

Vertical Distribution of Uranium in Groundwater



Environmental Properties Management L.L.C

Cimarron Environmental Response Trust
Project No. 96785

Revision 0
5/10/2017

Vertical Distribution of Uranium in Groundwater

prepared for

**Environmental Properties Management L.L.C
Cimarron Environmental Response Trust
Crescent, Oklahoma**

Project No. 96785

**Revision 0
5/10/2017**

prepared by

**Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri**

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
BA-1	Burial Area #1
bgs	below ground surface
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
cm/s	centimeter per second
COCs	contaminants of concern
DEQ	Oklahoma Department of Environmental Quality
EC	electrical conductivity
EPA	United States Environmental Protection Agency
EPM	Environmental Property Management L.L.C.
ft. amsl	feet above mean sea level
ft/d	feet per day
GEL	GEL Laboratories LLC
HPT	Hydraulic profiling tool
HPT-GWS	Hydraulic profiling tool groundwater sampler
IDW	Investigation derived waste
K	Hydraulic conductivity
KMNC	Kerr-McGee Nuclear Corporation
MCLs	Maximum Contaminant Levels
µg/L	micrograms per liter
mg/L	milligrams per liter
ml/min	milliliter per minute

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
mS/m	milliSiemens per meter
NRC	Nuclear Regulatory Commission
PES	Plains Environmental Services
SAP	Sampling and Analysis Procedure
SOP	Standard Operating Procedure
WAA	Western Alluvial Area

1.0 INTRODUCTION

On behalf of Environmental Property Management LLC (EPM), Trustee for the Cimarron Environmental Response Trust (the Trust), Burns & McDonnell Engineering Company Inc. (Burns & McDonnell) submits this Vertical Distribution of Uranium in Groundwater Investigation Report for the Cimarron site (the Site), located at 100 N. Highway 74, Guthrie, Oklahoma.

The Site consists of over 500 acres of rolling hills and 200 acres of floodplain at the intersection of Highways 74 and 33, approximately seven miles south of Crescent, Oklahoma (Figure 1-1). Grassland and temperate forest covers nearly all the property and two ponds collect surface water from upland areas. Several miles of gravel road, a gravel parking area, and one office building remain on the property.

In the 1960s and early 1970s, Kerr-McGee Nuclear Corporation (KMNC) manufactured nuclear fuel under two Nuclear Regulatory Commission (NRC) licenses. Uranium fuel was produced under NRC Special Nuclear Material License SNM-928, and mixed oxide fuel was produced under NRC license SNM-11174. Waste was buried in three locations and wastewater containing licensed material was stored in impoundments and discharged to the Cimarron River, in accordance with the regulatory requirements of that time.

As described in the *Cimarron Facility Decommissioning Plan* prepared by EPM in December 2015 (EPM, 2015), decommissioning of materials and equipment, buildings and structures, and surface and subsurface soils at the Site is complete, however uranium contamination in the groundwater at the site remains in exceedance of applicable standards.

The following report presents results of hydrostratigraphic (lithologic and hydraulic conductivity data) logging and discrete groundwater sampling intended to assess the vertical distribution of uranium in groundwater using the hydraulic conductivity tool (HPT). Information on the vertical distribution of uranium in groundwater will be considered prior to final design and installation of extractions wells that will be part of the groundwater treatment system at the Cimarron Site.

1.1 Objective and Rationale

The December 2015 Decommissioning Plan proposed the installation of groundwater extraction wells in the alluvial zone in both the Western Alluvial Area (WAA) and in Burial Area #1 (BA-1). The extraction wells were to be screened through the saturated thickness of the alluvial aquifer (EPM, 2015).

In both of these areas, uranium in groundwater extends hundreds of feet downgradient from the source of the contamination. If contamination has migrated laterally through more highly permeable zones, but has not diffused throughout the saturated thickness of the aquifer, screening extraction wells throughout the saturated thickness of the aquifer could result in the extraction and treatment of significant volumes of groundwater that may not require remediation.

If the distribution of COCs in groundwater is limited to a discrete zone, targeting that zone may accelerate the rate at which groundwater may be remediated.

Groundwater samples were collected from direct push locations at discrete intervals correlating with the screened interval of nearby existing monitor wells. Analysis of the samples for uranium provided the information needed to evaluate the vertical distribution of contaminants in groundwater, and to determine if the design of extraction wells should be revised to address uneven distribution of uranium in groundwater.

In addition to analytical measurement of dissolved uranium concentrations, relative hydraulic conductivity (K) in relation to injection pressure and electrical conductivity (EC) data were collected at each of the groundwater sampling locations. This report summarizes total uranium, relative K, and EC results and provides an interpretation of findings. Results of this report will aid well design, system optimization to focus groundwater extraction on higher concentration zones, minimize the recovery of non-impacted groundwater, potentially reduce treatment system operation and maintenance costs, and ultimately expedite the remediation of uranium impacted groundwater at the Site.

1.2 Geology

Bedrock stratigraphy of the Site is dominated by the Garber-Wellington Formation. The Garber Formation is exposed in the uplands and along the escarpment that borders along the interface with the alluvium adjacent to the Cimarron River. The Garber Formation also represents the uppermost bedrock underlying the alluvium. Within the Site, the Garber Formation consists primarily of sandstone layers separated by relatively continuous siltstone and mudstone layers. The sandstone units frequently have interbedded, but discontinuous, red-brown shale and mudstone lenses. Lateral facies changes are common in the sandstones and represent shifting channel locations in the Garber delta (Ford, 1954). The Garber sandstones can be divided into three basic sandstone units separated by two relatively continuous and identifiable mudstone layers, as follows:

- Sandstone A is the uppermost sandstone unit, generally red-brown to tan in color and up to 35 feet in thickness. The bottom of this sandstone unit occurs at elevations ranging from approximately 950 and 970 feet above mean sea level (ft. amsl)
- Mudstone A is a red-brown to orange-brown, sometimes tan mudstone and claystone that separates Sandstones A and B. It ranges from 6 to 20 feet thick.
- Sandstone B is the second sandstone unit, underlying Mudstone A, and similar in color and sedimentary features to Sandstone A. It is found at elevations between 925 and 955 ft. amsl and is up to 30 feet thick.
- Mudstone B consists of mudstone and claystone separating Sandstone B and Sandstone C. It is similar in color to Mudstone A and ranges from 6 to 14 feet thick.
- Sandstone C is the lowermost sandstone in the Garber-Wellington Formation, similar in color and sedimentary features to the overlying sandstones. This unit varies in thickness from 10 to 25 feet at the Site to at least 100 feet thick regionally.

Sandstone A, Mudstone A, Sandstone B, and Mudstone B represent the site specific nomenclature for bedrock stratigraphic units present at and underlying the upland region of the Site adjacent to the Cimarron River Alluvium.

Cimarron River alluvial deposits extend from the interface with upland bedrock deposits at the bluff across the Cimarron River Valley. Alluvial deposits form as a result of gradual weathering of the sedimentary bedrock and subsequent, erosion (transport), and deposition in low elevation areas. Generally alluvial deposition is occurring with fluvial (stream sediment) deposition.

Alluvial gravel, sand, silt, and clay deposits represent geologic material present along and north of the escarped bedrock bluff-line. Alluvial sequences beneath the floodplain may appear homogenous but local heterogeneities may be in the form of buried overbank and channel deposits that may influence shallow groundwater flow. The observed variability identified in the HPT data provided evidence of these heterogeneities. The alluvium is approximately 30 to 40 feet thick in the Site area. Along the present escarpment face, there are local transition zones from the sandstones of the Garber Formation to the coarser alluvial materials. These transition zones can be clay-rich, as is the case with the transitional zone identified with borings in the Burial Area #1 area.

2.0 VERTICAL DISTRIBUTION OF URANIUM: WAA

To evaluate the vertical distribution of uranium in groundwater in the WAA, a direct-push investigation was conducted in proximity to six existing monitoring wells (T-67, T-68, T-84, T-51, T-97, and T-59). Boring logs for existing monitoring wells are included in Appendix A. The direct-push investigation consisted of advancing a Geoprobe Systems® hydraulic profiling tool groundwater sampler (HPT-GWS) at six locations adjacent to the above identified monitoring wells. The HPT-GWS tool was used for lithologic logging, hydraulic conductivity testing, and collection of discrete groundwater samples. Monitoring well and HPT-GWS sampling locations are presented in Figure 2-1.

2.1 HPT-GWS Field Activities

The HPT-GWS investigation was conducted by Plains Environmental Services (PES) of Salina, Kansas under the supervision of Burns & McDonnell personnel from December 12th through 15th, 2016.

The HPT-GWS was used to collect continuous, real-time profiles of the soil hydraulic properties in both fine- and coarse-grained material. The HPT-GWS uses a sensitive downhole transducer to measure the pressure response of the soil to the injection of water. Hydraulic conductivity (K) values can be estimated using the pressure response data and Geoprobe Systems Direct Image software. The HPT-GWS tool also measures electrical conductivity (EC) and enables the collection of discrete groundwater samples through polyurethane tubing running from the tool through the direct-push rods to the surface. EC responses are typically inversely proportional to grain size in the formation, although mineralogy and pore water conductivity can also affect EC response. These combined capabilities allow for high resolution vertical profiling and characterization of hydrogeologic conditions and potential contaminant occurrence. HPT-GWS and EC logging were performed in accordance with the Geoprobe® HPT Standard Operating Procedure (SOP) (Geoprobe®, 2015).

Six direct-push borings were advanced adjacent to Monitoring Wells T-67, T-68, T-84, T-51, T-97, and T-59 in WAA. The borings were advanced to bedrock refusal using the HPT-GWS. Total depths ranged from approximately 20 to 30 feet below ground surface (bgs). Prior to advancing HPT-GWS at each location, groundwater levels were gauged to determine the depth of the first discrete groundwater sample. Groundwater samples were collected at approximately 2-foot intervals, beginning approximately 1 foot below the water table. Groundwater samples were collected at each boring using new polyurethane tubing and a peristaltic pump. The borings were purged until water clarity improved, or an approximate system volume was purged. Water quality parameters were measured during purging using a YSI multi-parameter instrument and flow-through cell. Groundwater samples were field filtered using disposable

Nalgene® Rapid-Flow filter unit equipped with a 0.45-micron pore size membrane. Samples were collected in laboratory-provided bottles and submitted, under proper chain-of-custody, to GEL Laboratories LLC (GEL) of Charleston, South Carolina in accordance with Sampling and Analysis Procedure (SAP)-112 for analysis of dissolved uranium by EPA Method 200.8. Field parameter forms and sample checklists are included as Appendix B. Sampling activities were performed in accordance with procedures established in the *Cimarron Site Sampling and Analysis Procedure (SAP): HPT-GWS Groundwater Sampling SAP-121* (EPM, 2016).

Following completion of each HPT-GWS boring, boreholes were abandoned in accordance with SAP-121 and Oklahoma State rules by backfilling and plugging the holes with bentonite chips and hydrating the chips with potable water.

2.1.1 EC and HPT Results

EC and HPT data were collected from all six direct-push locations. The EC and HPT response curves were corrected for elevation, scaling of depth, and magnitude of response to provide a set of data that would be representative of the site conditions. Two cross-sections were prepared where shown in Figure 2-1: one along the south-north (A-A') transect (Figure 2-2) and a profile at Monitoring Well T-59 (Figure 2-3). The HPT cross-sections display EC and HPT data, showing correlation of zones of high permeability. HPT logs for each location are presented in Appendix C.

The HPT measures the relative hydraulic properties of unconsolidated materials by utilizing the Werner dipole conductivity configuration and injection of clean water at a low flow rate (usually less than 300 milliliters per minute [ml/min]) to measure the pressure response of the formation to the injection of water. Zones of relatively high permeability are represented by the HPT as lower pressure responses and lower permeability zones are represented by higher pressure responses.

The soil overburden at the site consists primarily of sand and silt with minor occurrences of clay and gravel. The typical ranges for electrical conductivity of unsaturated earth materials are provided below:

Sand and Gravel	0.1 to 5 milliseimens per meter (mS/m)
Silt	0.5 to 10 mS/m
Clay	10 to 500 mS/m
Sandstone	1 to 20 mS/m

Shale	50 to 300 mS/m
Salt water	1,000 to 7,000 mS/m

(Reference: Sharma, 1997)

The lithologic data collected using the EC response coupled with the injection data provided a more representative characterization of the subsurface materials present in the WAA. Two particular items of interest identified in the HPT data were the apparent presence of overbank deposits at T-68 and T-84 as well as minor bedrock high at T-51. Data presented on Figure 2-3 depicts the presence of finer grained material approximately 16 feet bgs that is overlain by coarser and higher relative hydraulic conductivity material. This finding along with a comparison of reduction of uranium concentrations below 16 feet bgs could aid in the optimization of well design and pumping strategies. The occurrence of the upper bedrock surface was generally consistent with exception of an anomalous bedrock high at Monitoring Well T-51 and confirmed by HPT refusal at the offset direct push location (refer to Figure 2-2).

The HPT has the capability of collecting estimation of hydraulic conductivity using dissipation tests. This data was not collected as part of the vertical distribution investigation but representative data was collected from similar geologic materials in the same general area of the western alluvium during the 2014 Design Investigation (EPM, 2015). The hydraulic conductivity based on the 2014 dissipation testing averages approximately 3.53×10^{-2} centimeters per second (cm/s) or 100 feet per day (ft/d).

