-51	-1.07E-08 +/- 3.28E-07	uCi/g	D	3.28E-07	6.34E-07		U
08-NOV-16	Co-56	4.33E-08 +/- 4.24E-08	uCi/g	D	4.24E-08	5.21E-08		U
08-NOV-16	Co-57	-3.67E-09 +/- 2.96E-08	uCi/g	D	2.96E-08	5.23E-08		U
08-NOV-16	Co-58	-3.47E-08 +/- 3.39E-08	uCi/g	D	3.73E-08	5.10E-08		U
08-NOV-16	Co-60	2.80E-08 +/- 3.99E-08	uCi/g	D	4.18E-08	8.38E-08		U
08-NOV-16	Eu-152	1.28E-07 +/- 9.96E-08	uCi/g	D	1.15E-07	1.78E-07		U
08-NOV-16	Eu-154	-3.72E-08 +/- 1.02E-07	uCi/g	D	1.03E-07	1.93E-07		U
08-NOV-16	Eu-155	1.22E-07 +/- 1.38E-07	uCi/g	D	1.39E-07	1.87E-07		U
08-NOV-16	Ir-192	1.99E-09 +/- 2.72E-08	uCi/g	D	2.72E-08	5.39E-08		U
08-NOV-16	Fe-59	2.60E-08 +/- 8.49E-08	uCi/g	D	8.58E-08	1.77E-07		U
08-NOV-16	Pb-210	2.42E-06 +/- 9.24E-06	uCi/g	D	9.30E-06	1.77E-05		U
08-NOV-16	Pb-212	1.11E-06 +/- 1.34E-07	uCi/g	D	1.46E-07	1.01E-07		
08-NOV-16	Pb-214	1.37E-06 +/- 2.15E-07	uCi/g	D	2.23E-07	1.30E-07		
08-NOV-16	Mn-54	1.97E-08 +/- 3.76E-08	uCi/g	D	3.86E-08	7.08E-08		U
08-NOV-16	Hg-203	1.10E-08 +/- 3.87E-08	uCi/g	D	3.90E-08	7.60E-08		U
08-NOV-16	Nd-147	6.67E-08 +/- 4.90E-07	uCi/g	D	4.91E-07	9.69E-07		U
08-NOV-16	Np-239	5.24E-08 +/- 2.82E-07	uCi/g	D	2.83E-07	5.16E-07		U
08-NOV-16	Nb-94	-5.10E-09 +/- 3.73E-08	uCi/g	D	3.74E-08	6.83E-08		U
08-NOV-16	Nb-95	-2.53E-08 +/- 4.92E-08	uCi/g	D	5.05E-08	8.45E-08		U
08-NOV-16	K-40	1.57E-05 +/- 1.60E-06	uCi/g	D	1.80E-06	6.14E-07		
08-NOV-16	Pm-144	-2.06E-08 +/- 3.77E-08	uCi/g	D	3.89E-08	6.52E-08		U
08-NOV-16	Pm-146	2.91E-09 +/- 3.73E-08	uCi/g	D	3.73E-08	7.31E-08		U

Notes:
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2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515011	PA2-D6-09	Solid	24-OCT-16 15:30:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	9.17E-07 +/- 3.20E-07	uCi/g	D	3.24E-07	2.52E-07		
08-NOV-16	Ru-106	-7.60E-08 +/- 3.07E-07	uCi/g	D	3.09E-07	5.65E-07		U
08-NOV-16	Ag-110m	-3.36E-08 +/- 5.35E-08	uCi/g	D	5.56E-08	8.91E-08		U
08-NOV-16	Na-22	-2.35E-08 +/- 3.88E-08	uCi/g	D	4.02E-08	6.94E-08		U
08-NOV-16	Tl-208	3.91E-07 +/- 8.49E-08	uCi/g	D	8.66E-08	5.74E-08		
08-NOV-16	Th-234	2.24E-07 +/- 1.93E-06	uCi/g	D	1.94E-06	3.60E-06		U
08-NOV-16	Sn-113	2.20E-08 +/- 3.95E-08	uCi/g	D	4.07E-08	8.13E-08		U
08-NOV-16	U-235	3.19E-08 +/- 1.95E-07	uCi/g	D	1.95E-07	3.86E-07		U
08-NOV-16	U-238	2.24E-07 +/- 1.93E-06	uCi/g	D	1.94E-06	3.60E-06		U
08-NOV-16	Y-88	-4.55E-09 +/- 2.35E-08	uCi/g	D	2.36E-08	5.18E-08		U
08-NOV-16	Zn-65	-1.85E-08 +/- 8.29E-08	uCi/g	D	8.33E-08	1.40E-07		U
08-NOV-16	Zr-95	4.74E-08 +/- 6.80E-08	uCi/g	D	7.13E-08	1.43E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515012	PA3-S-01	Solid	24-OCT-16 16:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	9.04E-08 +/- 4.03E-07	uCi/g	D	4.05E-07	4.36E-07		U
08-NOV-16	Am-241	2.05E-08 +/- 6.15E-08	uCi/g	D	6.22E-08	1.06E-07		U
08-NOV-16	Sb-124	2.66E-08 +/- 1.07E-07	uCi/g	D	1.08E-07	2.43E-07		U
08-NOV-16	Sb-125	2.88E-08 +/- 1.12E-07	uCi/g	D	1.13E-07	2.19E-07		U
08-NOV-16	Ba-133	2.91E-09 +/- 4.91E-08	uCi/g	D	4.91E-08	8.53E-08		U
08-NOV-16	Ba-140	7.22E-08 +/- 3.48E-07	uCi/g	D	3.50E-07	6.73E-07		U
08-NOV-16	Be-7	-7.92E-08 +/- 3.65E-07	uCi/g	D	3.67E-07	6.76E-07		U
08-NOV-16	Bi-212	1.35E-06 +/- 6.86E-07	uCi/g	D	9.21E-07	1.48E-06		U
08-NOV-16	Bi-214	1.30E-06 +/- 2.61E-07	uCi/g	D	2.67E-07	1.62E-07		
08-NOV-16	Ce-139	8.61E-09 +/- 2.80E-08	uCi/g	D	2.83E-08	5.55E-08		U
08-NOV-16	Ce-141	-3.46E-08 +/- 6.03E-08	uCi/g	D	6.23E-08	1.12E-07		U
08-NOV-16	Ce-144	3.89E-08 +/- 1.79E-07	uCi/g	D	1.80E-07	3.56E-07		U
08-NOV-16	Cs-134	8.14E-09 +/- 4.62E-08	uCi/g	D	4.63E-08	9.58E-08		U
08-NOV-16	Cs-136	-1.92E-08 +/- 9.80E-08	uCi/g	D	9.84E-08	1.96E-07		U
08-NOV-16	Cs-137	-1.57E-08 +/- 4.28E-08	uCi/g	D	4.34E-08	7.60E-08	1.00E-07	U
08-NOV-16	Cr-51	-1.16E-07 +/- 3.53E-07	uCi/g	D	3.57E-07	6.56E-07		U
08-NOV-16	Co-56	7.96E-09 +/- 5.10E-08	uCi/g	D	5.11E-08	9.43E-08		U
08-NOV-16	Co-57	2.51E-09 +/- 2.32E-08	uCi/g	D	2.33E-08	4.18E-08		U

Notes:
1. LLDs are a-priori values.
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3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515012	PA3-S-01	Solid	24-OCT-16 16:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	-1.96E-09 +/- 4.47E-08	uCi/g	D	4.47E-08	8.07E-08		U
08-NOV-16	Co-60	6.12E-09 +/- 4.39E-08	uCi/g	D	4.40E-08	9.31E-08		U
08-NOV-16	Eu-152	-3.39E-08 +/- 1.11E-07	uCi/g	D	1.12E-07	2.04E-07		U
08-NOV-16	Eu-154	-2.43E-08 +/- 9.68E-08	uCi/g	D	9.74E-08	1.95E-07		U
08-NOV-16	Eu-155	6.70E-08 +/- 8.88E-08	uCi/g	D	9.39E-08	1.71E-07		U
08-NOV-16	Ir-192	5.27E-09 +/- 3.54E-08	uCi/g	D	3.55E-08	6.94E-08		U
08-NOV-16	Fe-59	-1.99E-08 +/- 9.39E-08	uCi/g	D	9.43E-08	1.84E-07		U
08-NOV-16	Pb-210	5.48E-07 +/- 9.88E-07	uCi/g	D	9.89E-07	9.24E-07		U
08-NOV-16	Pb-212	1.79E-07 +/- 1.26E-07	uCi/g	D	1.26E-07	1.16E-07		
08-NOV-16	Pb-214	1.76E-06 +/- 2.55E-07	uCi/g	D	2.65E-07	1.50E-07		
08-NOV-16	Mn-54	1.02E-08 +/- 5.10E-08	uCi/g	D	5.12E-08	9.34E-08		U
08-NOV-16	Hg-203	1.79E-08 +/- 4.27E-08	uCi/g	D	4.35E-08	8.46E-08		U
08-NOV-16	Nd-147	3.18E-07 +/- 5.99E-07	uCi/g	D	6.16E-07	1.25E-06		U
08-NOV-16	Np-239	-1.26E-07 +/- 2.32E-07	uCi/g	D	2.39E-07	3.88E-07		U
08-NOV-16	Nb-94	1.97E-08 +/- 3.85E-08	uCi/g	D	3.95E-08	7.92E-08		U
08-NOV-16	Nb-95	-2.43E-08 +/- 5.44E-08	uCi/g	D	5.55E-08	9.32E-08		U
08-NOV-16	K-40	2.84E-06 +/- 1.42E-06	uCi/g	D	1.43E-06	8.96E-07		
08-NOV-16	Pm-144	-2.86E-08 +/- 4.48E-08	uCi/g	D	4.66E-08	7.45E-08		U
08-NOV-16	Pm-146	4.22E-09 +/- 5.07E-08	uCi/g	D	5.07E-08	9.73E-08		U
08-NOV-16	Ra-228	9.04E-08 +/- 4.03E-07	uCi/g	D	4.05E-07	4.36E-07		U
08-NOV-16	Ru-106	-6.46E-08 +/- 3.92E-07	uCi/g	D	3.93E-07	7.21E-07		U
08-NOV-16	Ag-110m	-3.13E-09 +/- 5.24E-08	uCi/g	D	5.24E-08	1.07E-07		U
08-NOV-16	Na-22	-9.77E-09 +/- 3.38E-08	uCi/g	D	3.40E-08	6.71E-08		U
08-NOV-16	Tl-208	1.15E-08 +/- 4.96E-08	uCi/g	D	4.99E-08	1.02E-07		U
08-NOV-16	Th-234	1.59E-06 +/- 1.36E-06	uCi/g	D	1.40E-06	1.08E-06		
08-NOV-16	Sn-113	6.75E-08 +/- 5.23E-08	uCi/g	D	6.06E-08	1.14E-07		U
08-NOV-16	U-235	1.18E-07 +/- 2.02E-07	uCi/g	D	2.02E-07	4.05E-07		U
08-NOV-16	U-238	1.59E-06 +/- 1.36E-06	uCi/g	D	1.40E-06	1.08E-06		
08-NOV-16	Y-88	-2.24E-08 +/- 4.77E-08	uCi/g	D	4.88E-08	8.59E-08		U
08-NOV-16	Zn-65	2.48E-08 +/- 9.00E-08	uCi/g	D	9.07E-08	1.77E-07		U
08-NOV-16	Zr-95	2.98E-08 +/- 8.66E-08	uCi/g	D	8.76E-08	1.74E-07		U

Notes:
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GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515013	PA3-D6-02	Solid	24-OCT-16 16:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	9.39E-07 +/- 2.75E-07	uCi/g	D	2.80E-07	3.08E-07		
08-NOV-16	Am-241	6.67E-09 +/- 2.39E-07	uCi/g	D	2.39E-07	4.54E-07		U
08-NOV-16	Sb-124	2.05E-08 +/- 8.08E-08	uCi/g	D	8.13E-08	1.87E-07		U
08-NOV-16	Sb-125	-1.14E-08 +/- 9.38E-08	uCi/g	D	9.39E-08	1.73E-07		U
08-NOV-16	Ba-133	4.73E-09 +/- 4.10E-08	uCi/g	D	4.10E-08	7.11E-08		U
08-NOV-16	Ba-140	-3.99E-08 +/- 2.41E-07	uCi/g	D	2.41E-07	4.74E-07		U
08-NOV-16	Be-7	-2.98E-08 +/- 3.58E-07	uCi/g	D	3.58E-07	6.56E-07		U
08-NOV-16	Bi-212	0.00E+00 +/- 1.01E-06	uCi/g	D	1.30E-06	1.55E-06		UI
08-NOV-16	Bi-214	8.88E-07 +/- 2.23E-07	uCi/g	D	2.26E-07	1.31E-07		
08-NOV-16	Ce-139	6.11E-09 +/- 2.60E-08	uCi/g	D	2.62E-08	5.17E-08		U
08-NOV-16	Ce-141	-3.74E-08 +/- 5.80E-08	uCi/g	D	6.05E-08	1.09E-07		U
08-NOV-16	Ce-144	-4.23E-09 +/- 1.94E-07	uCi/g	D	1.94E-07	3.67E-07		U
08-NOV-16	Cs-134	9.11E-08 +/- 9.17E-08	uCi/g	D	1.01E-07	1.05E-07		U
08-NOV-16	Cs-136	1.07E-08 +/- 1.16E-07	uCi/g	D	1.16E-07	2.25E-07		U
08-NOV-16	Cs-137	-3.33E-10 +/- 4.19E-08	uCi/g	D	4.19E-08	8.15E-08	1.00E-07	U
08-NOV-16	Cr-51	6.71E-08 +/- 3.40E-07	uCi/g	D	3.41E-07	6.61E-07		U
08-NOV-16	Co-56	-2.01E-09 +/- 4.27E-08	uCi/g	D	4.27E-08	8.22E-08		U
08-NOV-16	Co-57	-1.20E-08 +/- 2.93E-08	uCi/g	D	2.98E-08	5.07E-08		U
08-NOV-16	Co-58	-9.92E-10 +/- 4.03E-08	uCi/g	D	4.03E-08	7.86E-08		U
08-NOV-16	Co-60	-1.84E-08 +/- 3.56E-08	uCi/g	D	3.66E-08	6.07E-08		U
08-NOV-16	Eu-152	5.30E-08 +/- 9.95E-08	uCi/g	D	1.02E-07	1.97E-07		U
08-NOV-16	Eu-154	4.20E-08 +/- 1.03E-07	uCi/g	D	1.05E-07	2.29E-07		U
08-NOV-16	Eu-155	-2.68E-08 +/- 1.17E-07	uCi/g	D	1.18E-07	2.09E-07		U
08-NOV-16	Ir-192	-9.85E-09 +/- 3.18E-08	uCi/g	D	3.21E-08	5.86E-08		U
08-NOV-16	Fe-59	6.87E-08 +/- 9.86E-08	uCi/g	D	1.03E-07	2.09E-07		U
08-NOV-16	Pb-210	1.47E-06 +/- 1.01E-05	uCi/g	D	1.01E-05	1.97E-05		U
08-NOV-16	Pb-212	1.07E-06 +/- 1.28E-07	uCi/g	D	1.40E-07	9.33E-08		
08-NOV-16	Pb-214	1.11E-06 +/- 1.84E-07	uCi/g	D	1.89E-07	3.36E-07		
08-NOV-16	Mn-54	1.25E-08 +/- 4.03E-08	uCi/g	D	4.07E-08	8.10E-08		U
08-NOV-16	Hg-203	-1.56E-08 +/- 3.73E-08	uCi/g	D	3.79E-08	6.81E-08		U
08-NOV-16	Nd-147	7.77E-08 +/- 5.30E-07	uCi/g	D	5.31E-07	1.08E-06		U
08-NOV-16	Np-239	2.25E-07 +/- 2.71E-07	uCi/g	D	2.90E-07	5.28E-07		U
08-NOV-16	Nb-94	3.58E-09 +/- 3.93E-08	uCi/g	D	3.94E-08	7.66E-08		U
08-NOV-16	Nb-95	1.89E-08 +/- 7.62E-08	uCi/g	D	7.67E-08	9.95E-08		U
08-NOV-16	K-40	1.75E-05 +/- 1.85E-06	uCi/g	D	2.06E-06	6.85E-07		
08-NOV-16	Pm-144	1.48E-10 +/- 3.97E-08	uCi/g	D	3.97E-08	7.68E-08		U
08-NOV-16	Pm-146	-6.91E-09 +/- 4.09E-08	uCi/g	D	4.10E-08	7.50E-08		U

Notes:
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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515013	PA3-D6-02	Solid	24-OCT-16 16:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	9.39E-07 +/- 2.75E-07	uCi/g	D	2.80E-07	3.08E-07		
08-NOV-16	Ru-106	1.78E-07 +/- 3.44E-07	uCi/g	D	3.53E-07	7.19E-07		U
08-NOV-16	Ag-110m	-1.36E-09 +/- 4.92E-08	uCi/g	D	4.92E-08	9.60E-08		U
08-NOV-16	Na-22	2.24E-09 +/- 3.92E-08	uCi/g	D	3.92E-08	8.10E-08		U
08-NOV-16	Tl-208	3.44E-07 +/- 1.00E-07	uCi/g	D	1.01E-07	6.84E-08		
08-NOV-16	Th-234	1.82E-06 +/- 1.92E-06	uCi/g	D	2.12E-06	3.86E-06		U
08-NOV-16	Sn-113	-2.41E-08 +/- 4.90E-08	uCi/g	D	5.02E-08	8.63E-08		U
08-NOV-16	U-235	5.08E-08 +/- 1.94E-07	uCi/g	D	1.95E-07	3.89E-07		U
08-NOV-16	U-238	1.82E-06 +/- 1.92E-06	uCi/g	D	2.12E-06	3.86E-06		U
08-NOV-16	Y-88	-3.10E-08 +/- 3.63E-08	uCi/g	D	3.90E-08	5.29E-08		U
08-NOV-16	Zn-65	-1.56E-07 +/- 1.33E-07	uCi/g	D	1.50E-07	2.03E-07		U
08-NOV-16	Zr-95	4.57E-08 +/- 7.70E-08	uCi/g	D	7.97E-08	1.43E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515014	PA1-S-03	Solid	25-OCT-16 10:25:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	0.00E+00 +/- 3.01E-07	uCi/g	D	4.94E-07	5.42E-07		UI
08-NOV-16	Am-241	1.53E-07 +/- 2.03E-07	uCi/g	D	2.15E-07	3.79E-07		U
08-NOV-16	Sb-124	3.32E-08 +/- 4.60E-08	uCi/g	D	4.84E-08	1.54E-07		U
08-NOV-16	Sb-125	7.11E-08 +/- 1.01E-07	uCi/g	D	1.06E-07	2.09E-07		U
08-NOV-16	Ba-133	-1.39E-08 +/- 4.82E-08	uCi/g	D	4.86E-08	7.91E-08		U
08-NOV-16	Ba-140	-1.99E-07 +/- 2.83E-07	uCi/g	D	2.97E-07	4.75E-07		U
08-NOV-16	Be-7	2.80E-07 +/- 3.19E-07	uCi/g	D	3.43E-07	6.93E-07		U
08-NOV-16	Bi-212	1.40E-07 +/- 5.43E-07	uCi/g	D	5.47E-07	1.10E-06		U
08-NOV-16	Bi-214	1.31E-06 +/- 2.20E-07	uCi/g	D	2.27E-07	1.31E-07		
08-NOV-16	Ce-139	-1.12E-08 +/- 2.89E-08	uCi/g	D	2.94E-08	4.94E-08		U
08-NOV-16	Ce-141	-1.17E-08 +/- 7.02E-08	uCi/g	D	7.04E-08	1.23E-07		U
08-NOV-16	Ce-144	-6.39E-08 +/- 2.02E-07	uCi/g	D	2.04E-07	3.54E-07		U
08-NOV-16	Cs-134	1.92E-08 +/- 4.12E-08	uCi/g	D	4.21E-08	8.92E-08		U
08-NOV-16	Cs-136	5.94E-08 +/- 9.60E-08	uCi/g	D	9.98E-08	2.17E-07		U
08-NOV-16	Cs-137	0.00E+00 +/- 9.39E-08	uCi/g	D	9.40E-08	8.30E-08	1.00E-07	UI
08-NOV-16	Cr-51	1.10E-07 +/- 3.68E-07	uCi/g	D	3.71E-07	7.34E-07		U
08-NOV-16	Co-56	-2.75E-08 +/- 3.41E-08	uCi/g	D	3.63E-08	4.50E-08		U
08-NOV-16	Co-57	1.57E-08 +/- 2.77E-08	uCi/g	D	2.86E-08	4.97E-08		U

Notes:
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2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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UI - Uncertain identification for gamma spectroscopy.
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M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515014	PA1-S-03	Solid	25-OCT-16 10:25:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	1.72E-08 +/- 4.55E-08	uCi/g	D	4.61E-08	8.76E-08		U
08-NOV-16	Co-60	3.29E-09 +/- 3.70E-08	uCi/g	D	3.71E-08	7.76E-08		U
08-NOV-16	Eu-152	-9.37E-09 +/- 1.17E-07	uCi/g	D	1.17E-07	1.98E-07		U
08-NOV-16	Eu-154	4.47E-08 +/- 1.11E-07	uCi/g	D	1.12E-07	2.44E-07		U
08-NOV-16	Eu-155	7.35E-08 +/- 1.11E-07	uCi/g	D	1.16E-07	2.15E-07		U
08-NOV-16	Ir-192	1.31E-08 +/- 3.41E-08	uCi/g	D	3.46E-08	6.89E-08		U
08-NOV-16	Fe-59	-5.08E-09 +/- 6.94E-08	uCi/g	D	6.95E-08	1.42E-07		U
08-NOV-16	Pb-210	5.18E-06 +/- 6.24E-06	uCi/g	D	6.68E-06	1.28E-05		U
08-NOV-16	Pb-212	5.38E-07 +/- 1.33E-07	uCi/g	D	1.36E-07	1.02E-07		
08-NOV-16	Pb-214	1.39E-06 +/- 2.18E-07	uCi/g	D	2.26E-07	4.12E-07		
08-NOV-16	Mn-54	-2.17E-08 +/- 4.08E-08	uCi/g	D	4.20E-08	7.44E-08		U
08-NOV-16	Hg-203	-3.07E-08 +/- 4.06E-08	uCi/g	D	4.29E-08	6.82E-08		U
08-NOV-16	Nd-147	-2.60E-07 +/- 5.19E-07	uCi/g	D	5.33E-07	9.13E-07		U
08-NOV-16	Np-239	2.39E-07 +/- 2.72E-07	uCi/g	D	2.93E-07	5.38E-07		U
08-NOV-16	Nb-94	-2.72E-08 +/- 3.56E-08	uCi/g	D	3.76E-08	6.33E-08		U
08-NOV-16	Nb-95	3.49E-08 +/- 4.91E-08	uCi/g	D	5.16E-08	9.82E-08		U
08-NOV-16	K-40	9.57E-06 +/- 1.50E-06	uCi/g	D	1.58E-06	7.58E-07		
08-NOV-16	Pm-144	-7.16E-09 +/- 4.25E-08	uCi/g	D	4.26E-08	8.21E-08		U
08-NOV-16	Pm-146	4.92E-08 +/- 4.64E-08	uCi/g	D	5.16E-08	1.01E-07		U
08-NOV-16	Ra-228	0.00E+00 +/- 3.01E-07	uCi/g	D	4.94E-07	5.42E-07		UI
08-NOV-16	Ru-106	1.31E-07 +/- 3.64E-07	uCi/g	D	3.69E-07	7.24E-07		U
08-NOV-16	Ag-110m	-7.54E-09 +/- 5.05E-08	uCi/g	D	5.06E-08	9.94E-08		U
08-NOV-16	Na-22	1.47E-08 +/- 3.87E-08	uCi/g	D	3.93E-08	8.51E-08		U
08-NOV-16	Tl-208	1.19E-07 +/- 7.15E-08	uCi/g	D	7.16E-08	8.02E-08		
08-NOV-16	Th-234	4.60E-06 +/- 2.62E-06	uCi/g	D	2.82E-06	2.69E-06		
08-NOV-16	Sn-113	1.73E-08 +/- 3.77E-08	uCi/g	D	3.85E-08	7.92E-08		U
08-NOV-16	U-235	3.74E-08 +/- 2.30E-07	uCi/g	D	2.31E-07	4.12E-07		U
08-NOV-16	U-238	4.60E-06 +/- 2.62E-06	uCi/g	D	2.82E-06	2.69E-06		
08-NOV-16	Y-88	2.23E-08 +/- 4.68E-08	uCi/g	D	4.79E-08	1.17E-07		U
08-NOV-16	Zn-65	-1.24E-08 +/- 1.17E-07	uCi/g	D	1.17E-07	1.93E-07		U
08-NOV-16	Zr-95	4.57E-08 +/- 7.09E-08	uCi/g	D	7.39E-08	1.58E-07		U

Notes:
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M - Reported result is less than the LLD and greater than the MDC.

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515015	PA1-D1-04	Solid	25-OCT-16 10:40:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	1.15E-06 +/- 4.10E-07	uCi/g	D	4.14E-07	2.56E-07		
08-NOV-16	Am-241	-6.96E-08 +/- 1.64E-07	uCi/g	D	1.67E-07	2.62E-07		U
08-NOV-16	Sb-124	-1.60E-08 +/- 5.54E-08	uCi/g	D	5.58E-08	1.20E-07		U
08-NOV-16	Sb-125	-6.58E-08 +/- 1.02E-07	uCi/g	D	1.06E-07	1.74E-07		U
08-NOV-16	Ba-133	7.32E-09 +/- 4.89E-08	uCi/g	D	4.90E-08	8.36E-08		U
08-NOV-16	Ba-140	1.33E-07 +/- 2.89E-07	uCi/g	D	2.95E-07	5.66E-07		U
08-NOV-16	Be-7	-1.56E-07 +/- 3.14E-07	uCi/g	D	3.22E-07	5.48E-07		U
08-NOV-16	Bi-212	8.70E-07 +/- 6.63E-07	uCi/g	D	7.71E-07	1.43E-06		U
08-NOV-16	Bi-214	9.57E-07 +/- 2.19E-07	uCi/g	D	2.23E-07	1.75E-07		
08-NOV-16	Ce-139	-6.21E-09 +/- 3.04E-08	uCi/g	D	3.06E-08	5.72E-08		U
08-NOV-16	Ce-141	-1.12E-09 +/- 7.08E-08	uCi/g	D	7.08E-08	1.22E-07		U
08-NOV-16	Ce-144	1.31E-09 +/- 2.33E-07	uCi/g	D	2.33E-07	4.03E-07		U
08-NOV-16	Cs-134	3.41E-08 +/- 7.74E-08	uCi/g	D	7.89E-08	9.64E-08		U
08-NOV-16	Cs-136	-6.58E-08 +/- 1.35E-07	uCi/g	D	1.39E-07	2.05E-07		U
08-NOV-16	Cs-137	5.62E-10 +/- 4.64E-08	uCi/g	D	4.64E-08	8.76E-08	1.00E-07	U
08-NOV-16	Cr-51	-7.53E-09 +/- 4.10E-07	uCi/g	D	4.10E-07	7.64E-07		U
08-NOV-16	Co-56	-1.82E-08 +/- 4.16E-08	uCi/g	D	4.24E-08	7.65E-08		U
08-NOV-16	Co-57	-4.90E-09 +/- 2.65E-08	uCi/g	D	2.66E-08	5.06E-08		U
08-NOV-16	Co-58	-1.77E-08 +/- 3.82E-08	uCi/g	D	3.91E-08	7.06E-08		U
08-NOV-16	Co-60	1.92E-08 +/- 3.78E-08	uCi/g	D	3.88E-08	8.28E-08		U
08-NOV-16	Eu-152	-4.74E-08 +/- 1.17E-07	uCi/g	D	1.19E-07	1.85E-07		U
08-NOV-16	Eu-154	-8.42E-08 +/- 1.10E-07	uCi/g	D	1.16E-07	1.81E-07		U
08-NOV-16	Eu-155	1.73E-07 +/- 2.05E-07	uCi/g	D	2.20E-07	2.26E-07		U
08-NOV-16	Ir-192	2.01E-08 +/- 3.86E-08	uCi/g	D	3.97E-08	7.55E-08		U
08-NOV-16	Fe-59	3.62E-08 +/- 9.76E-08	uCi/g	D	9.90E-08	1.99E-07		U
08-NOV-16	Pb-210	1.44E-06 +/- 3.93E-06	uCi/g	D	3.98E-06	7.40E-06		U
08-NOV-16	Pb-212	9.82E-07 +/- 1.28E-07	uCi/g	D	1.38E-07	1.12E-07		
08-NOV-16	Pb-214	1.16E-06 +/- 2.29E-07	uCi/g	D	2.34E-07	1.38E-07		
08-NOV-16	Mn-54	2.31E-08 +/- 4.35E-08	uCi/g	D	4.47E-08	8.92E-08		U
08-NOV-16	Hg-203	-1.02E-08 +/- 3.84E-08	uCi/g	D	3.87E-08	7.05E-08		U
08-NOV-16	Nd-147	3.77E-07 +/- 5.61E-07	uCi/g	D	5.86E-07	1.14E-06		U
08-NOV-16	Np-239	3.63E-08 +/- 2.80E-07	uCi/g	D	2.80E-07	5.46E-07		U
08-NOV-16	Nb-94	2.57E-09 +/- 3.69E-08	uCi/g	D	3.69E-08	7.27E-08		U
08-NOV-16	Nb-95	2.99E-08 +/- 3.99E-08	uCi/g	D	4.21E-08	8.10E-08		U
08-NOV-16	K-40	1.57E-05 +/- 1.69E-06	uCi/g	D	1.88E-06	6.84E-07		
08-NOV-16	Pm-144	1.97E-09 +/- 4.26E-08	uCi/g	D	4.26E-08	7.96E-08		U
08-NOV-16	Pm-146	6.75E-08 +/- 5.12E-08	uCi/g	D	5.98E-08	1.07E-07		U

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GEL LABORATORIES LLC
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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515015	PA1-D1-04	Solid	25-OCT-16 10:40:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	1.15E-06 +/- 4.10E-07	uCi/g	D	4.14E-07	2.56E-07		
08-NOV-16	Ru-106	-1.90E-07 +/- 3.06E-07	uCi/g	D	3.18E-07	5.11E-07		U
08-NOV-16	Ag-110m	3.19E-08 +/- 5.05E-08	uCi/g	D	5.25E-08	1.09E-07		U
08-NOV-16	Na-22	-3.06E-08 +/- 3.85E-08	uCi/g	D	4.09E-08	6.28E-08		U
08-NOV-16	Tl-208	3.49E-07 +/- 1.10E-07	uCi/g	D	1.11E-07	6.87E-08		
08-NOV-16	Th-234	2.41E-06 +/- 2.31E-06	uCi/g	D	2.37E-06	2.25E-06		
08-NOV-16	Sn-113	-4.87E-08 +/- 6.05E-08	uCi/g	D	6.44E-08	8.84E-08		U
08-NOV-16	U-235	2.89E-07 +/- 3.82E-07	uCi/g	D	3.82E-07	3.71E-07		U
08-NOV-16	U-238	2.41E-06 +/- 2.31E-06	uCi/g	D	2.37E-06	2.25E-06		
08-NOV-16	Y-88	2.78E-08 +/- 3.67E-08	uCi/g	D	3.88E-08	9.46E-08		U
08-NOV-16	Zn-65	-5.66E-08 +/- 1.02E-07	uCi/g	D	1.05E-07	1.50E-07		U
08-NOV-16	Zr-95	-4.17E-08 +/- 8.90E-08	uCi/g	D	9.10E-08	1.63E-07		U
25-NOV-16	Am-241	-9.17E-08 +/- 8.28E-07	uCi/g	W	8.30E-07	2.01E-06	1.00E-04	U
25-NOV-16	Cm-242	-3.87E-08 +/- 6.42E-07	uCi/g	W	6.45E-07	1.36E-06	2.00E-02	U
25-NOV-16	Cm-243/244	5.67E-07 +/- 1.40E-06	uCi/g	W	1.41E-06	2.56E-06	1.00E-04	U
25-NOV-16	Cm-245/246	2.89E-07 +/- 9.16E-07	uCi/g	W	9.18E-07	1.38E-06	1.00E-04	U
25-NOV-16	Ni-59	-4.92E-05 +/- 5.24E-04	uCi/g	W	5.24E-04	1.09E-03	2.20E-01	U
29-NOV-16	I-129	-7.98E-07 +/- 1.89E-06	uCi/g	W	1.92E-06	3.45E-06	8.00E-05	U
28-NOV-16	Pu-241	2.90E-05 +/- 8.87E-05	uCi/g	W	8.90E-05	1.53E-04	3.50E-03	U
26-NOV-16	Fe-55	-1.84E-04 +/- 1.17E-03	uCi/g	W	1.17E-03	1.69E-03	7.00E-01	U
26-NOV-16	Tc-99	2.55E-05 +/- 6.74E-05	uCi/g	W	6.75E-05	1.16E-04	3.00E-03	U
23-NOV-16	H-3	4.47E-05 +/- 9.61E-05	uCi/g	W	9.66E-05	1.68E-04	4.00E-02	U
24-NOV-16	C-14	-3.46E-07 +/- 1.43E-05	uCi/g	W	1.43E-05	2.52E-05	8.00E-03	U
23-NOV-16	Pu-238	5.43E-07 +/- 9.04E-07	uCi/g	W	9.09E-07	1.42E-06	1.00E-04	U
23-NOV-16	Pu-239/240	9.73E-07 +/- 1.06E-06	uCi/g	W	1.08E-06	1.38E-06	1.00E-04	U
23-NOV-16	Pu-242	4.05E-08 +/- 7.13E-07	uCi/g	W	7.14E-07	1.55E-06	1.00E-04	U
25-NOV-16	Np-237	8.17E-08 +/- 5.78E-07	uCi/g	W	5.79E-07	1.16E-06	1.00E-04	U
29-NOV-16	Sr-89	-4.13E+00 +/- 7.15E+01	pCi/g	W	7.15E+01	1.28E+02	7.00E-01	U
29-NOV-16	Sr-90	-2.43E+01 +/- 2.06E+01	pCi/g	W	2.06E+01	3.65E+01	4.00E-05	U
29-NOV-16	Ni-63	-5.21E-04 +/- 3.82E-04	uCi/g	D	3.82E-04	7.12E-04	3.50E-03	U

Notes:
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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515016	PA1-D3-05	Solid	25-OCT-16 11:00:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	1.29E-06 +/- 3.08E-07	uCi/g	D	3.15E-07	1.52E-07		
08-NOV-16	Am-241	3.18E-08 +/- 9.75E-08	uCi/g	D	9.86E-08	1.83E-07		U
08-NOV-16	Sb-124	-4.73E-08 +/- 7.99E-08	uCi/g	D	8.28E-08	1.47E-07		U
08-NOV-16	Sb-125	6.52E-08 +/- 8.03E-08	uCi/g	D	8.55E-08	1.58E-07		U
08-NOV-16	Ba-133	-1.01E-08 +/- 4.40E-08	uCi/g	D	4.43E-08	7.39E-08		U
08-NOV-16	Ba-140	5.02E-08 +/- 2.34E-07	uCi/g	D	2.35E-07	4.59E-07		U
08-NOV-16	Be-7	6.66E-08 +/- 2.92E-07	uCi/g	D	2.94E-07	5.73E-07		U
08-NOV-16	Bi-212	0.00E+00 +/- 9.10E-07	uCi/g	D	1.35E-06	1.46E-06		UI
08-NOV-16	Bi-214	8.79E-07 +/- 1.76E-07	uCi/g	D	1.80E-07	1.12E-07		
08-NOV-16	Ce-139	-1.28E-08 +/- 2.70E-08	uCi/g	D	2.77E-08	4.52E-08		U
08-NOV-16	Ce-141	1.60E-08 +/- 9.36E-08	uCi/g	D	9.36E-08	9.15E-08		U
08-NOV-16	Ce-144	-1.10E-08 +/- 2.02E-07	uCi/g	D	2.02E-07	3.53E-07		U
08-NOV-16	Cs-134	8.76E-08 +/- 5.99E-08	uCi/g	D	7.18E-08	9.59E-08		U
08-NOV-16	Cs-136	4.25E-08 +/- 1.03E-07	uCi/g	D	1.05E-07	2.15E-07		U
08-NOV-16	Cs-137	-2.07E-08 +/- 3.55E-08	uCi/g	D	3.67E-08	6.10E-08	1.00E-07	U
08-NOV-16	Cr-51	-2.73E-08 +/- 3.20E-07	uCi/g	D	3.20E-07	5.48E-07		U
08-NOV-16	Co-56	-2.12E-08 +/- 3.80E-08	uCi/g	D	3.92E-08	6.43E-08		U
08-NOV-16	Co-57	3.75E-08 +/- 3.03E-08	uCi/g	D	3.04E-08	3.79E-08		U
08-NOV-16	Co-58	3.13E-08 +/- 3.60E-08	uCi/g	D	3.87E-08	7.33E-08		U
08-NOV-16	Co-60	8.09E-09 +/- 3.37E-08	uCi/g	D	3.39E-08	7.15E-08		U
08-NOV-16	Eu-152	4.19E-08 +/- 8.72E-08	uCi/g	D	8.92E-08	1.75E-07		U
08-NOV-16	Eu-154	8.69E-09 +/- 9.84E-08	uCi/g	D	9.85E-08	2.02E-07		U
08-NOV-16	Eu-155	6.94E-08 +/- 1.04E-07	uCi/g	D	1.09E-07	1.94E-07		U
08-NOV-16	Ir-192	1.98E-08 +/- 2.70E-08	uCi/g	D	2.85E-08	5.64E-08		U
08-NOV-16	Fe-59	-2.84E-08 +/- 6.99E-08	uCi/g	D	7.11E-08	1.32E-07		U
08-NOV-16	Pb-210	1.62E-06 +/- 1.90E-06	uCi/g	D	2.04E-06	3.74E-06		U
08-NOV-16	Pb-212	1.32E-06 +/- 1.31E-07	uCi/g	D	1.48E-07	7.73E-08		
08-NOV-16	Pb-214	9.12E-07 +/- 2.20E-07	uCi/g	D	2.23E-07	1.13E-07		
08-NOV-16	Mn-54	2.09E-08 +/- 3.23E-08	uCi/g	D	3.37E-08	6.74E-08		U
08-NOV-16	Hg-203	4.85E-08 +/- 7.10E-08	uCi/g	D	7.10E-08	5.32E-08		U
08-NOV-16	Nd-147	1.93E-07 +/- 4.67E-07	uCi/g	D	4.75E-07	9.44E-07		U
08-NOV-16	Np-239	-5.43E-08 +/- 2.81E-07	uCi/g	D	2.82E-07	4.50E-07		U
08-NOV-16	Nb-94	-1.05E-09 +/- 3.46E-08	uCi/g	D	3.46E-08	6.41E-08		U
08-NOV-16	Nb-95	-2.63E-08 +/- 4.30E-08	uCi/g	D	4.46E-08	6.19E-08		U
08-NOV-16	K-40	1.57E-05 +/- 1.59E-06	uCi/g	D	1.79E-06	5.48E-07		
08-NOV-16	Pm-144	-8.87E-09 +/- 2.88E-08	uCi/g	D	2.91E-08	5.21E-08		U
08-NOV-16	Pm-146	1.74E-08 +/- 4.21E-08	uCi/g	D	4.29E-08	8.33E-08		U