2.1.2 HPT-GWS Groundwater Sample Results

The dissolved uranium results for the HPT-GWS collected samples are summarized in Tables 2-1 and 2-2 and presented in Figures 2-2 and 2-3. Laboratory reports are provided in Appendix D.

3.0 VERTICAL DISTRIBUTION OF URANIUM: BA-1

To evaluate the vertical distribution of uranium in groundwater in BA1, a direct-push investigation was conducted adjacent to six monitoring wells (TMW-09, 02W02, 02W32, 02W44, TMW-24, and 1373). Due to the low permeability of the soil in the saturated zone, groundwater samples could only be obtained from four of these (02W32, 02W44, TMW-24, and 1373). Historical boring logs for all six locations are included in Appendix A. The direct-push investigation consisted of advancing a Geoprobe Systems® hydraulic profiling tool groundwater sampler (HPT-GWS) at six locations adjacent to Monitoring Wells 02W32, 02W44, TMW-24, and 1373. The HPT-GWS tool was used for lithologic logging, hydraulic conductivity testing, and collection of discrete groundwater samples from four of the six monitoring wells. Monitoring well and HPT-GWS sampling locations are presented in Figure 3-1.

3.1 HPT-GWS Field Activities

The HPT-GWS investigation was conducted by PES of Salina, Kansas under the supervision of Burns & McDonnell personnel from December 12th through 15th, 2016.

Six direct-push borings were advanced adjacent to Monitoring Wells TMW-09, 02W02, 02W32, 02W44, TMW-24, and 1373. The borings were advanced to bedrock refusal using the HPT-GWS. Total depths ranged from 15 to 30 feet bgs. Prior to advancing HPT-GWS at each location, groundwater levels were gauged to determine the depth of the first discrete groundwater sample. Groundwater samples were collected at approximately 2-foot intervals, beginning approximately 1 foot below the water table. Groundwater samples were collected at each boring using new polyurethane tubing and peristaltic pump, with the exception of Monitoring Wells TMW-09 and 02W02. The borings were purged until water clarity improved, or an approximate system volume was purged. Water quality parameters were measured during purging using a YSI multi-parameter instrument and flow-through cell. Groundwater samples were field filtered using disposable Nalgene® Rapid-Flow filter unit equipped with a 0.45-micron pore size membrane. Samples were collected in laboratory provided bottles and submitted, under proper chain-of-custody, to GEL Laboratories LLC (GEL) of Charleston, South Carolina in accordance with SAP-121 for analysis of dissolved uranium by EPA Method 200.8. Field parameter forms and sample checklists are included as Appendix C. Sampling activities were performed in accordance with procedures established in the *Cimarron Site Sampling and Analysis Procedure: HPT-GWS Groundwater Sampling SAP-121* (EPM, 2016).

Following completion of each HPT-GWS boring, boreholes were abandoned in accordance with SAP-121 and Oklahoma State rules by backfilling and plugging the holes with bentonite chips and hydrating the chips with potable water.

3.1.1 EC and HPT Results

EC and HPT data were collected from all six direct-push locations. The EC and HPT response curves were corrected for elevation, scaling of depth, and magnitude of response to provide a set of data that would be representative of the site conditions. These data were used to create cross-section B-B', showing the EC and HPT responses at specific locations along the approximate south-north extent of the BA-1 uranium plume (See Figure 3-1). The HPT cross-sections display EC and HPT data showing correlation of zones of high permeability (Figure 3-2). HPT logs for each location are presented in Appendix C.

The soil overburden in Burial Area #1 varies greatly from the predominately clay and silty sand deposits in the transition zone to predominately sand deposits in the alluvial material near the Cimarron River. The lithologic data collected using the EC response, coupled with the injection data, provided a more representative characterization of the subsurface materials present in the transition zone material and alluvial material present in Burial Area #1.

The HPT has the capability of collecting estimation of hydraulic conductivity using dissipation tests. This data was not collected as part of the vertical distribution investigation but representative data was collected from similar geologic materials in the same general area of the western alluvium during the 2014 Design Investigation (EPM, 2015). The hydraulic conductivity based on the 2014 dissipation testing for the transition zone material ranges from approximately 1.77×10^{-3} cm/s (5 ft/d) to 8.80×10^{-5} cm/s (0.25 ft/d). The alluvial material in Burial Area #1 averages 4.41×10^{-2} cm/s (125 ft/d).

3.1.2 HPT-GWS Groundwater Sample Results

The dissolved uranium results for the HPT-GWS collected samples are summarized in Tables 2-1 and 3-1 and presented in Figures 3-2. Laboratory reports are provided in Appendix D.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

Field duplicate samples were collected during HPT-GWS groundwater sampling (T-67 11.6' DUP, T-68 13.2' DUP, T-84 8.9' DUP, T-51 9.1' DUP, T-59 7.1' DUP, 02W32 13.0' DUP, 02W44 22.5' DUP, TMW-24 24.7' DUP) as a quality assurance measure of laboratory performance and filed sampling methods. The analytical results for the field duplicates were within quality assurance/quality control limits.

5.0 INVESTIGATION DERIVED WASTE

Groundwater investigation derived waste (IDW) was poured on the ground adjacent to the boring or well from which it was produced.

IDW consisting of disposable sampling equipment, personal protective equipment (PPE), and standard trash was placed in plastic trash bags and transported offsite for proper disposal.

6.0 CONCLUSIONS

6.1 Summary of Conclusion for Vertical Distribution of Uranium Investigation

The investigation yielded additional characterization data that will enable the design to focus groundwater extraction on more highly impacted zones, minimize recovery of non-impacted groundwater, reduce costs of treatment system operation and maintenance, and ultimately expedite the remediation of uranium impacted groundwater at the Site.

The investigation resulted in a better understanding of site conditions, site dynamics, and the variable vertical distribution of uranium in groundwater. These data will be important in the development of the design of the groundwater collection system in both the WAA and BA-1. Results from the HPT-GWS high resolution site characterization and EC profiling indicate vertical variability in permeability in the alluvium of the WAA and BA-1 as well as the transition zone material of the transition zone. Data from HPT-GWS groundwater samples generally indicate that uranium somewhat predictably moves preferentially through the more transmissive zones of the alluvial aquifer, with uranium concentrations generally descending vertically and being transported with the lateral groundwater flow.

7.0 DESIGN IMPLICATIONS

The vertical distribution data indicate considerable heterogeneity in the saturated overburden and the presence of contaminant transport along higher transmissivity pathways at the Site. Understanding this will aid in the design of the remediation system. HPT-GWS profiling provided high resolution information that can be used to determine optimal screen placement by providing a snapshot of contaminant vertical distribution alongside data representative of aquifer characteristics that control contaminant distribution and extractability via groundwater extraction. The objective of such measures provides a focus of remediation efforts on zones of highest mass flux (i.e., COC mass + transmissivity). If extraction well screens are placed at zones of highest mass flux, rate of contaminant mass removal will be maximized.

Consequently, it is recommended that the decommissioning plan include provisions for identifying the zones of highest uranium contamination prior to the installation of groundwater extraction wells. This will enable project personnel to install the screens of extraction wells in these target zones, maximizing the mass of uranium extracted and increasing the efficiency of groundwater remediation.

8.0 REFERENCES

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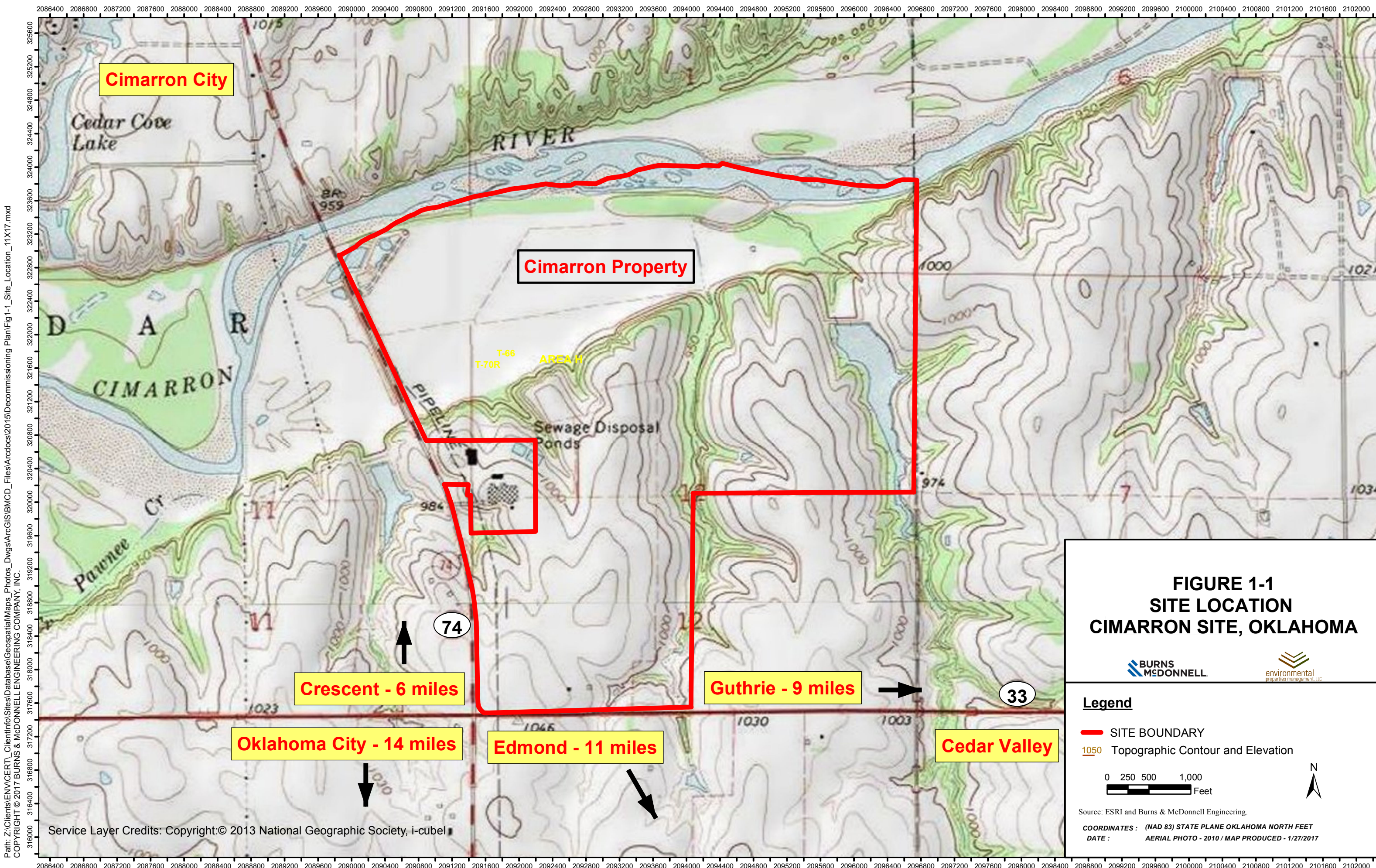
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Sharma, P.V., 1997, *Environmental and Engineering Geophysics, Cambridge University Press.*

FIGURES



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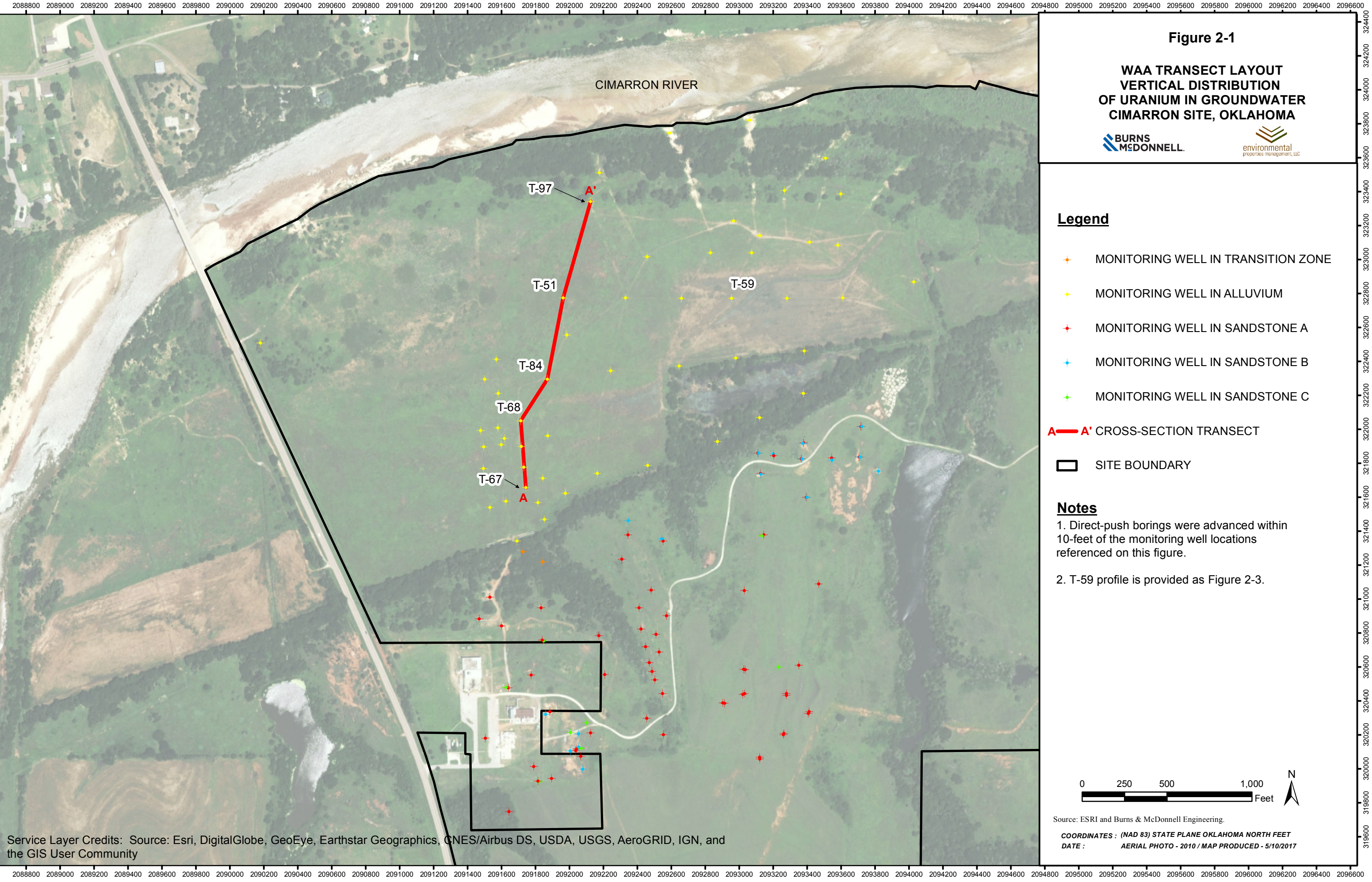