Notes:
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515016	PA1-D3-05	Solid	25-OCT-16 11:00:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	1.29E-06 +/- 3.08E-07	uCi/g	D	3.15E-07	1.52E-07		
08-NOV-16	Ru-106	-1.92E-07 +/- 2.91E-07	uCi/g	D	3.04E-07	4.96E-07		U
08-NOV-16	Ag-110m	6.85E-09 +/- 3.88E-08	uCi/g	D	3.89E-08	7.76E-08		U
08-NOV-16	Na-22	2.12E-09 +/- 3.45E-08	uCi/g	D	3.45E-08	7.05E-08		U
08-NOV-16	Tl-208	3.15E-07 +/- 7.93E-08	uCi/g	D	8.04E-08	6.58E-08		
08-NOV-16	Th-234	1.58E-06 +/- 1.54E-06	uCi/g	D	1.58E-06	1.61E-06		U
08-NOV-16	Sn-113	1.22E-08 +/- 4.16E-08	uCi/g	D	4.20E-08	8.17E-08		U
08-NOV-16	U-235	1.38E-07 +/- 2.93E-07	uCi/g	D	2.93E-07	3.45E-07		U
08-NOV-16	U-238	1.58E-06 +/- 1.54E-06	uCi/g	D	1.58E-06	1.61E-06		U
08-NOV-16	Y-88	-6.17E-10 +/- 2.46E-08	uCi/g	D	2.46E-08	5.65E-08		U
08-NOV-16	Zn-65	-5.22E-08 +/- 9.13E-08	uCi/g	D	9.43E-08	1.39E-07		U
08-NOV-16	Zr-95	4.39E-08 +/- 9.54E-08	uCi/g	D	9.75E-08	1.41E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515017	PA1-S-06	Solid	25-OCT-16 13:35:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	0.00E+00 +/- 2.12E-07	uCi/g	D	2.75E-07	3.33E-07		UI
08-NOV-16	Am-241	-3.60E-08 +/- 6.87E-08	uCi/g	D	7.07E-08	1.30E-07		U
08-NOV-16	Sb-124	8.26E-09 +/- 5.91E-08	uCi/g	D	5.92E-08	1.30E-07		U
08-NOV-16	Sb-125	3.63E-09 +/- 6.64E-08	uCi/g	D	6.64E-08	1.32E-07		U
08-NOV-16	Ba-133	-1.49E-08 +/- 3.17E-08	uCi/g	D	3.24E-08	5.32E-08		U
08-NOV-16	Ba-140	-9.72E-09 +/- 1.73E-07	uCi/g	D	1.73E-07	3.38E-07		U
08-NOV-16	Be-7	1.14E-06 +/- 7.02E-07	uCi/g	D	7.03E-07	4.00E-07		
08-NOV-16	Bi-212	0.00E+00 +/- 4.92E-07	uCi/g	D	6.69E-07	9.08E-07		UI
08-NOV-16	Bi-214	1.11E-06 +/- 1.91E-07	uCi/g	D	1.96E-07	1.02E-07		
08-NOV-16	Ce-139	-7.04E-09 +/- 2.19E-08	uCi/g	D	2.22E-08	3.92E-08		U
08-NOV-16	Ce-141	2.00E-08 +/- 1.36E-07	uCi/g	D	1.36E-07	7.93E-08		U
08-NOV-16	Ce-144	-1.69E-08 +/- 1.31E-07	uCi/g	D	1.31E-07	2.44E-07		U
08-NOV-16	Cs-134	-5.59E-09 +/- 2.66E-08	uCi/g	D	2.67E-08	4.97E-08		U
08-NOV-16	Cs-136	7.74E-08 +/- 6.62E-08	uCi/g	D	7.51E-08	1.47E-07		U
08-NOV-16	Cs-137	2.57E-08 +/- 2.60E-08	uCi/g	D	2.85E-08	5.48E-08	1.00E-07	U
08-NOV-16	Cr-51	-1.05E-07 +/- 2.43E-07	uCi/g	D	2.48E-07	4.65E-07		U
08-NOV-16	Co-56	5.71E-10 +/- 2.71E-08	uCi/g	D	2.71E-08	5.24E-08		U
08-NOV-16	Co-57	1.48E-08 +/- 1.53E-08	uCi/g	D	1.67E-08	3.17E-08		U

Notes:
1. LLDs are a-priori values.
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

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M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515017	PA1-S-06	Solid	25-OCT-16 13:35:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	1.32E-08 +/- 2.65E-08	uCi/g	D	2.72E-08	5.57E-08		U
08-NOV-16	Co-60	-1.22E-08 +/- 2.49E-08	uCi/g	D	2.55E-08	4.61E-08		U
08-NOV-16	Eu-152	2.27E-08 +/- 6.15E-08	uCi/g	D	6.24E-08	1.28E-07		U
08-NOV-16	Eu-154	2.06E-08 +/- 4.90E-08	uCi/g	D	4.99E-08	1.11E-07		U
08-NOV-16	Eu-155	1.90E-08 +/- 6.77E-08	uCi/g	D	6.82E-08	1.32E-07		U
08-NOV-16	Ir-192	-1.14E-08 +/- 2.38E-08	uCi/g	D	2.44E-08	4.53E-08		U
08-NOV-16	Fe-59	-4.09E-08 +/- 6.04E-08	uCi/g	D	6.32E-08	8.98E-08		U
08-NOV-16	Pb-210	1.71E-06 +/- 2.61E-06	uCi/g	D	2.62E-06	1.96E-06		U
08-NOV-16	Pb-212	4.02E-07 +/- 8.01E-08	uCi/g	D	8.28E-08	7.63E-08		
08-NOV-16	Pb-214	1.32E-06 +/- 1.90E-07	uCi/g	D	1.98E-07	9.99E-08		
08-NOV-16	Mn-54	1.28E-08 +/- 2.73E-08	uCi/g	D	2.79E-08	5.57E-08		U
08-NOV-16	Hg-203	3.47E-09 +/- 2.37E-08	uCi/g	D	2.37E-08	4.41E-08		U
08-NOV-16	Nd-147	1.55E-07 +/- 3.10E-07	uCi/g	D	3.18E-07	6.70E-07		U
08-NOV-16	Np-239	4.94E-08 +/- 1.64E-07	uCi/g	D	1.66E-07	3.21E-07		U
08-NOV-16	Nb-94	1.11E-08 +/- 2.47E-08	uCi/g	D	2.52E-08	5.04E-08		U
08-NOV-16	Nb-95	2.26E-08 +/- 2.72E-08	uCi/g	D	2.90E-08	5.93E-08		U
08-NOV-16	K-40	5.97E-06 +/- 9.88E-07	uCi/g	D	1.04E-06	4.66E-07		
08-NOV-16	Pm-144	-1.08E-08 +/- 2.66E-08	uCi/g	D	2.70E-08	4.79E-08		U
08-NOV-16	Pm-146	1.42E-08 +/- 2.94E-08	uCi/g	D	3.01E-08	6.13E-08		U
08-NOV-16	Ra-228	0.00E+00 +/- 2.12E-07	uCi/g	D	2.75E-07	3.33E-07		UI
08-NOV-16	Ru-106	2.01E-08 +/- 1.94E-07	uCi/g	D	1.94E-07	3.91E-07		U
08-NOV-16	Ag-110m	-3.18E-08 +/- 4.24E-08	uCi/g	D	4.47E-08	6.97E-08		U
08-NOV-16	Na-22	7.90E-09 +/- 1.75E-08	uCi/g	D	1.79E-08	3.98E-08		U
08-NOV-16	Tl-208	1.37E-07 +/- 6.10E-08	uCi/g	D	6.13E-08	4.33E-08		
08-NOV-16	Th-234	1.02E-06 +/- 1.40E-06	uCi/g	D	1.42E-06	1.24E-06		U
08-NOV-16	Sn-113	-3.23E-09 +/- 3.15E-08	uCi/g	D	3.15E-08	6.15E-08		U
08-NOV-16	U-235	2.73E-07 +/- 4.37E-07	uCi/g	D	4.37E-07	3.08E-07		U
08-NOV-16	U-238	1.02E-06 +/- 1.40E-06	uCi/g	D	1.42E-06	1.24E-06		U
08-NOV-16	Y-88	3.47E-09 +/- 2.12E-08	uCi/g	D	2.13E-08	5.06E-08		U
08-NOV-16	Zn-65	-2.24E-08 +/- 6.75E-08	uCi/g	D	6.83E-08	1.11E-07		U
08-NOV-16	Zr-95	3.69E-08 +/- 5.37E-08	uCi/g	D	5.62E-08	1.13E-07		U

Notes:
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GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515018	PA3-S-03	Solid	25-OCT-16 14:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	4.11E-07 +/- 2.06E-07	uCi/g	D	2.13E-07	2.30E-07		
08-NOV-16	Am-241	-4.58E-08 +/- 1.34E-07	uCi/g	D	1.36E-07	2.63E-07		U
08-NOV-16	Sb-124	2.48E-08 +/- 8.04E-08	uCi/g	D	8.12E-08	1.86E-07		U
08-NOV-16	Sb-125	2.18E-09 +/- 6.90E-08	uCi/g	D	6.90E-08	1.40E-07		U
08-NOV-16	Ba-133	-1.16E-08 +/- 3.25E-08	uCi/g	D	3.30E-08	5.62E-08		U
08-NOV-16	Ba-140	-5.60E-08 +/- 2.00E-07	uCi/g	D	2.02E-07	3.40E-07		U
08-NOV-16	Be-7	4.83E-06 +/- 8.25E-07	uCi/g	D	9.24E-07	6.25E-07		
08-NOV-16	Bi-212	1.82E-07 +/- 4.68E-07	uCi/g	D	4.75E-07	9.60E-07		U
08-NOV-16	Bi-214	8.17E-07 +/- 2.16E-07	uCi/g	D	2.27E-07	1.11E-07		
08-NOV-16	Ce-139	-1.12E-08 +/- 2.50E-08	uCi/g	D	2.56E-08	4.50E-08		U
08-NOV-16	Ce-141	-2.71E-08 +/- 4.85E-08	uCi/g	D	5.00E-08	8.76E-08		U
08-NOV-16	Ce-144	9.34E-08 +/- 1.60E-07	uCi/g	D	1.66E-07	3.22E-07		U
08-NOV-16	Cs-134	4.26E-08 +/- 3.41E-08	uCi/g	D	3.93E-08	5.41E-08		U
08-NOV-16	Cs-136	1.13E-08 +/- 7.86E-08	uCi/g	D	7.88E-08	1.68E-07		U
08-NOV-16	Cs-137	1.08E-08 +/- 3.13E-08	uCi/g	D	3.17E-08	6.48E-08	1.00E-07	U
08-NOV-16	Cr-51	1.76E-07 +/- 2.64E-07	uCi/g	D	2.77E-07	5.79E-07		U
08-NOV-16	Co-56	-4.05E-09 +/- 2.82E-08	uCi/g	D	2.82E-08	5.38E-08		U
08-NOV-16	Co-57	1.67E-09 +/- 1.79E-08	uCi/g	D	1.79E-08	3.51E-08		U
08-NOV-16	Co-58	-1.57E-08 +/- 3.10E-08	uCi/g	D	3.19E-08	5.46E-08		U
08-NOV-16	Co-60	6.37E-09 +/- 3.33E-08	uCi/g	D	3.34E-08	7.35E-08		U
08-NOV-16	Eu-152	-1.36E-08 +/- 8.34E-08	uCi/g	D	8.36E-08	1.64E-07		U
08-NOV-16	Eu-154	5.60E-09 +/- 9.96E-08	uCi/g	D	9.97E-08	2.07E-07		U
08-NOV-16	Eu-155	-1.38E-08 +/- 7.53E-08	uCi/g	D	7.56E-08	1.45E-07		U
08-NOV-16	Ir-192	-9.41E-09 +/- 2.54E-08	uCi/g	D	2.57E-08	4.96E-08		U
08-NOV-16	Fe-59	1.20E-07 +/- 1.13E-07	uCi/g	D	1.27E-07	1.64E-07		U
08-NOV-16	Pb-210	1.59E-06 +/- 3.52E-06	uCi/g	D	3.60E-06	7.48E-06		U
08-NOV-16	Pb-212	2.55E-07 +/- 1.02E-07	uCi/g	D	1.05E-07	8.78E-08		
08-NOV-16	Pb-214	1.07E-06 +/- 2.06E-07	uCi/g	D	2.27E-07	1.21E-07		
08-NOV-16	Mn-54	1.78E-08 +/- 2.84E-08	uCi/g	D	2.96E-08	5.93E-08		U
08-NOV-16	Hg-203	9.75E-09 +/- 3.22E-08	uCi/g	D	3.25E-08	6.13E-08		U
08-NOV-16	Nd-147	3.84E-08 +/- 3.92E-07	uCi/g	D	3.92E-07	8.03E-07		U
08-NOV-16	Np-239	9.77E-08 +/- 1.98E-07	uCi/g	D	2.03E-07	4.01E-07		U
08-NOV-16	Nb-94	2.91E-08 +/- 3.07E-08	uCi/g	D	3.35E-08	6.72E-08		U
08-NOV-16	Nb-95	0.00E+00 +/- 6.64E-08	uCi/g	D	6.71E-08	7.27E-08		UI
08-NOV-16	K-40	7.88E-06 +/- 1.26E-06	uCi/g	D	1.43E-06	5.18E-07		
08-NOV-16	Pm-144	1.29E-08 +/- 2.62E-08	uCi/g	D	2.68E-08	5.62E-08		U
08-NOV-16	Pm-146	7.22E-09 +/- 3.38E-08	uCi/g	D	3.40E-08	6.95E-08		U

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Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515018	PA3-S-03	Solid	25-OCT-16 14:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ra-228	4.11E-07 +/- 2.06E-07	uCi/g	D	2.13E-07	2.30E-07		
08-NOV-16	Ru-106	-1.02E-07 +/- 2.70E-07	uCi/g	D	2.74E-07	4.98E-07		U
08-NOV-16	Ag-110m	5.00E-09 +/- 4.33E-08	uCi/g	D	4.34E-08	8.60E-08		U
08-NOV-16	Na-22	2.88E-09 +/- 3.54E-08	uCi/g	D	3.54E-08	7.39E-08		U
08-NOV-16	Tl-208	1.12E-07 +/- 5.43E-08	uCi/g	D	5.52E-08	5.17E-08		
08-NOV-16	Th-234	-4.51E-07 +/- 1.23E-06	uCi/g	D	1.25E-06	2.38E-06		U
08-NOV-16	Sn-113	-1.03E-08 +/- 3.56E-08	uCi/g	D	3.59E-08	6.91E-08		U
08-NOV-16	U-235	2.73E-08 +/- 1.56E-07	uCi/g	D	1.56E-07	3.02E-07		U
08-NOV-16	U-238	-4.51E-07 +/- 1.23E-06	uCi/g	D	1.25E-06	2.38E-06		U
08-NOV-16	Y-88	2.69E-08 +/- 2.64E-08	uCi/g	D	2.91E-08	8.09E-08		U
08-NOV-16	Zn-65	-2.74E-08 +/- 9.23E-08	uCi/g	D	9.32E-08	1.52E-07		U
08-NOV-16	Zr-95	-3.82E-09 +/- 5.53E-08	uCi/g	D	5.53E-08	1.08E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515019	PA3-S-04	Solid	25-OCT-16 14:30:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	6.33E-07 +/- 3.03E-07	uCi/g	D	3.05E-07	2.47E-07		
08-NOV-16	Am-241	-1.34E-08 +/- 1.16E-07	uCi/g	D	1.16E-07	2.05E-07		U
08-NOV-16	Sb-124	-3.01E-08 +/- 4.17E-08	uCi/g	D	4.39E-08	3.70E-08		U
08-NOV-16	Sb-125	-3.82E-08 +/- 7.80E-08	uCi/g	D	7.99E-08	1.42E-07		U
08-NOV-16	Ba-133	-2.63E-09 +/- 3.14E-08	uCi/g	D	3.14E-08	5.57E-08		U
08-NOV-16	Ba-140	4.82E-08 +/- 2.03E-07	uCi/g	D	2.04E-07	4.12E-07		U
08-NOV-16	Be-7	3.03E-06 +/- 7.44E-07	uCi/g	D	7.54E-07	5.16E-07		
08-NOV-16	Bi-212	0.00E+00 +/- 5.60E-07	uCi/g	D	7.55E-07	1.10E-06		UI
08-NOV-16	Bi-214	4.51E-07 +/- 1.59E-07	uCi/g	D	1.60E-07	1.32E-07		
08-NOV-16	Ce-139	-3.71E-09 +/- 2.29E-08	uCi/g	D	2.29E-08	4.11E-08		U
08-NOV-16	Ce-141	-2.16E-09 +/- 5.35E-08	uCi/g	D	5.35E-08	8.98E-08		U
08-NOV-16	Ce-144	-4.21E-08 +/- 1.36E-07	uCi/g	D	1.37E-07	2.45E-07		U
08-NOV-16	Cs-134	1.17E-09 +/- 3.75E-08	uCi/g	D	3.75E-08	7.15E-08		U
08-NOV-16	Cs-136	3.37E-08 +/- 8.40E-08	uCi/g	D	8.54E-08	1.82E-07		U
08-NOV-16	Cs-137	9.80E-08 +/- 6.72E-08	uCi/g	D	6.73E-08	6.16E-08	1.00E-07	
08-NOV-16	Cr-51	-8.27E-08 +/- 3.20E-07	uCi/g	D	3.22E-07	6.09E-07		U
08-NOV-16	Co-56	-3.57E-09 +/- 2.85E-08	uCi/g	D	2.86E-08	5.83E-08		U
08-NOV-16	Co-57	2.02E-10 +/- 1.91E-08	uCi/g	D	1.91E-08	3.57E-08		U