Figure 2-1

WAA TRANSECT LAYOUT
VERTICAL DISTRIBUTION
OF URANIUM IN GROUNDWATER
CIMARRON SITE, OKLAHOMA



Legend

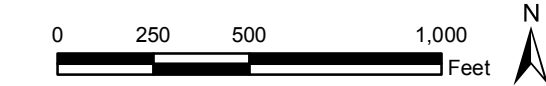
- MONITORING WELL IN TRANSITION ZONE
- MONITORING WELL IN ALLUVIUM
- MONITORING WELL IN SANDSTONE A
- MONITORING WELL IN SANDSTONE B
- MONITORING WELL IN SANDSTONE C

A—A' CROSS-SECTION TRANSECT

SITE BOUNDARY

Notes

- Direct-push borings were advanced within 10-feet of the monitoring well locations referenced on this figure.
- T-59 profile is provided as Figure 2-3.

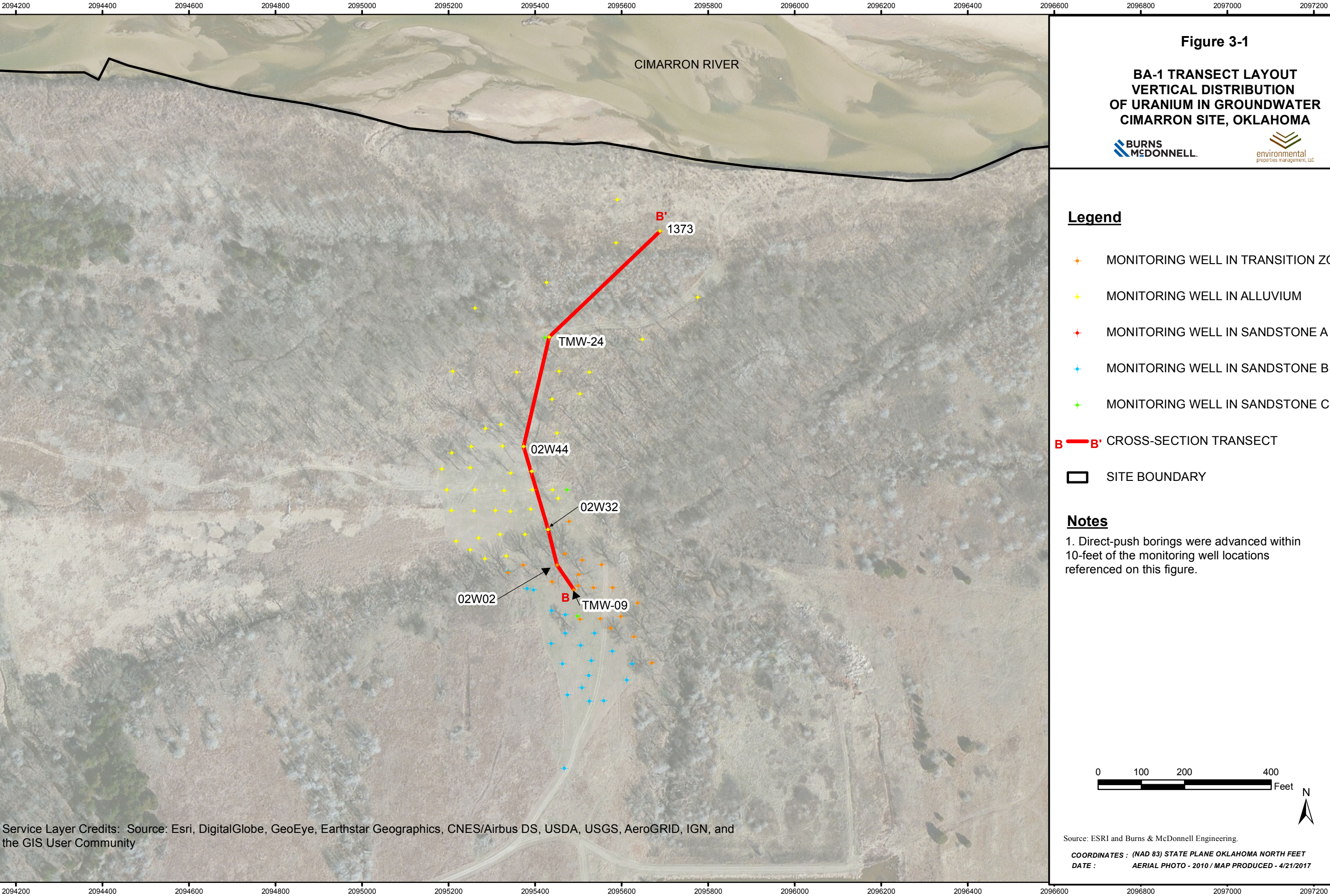


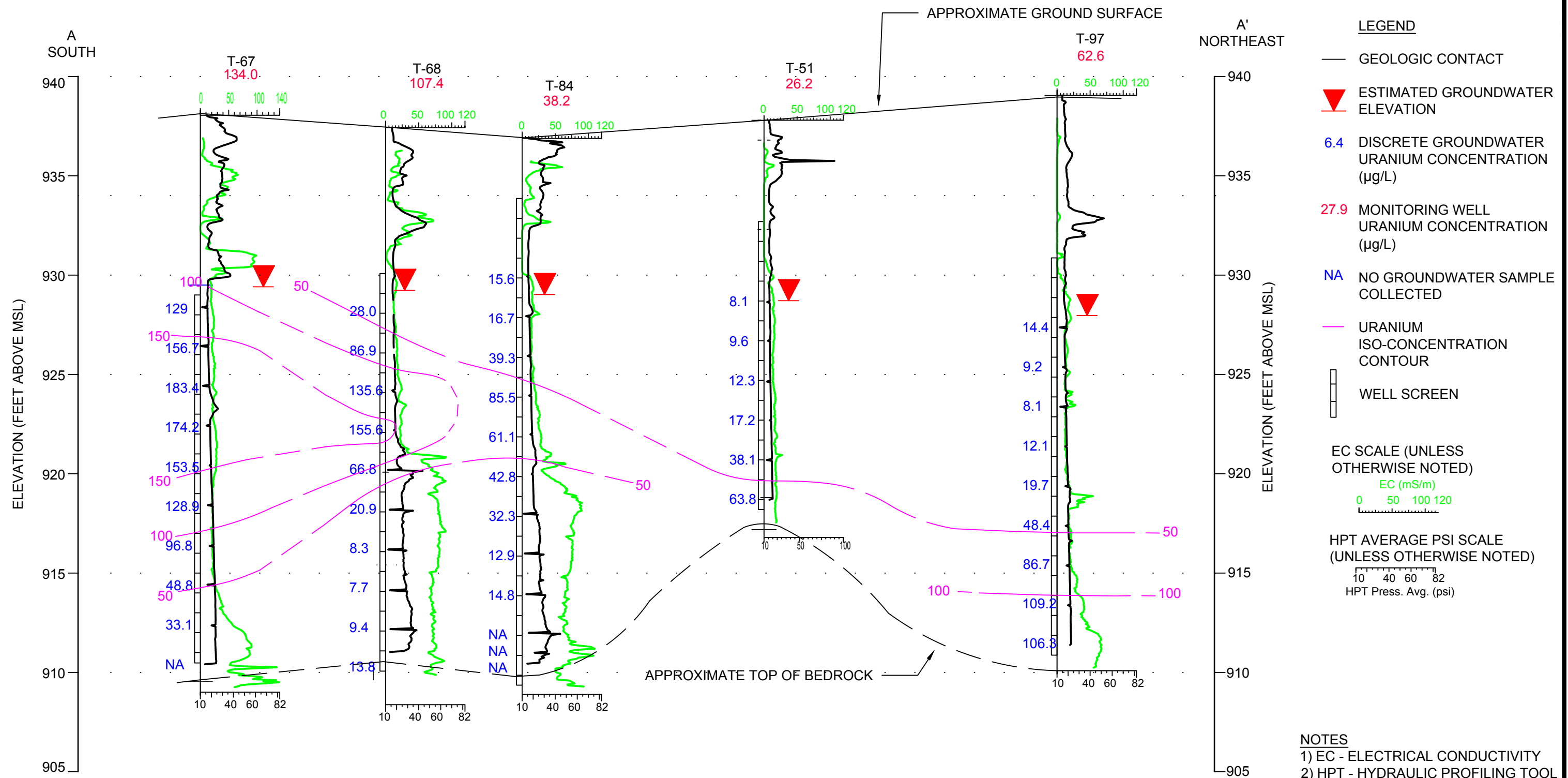
Source: ESRI and Burns & McDonnell Engineering.

COORDINATES : (NAD 83) STATE PLANE OKLAHOMA NORTH FEET
DATE : AERIAL PHOTO - 2010 / MAP PRODUCED - 5/10/2017

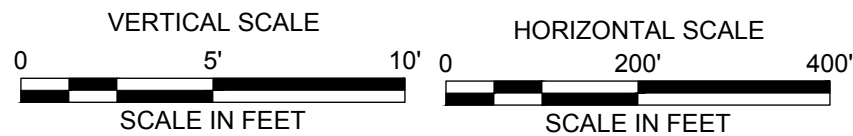
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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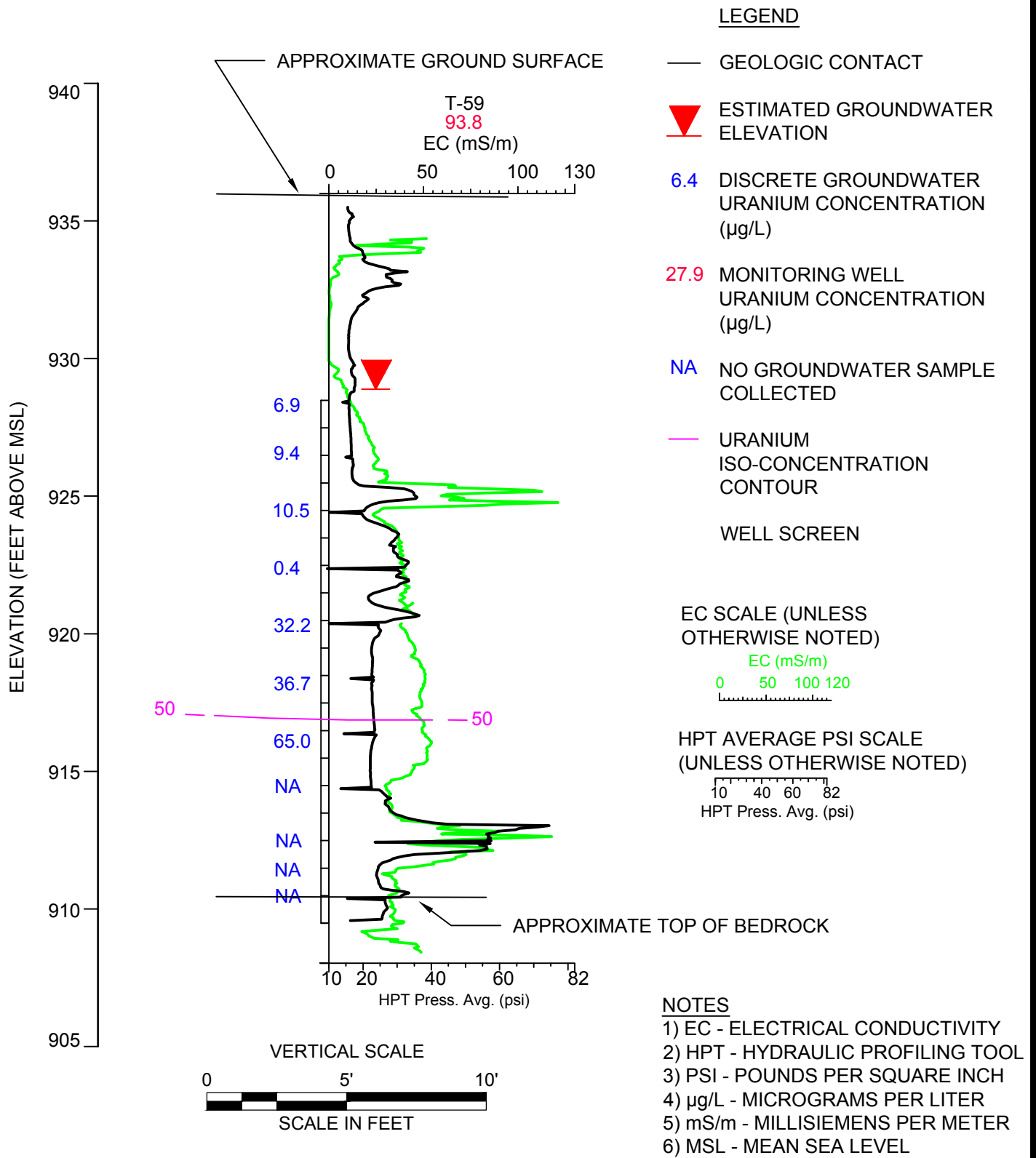
Borehole	North	East	Elev.	Depth
T-51	322775	2091962	937.8	20.6
T-67	321657	2091743	938.0	29.0
T-68	322052	2091713	937.4	27.8
T-84	322295	2091869	936.9	27.9
T-97	323344	2092125	939.0	29.1