Notes:
1. LLDs are a-priori values.
2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
U - Target isotope was analyzed for but not detected above the MDC and LLD.
UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515019	PA3-S-04	Solid	25-OCT-16 14:30:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	-1.97E-08 +/- 3.66E-08	uCi/g	D	3.76E-08	6.22E-08		U
08-NOV-16	Co-60	1.21E-08 +/- 4.04E-08	uCi/g	D	4.08E-08	8.43E-08		U
08-NOV-16	Eu-152	1.26E-07 +/- 1.16E-07	uCi/g	D	1.30E-07	1.61E-07		U
08-NOV-16	Eu-154	-1.05E-07 +/- 1.01E-07	uCi/g	D	1.12E-07	1.55E-07		U
08-NOV-16	Eu-155	1.13E-08 +/- 8.31E-08	uCi/g	D	8.33E-08	1.58E-07		U
08-NOV-16	Ir-192	7.96E-09 +/- 2.92E-08	uCi/g	D	2.94E-08	5.88E-08		U
08-NOV-16	Fe-59	-1.46E-09 +/- 7.75E-08	uCi/g	D	7.75E-08	1.55E-07		U
08-NOV-16	Pb-210	2.44E-06 +/- 5.37E-06	uCi/g	D	5.37E-06	3.78E-06		U
08-NOV-16	Pb-212	5.07E-07 +/- 1.08E-07	uCi/g	D	1.11E-07	9.55E-08		
08-NOV-16	Pb-214	6.97E-07 +/- 1.70E-07	uCi/g	D	1.73E-07	2.78E-07		
08-NOV-16	Mn-54	1.51E-09 +/- 2.98E-08	uCi/g	D	2.98E-08	5.79E-08		U
08-NOV-16	Hg-203	-5.22E-09 +/- 3.19E-08	uCi/g	D	3.20E-08	6.16E-08		U
08-NOV-16	Nd-147	2.37E-07 +/- 3.85E-07	uCi/g	D	4.00E-07	8.43E-07		U
08-NOV-16	Np-239	1.46E-07 +/- 1.96E-07	uCi/g	D	2.07E-07	3.94E-07		U
08-NOV-16	Nb-94	-7.00E-09 +/- 3.30E-08	uCi/g	D	3.31E-08	6.00E-08		U
08-NOV-16	Nb-95	-3.26E-08 +/- 3.67E-08	uCi/g	D	3.96E-08	5.78E-08		U
08-NOV-16	K-40	0.00E+00 +/- 1.34E-06	uCi/g	D	4.57E-06	3.27E-06		UI
08-NOV-16	Pm-144	2.36E-08 +/- 3.44E-08	uCi/g	D	3.60E-08	6.06E-08		U
08-NOV-16	Pm-146	-1.81E-09 +/- 3.14E-08	uCi/g	D	3.14E-08	6.18E-08		U
08-NOV-16	Ra-228	6.33E-07 +/- 3.03E-07	uCi/g	D	3.05E-07	2.47E-07		
08-NOV-16	Ru-106	-9.64E-09 +/- 2.82E-07	uCi/g	D	2.82E-07	5.39E-07		U
08-NOV-16	Ag-110m	-2.30E-08 +/- 4.04E-08	uCi/g	D	4.17E-08	7.48E-08		U
08-NOV-16	Na-22	-3.63E-08 +/- 3.58E-08	uCi/g	D	3.94E-08	5.57E-08		U
08-NOV-16	Tl-208	2.02E-07 +/- 7.61E-08	uCi/g	D	7.66E-08	6.79E-08		
08-NOV-16	Th-234	6.70E-07 +/- 2.03E-06	uCi/g	D	2.04E-06	1.72E-06		U
08-NOV-16	Sn-113	4.18E-10 +/- 3.55E-08	uCi/g	D	3.55E-08	7.00E-08		U
08-NOV-16	U-235	1.16E-07 +/- 2.92E-07	uCi/g	D	2.92E-07	2.83E-07		U
08-NOV-16	U-238	6.70E-07 +/- 2.03E-06	uCi/g	D	2.04E-06	1.72E-06		U
08-NOV-16	Y-88	1.31E-08 +/- 3.02E-08	uCi/g	D	3.08E-08	7.76E-08		U
08-NOV-16	Zn-65	-7.79E-08 +/- 9.43E-08	uCi/g	D	1.01E-07	1.30E-07		U
08-NOV-16	Zr-95	3.30E-08 +/- 5.91E-08	uCi/g	D	6.10E-08	1.26E-07		U
25-NOV-16	Am-241	-2.21E-08 +/- 3.66E-07	uCi/g	W	3.67E-07	7.75E-07	1.00E-04	U
25-NOV-16	Cm-242	0.00E+00 +/- 4.10E-07	uCi/g	W	4.11E-07	6.23E-07	2.00E-02	U
25-NOV-16	Cm-243/244	-2.19E-08 +/- 3.62E-07	uCi/g	W	3.63E-07	7.66E-07	1.00E-04	U
25-NOV-16	Cm-245/246	4.22E-07 +/- 7.18E-07	uCi/g	W	7.21E-07	6.33E-07	1.00E-04	U
25-NOV-16	Ni-59	-1.78E-04 +/- 7.55E-04	uCi/g	W	7.59E-04	1.27E-03	2.20E-01	U
29-NOV-16	I-129	-4.54E-07 +/- 3.59E-06	uCi/g	W	3.60E-06	7.73E-06	8.00E-05	U

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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515019	PA3-S-04	Solid	25-OCT-16 14:30:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
28-NOV-16	Pu-241	-7.32E-06 +/- 1.01E-04	uCi/g	W	1.01E-04	1.77E-04	3.50E-03	U
26-NOV-16	Fe-55	-6.94E-05 +/- 1.05E-03	uCi/g	W	1.05E-03	1.51E-03	7.00E-01	U
26-NOV-16	Tc-99	2.17E-05 +/- 3.15E-05	uCi/g	W	3.16E-05	5.34E-05	3.00E-03	U
23-NOV-16	H-3	2.10E-06 +/- 1.50E-04	uCi/g	W	1.50E-04	2.73E-04	4.00E-02	U
24-NOV-16	C-14	-2.44E-06 +/- 1.57E-05	uCi/g	W	1.57E-05	2.79E-05	8.00E-03	U
23-NOV-16	Pu-238	5.54E-07 +/- 9.64E-07	uCi/g	W	9.69E-07	1.45E-06	1.00E-04	U
23-NOV-16	Pu-239/240	5.53E-07 +/- 9.63E-07	uCi/g	W	9.69E-07	1.44E-06	1.00E-04	U
23-NOV-16	Pu-242	3.39E-07 +/- 8.35E-07	uCi/g	W	8.37E-07	1.38E-06	1.00E-04	U
25-NOV-16	Np-237	-1.69E-08 +/- 6.05E-07	uCi/g	W	6.05E-07	1.39E-06	1.00E-04	U
29-NOV-16	Sr-89	-3.67E+01 +/- 6.82E+01	pCi/g	W	6.82E+01	1.25E+02	7.00E-01	U
29-NOV-16	Sr-90	-2.12E+01 +/- 2.02E+01	pCi/g	W	2.02E+01	3.57E+01	4.00E-05	U
30-NOV-16	Ni-63	-5.13E-04 +/- 3.97E-04	uCi/g	D	3.97E-04	7.31E-04	3.50E-03	U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515020	OLA1-S-06	Solid	26-OCT-16 09:20:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Ac-228	2.81E-07 +/- 2.42E-07	uCi/g	D	2.42E-07	2.59E-07		
08-NOV-16	Am-241	-1.02E-09 +/- 1.57E-07	uCi/g	D	1.57E-07	3.17E-07		U
08-NOV-16	Sb-124	3.55E-08 +/- 7.65E-08	uCi/g	D	7.82E-08	1.82E-07		U
08-NOV-16	Sb-125	1.96E-08 +/- 6.79E-08	uCi/g	D	6.84E-08	1.43E-07		U
08-NOV-16	Ba-133	1.50E-08 +/- 3.21E-08	uCi/g	D	3.28E-08	6.05E-08		U
08-NOV-16	Ba-140	1.04E-07 +/- 1.82E-07	uCi/g	D	1.88E-07	4.00E-07		U
08-NOV-16	Be-7	2.83E-07 +/- 2.66E-07	uCi/g	D	2.95E-07	5.95E-07		U
08-NOV-16	Bi-212	2.62E-07 +/- 4.39E-07	uCi/g	D	4.55E-07	9.36E-07		U
08-NOV-16	Bi-214	1.10E-06 +/- 1.82E-07	uCi/g	D	1.88E-07	9.36E-08		
08-NOV-16	Ce-139	-4.97E-09 +/- 2.24E-08	uCi/g	D	2.26E-08	4.19E-08		U
08-NOV-16	Ce-141	-3.40E-08 +/- 5.06E-08	uCi/g	D	5.29E-08	9.11E-08		U
08-NOV-16	Ce-144	-1.88E-08 +/- 1.42E-07	uCi/g	D	1.42E-07	2.73E-07		U
08-NOV-16	Cs-134	1.79E-08 +/- 3.36E-08	uCi/g	D	3.46E-08	6.78E-08		U
08-NOV-16	Cs-136	-1.76E-08 +/- 6.86E-08	uCi/g	D	6.90E-08	1.29E-07		U
08-NOV-16	Cs-137	2.31E-07 +/- 6.91E-08	uCi/g	D	6.98E-08	5.98E-08	1.00E-07	
08-NOV-16	Cr-51	-3.22E-08 +/- 2.92E-07	uCi/g	D	2.92E-07	5.32E-07		U
08-NOV-16	Co-56	-6.27E-09 +/- 3.73E-08	uCi/g	D	3.74E-08	6.26E-08		U
08-NOV-16	Co-57	1.14E-08 +/- 1.80E-08	uCi/g	D	1.87E-08	3.73E-08		U

Notes:
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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515020	OLA1-S-06	Solid	26-OCT-16 09:20:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
08-NOV-16	Co-58	1.85E-08 +/- 2.82E-08	uCi/g	D	2.94E-08	6.37E-08		U
08-NOV-16	Co-60	5.05E-08 +/- 3.13E-08	uCi/g	D	3.88E-08	8.42E-08		U
08-NOV-16	Eu-152	-1.36E-08 +/- 7.14E-08	uCi/g	D	7.17E-08	1.29E-07		U
08-NOV-16	Eu-154	9.46E-09 +/- 7.98E-08	uCi/g	D	7.99E-08	1.71E-07		U
08-NOV-16	Eu-155	-2.51E-08 +/- 7.67E-08	uCi/g	D	7.75E-08	1.46E-07		U
08-NOV-16	Ir-192	2.17E-08 +/- 3.14E-08	uCi/g	D	3.14E-08	4.84E-08		U
08-NOV-16	Fe-59	-1.86E-08 +/- 5.06E-08	uCi/g	D	5.13E-08	9.32E-08		U
08-NOV-16	Pb-210	2.24E-06 +/- 5.23E-06	uCi/g	D	5.33E-06	1.13E-05		U
08-NOV-16	Pb-212	2.98E-07 +/- 8.18E-08	uCi/g	D	8.33E-08	6.46E-08		
08-NOV-16	Pb-214	1.39E-06 +/- 1.73E-07	uCi/g	D	1.82E-07	1.14E-07		
08-NOV-16	Mn-54	-3.42E-09 +/- 2.44E-08	uCi/g	D	2.44E-08	4.80E-08		U
08-NOV-16	Hg-203	-6.15E-09 +/- 2.89E-08	uCi/g	D	2.90E-08	5.24E-08		U
08-NOV-16	Nd-147	1.92E-07 +/- 4.61E-07	uCi/g	D	4.69E-07	9.60E-07		U
08-NOV-16	Np-239	-9.03E-08 +/- 1.82E-07	uCi/g	D	1.87E-07	3.42E-07		U
08-NOV-16	Nb-94	-1.56E-08 +/- 2.72E-08	uCi/g	D	2.81E-08	4.86E-08		U
08-NOV-16	Nb-95	0.00E+00 +/- 4.87E-08	uCi/g	D	4.89E-08	5.29E-08		UI
08-NOV-16	K-40	4.40E-06 +/- 1.12E-06	uCi/g	D	1.14E-06	7.90E-07		
08-NOV-16	Pm-144	6.38E-09 +/- 2.69E-08	uCi/g	D	2.71E-08	5.56E-08		U
08-NOV-16	Pm-146	-3.71E-10 +/- 2.95E-08	uCi/g	D	2.95E-08	6.05E-08		U
08-NOV-16	Ra-228	2.81E-07 +/- 2.42E-07	uCi/g	D	2.42E-07	2.59E-07		
08-NOV-16	Ru-106	-9.32E-09 +/- 1.96E-07	uCi/g	D	1.96E-07	4.04E-07		U
08-NOV-16	Ag-110m	-4.12E-10 +/- 3.20E-08	uCi/g	D	3.20E-08	6.55E-08		U
08-NOV-16	Na-22	-3.49E-10 +/- 3.04E-08	uCi/g	D	3.04E-08	6.02E-08		U
08-NOV-16	Tl-208	1.16E-07 +/- 6.14E-08	uCi/g	D	6.16E-08	5.96E-08		
08-NOV-16	Th-234	1.42E-06 +/- 2.46E-06	uCi/g	D	2.48E-06	2.26E-06		U
08-NOV-16	Sn-113	-3.11E-08 +/- 3.43E-08	uCi/g	D	3.71E-08	6.19E-08		U
08-NOV-16	U-235	7.23E-08 +/- 1.75E-07	uCi/g	D	1.78E-07	3.46E-07		U
08-NOV-16	U-238	1.42E-06 +/- 2.46E-06	uCi/g	D	2.48E-06	2.26E-06		U
08-NOV-16	Y-88	-2.71E-08 +/- 3.65E-08	uCi/g	D	3.85E-08	5.92E-08		U
08-NOV-16	Zn-65	3.30E-08 +/- 7.33E-08	uCi/g	D	7.48E-08	1.43E-07		U
08-NOV-16	Zr-95	-2.66E-08 +/- 5.46E-08	uCi/g	D	5.59E-08	9.89E-08		U

Notes:
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M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515021	OLA1-D6-07	Solid	26-OCT-16 09:40:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ac-228	6.67E-07 +/- 2.37E-07	uCi/g	D	2.40E-07	1.96E-07		
12-NOV-16	Am-241	-2.41E-08 +/- 1.09E-07	uCi/g	D	1.10E-07	2.06E-07		U
12-NOV-16	Sb-124	1.33E-08 +/- 4.70E-08	uCi/g	D	4.73E-08	1.06E-07		U
12-NOV-16	Sb-125	-3.30E-08 +/- 6.66E-08	uCi/g	D	6.83E-08	1.20E-07		U
12-NOV-16	Ba-133	1.77E-08 +/- 3.35E-08	uCi/g	D	3.44E-08	6.01E-08		U
12-NOV-16	Ba-140	3.66E-09 +/- 2.07E-07	uCi/g	D	2.07E-07	3.89E-07		U
12-NOV-16	Be-7	-2.19E-07 +/- 2.41E-07	uCi/g	D	2.60E-07	4.09E-07		U
12-NOV-16	Bi-212	0.00E+00 +/- 8.07E-07	uCi/g	D	8.08E-07	7.03E-07		UI
12-NOV-16	Bi-214	7.50E-07 +/- 1.29E-07	uCi/g	D	1.32E-07	9.18E-08		
12-NOV-16	Ce-139	-9.59E-09 +/- 2.09E-08	uCi/g	D	2.15E-08	3.62E-08		U
12-NOV-16	Ce-141	-1.94E-08 +/- 4.86E-08	uCi/g	D	4.94E-08	7.80E-08		U
12-NOV-16	Ce-144	7.41E-08 +/- 1.36E-07	uCi/g	D	1.40E-07	2.56E-07		U
12-NOV-16	Cs-134	4.13E-08 +/- 3.31E-08	uCi/g	D	3.80E-08	6.82E-08		U
12-NOV-16	Cs-136	3.40E-08 +/- 8.45E-08	uCi/g	D	8.59E-08	1.71E-07		U
12-NOV-16	Cs-137	0.00E+00 +/- 3.36E-08	uCi/g	D	3.37E-08	4.65E-08	1.00E-07	UI
12-NOV-16	Cr-51	8.77E-08 +/- 2.83E-07	uCi/g	D	2.85E-07	5.50E-07		U
12-NOV-16	Co-56	-7.35E-09 +/- 2.67E-08	uCi/g	D	2.69E-08	5.07E-08		U
12-NOV-16	Co-57	1.17E-08 +/- 1.67E-08	uCi/g	D	1.75E-08	3.21E-08		U
12-NOV-16	Co-58	-6.01E-09 +/- 2.81E-08	uCi/g	D	2.83E-08	5.38E-08		U
12-NOV-16	Co-60	2.65E-09 +/- 2.00E-08	uCi/g	D	2.00E-08	4.15E-08		U
12-NOV-16	Eu-152	4.21E-08 +/- 6.84E-08	uCi/g	D	7.10E-08	1.26E-07		U
12-NOV-16	Eu-154	-6.46E-08 +/- 1.08E-07	uCi/g	D	1.12E-07	1.86E-07		U
12-NOV-16	Eu-155	2.94E-08 +/- 1.47E-07	uCi/g	D	1.47E-07	1.34E-07		U
12-NOV-16	Ir-192	-2.30E-08 +/- 2.39E-08	uCi/g	D	2.61E-08	4.22E-08		U
12-NOV-16	Fe-59	-2.92E-09 +/- 7.30E-08	uCi/g	D	7.30E-08	1.22E-07		U
12-NOV-16	Pb-210	-3.54E-06 +/- 3.40E-06	uCi/g	D	3.77E-06	5.53E-06		U
12-NOV-16	Pb-212	7.23E-07 +/- 9.16E-08	uCi/g	D	9.94E-08	7.21E-08		
12-NOV-16	Pb-214	8.65E-07 +/- 1.41E-07	uCi/g	D	1.46E-07	9.48E-08		
12-NOV-16	Mn-54	0.00E+00 +/- 3.51E-08	uCi/g	D	3.52E-08	4.04E-08		UI
12-NOV-16	Hg-203	1.74E-08 +/- 2.75E-08	uCi/g	D	2.86E-08	5.49E-08		U
12-NOV-16	Nd-147	3.78E-07 +/- 4.48E-07	uCi/g	D	4.80E-07	8.57E-07		U
12-NOV-16	Np-239	-9.38E-08 +/- 1.87E-07	uCi/g	D	1.92E-07	3.31E-07		U
12-NOV-16	Nb-94	2.60E-08 +/- 2.54E-08	uCi/g	D	2.80E-08	5.16E-08		U
12-NOV-16	Nb-95	-2.34E-08 +/- 3.70E-08	uCi/g	D	3.85E-08	5.31E-08		U
12-NOV-16	K-40	2.24E-05 +/- 1.55E-06	uCi/g	D	1.94E-06	4.24E-07		
12-NOV-16	Pm-144	2.17E-08 +/- 3.04E-08	uCi/g	D	3.19E-08	5.86E-08		U
12-NOV-16	Pm-146	-1.30E-08 +/- 2.81E-08	uCi/g	D	2.88E-08	5.07E-08		U