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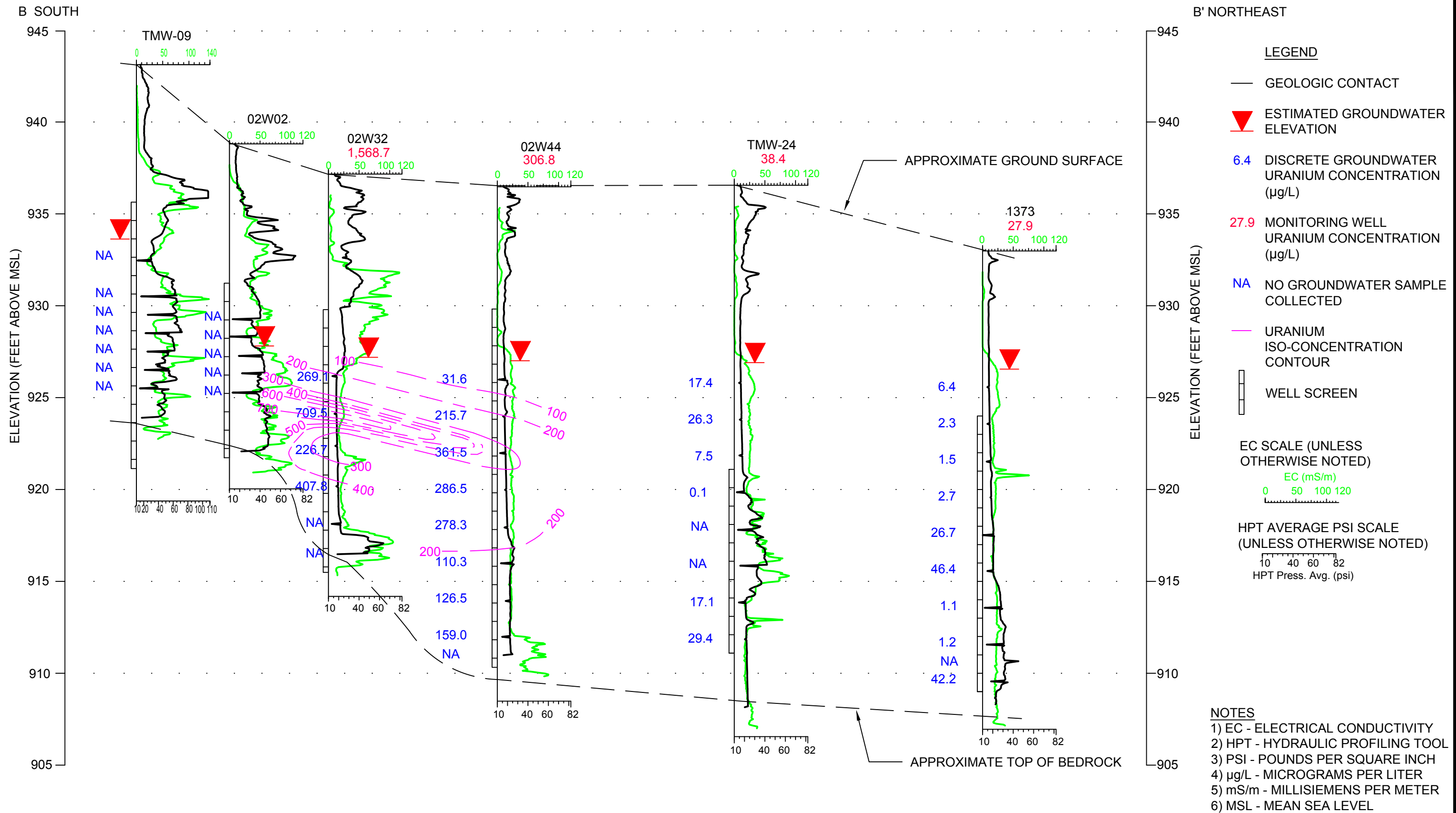
Figure 2-2
WAA CROSS-SECTION A-A'
VERTICAL DISTRIBUTION OF URANIUM IN GROUNDWATER
CIMARRON SITE, OKLAHOMA

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contract	CONTNO
dwg. no.	rev.

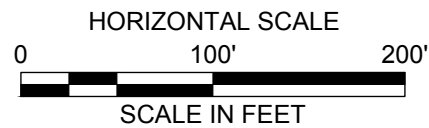
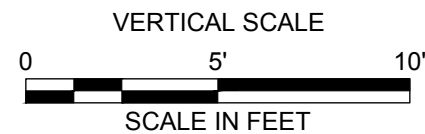


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Borehole	North	East	Elev.	Depth
1373	323653	2095689	933.0	26.1
02W02	322882	2095451	938.9	18.3
02W32	322964	2095430	937.2	22.1
02W44	323155	2095374	936.5	22.1
TMW-09	322825	2095490	943.2	20.5
TMW-24	323409	2095433	936.6	29.9



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Figure 3-2
BA-1 CROSS-SECTION B-B'
VERTICAL DISTRIBUTION OF URANIUM IN GROUNDWATER
CIMARRON SITE, OKLAHOMA

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TABLES

Table 2-1
MONITORING WELL CONSTRUCTION DATA AND GROUNDWATER ANALYTICAL RESULTS
2016 VERTICAL DISTRIBUTION OF URANIUM INVESTIGATION
CIMARRON SITE, OKLAHOMA

Well	Formation	Screened Interval (ft. BGS)		TD (ft. BGS)	Screen Bottom (ft. AMSL)	TOC Elevation (ft. AMSL)	Depth to Water (ft.)	Groundwater Elevation (ft. AMSL)	Uranium (µg/l)
		Top	Bottom						
WAA									
T-51	Alluvium	5.00	19.50	19.5	918.29	940.30	11.60	928.70	26.2
T-59	Alluvium	7.00	26.00	27.0	908.90	938.00	9.17	928.83	93.8
T-67	Alluvium	9.00	28.50	29.0	909.34	940.55	11.08	929.47	134.0
T-68	Alluvium	7.30	27.30	27.8	909.77	939.97	10.71	929.26	107.4
T-84	Alluvium	3.00	27.50	28.0	908.62	939.38	10.37	929.01	38.2
T-97	Alluvium	8.10	28.10	29.5	909.56	941.55	10.70	930.85	62.6
BA1									
02W32	Alluvium	6.40	20.70	21.0	916.26	939.70	12.50	927.20	1568.7
02W44	Alluvium	6.70	26.20	26.5	910.11	939.00	12.00	927.00	306.8
1373	Alluvium	9.00	24.00	24.5	908.62	935.52	8.93	926.59	27.9
TMW-09	Transition	7.60	22.10	22.1	921.24	945.67	12.07	933.60	2830.0
TMW-24	Alluvium	15.50	25.50	26.0	911.06	939.09	12.16	926.93	38.4

NOTES:

ft. = Feet

BGS = Below ground surface

TD = Total depth

AMSL = Above mean sea level

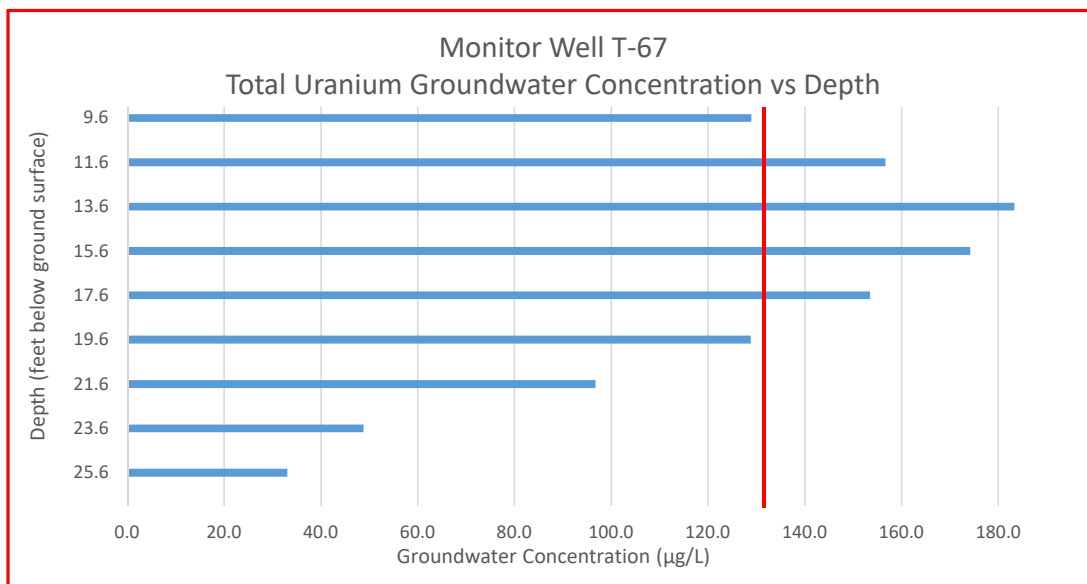
TOC = Top of well casing

µg/l = Micrograms per liter

Exceedance of Uranium United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) of 30 µg/l

Table 2-2
WAA Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
T-67	12/14/2016	Uranium-235	2.95	Monitor Well	134.0	µg/L		0.067
		Uranium-238	131			µg/L		0.05
		Uranium-235	2.95	9.6	129.0	µg/L		0.34
		Uranium-238	126			µg/L		0.05
		Uranium-235	3.49	11.6	147.5	µg/L		0.34
		Uranium-238	144			µg/L		0.10
		Uranium-235	3.71	11.6DUP	156.7	µg/L		0.34
		Uranium-238	153			µg/L		0.10
		Uranium-235	4.35	13.6	183.4	µg/L		0.67
		Uranium-238	179			µg/L		0.10
		Uranium-235	4.22	15.6	174.2	µg/L		0.67
		Uranium-238	170			µg/L		0.10
		Uranium-235	3.48	17.6	153.5	µg/L		0.67
		Uranium-238	150			µg/L		0.10
		Uranium-235	2.85	19.6	128.9	µg/L		0.67
		Uranium-238	126			µg/L		0.050
		Uranium-235	1.97	21.6	96.8	µg/L		0.050
		Uranium-238	94.8			µg/L		0.067
		Uranium-235	0.799	23.6	48.8	µg/L		0.050
		Uranium-238	48			µg/L		0.067
		Uranium-235	0.393	25.6	33.1	µg/L		0.010
		Uranium-238	32.7			µg/L		0.067



Notes:

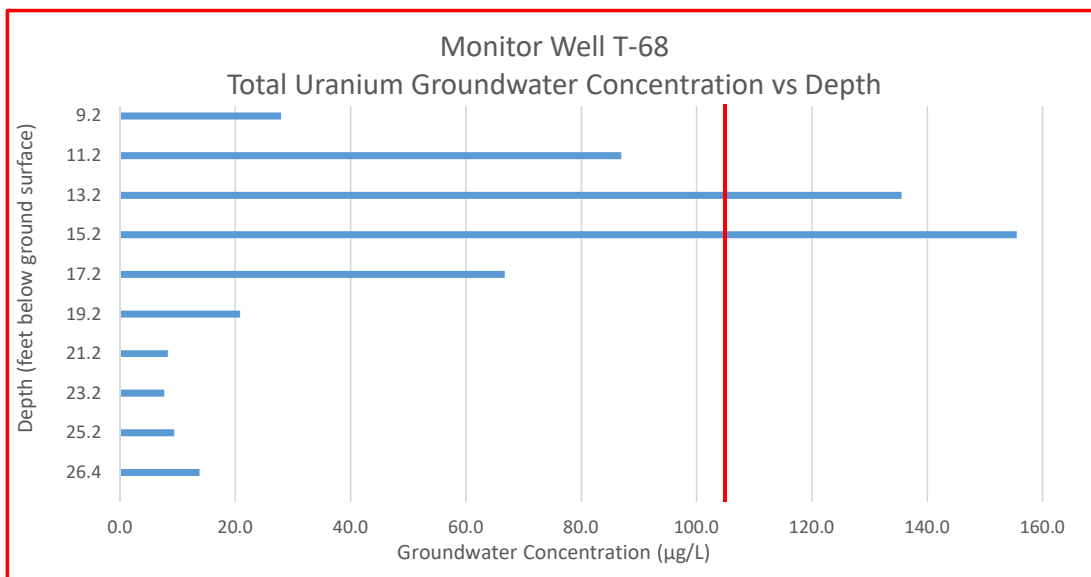
MDL - Method detection limit

µg/L - micrograms per liter

Vertical red line indicates monitoring well result

Table 2-2
WAA Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
T-68	12/14/2016	Uranium-235	2.42	Monitor Well	107.4	µg/L		0.07
		Uranium-238	105			µg/L		0.05
		Uranium-235	0.586	9.2	28.0	µg/L		0.34
		Uranium-238	27.4			µg/L		0.01
		Uranium-235	1.74	11.2	86.9	µg/L		0.07
		Uranium-238	85.2			µg/L		0.05
		Uranium-235	2.57	13.2	135.6	µg/L		0.07
		Uranium-238	133			µg/L		0.05
		Uranium-235	2.59	13.2DUP	135.6	µg/L		0.34
		Uranium-238	133			µg/L		0.05
		Uranium-235	2.55	15.2	155.6	µg/L		0.34
		Uranium-238	153			µg/L		0.05
		Uranium-235	2.08	17.2	66.8	µg/L		0.34
		Uranium-238	64.7			µg/L		0.05
		Uranium-235	0.589	19.2	20.9	µg/L		0.07
		Uranium-238	20.3			µg/L		0.01
		Uranium-235	0.0883	21.2	8.3	µg/L		0.07
		Uranium-238	8.23			µg/L		0.01
		Uranium-235	0.0673	23.2	7.7	µg/L		0.07
		Uranium-238	7.67			µg/L	J	0.01
		Uranium-235	0.0878	25.2	9.4	µg/L		0.07
		Uranium-238	9.34			µg/L		0.01
		Uranium-235	0.112	26.4	13.8	µg/L		0.07
		Uranium-238	13.7			µg/L		0.01



Notes:

MDL - Method detection limit

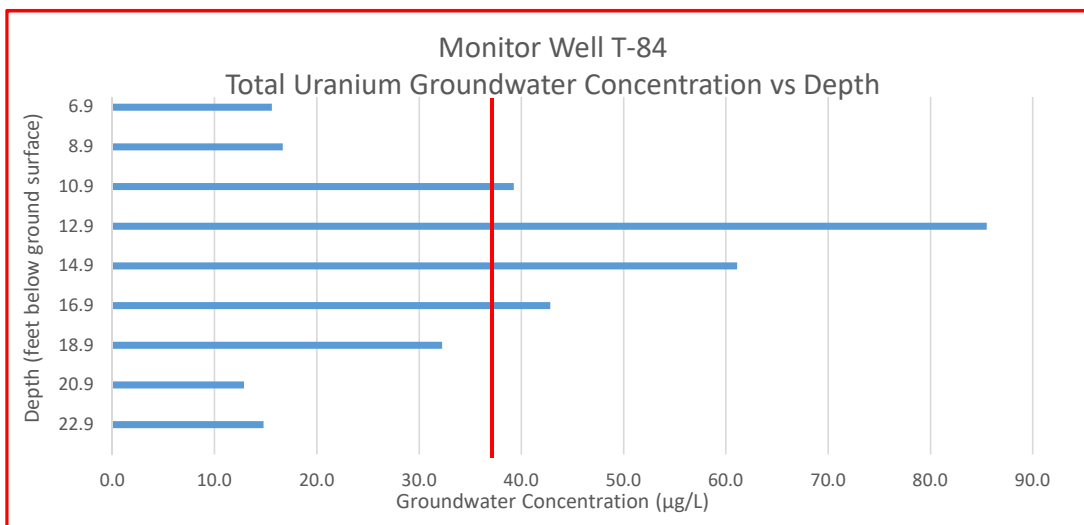
µg/L - micrograms per liter

J - Value is estimated

Vertical red line indicates monitoring well result

Table 2-2
WAA Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
T-84	12/13/2016	Uranium-235	0.54	Monitor Well	38.2	µg/L		0.01
		Uranium-238	37.7			µg/L		0.07
		Uranium-235	0.13	6.9	15.6	µg/L		0.01
		Uranium-238	15.5			µg/L		0.07
		Uranium-235	0.268	8.9	16.4	µg/L		0.01
		Uranium-238	16.1			µg/L		0.07
		Uranium-235	0.28	8.9DUP	16.7	µg/L		0.01
		Uranium-238	16.4			µg/L		0.07
		Uranium-235	0.766	10.9	39.3	µg/L		0.05
		Uranium-238	38.5			µg/L		0.07
		Uranium-235	1.73	12.9	85.5	µg/L		0.05
		Uranium-238	83.8			µg/L		0.07
		Uranium-235	1	14.9	61.1	µg/L		0.05
		Uranium-238	60.1			µg/L		0.07
		Uranium-235	0.524	16.9	42.8	µg/L		0.01
		Uranium-238	42.3			µg/L		0.07
		Uranium-235	0.272	18.9	32.3	µg/L		0.01
		Uranium-238	32			µg/L		0.07
		Uranium-235	0.105	20.9	12.9	µg/L		0.01
		Uranium-238	12.8			µg/L		0.07
		Uranium-235	0.117	22.9	14.8	µg/L		0.01
		Uranium-238	14.7			µg/L		0.07



Notes:

MDL - Method detection limit

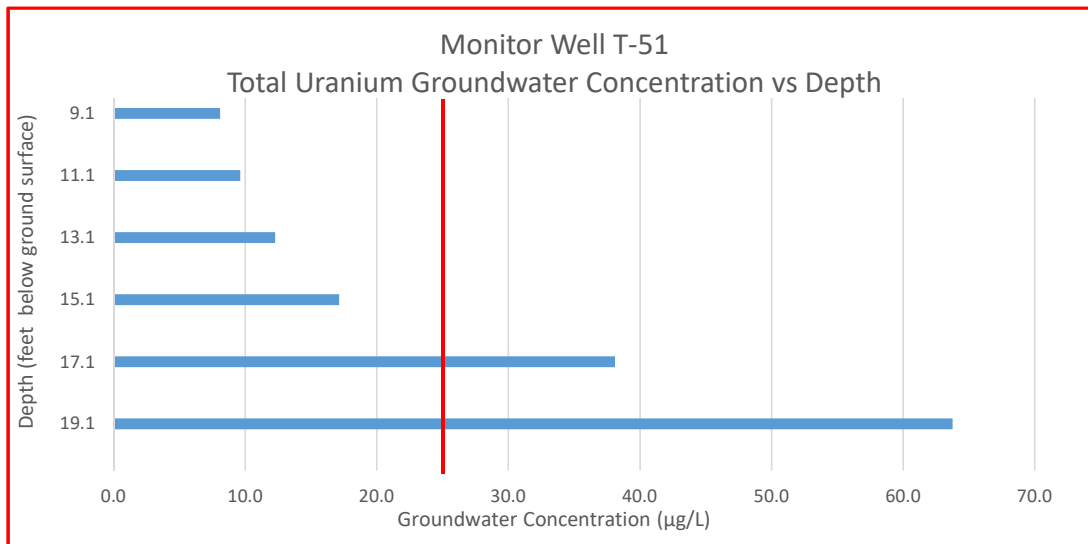
µg/L - micrograms per liter

U - Analyte was not detected above the MDL

Vertical red line indicates monitoring well result

Table 2-2
WAA Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
T-51	12/12/2016	Uranium-235	0.3	Monitor Well	26.2	µg/L		0.01
		Uranium-238	25.9			µg/L		0.07
		Uranium-235	0.1	9.1	8.1	µg/L		0.01
		Uranium-238	8.0			µg/L		0.07
		Uranium-235	0.1	9.1 DUP	7.5	µg/L	J	0.01
		Uranium-238	7.5			µg/L		0.07
		Uranium-235	0.1	11.1	9.6	µg/L		0.01
		Uranium-238	9.5			µg/L		0.07
		Uranium-235	0.1	13.1	12.3	µg/L		0.01
		Uranium-238	12.2			µg/L		0.07
		Uranium-235	0.2	15.1	17.2	µg/L		0.01
		Uranium-238	17.0			µg/L		0.07
		Uranium-235	0.5	17.1	38.1	µg/L		0.01
		Uranium-238	37.6			µg/L		0.07
		Uranium-235	1.0	19.1	63.8	µg/L		0.05
		Uranium-238	62.8			µg/L		0.07



Notes:

MDL - Method detection limit

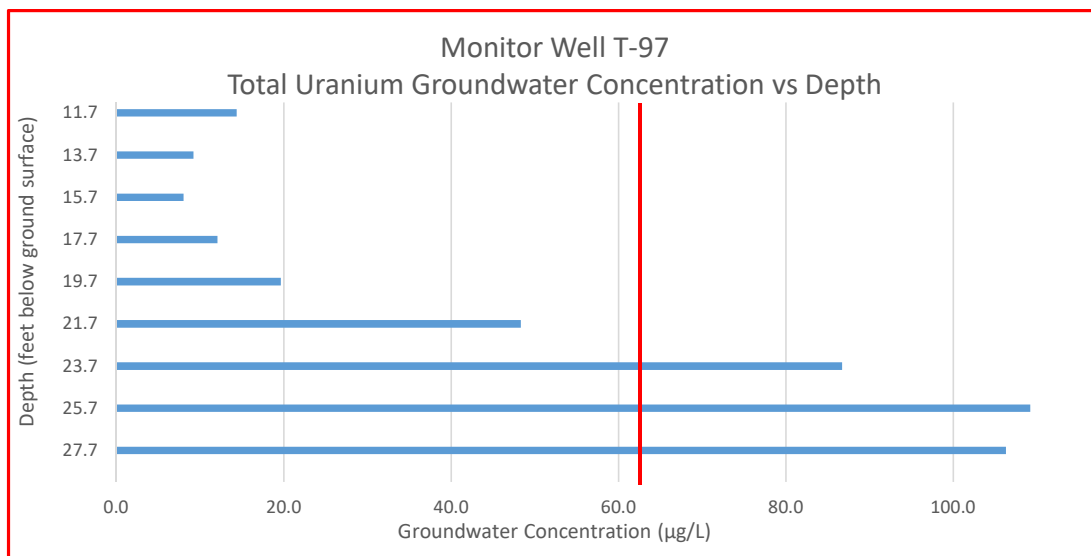
µg/L - micrograms per liter

J - Value is estimated

Vertical red line indicates monitoring well result

Table 2-2
WAA Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
T-97	12/12/2016	Uranium-235	1.1	Monitor Well	62.6	µg/L		0.05
		Uranium-238	61.5			µg/L		0.07
		Uranium-235	0.1	11.7	14.4	µg/L		0.01
		Uranium-238	14.3			µg/L		0.07
		Uranium-235	0.1	13.7	9.2	µg/L	J	0.01
		Uranium-238	9.2			µg/L		0.07
		Uranium-235	0.1	15.7	8.1	µg/L	J	0.01
		Uranium-238	8.0			µg/L		0.07
		Uranium-235	0.1	17.7	12.1	µg/L		0.01
		Uranium-238	12.0			µg/L		0.07
		Uranium-235	0.2	19.7	19.7	µg/L		0.01
		Uranium-238	19.5			µg/L		0.07
		Uranium-235	0.6	21.7	48.4	µg/L		0.01
		Uranium-238	47.8			µg/L		0.07
		Uranium-235	1.4	23.7	86.7	µg/L		0.05
		Uranium-238	85.3			µg/L		0.07
		Uranium-235	2.2	25.7	109.2	µg/L		0.05
		Uranium-238	107.0			µg/L		0.34
		Uranium-235	2.3	27.7	106.3	µg/L		0.05
		Uranium-238	104.0			µg/L		0.34



Notes:

MDL - Method detection limit

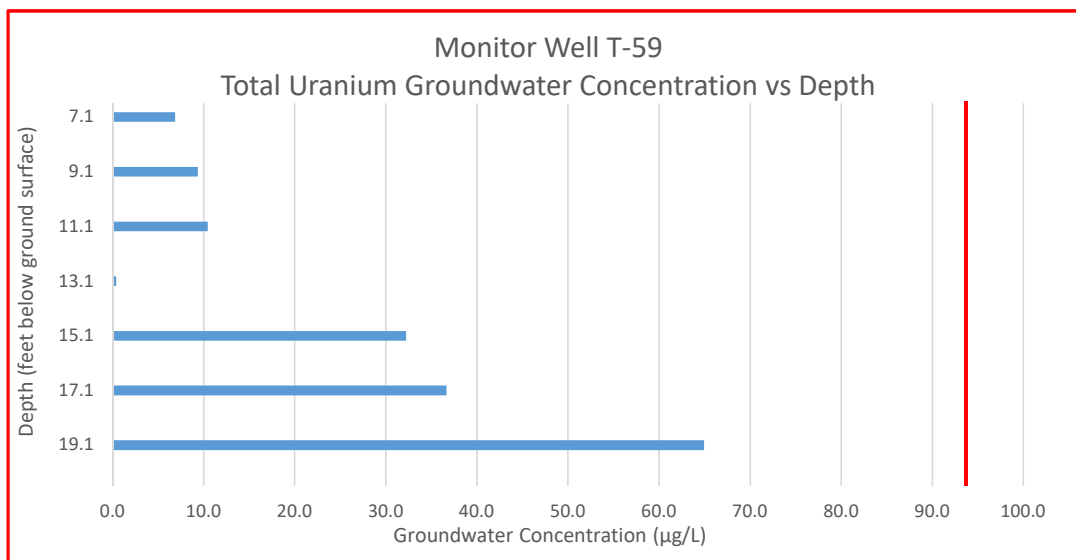
µg/L - micrograms per liter

J - Value is estimated

Vertical red line indicates monitoring well result

Table 2-2
WAA Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
T-59	12/13/2016	Uranium-235	0.681	Monitor Well	93.8	µg/L		0.01
		Uranium-238	93.1			µg/L		0.07
		Uranium-235	0.0717	7.1	6.9	µg/L		0.01
		Uranium-238	6.81			µg/L		0.07
		Uranium-235	0.0729	7.1DUP	6.9	µg/L		0.01
		Uranium-238	6.8			µg/L		0.07
		Uranium-235	0.0846	9.1	9.4	µg/L		0.01
		Uranium-238	9.29			µg/L		0.07
		Uranium-235	0.078	11.1	10.5	µg/L		0.01
		Uranium-238	10.4			µg/L		0.07
		Uranium-235	0.07	13.1	0.4	µg/L	U	0.01
		Uranium-238	0.36			µg/L		0.07
		Uranium-235	0.235	15.1	32.2	µg/L		0.01
		Uranium-238	32			µg/L		0.07
		Uranium-235	0.293	17.1	36.7	µg/L		0.01
		Uranium-238	36.4			µg/L		0.07
		Uranium-235	0.468	19.1	65.0	µg/L		0.01
		Uranium-238	64.5			µg/L		0.07



Notes:

MDL - Method detection limit

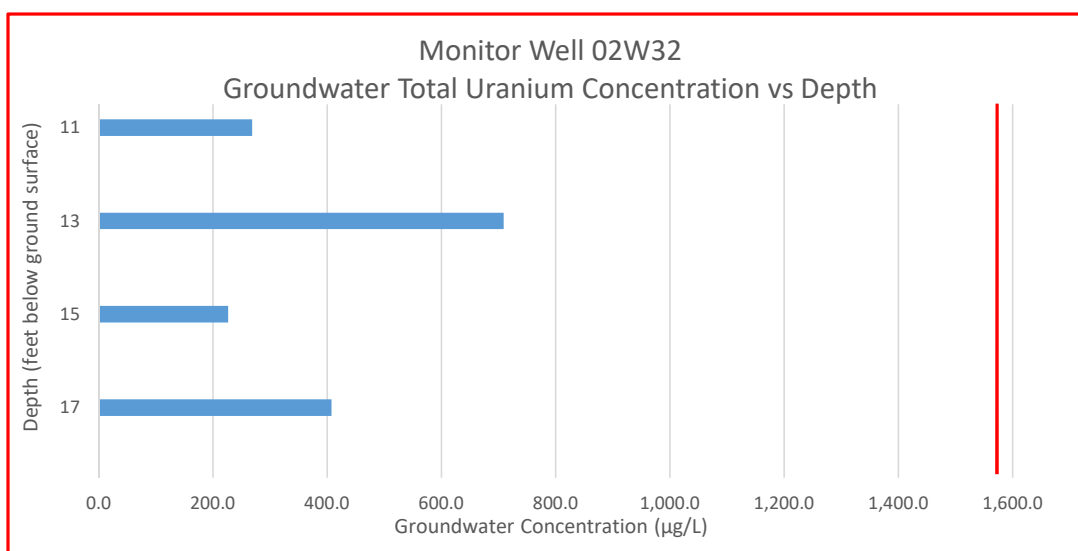
µg/L - micrograms per liter

U - Analyte was not detected above the MDL

Vertical red line indicates monitoring well result

Table 3-1
BA-1 Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result (µg/L)	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
02W32	12/15/2016	Uranium-235	18.7	Monitor Well	1,568.7	µg/L		0.500
		Uranium-238	1550			µg/L		3.35
		Uranium-235	3.08	11.0	269.1	µg/L		0.050
		Uranium-238	266			µg/L		0.335
		Uranium-235	7.66	13.0	648.7	µg/L		0.200
		Uranium-238	641			µg/L		1.34
		Uranium-235	8.46	13.0DUP	709.5	µg/L		0.200
		Uranium-238	701			µg/L		1.34
		Uranium-235	2.69	15.0	226.7	µg/L		0.050
		Uranium-238	224			µg/L		0.335
		Uranium-235	4.76	17.0	407.8	µg/L		0.100
		Uranium-238	403			µg/L		0.670



Notes:

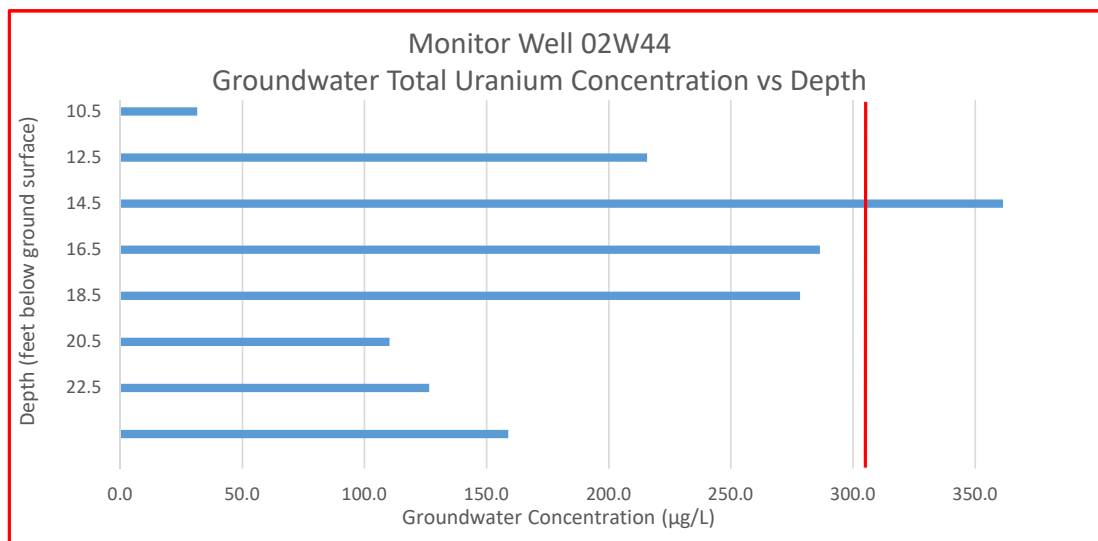
MDL - Method detection limit

µg/L - micrograms per liter

Vertical red line indicates monitoring well result

Table 3-1
BA-1 Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

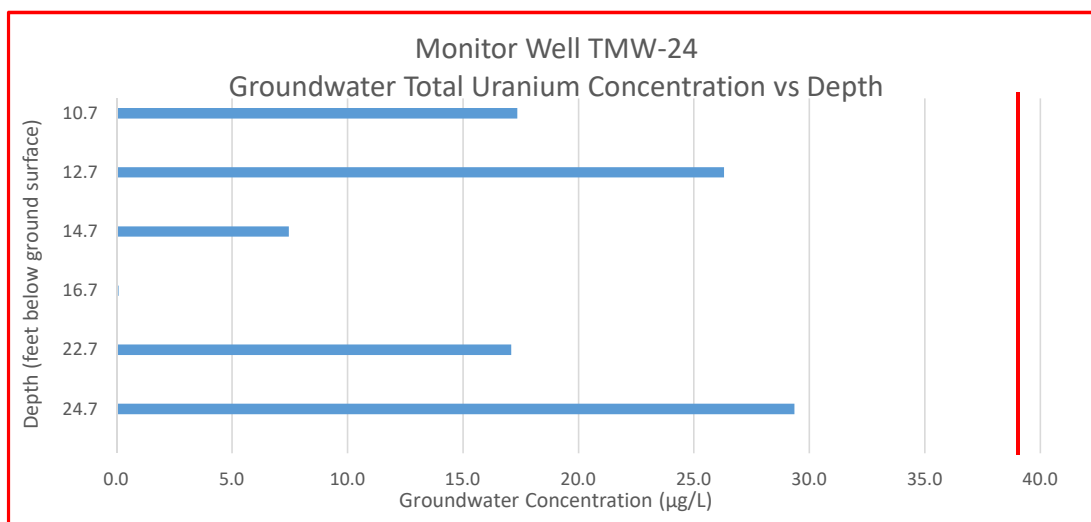
Location	Collection Date	Parameter	Lab Result (µg/L)	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
02W44	12/15/2016	Uranium-235	3.79	Monitor Well	306.8	µg/L		0.100
		Uranium-238	303			µg/L		0.670
		Uranium-235	0.388	10.5	31.6	µg/L		0.010
		Uranium-238	31.2			µg/L		0.067
		Uranium-235	2.72	12.5	215.7	µg/L		0.050
		Uranium-238	213			µg/L		0.335
		Uranium-235	4.45	14.5	361.5	µg/L		0.100
		Uranium-238	357			µg/L		0.670
		Uranium-235	3.49	16.5	286.5	µg/L		0.100
		Uranium-238	283			µg/L		0.670
		Uranium-235	3.32	18.5	278.3	µg/L		0.100
		Uranium-238	275			µg/L		0.670
		Uranium-235	1.30	20.5	110.3	µg/L		0.050
		Uranium-238	109			µg/L		0.335
		Uranium-235	1.49	22.5	122.5	µg/L		0.050
		Uranium-238	121			µg/L		0.335
		Uranium-235	1.52	22.5DUP	126.5	µg/L		0.050
		Uranium-238	125			µg/L		0.335
		Uranium-235	1.96	24.5	159.0	µg/L		0.050
		Uranium-238	157			µg/L		0.335



Notes:
MDL - Method detection limit
µg/L - micrograms per liter
Vertical red line indicates monitoring well result

Table 3-1
BA-1 Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result (µg/L)	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
TMW-24	12/15/2016	Uranium-235	0.471	Monitor Well	38.4	µg/L		0.100
		Uranium-238	37.9			µg/L		0.670
		Uranium-235	0.164	10.7	17.4	µg/L		0.010
		Uranium-238	17.2			µg/L		0.067
		Uranium-235	0.307	12.7	26.3	µg/L		0.010
		Uranium-238	26			µg/L		0.067
		Uranium-235	0.0837	14.7	7.5	µg/L		0.010
		Uranium-238	7.39			µg/L		0.067
		Uranium-235	0.070	16.7	0.1	µg/L	U	0.010
		Uranium-238	0.0877			µg/L		0.067
		Uranium-235	0.198	22.7	17.1	µg/L		0.010
		Uranium-238	16.9			µg/L		0.067
		Uranium-235	0.354	24.7	29.4	µg/L		0.010
		Uranium-238	29			µg/L		0.067
		Uranium-235	0.355	24.7 DUP	29.2	µg/L		0.010
		Uranium-238	28.8			µg/L		0.067



Notes:

MDL - Method detection limit

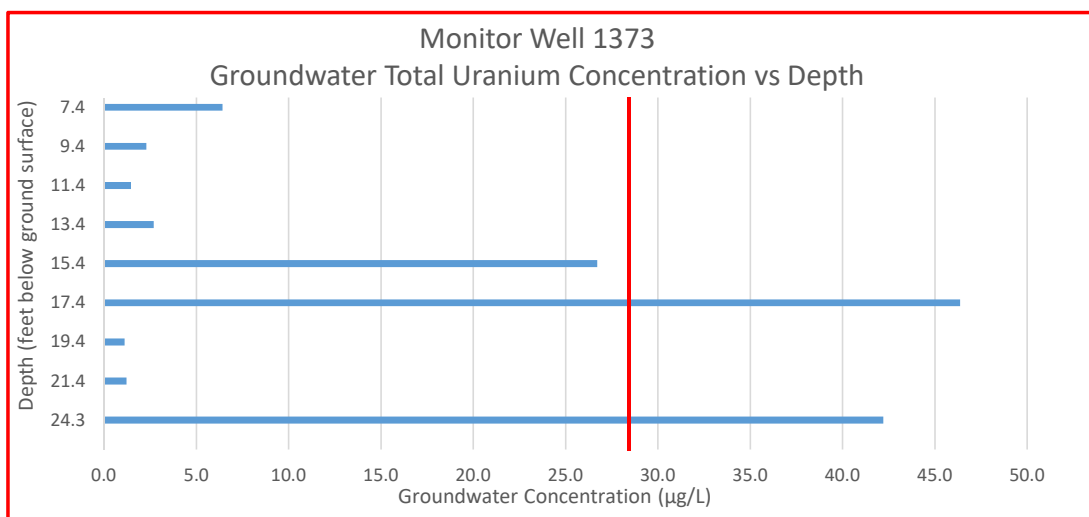
µg/L - micrograms per liter

U - Analyte was not detected above the MDL

Vertical red line indicates monitoring well result

Table 3-1
BA-1 Groundwater Sample Results
Vertical Distribution of Uranium in Groundwater
Cimarron Site, Oklahoma