Notes:
1. LLDs are a-priori values.
2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
U - Target isotope was analyzed for but not detected above the MDC and LLD.
UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515021	OLA1-D6-07	Solid	26-OCT-16 09:40:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ra-228	6.67E-07 +/- 2.37E-07	uCi/g	D	2.40E-07	1.96E-07		
12-NOV-16	Ru-106	8.80E-08 +/- 2.21E-07	uCi/g	D	2.25E-07	3.97E-07		U
12-NOV-16	Ag-110m	-5.61E-09 +/- 3.38E-08	uCi/g	D	3.39E-08	6.48E-08		U
12-NOV-16	Na-22	-2.28E-08 +/- 3.80E-08	uCi/g	D	3.94E-08	6.56E-08		U
12-NOV-16	Tl-208	2.33E-07 +/- 5.85E-08	uCi/g	D	5.94E-08	5.25E-08		
12-NOV-16	Th-234	-2.12E-07 +/- 1.10E-06	uCi/g	D	1.10E-06	2.02E-06		U
12-NOV-16	Sn-113	-2.25E-08 +/- 2.98E-08	uCi/g	D	3.15E-08	5.26E-08		U
12-NOV-16	U-235	0.00E+00 +/- 2.39E-07	uCi/g	D	2.39E-07	2.36E-07		UI
12-NOV-16	U-238	-2.12E-07 +/- 1.10E-06	uCi/g	D	1.10E-06	2.02E-06		U
12-NOV-16	Y-88	-1.01E-08 +/- 1.89E-08	uCi/g	D	1.94E-08	3.57E-08		U
12-NOV-16	Zn-65	-1.35E-08 +/- 7.85E-08	uCi/g	D	7.87E-08	1.26E-07		U
12-NOV-16	Zr-95	4.60E-08 +/- 5.31E-08	uCi/g	D	5.71E-08	1.08E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515022	OLA2-S-01	Solid	27-OCT-16 09:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ac-228	5.81E-07 +/- 1.83E-07	uCi/g	D	1.85E-07	1.43E-07		
12-NOV-16	Am-241	1.47E-08 +/- 1.13E-07	uCi/g	D	1.13E-07	2.01E-07		U
12-NOV-16	Sb-124	3.53E-08 +/- 6.00E-08	uCi/g	D	6.21E-08	1.10E-07		U
12-NOV-16	Sb-125	-2.10E-08 +/- 6.15E-08	uCi/g	D	6.22E-08	1.05E-07		U
12-NOV-16	Ba-133	-1.36E-11 +/- 2.50E-08	uCi/g	D	2.50E-08	4.49E-08		U
12-NOV-16	Ba-140	2.94E-07 +/- 2.24E-07	uCi/g	D	2.60E-07	3.12E-07		U
12-NOV-16	Be-7	4.95E-07 +/- 3.42E-07	uCi/g	D	3.43E-07	3.24E-07		
12-NOV-16	Bi-212	7.01E-07 +/- 3.59E-07	uCi/g	D	4.80E-07	7.28E-07		U
12-NOV-16	Bi-214	1.69E-06 +/- 1.42E-07	uCi/g	D	1.59E-07	8.05E-08		
12-NOV-16	Ce-139	6.68E-09 +/- 1.88E-08	uCi/g	D	1.91E-08	3.31E-08		U
12-NOV-16	Ce-141	2.31E-08 +/- 3.97E-08	uCi/g	D	4.11E-08	7.18E-08		U
12-NOV-16	Ce-144	4.49E-08 +/- 1.29E-07	uCi/g	D	1.31E-07	2.32E-07		U
12-NOV-16	Cs-134	6.98E-09 +/- 2.47E-08	uCi/g	D	2.49E-08	4.55E-08		U
12-NOV-16	Cs-136	-2.70E-08 +/- 6.64E-08	uCi/g	D	6.75E-08	1.18E-07		U
12-NOV-16	Cs-137	2.79E-08 +/- 2.27E-08	uCi/g	D	2.28E-08	3.84E-08	1.00E-07	U
12-NOV-16	Cr-51	-9.10E-08 +/- 2.32E-07	uCi/g	D	2.36E-07	4.10E-07		U
12-NOV-16	Co-56	5.29E-10 +/- 2.26E-08	uCi/g	D	2.26E-08	4.07E-08		U
12-NOV-16	Co-57	-1.91E-10 +/- 1.56E-08	uCi/g	D	1.56E-08	2.79E-08		U

Notes:
1. LLDs are a-priori values.
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515022	OLA2-S-01	Solid	27-OCT-16 09:15:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Co-58	1.33E-09 +/- 2.67E-08	uCi/g	D	2.67E-08	4.23E-08		U
12-NOV-16	Co-60	2.46E-09 +/- 2.35E-08	uCi/g	D	2.36E-08	4.34E-08		U
12-NOV-16	Eu-152	1.16E-08 +/- 6.08E-08	uCi/g	D	6.10E-08	1.11E-07		U
12-NOV-16	Eu-154	1.73E-08 +/- 7.26E-08	uCi/g	D	7.31E-08	1.35E-07		U
12-NOV-16	Eu-155	4.19E-08 +/- 6.59E-08	uCi/g	D	6.86E-08	1.23E-07		U
12-NOV-16	Ir-192	2.25E-09 +/- 2.14E-08	uCi/g	D	2.15E-08	3.91E-08		U
12-NOV-16	Fe-59	-1.15E-08 +/- 5.17E-08	uCi/g	D	5.20E-08	9.34E-08		U
12-NOV-16	Pb-210	3.52E-06 +/- 7.72E-06	uCi/g	D	7.73E-06	6.98E-06		U
12-NOV-16	Pb-212	6.84E-07 +/- 7.60E-08	uCi/g	D	8.41E-08	5.45E-08		
12-NOV-16	Pb-214	2.18E-06 +/- 1.35E-07	uCi/g	D	1.63E-07	2.86E-07		
12-NOV-16	Mn-54	-1.31E-08 +/- 2.57E-08	uCi/g	D	2.64E-08	4.33E-08		U
12-NOV-16	Hg-203	2.20E-09 +/- 2.21E-08	uCi/g	D	2.21E-08	4.08E-08		U
12-NOV-16	Nd-147	-1.67E-07 +/- 4.24E-07	uCi/g	D	4.31E-07	6.69E-07		U
12-NOV-16	Np-239	-9.28E-08 +/- 1.67E-07	uCi/g	D	1.73E-07	2.90E-07		U
12-NOV-16	Nb-94	-1.02E-08 +/- 2.16E-08	uCi/g	D	2.21E-08	3.61E-08		U
12-NOV-16	Nb-95	3.33E-08 +/- 3.24E-08	uCi/g	D	3.57E-08	5.59E-08		U
12-NOV-16	K-40	9.70E-06 +/- 7.99E-07	uCi/g	D	9.46E-07	3.92E-07		
12-NOV-16	Pm-144	2.02E-08 +/- 2.04E-08	uCi/g	D	2.24E-08	4.01E-08		U
12-NOV-16	Pm-146	3.30E-08 +/- 2.58E-08	uCi/g	D	2.99E-08	5.00E-08		U
12-NOV-16	Ra-228	5.81E-07 +/- 1.83E-07	uCi/g	D	1.85E-07	1.43E-07		
12-NOV-16	Ru-106	1.06E-07 +/- 1.86E-07	uCi/g	D	1.92E-07	3.58E-07		U
12-NOV-16	Ag-110m	-1.98E-08 +/- 3.74E-08	uCi/g	D	3.84E-08	5.19E-08		U
12-NOV-16	Na-22	1.16E-08 +/- 2.53E-08	uCi/g	D	2.58E-08	4.81E-08		U
12-NOV-16	Tl-208	2.00E-07 +/- 5.51E-08	uCi/g	D	5.58E-08	3.93E-08		
12-NOV-16	Th-234	0.00E+00 +/- 1.85E-06	uCi/g	D	1.90E-06	1.63E-06		UI
12-NOV-16	Sn-113	-8.41E-09 +/- 3.23E-08	uCi/g	D	3.26E-08	5.00E-08		U
12-NOV-16	U-235	0.00E+00 +/- 2.19E-07	uCi/g	D	2.19E-07	2.10E-07		UI
12-NOV-16	U-238	0.00E+00 +/- 1.85E-06	uCi/g	D	1.90E-06	1.63E-06		UI
12-NOV-16	Y-88	-1.05E-08 +/- 1.98E-08	uCi/g	D	2.04E-08	3.50E-08		U
12-NOV-16	Zn-65	8.82E-08 +/- 5.49E-08	uCi/g	D	6.79E-08	1.05E-07		U
12-NOV-16	Zr-95	5.18E-08 +/- 4.45E-08	uCi/g	D	5.03E-08	8.82E-08		U

Notes:
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M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515023	OLA2-S-02	Solid	27-OCT-16 09:40:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ac-228	1.12E-06 +/- 2.61E-07	uCi/g	D	2.67E-07	1.73E-07		
12-NOV-16	Am-241	-2.48E-08 +/- 7.20E-08	uCi/g	D	7.29E-08	1.18E-07		U
12-NOV-16	Sb-124	-3.42E-08 +/- 5.59E-08	uCi/g	D	5.81E-08	9.59E-08		U
12-NOV-16	Sb-125	2.80E-09 +/- 5.88E-08	uCi/g	D	5.88E-08	1.10E-07		U
12-NOV-16	Ba-133	1.06E-09 +/- 3.02E-08	uCi/g	D	3.02E-08	5.03E-08		U
12-NOV-16	Ba-140	-8.69E-08 +/- 1.81E-07	uCi/g	D	1.85E-07	3.17E-07		U
12-NOV-16	Be-7	2.58E-07 +/- 4.01E-07	uCi/g	D	4.01E-07	3.92E-07		U
12-NOV-16	Bi-212	0.00E+00 +/- 1.16E-06	uCi/g	D	1.16E-06	5.93E-07		UI
12-NOV-16	Bi-214	9.99E-07 +/- 1.61E-07	uCi/g	D	1.66E-07	9.24E-08		
12-NOV-16	Ce-139	-5.43E-09 +/- 2.33E-08	uCi/g	D	2.34E-08	3.63E-08		U
12-NOV-16	Ce-141	8.42E-09 +/- 4.33E-08	uCi/g	D	4.34E-08	7.60E-08		U
12-NOV-16	Ce-144	2.39E-08 +/- 1.47E-07	uCi/g	D	1.48E-07	2.40E-07		U
12-NOV-16	Cs-134	2.80E-08 +/- 4.10E-08	uCi/g	D	4.29E-08	6.58E-08		U
12-NOV-16	Cs-136	-2.41E-08 +/- 5.96E-08	uCi/g	D	6.06E-08	1.10E-07		U
12-NOV-16	Cs-137	3.57E-08 +/- 2.73E-08	uCi/g	D	3.17E-08	5.54E-08	1.00E-07	U
12-NOV-16	Cr-51	-1.87E-07 +/- 2.39E-07	uCi/g	D	2.54E-07	4.23E-07		U
12-NOV-16	Co-56	1.44E-08 +/- 2.89E-08	uCi/g	D	2.97E-08	5.49E-08		U
12-NOV-16	Co-57	1.19E-09 +/- 1.59E-08	uCi/g	D	1.59E-08	2.81E-08		U
12-NOV-16	Co-58	2.80E-09 +/- 2.67E-08	uCi/g	D	2.67E-08	4.43E-08		U
12-NOV-16	Co-60	3.45E-09 +/- 2.71E-08	uCi/g	D	2.72E-08	5.25E-08		U
12-NOV-16	Eu-152	-3.85E-08 +/- 6.16E-08	uCi/g	D	6.40E-08	1.10E-07		U
12-NOV-16	Eu-154	9.35E-10 +/- 6.89E-08	uCi/g	D	6.89E-08	1.33E-07		U
12-NOV-16	Eu-155	2.66E-08 +/- 6.40E-08	uCi/g	D	6.52E-08	1.16E-07		U
12-NOV-16	Ir-192	-3.77E-09 +/- 2.27E-08	uCi/g	D	2.28E-08	4.21E-08		U
12-NOV-16	Fe-59	1.17E-08 +/- 6.69E-08	uCi/g	D	6.71E-08	1.16E-07		U
12-NOV-16	Pb-210	8.74E-07 +/- 1.66E-06	uCi/g	D	1.66E-06	1.78E-06		U
12-NOV-16	Pb-212	1.04E-06 +/- 8.74E-08	uCi/g	D	1.03E-07	6.90E-08		
12-NOV-16	Pb-214	1.21E-06 +/- 1.48E-07	uCi/g	D	1.56E-07	9.34E-08		
12-NOV-16	Mn-54	1.81E-08 +/- 2.31E-08	uCi/g	D	2.45E-08	4.60E-08		U
12-NOV-16	Hg-203	-3.53E-09 +/- 2.67E-08	uCi/g	D	2.68E-08	4.95E-08		U
12-NOV-16	Nd-147	1.40E-07 +/- 3.75E-07	uCi/g	D	3.80E-07	7.22E-07		U
12-NOV-16	Np-239	-4.24E-08 +/- 1.69E-07	uCi/g	D	1.70E-07	2.94E-07		U
12-NOV-16	Nb-94	2.04E-08 +/- 2.34E-08	uCi/g	D	2.51E-08	4.59E-08		U
12-NOV-16	Nb-95	-9.29E-10 +/- 3.43E-08	uCi/g	D	3.43E-08	5.46E-08		U
12-NOV-16	K-40	1.61E-05 +/- 1.15E-06	uCi/g	D	1.43E-06	3.75E-07		
12-NOV-16	Pm-144	1.10E-08 +/- 2.45E-08	uCi/g	D	2.50E-08	4.62E-08		U
12-NOV-16	Pm-146	2.09E-08 +/- 2.76E-08	uCi/g	D	2.92E-08	5.45E-08		U

Notes:
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3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515023	OLA2-S-02	Solid	27-OCT-16 09:40:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ra-228	1.12E-06 +/- 2.61E-07	uCi/g	D	2.67E-07	1.73E-07		
12-NOV-16	Ru-106	3.59E-08 +/- 2.23E-07	uCi/g	D	2.24E-07	3.75E-07		U
12-NOV-16	Ag-110m	1.38E-08 +/- 3.50E-08	uCi/g	D	3.56E-08	6.60E-08		U
12-NOV-16	Na-22	-1.34E-09 +/- 2.41E-08	uCi/g	D	2.41E-08	4.61E-08		U
12-NOV-16	Tl-208	3.50E-07 +/- 7.11E-08	uCi/g	D	7.26E-08	4.41E-08		
12-NOV-16	Th-234	8.77E-07 +/- 1.29E-06	uCi/g	D	1.30E-06	1.07E-06		U
12-NOV-16	Sn-113	0.00E+00 +/- 5.56E-08	uCi/g	D	5.58E-08	5.24E-08		UI
12-NOV-16	U-235	1.08E-09 +/- 1.44E-07	uCi/g	D	1.44E-07	2.43E-07		U
12-NOV-16	U-238	8.77E-07 +/- 1.29E-06	uCi/g	D	1.30E-06	1.07E-06		U
12-NOV-16	Y-88	-1.96E-08 +/- 2.50E-08	uCi/g	D	2.66E-08	4.02E-08		U
12-NOV-16	Zn-65	-2.95E-08 +/- 6.18E-08	uCi/g	D	6.32E-08	9.57E-08		U
12-NOV-16	Zr-95	-5.22E-09 +/- 4.81E-08	uCi/g	D	4.82E-08	8.63E-08		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515024	OLA2-S-03	Solid	27-OCT-16 09:50:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ac-228	1.60E-06 +/- 2.85E-07	uCi/g	D	2.97E-07	2.14E-07		
12-NOV-16	Am-241	-3.99E-08 +/- 8.29E-08	uCi/g	D	8.49E-08	1.31E-07		U
12-NOV-16	Sb-124	-1.62E-08 +/- 6.27E-08	uCi/g	D	6.31E-08	9.87E-08		U
12-NOV-16	Sb-125	-5.95E-08 +/- 7.38E-08	uCi/g	D	7.86E-08	1.24E-07		U
12-NOV-16	Ba-133	3.18E-08 +/- 3.77E-08	uCi/g	D	4.03E-08	6.69E-08		U
12-NOV-16	Ba-140	-5.55E-08 +/- 2.17E-07	uCi/g	D	2.18E-07	3.80E-07		U
12-NOV-16	Be-7	5.11E-08 +/- 2.95E-07	uCi/g	D	2.96E-07	5.35E-07		U
12-NOV-16	Bi-212	0.00E+00 +/- 6.28E-07	uCi/g	D	8.52E-07	1.04E-06		UI
12-NOV-16	Bi-214	1.11E-06 +/- 1.56E-07	uCi/g	D	1.63E-07	1.11E-07		
12-NOV-16	Ce-139	-8.68E-09 +/- 2.35E-08	uCi/g	D	2.39E-08	3.87E-08		U
12-NOV-16	Ce-141	-2.52E-08 +/- 4.93E-08	uCi/g	D	5.06E-08	8.10E-08		U
12-NOV-16	Ce-144	1.00E-07 +/- 1.70E-07	uCi/g	D	1.76E-07	2.77E-07		U
12-NOV-16	Cs-134	6.85E-08 +/- 5.22E-08	uCi/g	D	6.07E-08	6.85E-08		U
12-NOV-16	Cs-136	3.84E-08 +/- 8.32E-08	uCi/g	D	8.50E-08	1.50E-07		U
12-NOV-16	Cs-137	1.44E-08 +/- 3.02E-08	uCi/g	D	3.09E-08	5.63E-08	1.00E-07	U
12-NOV-16	Cr-51	2.72E-07 +/- 4.31E-07	uCi/g	D	4.31E-07	4.94E-07		U
12-NOV-16	Co-56	2.27E-08 +/- 2.98E-08	uCi/g	D	3.15E-08	6.05E-08		U
12-NOV-16	Co-57	4.27E-09 +/- 1.80E-08	uCi/g	D	1.81E-08	3.13E-08		U

Notes:
1. LLDs are a-priori values.
2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
U - Target isotope was analyzed for but not detected above the MDC and LLD.
UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515024	OLA2-S-03	Solid	27-OCT-16 09:50:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Co-58	-1.64E-08 +/- 3.06E-08	uCi/g	D	3.15E-08	5.28E-08		U
12-NOV-16	Co-60	1.94E-09 +/- 3.33E-08	uCi/g	D	3.33E-08	5.53E-08		U
12-NOV-16	Eu-152	1.89E-08 +/- 8.36E-08	uCi/g	D	8.41E-08	1.40E-07		U
12-NOV-16	Eu-154	5.02E-08 +/- 1.00E-07	uCi/g	D	1.03E-07	1.95E-07		U
12-NOV-16	Eu-155	1.02E-07 +/- 8.04E-08	uCi/g	D	8.08E-08	1.22E-07		U
12-NOV-16	Ir-192	-3.36E-09 +/- 2.94E-08	uCi/g	D	2.94E-08	4.78E-08		U
12-NOV-16	Fe-59	-8.70E-10 +/- 6.95E-08	uCi/g	D	6.95E-08	1.29E-07		U
12-NOV-16	Pb-210	6.79E-07 +/- 2.42E-06	uCi/g	D	2.42E-06	2.01E-06		U
12-NOV-16	Pb-212	1.26E-06 +/- 1.01E-07	uCi/g	D	1.22E-07	7.44E-08		
12-NOV-16	Pb-214	1.37E-06 +/- 1.43E-07	uCi/g	D	1.54E-07	1.03E-07		
12-NOV-16	Mn-54	5.38E-09 +/- 3.07E-08	uCi/g	D	3.08E-08	5.82E-08		U
12-NOV-16	Hg-203	1.05E-08 +/- 5.50E-08	uCi/g	D	5.51E-08	5.35E-08		U
12-NOV-16	Nd-147	-7.53E-08 +/- 4.86E-07	uCi/g	D	4.87E-07	8.59E-07		U
12-NOV-16	Np-239	1.14E-07 +/- 1.78E-07	uCi/g	D	1.85E-07	3.19E-07		U
12-NOV-16	Nb-94	1.04E-08 +/- 2.84E-08	uCi/g	D	2.88E-08	5.19E-08		U
12-NOV-16	Nb-95	-2.42E-08 +/- 4.30E-08	uCi/g	D	4.44E-08	6.12E-08		U
12-NOV-16	K-40	1.83E-05 +/- 1.44E-06	uCi/g	D	1.73E-06	4.35E-07		
12-NOV-16	Pm-144	-1.59E-08 +/- 2.83E-08	uCi/g	D	2.92E-08	4.69E-08		U
12-NOV-16	Pm-146	4.20E-08 +/- 3.36E-08	uCi/g	D	3.87E-08	6.68E-08		U
12-NOV-16	Ra-228	1.60E-06 +/- 2.85E-07	uCi/g	D	2.97E-07	2.14E-07		
12-NOV-16	Ru-106	1.09E-07 +/- 2.60E-07	uCi/g	D	2.65E-07	4.82E-07		U
12-NOV-16	Ag-110m	2.35E-08 +/- 4.49E-08	uCi/g	D	4.62E-08	7.98E-08		U
12-NOV-16	Na-22	8.98E-09 +/- 3.67E-08	uCi/g	D	3.69E-08	6.91E-08		U
12-NOV-16	Tl-208	3.78E-07 +/- 7.98E-08	uCi/g	D	8.14E-08	5.20E-08		
12-NOV-16	Th-234	8.48E-07 +/- 1.39E-06	uCi/g	D	1.40E-06	1.28E-06		U
12-NOV-16	Sn-113	-2.24E-09 +/- 3.53E-08	uCi/g	D	3.53E-08	6.36E-08		U
12-NOV-16	U-235	-9.48E-08 +/- 1.63E-07	uCi/g	D	1.63E-07	2.65E-07		U
12-NOV-16	U-238	8.48E-07 +/- 1.39E-06	uCi/g	D	1.40E-06	1.28E-06		U
12-NOV-16	Y-88	9.08E-09 +/- 2.58E-08	uCi/g	D	2.61E-08	5.72E-08		U
12-NOV-16	Zn-65	-6.69E-09 +/- 7.28E-08	uCi/g	D	7.29E-08	1.17E-07		U
12-NOV-16	Zr-95	-2.43E-08 +/- 6.86E-08	uCi/g	D	6.95E-08	1.15E-07		U

Notes:
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M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515025	OLA4-D3-03	Solid	27-OCT-16 14:10:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ac-228	9.68E-07 +/- 1.93E-07	uCi/g	D	2.00E-07	1.96E-07		
12-NOV-16	Am-241	-9.86E-08 +/- 1.16E-07	uCi/g	D	1.24E-07	1.82E-07		U
12-NOV-16	Sb-124	-3.94E-09 +/- 4.87E-08	uCi/g	D	4.88E-08	1.00E-07		U
12-NOV-16	Sb-125	8.07E-09 +/- 6.37E-08	uCi/g	D	6.38E-08	1.21E-07		U
12-NOV-16	Ba-133	-1.68E-08 +/- 3.15E-08	uCi/g	D	3.24E-08	5.08E-08		U
12-NOV-16	Ba-140	9.77E-08 +/- 1.90E-07	uCi/g	D	1.95E-07	3.73E-07		U
12-NOV-16	Be-7	5.15E-08 +/- 2.01E-07	uCi/g	D	2.03E-07	3.90E-07		U
12-NOV-16	Bi-212	1.09E-06 +/- 9.14E-07	uCi/g	D	9.15E-07	7.29E-07		
12-NOV-16	Bi-214	1.04E-06 +/- 1.34E-07	uCi/g	D	1.42E-07	9.86E-08		
12-NOV-16	Ce-139	2.77E-09 +/- 2.17E-08	uCi/g	D	2.18E-08	3.80E-08		U
12-NOV-16	Ce-141	1.77E-08 +/- 5.00E-08	uCi/g	D	5.07E-08	8.25E-08		U
12-NOV-16	Ce-144	5.79E-08 +/- 1.41E-07	uCi/g	D	1.43E-07	2.53E-07		U
12-NOV-16	Cs-134	3.95E-08 +/- 3.47E-08	uCi/g	D	3.91E-08	6.87E-08		U
12-NOV-16	Cs-136	-5.02E-09 +/- 7.50E-08	uCi/g	D	7.50E-08	1.36E-07		U
12-NOV-16	Cs-137	7.13E-08 +/- 5.17E-08	uCi/g	D	5.18E-08	5.20E-08	1.00E-07	
12-NOV-16	Cr-51	-8.61E-08 +/- 2.53E-07	uCi/g	D	2.56E-07	4.67E-07		U
12-NOV-16	Co-56	-3.10E-08 +/- 2.73E-08	uCi/g	D	3.07E-08	4.21E-08		U
12-NOV-16	Co-57	1.23E-08 +/- 1.81E-08	uCi/g	D	1.89E-08	3.30E-08		U
12-NOV-16	Co-58	-6.16E-09 +/- 2.62E-08	uCi/g	D	2.64E-08	4.21E-08		U
12-NOV-16	Co-60	-3.45E-09 +/- 3.16E-08	uCi/g	D	3.16E-08	5.47E-08		U
12-NOV-16	Eu-152	-2.26E-08 +/- 6.39E-08	uCi/g	D	6.48E-08	1.18E-07		U
12-NOV-16	Eu-154	1.91E-08 +/- 7.56E-08	uCi/g	D	7.61E-08	1.44E-07		U
12-NOV-16	Eu-155	3.30E-08 +/- 7.46E-08	uCi/g	D	7.62E-08	1.35E-07		U
12-NOV-16	Ir-192	-5.97E-09 +/- 2.76E-08	uCi/g	D	2.78E-08	4.61E-08		U
12-NOV-16	Fe-59	-4.34E-08 +/- 5.87E-08	uCi/g	D	6.20E-08	9.57E-08		U
12-NOV-16	Pb-210	3.53E-06 +/- 5.33E-06	uCi/g	D	5.34E-06	4.26E-06		U
12-NOV-16	Pb-212	9.92E-07 +/- 8.92E-08	uCi/g	D	1.04E-07	7.23E-08		
12-NOV-16	Pb-214	1.21E-06 +/- 1.63E-07	uCi/g	D	1.71E-07	2.71E-07		
12-NOV-16	Mn-54	3.89E-10 +/- 2.44E-08	uCi/g	D	2.44E-08	4.52E-08		U
12-NOV-16	Hg-203	-7.57E-09 +/- 2.98E-08	uCi/g	D	3.00E-08	4.57E-08		U
12-NOV-16	Nd-147	2.14E-07 +/- 3.99E-07	uCi/g	D	4.11E-07	7.86E-07		U
12-NOV-16	Np-239	-4.75E-08 +/- 1.88E-07	uCi/g	D	1.89E-07	3.27E-07		U
12-NOV-16	Nb-94	4.29E-08 +/- 4.08E-08	uCi/g	D	4.51E-08	5.12E-08		U
12-NOV-16	Nb-95	-3.72E-09 +/- 3.17E-08	uCi/g	D	3.18E-08	5.14E-08		U
12-NOV-16	K-40	1.53E-05 +/- 1.29E-06	uCi/g	D	1.52E-06	4.42E-07		
12-NOV-16	Pm-144	3.28E-09 +/- 2.99E-08	uCi/g	D	3.00E-08	4.97E-08		U
12-NOV-16	Pm-146	-4.84E-09 +/- 3.19E-08	uCi/g	D	3.20E-08	5.65E-08		U

Notes:
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515025	OLA4-D3-03	Solid	27-OCT-16 14:10:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ra-228	9.68E-07 +/- 1.93E-07	uCi/g	D	2.00E-07	1.96E-07		
12-NOV-16	Ru-106	6.76E-08 +/- 2.16E-07	uCi/g	D	2.18E-07	4.14E-07		U
12-NOV-16	Ag-110m	-6.54E-09 +/- 3.29E-08	uCi/g	D	3.30E-08	5.94E-08		U
12-NOV-16	Na-22	7.64E-09 +/- 2.68E-08	uCi/g	D	2.71E-08	5.15E-08		U
12-NOV-16	Tl-208	3.07E-07 +/- 7.11E-08	uCi/g	D	7.23E-08	5.04E-08		
12-NOV-16	Th-234	8.04E-07 +/- 1.82E-06	uCi/g	D	1.83E-06	1.61E-06		U
12-NOV-16	Sn-113	1.45E-08 +/- 3.34E-08	uCi/g	D	3.41E-08	6.44E-08		U
12-NOV-16	U-235	9.08E-08 +/- 1.86E-07	uCi/g	D	1.86E-07	2.53E-07		U
12-NOV-16	U-238	8.04E-07 +/- 1.82E-06	uCi/g	D	1.83E-06	1.61E-06		U
12-NOV-16	Y-88	1.14E-08 +/- 2.40E-08	uCi/g	D	2.45E-08	5.44E-08		U
12-NOV-16	Zn-65	2.30E-08 +/- 6.34E-08	uCi/g	D	6.42E-08	1.10E-07		U
12-NOV-16	Zr-95	3.83E-08 +/- 5.09E-08	uCi/g	D	5.38E-08	1.02E-07		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515026	OLA3-S-09	Solid	27-OCT-16 13:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ac-228	2.75E-07 +/- 1.99E-07	uCi/g	D	1.99E-07	1.53E-07		
12-NOV-16	Am-241	3.60E-08 +/- 1.13E-07	uCi/g	D	1.14E-07	2.06E-07		U
12-NOV-16	Sb-124	1.32E-08 +/- 4.76E-08	uCi/g	D	4.79E-08	1.03E-07		U
12-NOV-16	Sb-125	1.04E-08 +/- 5.68E-08	uCi/g	D	5.70E-08	1.01E-07		U
12-NOV-16	Ba-133	-2.70E-09 +/- 2.30E-08	uCi/g	D	2.31E-08	4.25E-08		U
12-NOV-16	Ba-140	1.26E-07 +/- 1.45E-07	uCi/g	D	1.56E-07	3.07E-07		U
12-NOV-16	Be-7	0.00E+00 +/- 4.61E-07	uCi/g	D	4.62E-07	3.41E-07		UI
12-NOV-16	Bi-212	1.96E-07 +/- 5.58E-07	uCi/g	D	5.58E-07	5.43E-07		U
12-NOV-16	Bi-214	1.37E-06 +/- 1.48E-07	uCi/g	D	1.59E-07	6.94E-08		
12-NOV-16	Ce-139	1.11E-08 +/- 1.66E-08	uCi/g	D	1.75E-08	3.17E-08		U
12-NOV-16	Ce-141	-2.14E-08 +/- 3.99E-08	uCi/g	D	4.10E-08	6.44E-08		U
12-NOV-16	Ce-144	-1.58E-08 +/- 1.11E-07	uCi/g	D	1.11E-07	2.02E-07		U
12-NOV-16	Cs-134	-2.05E-09 +/- 2.33E-08	uCi/g	D	2.33E-08	4.31E-08		U
12-NOV-16	Cs-136	2.89E-08 +/- 5.52E-08	uCi/g	D	5.68E-08	1.18E-07		U
12-NOV-16	Cs-137	4.79E-10 +/- 2.11E-08	uCi/g	D	2.11E-08	4.01E-08	1.00E-07	U
12-NOV-16	Cr-51	1.04E-07 +/- 2.05E-07	uCi/g	D	2.10E-07	4.16E-07		U
12-NOV-16	Co-56	-1.39E-08 +/- 2.19E-08	uCi/g	D	2.28E-08	3.73E-08		U
12-NOV-16	Co-57	-6.13E-10 +/- 1.46E-08	uCi/g	D	1.46E-08	2.70E-08		U

Notes:
1. LLDs are a-priori values.
2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

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M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515026	OLA3-S-09	Solid	27-OCT-16 13:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Co-58	-1.54E-08 +/- 2.29E-08	uCi/g	D	2.40E-08	3.32E-08		U
12-NOV-16	Co-60	-1.40E-08 +/- 2.15E-08	uCi/g	D	2.25E-08	3.82E-08		U
12-NOV-16	Eu-152	-1.18E-08 +/- 5.77E-08	uCi/g	D	5.79E-08	1.10E-07		U
12-NOV-16	Eu-154	-4.16E-09 +/- 5.81E-08	uCi/g	D	5.81E-08	1.07E-07		U
12-NOV-16	Eu-155	1.46E-08 +/- 6.04E-08	uCi/g	D	6.07E-08	1.15E-07		U
12-NOV-16	Ir-192	1.10E-09 +/- 1.88E-08	uCi/g	D	1.88E-08	3.69E-08		U
12-NOV-16	Fe-59	-9.76E-09 +/- 4.28E-08	uCi/g	D	4.30E-08	8.31E-08		U
12-NOV-16	Pb-210	6.78E-07 +/- 3.49E-06	uCi/g	D	3.51E-06	6.94E-06		U
12-NOV-16	Pb-212	2.95E-07 +/- 6.65E-08	uCi/g	D	6.83E-08	6.27E-08		
12-NOV-16	Pb-214	1.74E-06 +/- 1.46E-07	uCi/g	D	1.63E-07	2.82E-07		
12-NOV-16	Mn-54	5.23E-09 +/- 2.04E-08	uCi/g	D	2.06E-08	3.96E-08		U
12-NOV-16	Hg-203	-2.34E-08 +/- 2.15E-08	uCi/g	D	2.40E-08	3.89E-08		U
12-NOV-16	Nd-147	-9.96E-08 +/- 3.66E-07	uCi/g	D	3.68E-07	6.78E-07		U
12-NOV-16	Np-239	-6.58E-08 +/- 1.56E-07	uCi/g	D	1.58E-07	2.81E-07		U
12-NOV-16	Nb-94	9.30E-09 +/- 2.17E-08	uCi/g	D	2.21E-08	4.22E-08		U
12-NOV-16	Nb-95	1.72E-08 +/- 3.20E-08	uCi/g	D	3.30E-08	5.46E-08		U
12-NOV-16	K-40	4.32E-06 +/- 6.34E-07	uCi/g	D	6.72E-07	2.72E-07		
12-NOV-16	Pm-144	-1.04E-08 +/- 1.66E-08	uCi/g	D	1.72E-08	2.89E-08		U
12-NOV-16	Pm-146	1.24E-08 +/- 2.28E-08	uCi/g	D	2.35E-08	4.65E-08		U
12-NOV-16	Ra-228	2.75E-07 +/- 1.99E-07	uCi/g	D	1.99E-07	1.53E-07		
12-NOV-16	Ru-106	1.16E-07 +/- 1.74E-07	uCi/g	D	1.82E-07	3.58E-07		U
12-NOV-16	Ag-110m	1.06E-08 +/- 2.59E-08	uCi/g	D	2.64E-08	5.21E-08		U
12-NOV-16	Na-22	-1.06E-09 +/- 2.06E-08	uCi/g	D	2.06E-08	3.81E-08		U
12-NOV-16	Tl-208	1.16E-07 +/- 4.30E-08	uCi/g	D	4.33E-08	4.15E-08		
12-NOV-16	Th-234	0.00E+00 +/- 2.21E-06	uCi/g	D	2.25E-06	1.61E-06		UI
12-NOV-16	Sn-113	1.46E-08 +/- 4.33E-08	uCi/g	D	4.34E-08	5.23E-08		U
12-NOV-16	U-235	2.96E-08 +/- 2.04E-07	uCi/g	D	2.04E-07	2.09E-07		U
12-NOV-16	U-238	0.00E+00 +/- 2.21E-06	uCi/g	D	2.25E-06	1.61E-06		UI
12-NOV-16	Y-88	-9.05E-09 +/- 2.07E-08	uCi/g	D	2.11E-08	3.79E-08		U
12-NOV-16	Zn-65	-3.19E-09 +/- 4.22E-08	uCi/g	D	4.22E-08	7.40E-08		U
12-NOV-16	Zr-95	-3.33E-08 +/- 3.75E-08	uCi/g	D	4.04E-08	6.18E-08		U

Notes:
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road
Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515027	OLA3-S-10	Solid	27-OCT-16 14:00:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ac-228	4.24E-07 +/- 1.57E-07	uCi/g	D	1.58E-07	1.60E-07		
12-NOV-16	Am-241	1.72E-08 +/- 6.35E-08	uCi/g	D	6.40E-08	1.30E-07		U
12-NOV-16	Sb-124	-7.85E-10 +/- 5.12E-08	uCi/g	D	5.12E-08	1.11E-07		U
12-NOV-16	Sb-125	2.80E-08 +/- 5.03E-08	uCi/g	D	5.19E-08	1.09E-07		U
12-NOV-16	Ba-133	3.03E-08 +/- 3.71E-08	uCi/g	D	3.71E-08	3.65E-08		U
12-NOV-16	Ba-140	2.49E-08 +/- 1.42E-07	uCi/g	D	1.43E-07	3.00E-07		U
12-NOV-16	Be-7	9.55E-07 +/- 3.61E-07	uCi/g	D	3.63E-07	3.76E-07		
12-NOV-16	Bi-212	7.34E-07 +/- 5.36E-07	uCi/g	D	6.31E-07	7.93E-07		U
12-NOV-16	Bi-214	3.82E-07 +/- 1.14E-07	uCi/g	D	1.16E-07	8.24E-08		
12-NOV-16	Ce-139	5.16E-09 +/- 1.39E-08	uCi/g	D	1.41E-08	2.82E-08		U
12-NOV-16	Ce-141	-1.48E-08 +/- 3.17E-08	uCi/g	D	3.24E-08	5.90E-08		U
12-NOV-16	Ce-144	-3.97E-08 +/- 9.28E-08	uCi/g	D	9.45E-08	1.80E-07		U
12-NOV-16	Cs-134	3.68E-08 +/- 3.56E-08	uCi/g	D	3.93E-08	6.00E-08		U
12-NOV-16	Cs-136	5.18E-08 +/- 6.89E-08	uCi/g	D	7.29E-08	1.51E-07		U
12-NOV-16	Cs-137	-2.01E-09 +/- 2.23E-08	uCi/g	D	2.24E-08	4.40E-08	1.00E-07	U
12-NOV-16	Cr-51	4.97E-08 +/- 2.14E-07	uCi/g	D	2.15E-07	4.15E-07		U
12-NOV-16	Co-56	5.23E-09 +/- 2.23E-08	uCi/g	D	2.24E-08	4.62E-08		U
12-NOV-16	Co-57	-5.60E-09 +/- 1.16E-08	uCi/g	D	1.19E-08	2.26E-08		U
12-NOV-16	Co-58	1.05E-08 +/- 2.45E-08	uCi/g	D	2.49E-08	4.78E-08		U
12-NOV-16	Co-60	5.35E-09 +/- 2.28E-08	uCi/g	D	2.30E-08	4.98E-08		U
12-NOV-16	Eu-152	3.61E-08 +/- 5.35E-08	uCi/g	D	5.59E-08	1.09E-07		U
12-NOV-16	Eu-154	2.91E-08 +/- 6.19E-08	uCi/g	D	6.33E-08	1.41E-07		U
12-NOV-16	Eu-155	1.36E-08 +/- 4.94E-08	uCi/g	D	4.98E-08	1.03E-07		U
12-NOV-16	Ir-192	9.52E-09 +/- 1.87E-08	uCi/g	D	1.92E-08	3.76E-08		U
12-NOV-16	Fe-59	1.10E-08 +/- 5.85E-08	uCi/g	D	5.88E-08	1.23E-07		U
12-NOV-16	Pb-210	-1.47E-06 +/- 1.35E-06	uCi/g	D	1.50E-06	2.58E-06		U
12-NOV-16	Pb-212	6.30E-07 +/- 8.17E-08	uCi/g	D	8.82E-08	5.49E-08		
12-NOV-16	Pb-214	3.50E-07 +/- 9.28E-08	uCi/g	D	9.39E-08	7.31E-08		
12-NOV-16	Mn-54	1.10E-08 +/- 2.38E-08	uCi/g	D	2.43E-08	4.60E-08		U
12-NOV-16	Hg-203	-1.38E-09 +/- 2.18E-08	uCi/g	D	2.18E-08	3.80E-08		U
12-NOV-16	Nd-147	-1.74E-07 +/- 3.02E-07	uCi/g	D	3.12E-07	5.72E-07		U
12-NOV-16	Np-239	4.32E-08 +/- 2.71E-07	uCi/g	D	2.71E-07	2.31E-07		U
12-NOV-16	Nb-94	-1.64E-08 +/- 2.02E-08	uCi/g	D	2.15E-08	3.52E-08		U
12-NOV-16	Nb-95	3.72E-09 +/- 2.83E-08	uCi/g	D	2.83E-08	5.59E-08		U
12-NOV-16	K-40	1.40E-05 +/- 1.33E-06	uCi/g	D	1.52E-06	4.66E-07		
12-NOV-16	Pm-144	-9.68E-09 +/- 2.31E-08	uCi/g	D	2.35E-08	4.29E-08		U
12-NOV-16	Pm-146	-6.95E-09 +/- 2.25E-08	uCi/g	D	2.27E-08	4.46E-08		U