Location	Collection Date	Parameter	Lab Result (µg/L)	Well or Depth (ft)	Total Conc.	Units	Lab or Data Review Qual	MDL
1373	12/15/2016	Uranium-235	0.332	Monitor Well	27.9	µg/L		0.010
		Uranium-238	27.6			µg/L		0.067
		Uranium-235	0.0457	7.4	6.4	µg/L		0.010
		Uranium-238	6.38			µg/L		0.067
		Uranium-235	0.0176	9.4	2.3	µg/L		0.010
		Uranium-238	2.28			µg/L		0.067
		Uranium-235	0.011	11.4	1.5	µg/L		0.010
		Uranium-238	1.46			µg/L		0.067
		Uranium-235	0.0283	13.4	2.7	µg/L		0.010
		Uranium-238	2.67			µg/L		0.067
		Uranium-235	0.323	15.4	26.7	µg/L		0.010
		Uranium-238	26.4			µg/L		0.067
		Uranium-235	0.573	17.4	46.4	µg/L		0.010
		Uranium-238	45.8			µg/L		0.067
		Uranium-235	0.0104	19.4	1.1	µg/L		0.010
		Uranium-238	1.10			µg/L		0.067
		Uranium-235	0.070	21.4	1.2	µg/L	U	0.010
		Uranium-238	1.15			µg/L		0.067
		Uranium-235	0.509	24.3	42.2	µg/L		0.010
		Uranium-238	41.7			µg/L		0.067



Notes:

MDL - Method detection limit

µg/L - micrograms per liter

U - Analyte was not detected above the MDL

Vertical red line indicates monitoring well result

**APPENDIX A –
HISTORICAL
BORING LOGS**

SOIL BORING LOG KM-5655-A

KERR-McGEE CORPORATION Hydrology Dept. Engineering Services			KM SUBSIDIARY Cimarron OK		LOCATION Areas C & F		BORING NUMBER 02W2		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
5 10 15	Sand: silty, vfn 5YR5/6 : vfn. dry		SM						
	Sand: vfn 5YR5/8, silty		SM				5.0	5.0	
	: w/ tr blk organic		SM						Water level ▽
	Sand: vfn 5YR5/4		SM				10.0	4.8	
	clay: soft, moist, plastic		CL				15.0	3.8	
	: soft, moist 5YR5/3 Mudstone-laminated silt & clay Sandstone bedrock 5YR4/6		CL CL ML						
									TD 18.0'

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
	▽	Water Table (Time of Boring)			7/15/02	of
	PID	Photoionization Detection (ppm)			DRILLING METHOD	
	NO.	Identifies Sample by Number			HSA - Continuous Sampler	
	TYPE	Sample Collection Method			DRILLED BY	
		AEI - J. Graham				
				LOGGED BY		
				J. Poor		
DEPTH Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet			EXISTING GRADE ELEVATION (FT. AMSL)		LOCATION OR GRID COORDINATES	
					915N 1225E	

SOIL BORING LOG KM-5655-A

KERR-McGEE CORPORATION Hydrology Dept. Engineering Services			KM SUBSIDIARY Cimarron OK		LOCATION Areas C & F		BORING NUMBER 02W 32			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
2	0-2.0 SAND, silty (30% zone-con organics) vf-fg dk red (2.5YR 3/6)	[Pattern]	SM							
5	2.0-5.0 SAND, cln-sil silty (41%), red (2.5YR 4/6), vf-fg, SR-SA @ 4.0-1" clay lens @ 4.5-1" clay lens	[Pattern]	SP				5	4.0		
7.5		[Pattern]	SM/ CL							
9.5		[Pattern]	CL							
10	5.0-7.5 SAND, silty & CLAY silty-interbedded in thin varves (overbank deposits), red vfg SR (2.5YR 4/8) + dusky red clay (2.5YR 3/2).	[Pattern]	SM				10	5.0		H ₂ O @ 9.5' ▽
18.5	7.5-9.5 CLAY, silty dusky red (2.5YR 3/2)	[Pattern]	SP							
20.2	9.5-10.0 SAND, silty (30%), vf-fg, SA-SR, red (2.5YR 3/2)	[Pattern]	SM				20	3.0		
20.5		[Pattern]	MDST				21	1.0		
	10.0-18.5 SAND, cln, f-mg w/cg. R-SR, flows, yell gry (5YR 8/1) to 13.0 13.0-18.5 v. pale oran (10YR 8/2). Inc grain size: m-cg w/minor veg									
	18.5-20.5 SAND, silty 20-30% dissem in matrix & minor thin silt layers. dk red brn (5YR 3/4), f-vc w/minor pea gravel.									
	20.5-21.0 MDSTONE Clay + silt, red (2.5YR 4/6) & lt grn gry (5Y 8/1)									

EXPLANATION	Water Table (24 Hour)			Water Table (Time of Boring)			PID			NO.			TYPE							
[Symbol]	SPLIT-BARREL	[Symbol]	AUGER	[Symbol]	ROCK CORE	[Symbol]	THIN-WALLED TUBE	[Symbol]	CONTINUOUS SAMPLER	[Symbol]	NO RECOVERY									
DEPTH: Depth Top and Bottom of Sample																				
REC.: Actual Length of Recovered Sample in Feet																				

GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
[Pattern]	CLAY	7-31-04	1 of 1
[Pattern]	SILT	DRILLING METHOD	
[Pattern]	SAND	HSA - Continuous Sampler	
[Pattern]	GRAVEL	DRILLED BY	
[Pattern]	SILTY CLAY	AEI - J. Graham	
[Pattern]	CLAYEY SAND	LOGGED BY	
[Pattern]	MUD STONE	J. Poor ED KRISH	
		EXISTING GRADE ELEVATION (FT AMSL)	
		LOCATION OR GRID COORDINATES	
		941 N 1219 E	

SOIL BORING LOG

SUBSIDIARY		LOCATION		BORING NUMBER							
CUMARON SITE		BUCAL AREA #1		1373							
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH	REC.		
0-3'	LIGHT TAN SILT, NON PLASTIC Dry (2.5 Y 8/6)		SM							100%	
3-5'	LIGHT TAN VERY FINE SAND		SP							100%	
5-15'	LIGHT TAN VERY FINE SAND WITH THIN MUD STRINGERS (1-2")		SP							100%	
15-25'	LIGHT TAN MEDIUM TO COARSE SAND		SP							100%	
25-25.5'	RED SANDSTONE S-7 (SR 5/8)		SP							100%	

EXPLANATION			GRAPHIC LOG LEGEND		DATE DRILLED		PAGE	
	Water Table (24 Hour)			CLAY	12/9/2014		1 of 1	
	Water Table (Time of Boring) Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			SILT	DRILLING METHOD		HOLLOW STEM AUGERS	
	SPLIT-BARREL		AUGER		SAND	DRILLED BY		CHARLES CLARK
	THIN-WALLED TUBE		CONTINUOUS SAMPLER		SANDY CLAY	LOGGED BY		DAVE KAYLOR
	ROCK CORE		NO RECOVERY		CLAYEY SAND	EXISTING GRADE ELEVATION (FT. AMSL)		
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet				SILTY CLAY	LOCATION OR GRID COORDINATES			

SOIL BORING LOG

KM-5655-A

KERR-McGEE CORPORATION Hydrology Dept. Engineering Services		KM SUBSIDIARY Cimarron		LOCATION 900N, 150E		BORING NUMBER T 51				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
5	Silt: w/ vfn sand, 54R 4/4		MH			1		5.0	5.0	water @ 6.0'
	clay:		CH							
	Silt:		MH							
	Sand: fn-vfn 54R 6/6		SW							
10	Sand: med, 54R 7/4, crs 5%		CL			2		10.0	2.5	
	Clay:		SV							
	Sand: med									
	Sand: fine									
15	Sand: med - crs					3		15.0	1.8	
	Sand: vcrs, wrdd, p.grd 7.54R 6/4		SW							
	Sand: vcrs, wrdd, p.grd									
	Sand: vcrs, wrdd, p.grd, 5% chert		SW							
20	Bedrock 19.0, gravel & clay		GC			4		20.0	2.5	
	TD 20.0'									

EXPLANATION

- Water Table (24 Hour)
 Water Table (Time of Boring)
 PID NO. TYPE
 Photoionization Detection (ppm)
 Identifies Sample by Number
 Sample Collection Method
 SPLIT-BARREL
 AUGER
 ROCK CORE
 THIN-WALLED TUBE
 CONTINUOUS SAMPLER
 NO RECOVERY
DEPTH Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

- CLAY
 SILT
 SAND
 GRAVEL
 SILTY CLAY
 CLAYEY SILT
 DEBRIS FILL
 HIGHLY ORGANIC (PEAT)
 SANDY CLAY
 CLAYEY SAND

DATE DRILLED

4/1/03

PAGE

1 of 1

DRILLING METHOD

Auger

DRILLED BY

AEI

LOGGED BY

J. POOR

EXISTING GRADE ELEVATION (FT. AMSL)

938.0 PIN 940.5 TOC

LOCATION OR GRID COORDINATES

900N-150E

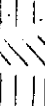













SOIL BORING LOG KM-5655-A




















KERR-McGEE CORPORATION
Hydrology Dept. Engineering Services

KM SUBSIDIARY
Cimarron

LOCATION
900N 150E

BORING
NUMBER
T 51

DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
5	Silt: w/ vfn sand, 5YR 4/4 clay: Silt: Sand: fn-vfn 5YR 6/6 Sand: med, 5YR 7/4, crs 5% Clay: Sand: med Sand: fine Sand: med-crs	        	MT CH MT SW CL SV			1		5.0	5.0	
10	Sand: vcrs, wrdd, p.grd 7.5YR 6/4		SW			2		10.0	2.5	water @ 6.0' 
15	Sand: vcrs, wrdd, p.grd 7.5YR 5/4		SW			3		15.0	1.8	
20	Sand: vcrs, wrdd, p.grd, 5% chert Bedrock 19.0, gravel & clay	 	SW GC			4		20.0	2.5	
	TD 20.0'									

EXPLANATION	 Water Table (24 Hour)	GRAPHIC LOG LEGEND  CLAY  SILT  SAND  GRAVEL  SILTY CLAY  CLAYEY SILT  DEBRIS FILL  HIGHLY ORGANIC (PEAT)  SANDY CLAY  CLAYEY SAND	DATE DRILLED 4/1/03	PAGE 1 of 1	
	 Water Table (Time of Boring)		DRILLING METHOD Auger		
	 PID NO. TYPE Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		DRILLED BY AEI		
	 SPLIT BARREL  AUGER  ROCK CORE		LOGGED BY J. POOR		
	 THIN-WALLED TUBE  CONTINUOUS SAMPLER  NO RECOVERY		EXISTING GRADE ELEVATION (FT. AMSL) 138.0 P.N. 940.5 TOL		
DEPTH Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet	LOCATION OR GRID COORDINATES 900N-150E				

SOIL BORING LOG

KM-5655-A

KERR-McGEE CORPORATION Hydrology Dept. Engineering Services		KM SUBSIDIARY <i>Cimarron</i>		LOCATION <i>900N-450 E</i>		BORING NUMBER <i>T-59</i>			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
5 10 15 20 25	Silt: fn sand, 54R 5/4		ML						08:41
	dry clayey silt 54R 5/4		ML-CL						
	Sand: fn, w. srt, p. grad 54R 5/6		SP			1	5		
	Sand: fn, w. srt, 54R 5/6		SP			2	10		
	Sand: fn, 54R 5/6		SP			3	15		
	Sand: med, 54R 5/6		SP			4	20		
	Sand: fn w/ clay layers 104R 3/6		SC						09:01
	tr SS pieces, 1/2"		SM			5	25		
	Sand: silty, 104R 2/6					6	27.0		
	Bedrock: SS, 126'								
	TD 27.0'								

EXPLANATION		GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
Water Table (24 Hour)	Water Table (Time of Boring)	CLAY	DEBRIS FILL	<i>4/13/03</i>	of
PID NO. TYPE	Photoionization Detection (ppm)	SILT	HIGHLY ORGANIC (PEAT)	DRILLING METHOD <i>HSA</i>	
SPLIT BARREL	AUGER	SAND	SANDY CLAY	DRILLED BY <i>B. Graham</i>	
THIN-WALLED TUBE	CONTINUOUS SAMPLER	GRAVEL	CLAYEY SAND	LOGGED BY <i>J. Poor</i>	
ROCK CORE	NO RECOVERY	SILTY CLAY		EXISTING GRADE ELEVATION (FT. AMSL) <i>TOC 938.2, pin 936.2</i>	
DEPTH Depth Top and Bottom of Sample	REC. Actual Length of Recovered Sample in Feet	CLAYEY SILT		LOCATION OR GRID COORDINATES <i>900N-450 E</i>	