Notes:
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4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
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UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515027	OLA3-S-10	Solid	27-OCT-16 14:00:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ra-228	4.24E-07 +/- 1.57E-07	uCi/g	D	1.58E-07	1.60E-07		
12-NOV-16	Ru-106	7.22E-08 +/- 1.93E-07	uCi/g	D	1.96E-07	4.04E-07		U
12-NOV-16	Ag-110m	-1.66E-08 +/- 3.08E-08	uCi/g	D	3.17E-08	5.47E-08		U
12-NOV-16	Na-22	1.25E-08 +/- 2.24E-08	uCi/g	D	2.31E-08	5.15E-08		U
12-NOV-16	Tl-208	1.70E-07 +/- 6.28E-08	uCi/g	D	6.32E-08	3.98E-08		
12-NOV-16	Th-234	0.00E+00 +/- 2.51E-06	uCi/g	D	2.56E-06	1.16E-06		UI
12-NOV-16	Sn-113	-1.06E-10 +/- 2.40E-08	uCi/g	D	2.40E-08	4.94E-08		U
12-NOV-16	U-235	4.08E-08 +/- 1.02E-07	uCi/g	D	1.04E-07	2.03E-07		U
12-NOV-16	U-238	0.00E+00 +/- 2.51E-06	uCi/g	D	2.56E-06	1.16E-06		UI
12-NOV-16	Y-88	1.02E-08 +/- 2.22E-08	uCi/g	D	2.27E-08	5.54E-08		U
12-NOV-16	Zn-65	-2.23E-08 +/- 7.19E-08	uCi/g	D	7.26E-08	1.20E-07		U
12-NOV-16	Zr-95	1.79E-08 +/- 4.45E-08	uCi/g	D	4.52E-08	9.31E-08		U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515028	OPPD-FCS-QS	Solid	24-OCT-16 14:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Ac-228	8.22E-07 +/- 2.46E-07	uCi/g	D	2.49E-07	1.94E-07		
12-NOV-16	Am-241	-2.07E-07 +/- 1.68E-07	uCi/g	D	1.93E-07	2.91E-07		U
12-NOV-16	Sb-124	-2.11E-08 +/- 5.91E-08	uCi/g	D	5.98E-08	1.10E-07		U
12-NOV-16	Sb-125	1.97E-09 +/- 6.02E-08	uCi/g	D	6.02E-08	1.11E-07		U
12-NOV-16	Ba-133	1.31E-08 +/- 3.09E-08	uCi/g	D	3.14E-08	5.33E-08		U
12-NOV-16	Ba-140	-1.61E-07 +/- 2.16E-07	uCi/g	D	2.28E-07	3.90E-07		U
12-NOV-16	Be-7	8.12E-08 +/- 2.57E-07	uCi/g	D	2.60E-07	4.78E-07		U
12-NOV-16	Bi-212	1.11E-06 +/- 7.15E-07	uCi/g	D	7.17E-07	6.70E-07		
12-NOV-16	Bi-214	8.53E-07 +/- 1.69E-07	uCi/g	D	1.73E-07	9.26E-08		
12-NOV-16	Ce-139	1.05E-09 +/- 1.97E-08	uCi/g	D	1.98E-08	3.76E-08		U
12-NOV-16	Ce-141	-2.00E-08 +/- 4.84E-08	uCi/g	D	4.92E-08	8.26E-08		U
12-NOV-16	Ce-144	8.01E-09 +/- 1.39E-07	uCi/g	D	1.39E-07	2.47E-07		U
12-NOV-16	Cs-134	-1.34E-10 +/- 3.05E-08	uCi/g	D	3.05E-08	5.73E-08		U
12-NOV-16	Cs-136	-5.03E-08 +/- 1.04E-07	uCi/g	D	1.06E-07	1.52E-07		U
12-NOV-16	Cs-137	-1.56E-08 +/- 2.67E-08	uCi/g	D	2.76E-08	4.79E-08	1.00E-07	U
12-NOV-16	Cr-51	-6.12E-08 +/- 2.82E-07	uCi/g	D	2.83E-07	5.14E-07		U
12-NOV-16	Co-56	-7.59E-09 +/- 2.81E-08	uCi/g	D	2.83E-08	5.13E-08		U
12-NOV-16	Co-57	-6.42E-09 +/- 1.90E-08	uCi/g	D	1.92E-08	3.30E-08		U

Notes:
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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: November 30, 2016

SDG: 409515

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
409515028	OPPD-FCS-QS	Solid	24-OCT-16 14:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
12-NOV-16	Co-58	2.02E-08 +/- 3.15E-08	uCi/g	D	3.28E-08	5.50E-08		U
12-NOV-16	Co-60	-1.67E-08 +/- 2.91E-08	uCi/g	D	3.00E-08	5.18E-08		U
12-NOV-16	Eu-152	1.51E-08 +/- 6.32E-08	uCi/g	D	6.35E-08	1.19E-07		U
12-NOV-16	Eu-154	1.12E-09 +/- 9.33E-08	uCi/g	D	9.33E-08	1.78E-07		U
12-NOV-16	Eu-155	1.40E-08 +/- 7.93E-08	uCi/g	D	7.95E-08	1.44E-07		U
12-NOV-16	Ir-192	-7.22E-10 +/- 2.58E-08	uCi/g	D	2.58E-08	4.77E-08		U
12-NOV-16	Fe-59	2.18E-08 +/- 6.22E-08	uCi/g	D	6.30E-08	1.21E-07		U
12-NOV-16	Pb-210	-7.44E-06 +/- 7.28E-06	uCi/g	D	8.05E-06	1.28E-05		U
12-NOV-16	Pb-212	9.74E-07 +/- 8.63E-08	uCi/g	D	1.01E-07	6.55E-08		
12-NOV-16	Pb-214	1.11E-06 +/- 1.46E-07	uCi/g	D	1.53E-07	9.18E-08		
12-NOV-16	Mn-54	1.76E-08 +/- 2.53E-08	uCi/g	D	2.65E-08	5.12E-08		U
12-NOV-16	Hg-203	1.35E-08 +/- 2.91E-08	uCi/g	D	2.97E-08	5.07E-08		U
12-NOV-16	Nd-147	-1.71E-07 +/- 4.54E-07	uCi/g	D	4.60E-07	8.54E-07		U
12-NOV-16	Np-239	-4.05E-10 +/- 1.84E-07	uCi/g	D	1.84E-07	3.30E-07		U
12-NOV-16	Nb-94	7.34E-09 +/- 2.57E-08	uCi/g	D	2.59E-08	4.96E-08		U
12-NOV-16	Nb-95	3.37E-08 +/- 3.88E-08	uCi/g	D	4.17E-08	7.02E-08		U
12-NOV-16	K-40	1.46E-05 +/- 1.19E-06	uCi/g	D	1.41E-06	3.78E-07		
12-NOV-16	Pm-144	-2.54E-08 +/- 2.35E-08	uCi/g	D	2.62E-08	3.97E-08		U
12-NOV-16	Pm-146	0.00E+00 +/- 6.92E-08	uCi/g	D	7.42E-08	5.11E-08		UI
12-NOV-16	Ra-228	8.22E-07 +/- 2.46E-07	uCi/g	D	2.49E-07	1.94E-07		
12-NOV-16	Ru-106	-3.97E-08 +/- 2.41E-07	uCi/g	D	2.41E-07	4.49E-07		U
12-NOV-16	Ag-110m	5.43E-08 +/- 4.98E-08	uCi/g	D	5.56E-08	7.01E-08		U
12-NOV-16	Na-22	-5.82E-09 +/- 3.38E-08	uCi/g	D	3.39E-08	6.31E-08		U
12-NOV-16	Tl-208	3.01E-07 +/- 6.64E-08	uCi/g	D	6.76E-08	4.09E-08		
12-NOV-16	Th-234	-9.43E-07 +/- 1.40E-06	uCi/g	D	1.48E-06	2.45E-06		U
12-NOV-16	Sn-113	1.39E-08 +/- 3.25E-08	uCi/g	D	3.31E-08	6.16E-08		U
12-NOV-16	U-235	9.10E-08 +/- 2.33E-07	uCi/g	D	2.33E-07	2.29E-07		U
12-NOV-16	U-238	-9.43E-07 +/- 1.40E-06	uCi/g	D	1.48E-06	2.45E-06		U
12-NOV-16	Y-88	-3.75E-09 +/- 2.43E-08	uCi/g	D	2.43E-08	4.79E-08		U
12-NOV-16	Zn-65	4.83E-08 +/- 6.57E-08	uCi/g	D	6.93E-08	1.20E-07		U
12-NOV-16	Zr-95	4.26E-09 +/- 5.40E-08	uCi/g	D	5.40E-08	1.03E-07		U

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Environmental Laboratory Analysis Report

Company : Bartlett Nuclear, Inc
Address : 60 Industrial Park Road

Plymouth, Massachusetts 02360
Contact: Mr. Dave Montt
Project: OPPD HSA

Report Date: December 14, 2016

SDG: 412065

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
412065001	PA2-S-06	Solid	24-OCT-16 14:45:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
13-DEC-16	Sr-90	7.02E-01 +/- 5.69E-01	pCi/g	D	5.83E-01	8.92E-01	1.20E+00	U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
412065002	PA2-D6-07	Solid	24-OCT-16 14:00:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
13-DEC-16	Sr-90	5.48E-01 +/- 6.86E-01	pCi/g	D	6.94E-01	1.16E+00	1.20E+00	U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
412065003	PA1-D1-04	Solid	25-OCT-16 10:40:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
13-DEC-16	Sr-90	1.48E-01 +/- 4.95E-01	pCi/g	D	4.96E-01	9.11E-01	1.20E+00	U

GEL ID	Client Description	Matrix	Collection Date	Receipt Date
412065004	PA3-S-04	Solid	25-OCT-16 14:30:00	01-NOV-16

Analysis Date	Nuclide	Activity Concentration +/- Counting Uncertainty 1.96 Sigma	Units	Basis	TPU 1.96 Sigma	Measured MDC	Required MDC (LLD)	Flags
13-DEC-16	Sr-90	3.39E-01 +/- 6.38E-01	pCi/g	D	6.41E-01	1.11E+00	1.20E+00	U

Notes:
1. LLDs are a-priori values.
2. MDCs are calculated a-posteriori values.
3. Gamma spectroscopy analysis results are calculated from a measurement using only one gamma energy line.
4. Basis: "W" indicates results "As Received"; "D" indicates results "Dry Weight Corrected".

Qualifiers:
U - Target isotope was analyzed for but not detected above the MDC and LLD.
UI - Uncertain identification for gamma spectroscopy.
X - Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
M - Reported result is less than the LLD and greater than the MDC.

APPENDIX C INSTRUMENTATION CHECKS AND CALIBRATIONS

Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-424 Rev 2
2800 Solway Road, Knoxville, TN 37931 *Page 1 of 1*
Calibration Certificate *10/10/2016*

Calibration Certificate for 2350-1,Serial # 203485, Bar Code # ,Property # SEC-5846

Date: 10/10/16 Date Last Cal. Expires: 08/17/17 Technician: Thomas Thompson

Location: 999999, Reason For Calibration: Short Cycled

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 268940 CAL. DUE: 05/02/17

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

AS FOUND Instrument Condition: SAT AS LEFT Instrument Condition: SAT

☐ New Batteries?

Battery Check: SAT

High Voltage (+/- 10% tolerance)	AS FOUND High Voltage	AS LEFT High Voltage
500 V:	500	503
1000 V:	995	1000
1500 V:	1485	1492

AS FOUND HV Setting: 1100 V AS LEFT HV Setting: 1100 V

AS FOUND THRESHOLD: 8.2 mV AS LEFT THRESHOLD: 10 mV

REPRODUCIBILITY

x.1 or x1 Scale:	250	250	250
x1 or x10 Scale:	2500	2500	2500
x10 or x100 Scale:	25 K	25 K	25 K
x100 or x1000 Scale:	250 K	250 K	250 K

☑ Are the Individual Counts Within 10% of the Average?

☑ Fast / Slow Response Switch Functions Properly?

Audio Response: SAT

DIGITAL SCALER

AF 250:	250	% ERR: 0.00%	AL 250:	AF	% ERR: 0.00%
AF 2500:	2498	% ERR: 0.08%	AL 2500:	AF	% ERR: 0.08%
AF 25K:	24.98 K	% ERR: 0.08%	AL 25K:	AF K	% ERR: 0.08%
AF 250K:	249.8 K	% ERR: 0.08%	AL 250K:	AF K	% ERR: 0.08%

☑ Is the As Found Data Within 20% of the Set Point?

Push Buttons: SAT Lamp: SAT Audio/Divide: SAT

Comments: Married as a set with: Model: 44-10 Serial #: PR226924 Bar Code #:

☑ Does Instrument Meet Final Acceptance Criteria?

☑ Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 10/10/17

Performed by: Reviewed by: Date: 10/12/16

Printed Name: Thomas Thompson

Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-415 Rev 3
2800 Solway Road, Knoxville, TN 37931 *Page 1 of 1*
Calibration Certificate *10/10/2016*

Calibration Certificate for 44-10,Serial # PR226924, Bar Code # ,Property # PFL-116

Date: 10/10/16 Date Last Cal. Expires: 08/17/17 Technician: Thomas Thompson
Location: 999999. Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 2350-1 SERIAL #: 203485 CAL DUE: 10/10/17
MODEL: SERIAL #: CAL DUE:

NIST TRACEABLE SOURCES USED

SOURCE	ISOTOPE	ACTIVITY	2π	ASSAY DATE
99CS250-0288	Cs-137	6.2083 uCi		1/1/2016

Efficiency from Last Calibration: 0.68 % HV From Last Calibration: 1100 V Calibration Threshold: 10 mV

AS FOUND DATA

AS FOUND Instrument Condition: SAT
HV: 1100 V
Center: 93831
Background: 4119
4 π Probe Efficiency: Cs-137 0.65%

1 MINUTE COUNTS (CPM)

AS LEFT DATA after repair of HV adjust

AS LEFT Instrument Condition: SAT
HV: 1100 V
Center: 94318
Background: 4098
4 π Probe Efficiency: Cs-137 0.65%

"AF" in the AL Efficiency fields means to refer to the AF Efficiencies in the AS FOUND DATA Section

☑ Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Cs-137 95950 96787 96252 Average: 96330 ☑ Are the individual counts within 10% of the average?

* If As Found Efficiency (even after repair) is within 10% of the last calibration and uniformity is <10%, the technician may N/A the Plateau Data and proceed to Comments. Geometry = NaI probes are 4 1/2" from source. All other probes are in contact with surface unless otherwise specified.

PLATEAU AND SET POINT DATA (CPM)

High Voltage	Source Response	Background	HV	CENTER	Background	4 π Efficiency
N/A			V			Cs-137

Comments: Married as a set with: Model: 2350-1 Serial #: 203485 Bar Code #:

☑ Does Instrument Meet Final Acceptance Criteria? ☑ Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 10/10/17

Performed by: Reviewed by: Date: 10/12/16

Printed Name: Thomas Thompson

Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-424 Rev 2
2800 Solway Road, Knoxville, TN 37931 *Page 1 of 1*
Calibration Certificate *10/10/2016*

Calibration Certificate for 2350-1,Serial # 221036, Bar Code # ,Property # SEC-6323

Date: 10/10/16 Date Last Cal. Expires: 01/14/17 Technician: Thomas Thompson

Location: 999999, Reason For Calibration: Short Cycled

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 268940 CAL. DUE: 05/02/17

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

AS FOUND Instrument Condition: SAT AS LEFT Instrument Condition: SAT

☐ New Batteries?

Battery Check: SAT

High Voltage (+/- 10% tolerance)	AS FOUND High Voltage	AS LEFT High Voltage
500 V:	502	AF
1000 V:	999	AF
1500 V:	1490	AF

AS FOUND HV Setting: 1100 V AS LEFT HV Setting: 1100 V

AS FOUND THRESHOLD: 10 mV AS LEFT THRESHOLD: 10 mV

REPRODUCIBILITY

x.1 or x1 Scale:	250	250	250
x1 or x10 Scale:	2500	2500	2500
x10 or x100 Scale:	25 K	25 K	25 K
x100 or x1000 Scale:	250 K	250 K	250 K

☑ Are the Individual Counts Within 10% of the Average?

☑ Fast / Slow Response Switch Functions Properly?

Audio Response: SAT

DIGITAL SCALER

AF 250:	250	% ERR: 0.00%	AL 250:	AF	% ERR: 0.00%
AF 2500:	2499	% ERR: 0.04%	AL 2500:	AF	% ERR: 0.04%
AF 25K:	24.99 K	% ERR: 0.04%	AL 25K:	AF K	% ERR: 0.04%
AF 250K:	249.9 K	% ERR: 0.04%	AL 250K:	AF K	% ERR: 0.04%

☑ Is the As Found Data Within 20% of the Set Point?

Push Buttons: SAT Lamp: SAT Audio/Divide: SAT

Comments: Married as a set with: Model: 44-10 Serial #: PR245275 Bar Code #:

☑ Does Instrument Meet Final Acceptance Criteria?

☑ Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 10/10/17

Performed by: Reviewed by: Date: 10/12/16

Printed Name: Thomas Thompson

Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-415 Rev 3
2800 Solway Road, Knoxville, TN 37931 *Page 1 of 1*
Calibration Certificate *10/10/2016*

Calibration Certificate for 44-10,Serial # PR245275, Bar Code # ,Property # PFL-059

Date: 10/10/16 Date Last Cal. Expires: 01/14/17 Technician: Thomas Thompson
Location: 999999, Reason For Calibration: Short Cycled

EQUIPMENT USED DURING CALIBRATION

MODEL: 2350-1 SERIAL #: 221036 CAL DUE: 10/10/17
MODEL: SERIAL #: CAL DUE:

NIST TRACEABLE SOURCES USED

SOURCE	ISOTOPE	ACTIVITY	2π	ASSAY DATE
99CS250-0288	Cs-137	6.2083 uCi		1/1/2016

Efficiency from Last Calibration: 0.65 % HV From Last Calibration: 1100 V Calibration Threshold: 10 mV

AS FOUND DATA

AS FOUND Instrument Condition: SAT
HV: 1100 V
Center: 93765
Background: 4118
4 π Probe Efficiency: Cs-137 0.65%

1 MINUTE COUNTS (CPM)

AS LEFT DATA after repair of HV adjust

AS LEFT Instrument Condition: SAT
HV: 1100 V
Center: 94921
Background: 4108
4 π Probe Efficiency: Cs-137 0.66%

"AF" in the AL Efficiency fields means to refer to the AF Efficiencies in the AS FOUND DATA Section

☑ Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Cs-137 92425 95618 94449 Average: 94164 ☑ Are the individual counts within 10% of the average?

* If As Found Efficiency (even after repair) is within 10% of the last calibration and uniformity is <10%, the technician may N/A the Plateau Data and proceed to Comments. Geometry = NaI probes are 4 1/2" from source. All other probes are in contact with surface unless otherwise specified.

PLATEAU AND SET POINT DATA (CPM)

High Voltage	Source Response	Background	HV	CENTER	Background	4 π Efficiency
N/A			V			Cs-137

Comments: Married as a set with: Model: 2350-1 Serial #: 221036 Bar Code #:

☑ Does Instrument Meet Final Acceptance Criteria? ☑ Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 10/10/17

Performed by: Reviewed by: Date: 10/12/16

Printed Name: Thomas Thompson

Detector Model:	Ludlum 44-10	Detector Serial No.:	PR245275	Cal Date:	10/10/16	Cal Due Date:	10/10/17
Instrument Model:	Ludlum 2350-1	Instrument Serial No.:	221036	Cal Date:	10/10/16	Cal Due Date:	10/10/17

Background / Source Check Location: CNO/DM Conference Admin Bldg

Source Isotope	Cs137	Source Serial No:	60	Current Source Activity	5 uCi (1/2004)

MEAN DETERMINATION

#	Background (cpm)	Source (cpm)
1	6371	815,863
2	6437	816,318
3	6560	812,826
4	6593	815,001
5	6564	814,331
6	6500	815,610
7	6621	815,538
8	6545	815,283
9	6512	813,655
10	6455	815,927
Sum (∑)	65,158	8,150,352
Mean (∑/10)	6516	815,035

Mean Net cpm (Mean Source – Mean Background)	+20% value (Mean Net * 1.2)	-20% value (Mean Net * 0.8)
808,519	970,223	646,815

Technician: Dave Montt Date 10-18-2016

Survey Instrument Source Check Form

Instrument/Detector: Ludlum 2350-1/44-10

Instrument/Detector ID No.: 221036/PR245275

Instrument/Detector Cal. Due Date: 10/10/2017

Source Type & ID No.: Cs137 60 Position: center

Acceptable Range (ncpm): 970,223 to 646,815

Date	Time	Pre or Post Check	Gross Counts (cpm)	Background Counts (cpm)	Net Counts (cpm)	Initials
10/19/16	09:20	Pre	857,498	6664	850,834	
10/19/16	15:30	Post	860,274	6318	853,956	
10/20/16	0900	Pre	861,017	6729	854,288	
10/20/16	1530	Post	862,193	6592	855,601	
10/21/16	08:08	Pre	859,827	6713	853,114	
10/21/16	1215	Post	858,293	6445	851848	
10/24/16	07:55	Pre	862,163	6491	855,672	
10/24/16	1730	Post	840,619	6328	834,291	
10/25/16	0810	Pre	862065	6571	855,494	
10/25/16	0830	Post	858,352	6493	851,859	
10/26/16	0755	PRE	851,856	6526	845,330	
10/26/16	1456	Post	845,816	6408	839,408	
10/27/16	0750	Pre	896,575	6500	890,075	
10/27/16	1440	Post	852607	6614	845,993	

Page 1 of

Review By: Date: 10/27/2016

Detector Model:	Ludlum 44-10	Detector Serial No.:	PR226924	Cal Date:	10/10/16	Cal Due Date:	10/10/17
Instrument Model:	Ludlum 2350-1	Instrument Serial No.:	203485	Cal Date:	10/10/16	Cal Due Date:	10/10/17

Background / Source Check Location: CNO/DM Conference Admin Bldg

Source Isotope	Cs137	Source Serial No:	60	Current Source Activity	5 uCi (1/2004)

MEAN DETERMINATION

#	Background (cpm)	Source (cpm)
1	6756	843914
2	6824	844786
3	6891	841225
4	6532	843911
5	6797	840200
6	6748	841799
7	6805	843357
8	6905	843098
9	6834	841720
10	6704	842394
Sum (∑)	67,796	8,426,404
Mean (∑/10)	6780	842,640

Mean Net cpm (Mean Source – Mean Background)	+20% value (Mean Net * 1.2)	-20% value (Mean Net * 0.8)
835,860	1,003,032	668,688

Technician: Dave Montt Date 10-18-2016

Survey Instrument Source Check Form

Instrument/Detector: Ludlum 2350-1 / 44-10

Instrument/Detector ID No.: 203485 / PR226924

Instrument/Detector Cal. Due Date: 10/10/2017

Source Type & ID No.: Cs137 60 Position: center

Acceptable Range (ncpm): 1,003,032 to 668,688

Date	Time	Pre or Post Check	Gross Counts (cpm)	Background Counts (cpm)	Net Counts (cpm)	Initials
10/19/16	09:05	Pre	896,330	6741	889,589	
10/19/16	15:20	Post	899,277	6329	892,948	
10/20/16	0900	Pre	902,073	6817	895,256	
10/20/16	1530	Post	902,577	6596	895,981	
10/21/16	08:08	Pre	902,602	6496	896106	
10/21/16	1220	Post	901,754	6479	895,275	
10/24/16	07:55	Pre	901,748	6470	895,278	
10/24/16	0735	Post	889,249	6188	883,061	
10/25/16	0810	PRE	901,280	6336	894,944	
10/25/16	1530	Post	895,264	6443	888,821	
10/26/16	0755	Pre	901,932	6545	845,387	
10/26/16	1455	Post	892274	6247	886,027	
10/27/16	0750	PRE	851810	6590	845,220	
10/27/16	1440	Post	880751	6618	874,133	

Page 1 of

Review By: Date: 10/27/2016

APPENDIX D CHAIN OF CUSTODY FORMS

Page: 1 of 3
Project #: BHI00103
GEL Quote #: GEL P16-JT36
COC Number [2]:
PO Number:

GEL Chain of Custody and Analytical Request

See www.gel.com for GEL's Sample Acceptance SOP

GEL Work Order Number: 409228

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Fort Calhoun Nuclear Station/BHI
Phone #: Matt 308 340 2877 Bisson 774 454 0726
Project/Site Name: OPPD HAS
Im #:
Address: 9610 Power Lane Blair, NE 68008
Collected by: Matt/Bisson
Send Results to: dave.mantz@bhinuclear.com, Joseph.Bisson@bhinuclear.com

Sample Analysis Requested [5] (Fill in the number of containers for each test)

| Sample ID (For composites - indicate start and stop date/time) | Date Collected (mm/dd/yy) | Time Collected (Military) (hhmm) | QC Code [3] | Field Filtered [4] | Sample Matrix [5] | Should this sample be considered: Hazardous | Non-Hazardous | Total number of containers | Cesium | [illegible] | [illegible] | [illegible]

Page: 3 of 3
Project #: BHHB0103
GL Quote #: GHP16-0736
COC Number [2]:
PO Number:

GEL Chain of Custody and Analytical Request

See www.gel.com for GEL's Sample Acceptance SOP

GEL Work Order Number: 409238

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Fort Calhoun Nuclear Station/BHT
Phone #: Matt 508 360 2877 Bisson 774 454 0726
Project/Site Name: OPPD HAS
Fax #:
Address: 9610 Power Lane Blair, NE 68008
Collected by: Matt/Bisson
Send Results: joseph-bisson@bhenergy.com dave.momtt@bhenergy.com

Sample Analysis Requested [5] (Fill in the number of containers for each test)

Sample ID *For composites - indicate start and stop date/time	*Date Collected (mm-dd-yy)	*Time Collected (Military) (24hrs)	QC Code [4]	Field Filtered [3]	Sample Matrix [4]	Should this sample be considered: Radiological	TRCA Required	Total number of containers	Gamma	10CFR61							<-- Preservative Type (6)	Comments Note: extra sample is required for sample specific QC
OLA1-S-001	10/21/16	on bag			SO				X									
OLA1-S-002	/	/			/				X									
OLA1-S-003									X									
OLA1-S-004									X									
OLA1-S-005	↓	↓			↓				X									
																	Return Shipping Container Address:	

TAT Requested: Normal: X Rush: ___ Specify: ___ Pulled to Surchage: ___ Fax Results: Yes / (No)

Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*
No known hazard. Standard environmental sensitivity is requested.

Sample Collection Time Zone: Eastern / Central / Mountain / Pacific / Other ___

Chain of Custody Signatures

	Relinquished by (Signed)	Date	Time	Received by (Signed)	Date	Time
1		10/22/16	13:00		10/22/16	13:00
2					10/22/16	9:52
3						

Sample Shipping and Delivery Details

GEL PM: Lindsay Fabra 843.556.8171

Method of Shipment: FedEx — Date Shipped: 10/22/2016

Airbill #:

Airbill #:

For Lab Receiving Use Only
Custody Seal Intact? YES / NO
Cooler Temp: C

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for samples was not field filtered
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Miscellaneous Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, OL=Oil, F=Filter, P=Wipe, B=Urine, E=Fecal, A=Air
5.) Sample Analysis Requested: Analytical method requested (i.e. R2408, 6010B/7470A) and number of containers provided for each (i.e. 2/6010B/7470A - 1)
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, IB = Hexane, ST = Sodium Thiosulfate. If no preservative is added = leave field blank

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

Page 2 of 3
Project #: BHHD0103
GL Quote #: GELP16-0736
COC Number [12]:
PO Number:

GEL Chain of Custody and Analytical Request

See www.gel.com for GEL's Sample Acceptance SOP

GEL Work Order Number: 409228

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Fort Calhoun Nuclear Station/BHE Phone #: Mntt 308 360 2877 Bisson 774 934 0726

Project/Site Name: OPPD HAS Fax #:

Address: 9610 Power Lane Blair, NE 68008

Collected by: Mntt/Bisson Send Results: dave.mantt@bhenergy.com Josephbisson@bhenergy.com

Sample Analysis Requested [5] (Fill in the number of containers for each test)

Sample ID (For composites - indicate start and stop date/time)	*Date Collected (mm/dd/yy)	*Time Collected (Military) (hhmm)	QC Code [4]	Field Filtered [6]	Sample Matrix [4]	Preservative [7]	Total number of containers	Gamma	HCF-Rad							<-- Preservative Type [8]	Comments Note: extra sample is required for sample specific QC
OLA4-S-0001	10/20/16	on bag			SO			X									
OLA4-S-0002	10/20/16							X									
OLA3-S-0001								X									
OLA3-S-0002								X									
OLA3-S-0003								X									
OLA3-S-0004								X									
OLA3-S-0005								X									Return Shipping Container Address:
OLA3-S-0006								X									
OLA3-S-0007								X									
OLA3-S-0008	↓	↓	↓		↓			X									

TAT Requested: Normal: X Rush: Specify: (Subject to Surcharge) Fax Results: Yes / (No) Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: *Are there any known hazards applicable to these samples? If so, please list the hazards*

No known hazards. Standard environmental sensitivity is requested.

Sample Collection Time Zone: Eastern / Central / Mountain / Pacific / Other

Chain of Custody Signatures

	Relinquished By (Signed)	Date	Time	Received By (Signed)	Date	Time
1						
2					10/27/16	19:20
3						

Sample Shipping and Delivery Details

GEL PM: Lindsay Fabra 843.556.8171

Method of Shipment: FedEx Date Shipped: 10/22/2016

Airbill #:

Airbill #:

For Lab Receiving Use Only

Custody Seal Intact? YES NO

Cooler Temp: C

1) Chain of Custody Number = Client Determined
2) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3) Field Filtered - For liquid matrices, indicate with a - Y - if sample was field filtered or - N - for sample was not field filtered
4) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, M=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, P=Plant Product, F=Wipe, B=Blank, R=Rinsate, A=Air
5) Sample Analysis Requested - Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3 containers, 6010B/7470A - 1)
6) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HS = Hexane, ST = Sodium Thiosulfate, If no preservative is added, leave field blank

WHITE = LABORATORY **YELLOW = FILE** **PINK = CLIENT**

GEL Chain of Custody and Analytical Request

See www.gel.com for GEL's Sample Acceptance SOP

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

GEL Work Order Number: 459515

Chain Name: Fort Calhoun Nuclear Station / BHI Energy

Project/Site Name: OPPD HAS

Address: 9610 Power Lane Blair, NE 68008 97 Libbey Industrial Pkwy, Weymouth, MA 02189

Collected by: Month/Bisson Send Results: joseph.bisson@bhienergy.com

Sample Analysis Requested (fill in the number of containers for each test)

Sample ID	Date Collected	Time Collected (Military)	QC	Matrix	Sample Matrix	Should this sample be considered	Total number of containers	Gamma	HCl								Comments
PA1-S01	10/24/2016	0900		SO				X									
PA1-D5-02								X									
PA2-S-01								X									
PA2-S-02								X									
PA2-S-03								X									
PA2-S-04								X									
PA2-S-05								X									Return Shipping Container Address
PA2-S-06									X								
PA2-D6-07									X								
PA2-S-08								X									

TAT Requested: Normal: X Rush: Specify: Data Results: Yes / (No) Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards

No known hazards. Environmental sensitivity requested.

Sample Collection Time Zone: Eastern / Central / Mountain / Pacific / Other

Chain of Custody Signatures

	Relinquished by (Signed)	Date	Time	Received by (signed)	Date	Time
1	J. Bisson	10/25/2016	2100 EST	[signature]	11/01	0945
2						
3						

Sample Shipping and Delivery Details

GEL PM: Lindsay Fabra 843-556-8171

Method of Shipment: Date Shipped:

Airbill #:

Airbill #:

1 = Chain of Custody Number; 2 = Client Business

2 = QC Codes: N = Normal Sample, FB = Field Blank, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite

3 = Field Filtered: For dissolved analysis, write a Y in the box if sample was field filtered. N = Not sample was not field filtered

4 = Matrix Codes: DW = Drinking Water, GW = Groundwater, SW = Surface Water, WW = Waste Water, W = Water, ML = Miscellaneous, SO = Soil, SD = Sediment, SL = Sludge, SS = Solid Waste, OL = Oil, FP = Filter Paper, F = Filter, A = Air, T = Tissue, B = Blood, V = Vegetation

5 = Sample Analysis Requested: Please list any special analytical requirements including the requested reporting limits (PQL) and any special QC requirements

6 = Sample Container Codes: P = Plastic, AG = Amber Glass, CG = Clear Glass, VOA = Vial provided by GEL, SG = Sterile Glass, BP = Beta Particles, AP = Alpha Particles, O = Other

7 = Preservative Type: HN = Nitric Acid, HS = Sulfuric Acid, NA = Sodium Hydroxide, AA = Ascorbic Acid, ZA = Zinc Acetate, ST = Sodium Thiosulfate, O = Other (specify)

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

For Lab Receiving Use Only

Custody Seal Intact? YES NO

Cooler Temp: C

GEL Chain of Custody and Analytical Request

See www.gel.com for GEL's Sample Acceptance SOP

GEL Work Order Number: 409515

GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Client Name: Fort Calhoun Nuclear Station / BHI Energy

Project Site Name: OPPD HAS

Address: 9610 Power Lake Blvd, NE 68008

Collected by: Matt Bisson

Send Results to: joseph.bisson@bhienergy.com; dave.moore@bhienergy.com

Sample Analysis Requested (Fill in the number of containers for each test)

Sample ID	Date Collected (mm/dd/yy)	Time Collected (Military) (hhmm)	QC Code	Total Number of Containers	Liquids	DOT/IATA	Comments Note: extra sample is required for sample specific QC
PA2-D6-09	10/24/2016	on bag		50	X		
PA3-S-01				50	X		
PA3-D6-02				50	X		
PA1-S-03	10/25/2016	on bag		50	X		
PA1-D1-04				50	X		
PA1-D3-05				50	X		
PA1-S-06				50	X		
PA8-S-03				50	X		
PA3-S-04				50		X	
OLA1-S-06	10/26/16	on bag		50	X		

TAT Requested: Normal: X Rush: Specify: (Subject to Surcharges) Has Results: Yes / (No)

Circle Deliverable: C of A / QC Summary / Level II / Level 2 / Level 3 / Level 4

Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards
No known hazard. Standard environmental sensitivity requested.

Sample Collection Time Zone: Eastern / Central / Mountain / Pacific / Other

Chain of Custody Signatures

Relinquished by (Signed)	Date	Time	Received by (Signed)	Date	Time
1	10/28/2016	2pm CT		11/01/16	0945
2					
3					

Sample Shipping and Delivery Details

GEL PM: Lindsay Fabra 843.556.8171

Method of Shipment: Date Shipped:

Airbill #:

Airbill #:

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp: C

1 = Chain of Custody Number; 2 = Client Determined

2) QC Codes: N = Normal Sample, TB = Trip Blank, FB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite

3) Field Filtered: Use client specific matrices available with GEL. F = Indicates the sample was field filtered.

4) Matrix Codes: DW = Drinking Water, GW = Groundwater, SW = Surface Water, WW = Wastewater, Sol = Solid, Oil = Oil, Air = Air Filter, Sludge = Sludge, Soil = Soil, Wipe = Wipe, Other = Specify in Special Instructions

5) Special Handling: Any samples requiring special handling (i.e. those requiring extra preservatives, short holding times, RCRA, DOT shipments, etc.) must be identified on this COC. Additional charges may apply.

6) Preservative Type: 1 = Nitric Acid, 2 = Sulfuric Acid, 3 = Hydrochloric Acid, 4 = Sodium Hydroxide, 5 = Zinc Acetate, 6 = Ascorbic Acid, 7 = Sodium Thiosulfate, 8 = Methanol, 9 = Sodium Bisulfate, 10 = Hexane, 11 = Deionized Water, 12 = Other (Specify)

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

GEL Chain of Custody and Analytical Request
See www.gel.com for GEL's Sample Acceptance SOP
GEL Work Order Number: 409515
Page 3 of 3
Project #: BHEO010
GEL Quote #: GEL Pro-0736
COC Number:
PO Number:
Client Name: Fort Calhoun Nuclear Station / BHI Energy
Project/Site Name: OPPD HAS
Address: 9610 Power Lake Blair, NE 68008
Collected by: Month/Bisson
Send Results/ docmonth@bhienergy.com
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178
Sample Analysis Requested (Fill in the number of containers for each test)
Sample ID
Date Collected
Time Collected (Military)
QC
Field Filtered
Sample Matrix
Shared lab sample to be considered
Total number of containers
Comments
Note: extra sample is required for sample specific QC
OLA1-D6-07 10/24/16 09 bag SO X
OLA2-S-01 10/27/16 on bag X
OLA2-S-02 X
OLA2-S-03 X
OLA4-D3-03 X
OLA3-S-09 X
OLA3-S-10 10/24/16 on bag SO X
OPPD-FCS-QS X
TAT Requested: Normal X Rush Specify
Fax Results: Yes / (No)
Circle Deliverable: C of A / QC Summary / Level II / Level 3 / Level 4
Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards
Standard environmental sensitivity requested.
Sample Collection Time Zone: Eastern Central Mountain Pacific Other
Chain of Custody Signatures
Relinquished by (Signed) Date Time Received by (Signed) Date Time
1 J. Bisson 10/28/2016 ~2PM CT J. Whyte 11/01/16 0945
2
3
Sample Shipping and Delivery Details
GEL PM: Lindsay Fabra 843.556.8171
Method of Shipment Date Shipped
Airbill #
Airbill #
For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp. C
WHITE = LABORATORY YELLOW = FILE PINK = CLIENT