SOIL BORING LOG KM-5655-A

Monitor Well

KERR-McGEE CORPORATION Hydrology Dept. Engineering Services		KM SUBSIDIARY CIMARRON	LOCATION SEEP 1206 Alluvium		BORING NUMBER T-68					
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
5	Silty Clay 7.5% silt strong brown silty moist		CL							Sample description from auger flight sample
	Silt, sandy w/ depth vt-fs									
10	Sand silt 5/6 yel red saturated									
	vt-mgr sand silty									
15			SW							
20	Sand f-ccs g some v-ccs silt 4/6 yel red silt inc silt									
25	sm gravels		SM							
	Red Shale									
30	+1 Bedrock 27'									
	total depth 27'									
	Red shale on bit									

EXPLANATION			GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
	Water Table (24 Hour)			CLAY	4-16-04	1 of 1
	Water Table (Time of Boring)			SILT	DRILLING METHOD	
	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			SAND	45A	
	SPLIT-BARREL		AUGER		HIGHLY ORGANIC (PEAT)	
	THIN-WALLED TUBE		ROCK CORE		SANDY CLAY	
			CONTINUOUS SAMPLER		CLAYEY SAND	
			NO RECOVERY			
DEPTH Depth Top and Bottom of Sample				SILTY CLAY	LOGGED BY	J. Crawford
REC. Actual Length of Recovered Sample in Feet				CLAYEY SILT	EXISTING GRADE ELEVATION (FT AMSL)	
					LOCATION OR GRID COORDINATES	

Drilling Log

Project Name CERT		Project Number		Boring Number T-84	
Ground Elevation		Location		Page 1 of 2	
Air Monitoring Equipment				Total Footage 28'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. of Core Boxes
HSA	8 1/4"	NA	NA	NA	NA
Drilling Company DAVIS ENVIRONMENTAL DRILLING			Driller(s) KOLAND DAVIS		
Drilling Rig CME			Type of Sampler Continuous to 10'		
Date 4-11-11		To 4-11-11		Field Observer(s) JIM CRAWFORD	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Upper 6" root zone Silty clay reddish brown firm low plastic moist				1000					Cuttings Scanned with Ludlum Micro R meter - all readings at background thru out boring
2	2.5' becoming sandy silt with some clay			5						
3	3.5-4' wet perched zone silt reddish brown fast dilatancy			5						
4	4' sand fine grained poorly graded loose yellow orange moist silty			5	1010					
5										
6	Sand becoming fine to coarse grained well graded rd brn									PERCHED 3.5'
7										
8	No Recovery									
9										
10					10					
11	Description from Auger flights									At 10', install wood plug in Auger bit
12	Sand light brown to yellow orange loose saturated									
13										
14										

BZ=Breathing Zone

BH=Bore Hole

S=Sample

Drilling Log Continuation

Project Name CERT						Boring Number T-84				
Project Number						Page 20F2				
						Date 4-11-11				
Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15				15	1025					
16	Sand fine to coarse grained silty well graded loose some small gravel (max 5mm)									
17										
18										
19										
20				20						
21										
22										
23										
24	Sand fine to very coarse grained silty small gravel max 1/4"									
25				25	1035					
26										
27	Sandstone vfg brick red								DRILLER FELT A CHANGE IN DRILLING AT 27' - "CRUNCHY"	
28										
29	Total depth 28'									
30										

BZ=Breathing Zone

BH=Bore Hole

S=Sample

SOIL BORING LOG

SUBSIDIARY		LOCATION		BORING NUMBER				
CARRON SITE		WESTERN ALLUVIAL AREA		T-97				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE		REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	
0-4'	LIGHT TAN TO BROWN SAND, VERY FINE GRAINED, DRY (10R 3/1)		SP					100%
5	4-10' TAN TO BROWN SILTY SAND, SOME MUD STRINGS, LOW PLASTICITY, SOME MOISTURE (2.5Y 8/8)		SM					100%
10	10-20' TAN TO BROWN SAND, FINE TO MEDIUM GRAINED, LOW PLASTICITY, SOME MOISTURE		SP					100%
15	SATURATED @ 14'		SP					100%
20	20-25' LIGHT TAN SAND, MEDIUM GRAINED WITH SOME GRAVEL, LOW PLASTICITY, SOME MOISTURE		SP					100%
25	25-30' LIGHT TAN SAND, MEDIUM TO COARSE GRAINED WITH GRAVEL, LOW PLASTICITY, WET		SP					100%
30	30-31' RED BROWN SANDSTONE		SP					
35								

EXPLANATION		GRAPHIC LOG LEGEND		DATE DRILLED		PAGE	
Water Table (24 Hour)	Water Table (Time of Boring)	CLAY	DEBRIS FILL	12/4/2014		1 of 1	
PID NO. TYPE	Photoionization Detection (ppm)	SILT	HIGHLY ORGANIC (PEAT)	DRILLING METHOD		Hollow Stem Auger	
Identifies Sample by Number	Sample Collection Method	SAND	SANDY CLAY	DRILLED BY		CHARLES CLARK	
SPLIT- BARREL	AUGER	GRAVEL	CLAYEY SAND	LOGGED BY		DANE KAYLOR	
THIN- WALLED TUBE	CONTINUOUS SAMPLER	SILTY CLAY	ROCK CORE	EXISTING GRADE ELEVATION (FT. AMSL)			
NO RECOVERY		CLAYEY SILT		LOCATION OR GRID COORDINATES			
DEPTH. Depth Top and Bottom of Sample							
REC. Actual Length of Recovered Sample in Feet							

SOIL BORING LOG KM-5655-B

Tmw-9

KERR-McGEE CORPORATION Hydrology Dept. - S&EA Division		KM SUBSIDIARY Cimarron Corp.		LOCATION Burial Area #1		BORING NUMBER 900 N-1235E				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER 5'	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
1030	brn sdy silt bcmg silty sd rd brn @ 2.5-3'		Sm						3	
5	yell rd silty sd becoming yell brn silty sd								5	
10	silty clay yellow red stiff crumbly non-plastic wet sdy silt soft sli dilat becoming clayey		SC						4.4	
15	clayey sand yell rd firm sli plastic		SC						4.6	
18.3-18.5	silt silty clay yell red - rd brn stiff blk stroke								15	
20	13-15 rd clay sdy lams plastic 18.3-18.5 silty gravel rd yell		ML						4.8	
23.5	rd brn silty clay wet blk soft silty shale red rd sdy shale								3.5	chips 22-23.5
1100	TD 23.5									

EXPLANATION			GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
	Water Table (24 Hour)			CLAY	8-30-99	1 of 1
	Water Table (Time of Boring)			SILT	DRILLING METHOD	
	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			SAND	DRILLED BY	Horizon
	SPLIT-BARREL		AUGER		LOGGED BY	J Crawford
	THIN-WALLED TUBE		CONTINUOUS SAMPLER		EXISTING GRADE ELEVATION (FT AMSL)	
	ROCK CORE		NO RECOVERY		LOCATION OR GRID COORDINATES	900 N-1235E
	DEPTH Depth Top and Bottom of Sample			GRAVEL		
	REC. Actual Length of Recovered Sample in Feet			SILTY CLAY		
				CLAYEY SILT		

SOIL BORING LOG KM-5655-A

KERR-McGEE CORPORATION Hydrology Dept. Engineering Services			KM SUBSIDIARY CIMARRON		LOCATION ALLUVIUM		BORING NUMBER T-67		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
5	Sandy clay 5YR 4/4 reddish brown soft moist		CL						DRILLING 8.75" AUGER HOLE SAMPLES LOGGED FROM AUGER FLIGHTS
10	Sand 5YR 4/6 yell red f-med gr. moist unconsol p. graded		SP						
15	Sand Arab being sat		SP/ SM						
20	Sand 5YR 4/4 yell red f-med gr w/ sm ccs gr. being very "soupy"		SM						
25	Sand m-v ccs gr soupy		SM						
30	Sdy clay 10YR 4/6 red TO 29'								Bedrock at 28.5 ft
35									

EXPLANATION ▼ Water Table (24 Hour) ▽ Water Table (Time of Boring) PID Photoionization Detection (ppm) NO. Identifies Sample by Number TYPE Sample Collection Method SPLIT-BARREL THIN-WALLED TUBE AUGER CONTINUOUS SAMPLER ROCK CORE NO RECOVERY	GRAPHIC LOG LEGEND CLAY SILT SAND GRAVEL SILTY CLAY CLAYEY SILT DEBRIS FILL HIGHLY ORGANIC (PEAT) SANDY CLAY CLAYEY SAND		DATE DRILLED 3-2-04 DRILLING METHOD HSA DRILLED BY AEI D. Jarman LOGGED BY J. Crawford EXISTING GRADE ELEVATION (FT AMSL) LOCATION OR GRID COORDINATES
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet		

SOIL BORING LOG KM-5655-A

KERR-McGEE CORPORATION Hydrology Dept. Engineering Services			KM SUBSIDIARY <i>Cimarron</i>		LOCATION <i>BG 1</i>		BORING NUMBER <i>Tan W - 24</i>		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	REC.	
	SLTY CLAY BRN FIRM STIFF TO REDISH BRN		CL					3.5	
5	SAND REDISH TAN VFG SLT SLTY LOOSE MOIST		SM						
	SAND BUFF MD GR CLEAN MOIST		SM					0	
10									FLOWING SANDS
								2	POOR SAMPLE REC. THRU OUT
15	SAND TAN F-CRS S LOOSE UNCONSOL		SM					1.8	
20								0	
25									
	RED CLAY W CRS SAND FR GRAVEL NOTED ON AUGERS		CL						
30									
	TOTAL DEPTH 28'								

EXPLANATION			GRAPHIC LOG LEGEND		DATE DRILLED <i>5/15/00</i>		PAGE <i>1 of 1</i>	
	Water Table (24 Hour)			CLAY		DRILLING METHOD <i>HSA</i>		
	Water Table (Time of Boring)			SILT		DRILLED BY <i>Horizon</i>		
PID	Photoionization Detection (ppm)			SAND		LOGGED BY <i>J. CRAWFORD</i>		
NO.	Identifies Sample by Number			GRAVEL		EXISTING GRADE ELEVATION (FT. AMSL)		
TYPE	Sample Collection Method			SILTY CLAY		LOCATION OR GRID COORDINATES		
	SPLIT-BARREL		AUGER		CLAYEY SAND			
	THIN-WALLED TUBE		CONTINUOUS SAMPLER					
	ROCK CORE		NO RECOVERY					
DEPTH: Depth Top and Bottom of Sample				CLAYEY SILT				
REC.: Actual Length of Recovered Sample in Feet								

**APPENDIX B – FIELD
PARAMETER
SAMPLING FORMS**

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-9.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1223

Purge End Time: 1230 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1226	7.1	1170	15.1	0.95	-22.0	OOR
600	1228	7.0	1170	15.5	0.62	-23.7	425
600	1230	7.0	1170	15.6	0.58	-27.2	186
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1230

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67-9.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-11.6 + DUP

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1233

Purge End Time: 1240 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
400	1236	7.0	1190	14.4	0.54	76.2	OOR
400	1238	7.0	1190	15.1	0.44	53.0	270
400	1240	7.0	1190	14.9	0.35	43.2	88.4
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1240

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67-11.6 + DUP

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	KF
--	----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-13.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1244

Purge End Time: 1250 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.40

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1247	7.1	1290	15.7	0.49	-87.6	OOR
500	1249	7.0	1280	15.7	0.35	-97.6	846
500	1250	7.0	1310	15.9	0.26	-93.7	398
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1250

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67-13.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-15.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1252

Purge End Time: 1258 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.50

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1255	6.9	1320	16.2	0.33	-55.1	444
600	1256	7.0	1340	16.4	0.16	-73.0	232
600	1258	6.9	1340	15.9	0.14	-82.1	65.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1258

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67-15.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-17.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1259

Purge End Time: 1305 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.70

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1303	6.9	1280	16.7	0.15	105.7	159
600	1304	7.0	1280	16.8	0.14	112.5	178
600	1305	7.0	1280	17.0	0.21	114.7	65.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1305

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67-17.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-19.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1307

Purge End Time: 1314 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1310	7.0	1270	16.0	0.28	-9.6	283
500	1312	7.0	1250	16.1	0.14	-51.6	96.3
600	1314	7.0	1250	16.5	0.14	-72.4	29.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1314

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/14/2016

Sample Location ID: T-67-19.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-21.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1316

Purge End Time: 1322 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1318	7.0	1250	16.1	0.30	-55.6	643
500	1320	7.0	1250	16.2	0.16	-90.2	156
600	1322	7.0	1250	16.3	0.13	-95.9	29.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1322

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/14/2016

Sample Location ID: T-67-21.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-23.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1325

Purge End Time: 1332 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.50

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
500	1328	7.0	1880	15.8	1.88	58.1	243
500	1330	7.0	1890	15.9	0.96	65.0	57.7
500	1332	7.0	1950	16.0	0.51	40.6	20.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1332

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67-23.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-25.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1335

Purge End Time: 1340 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1336	6.9	3580	16.4	1.48	17.6	165
600	1338	6.9	3610	16.4	1.45	22.3	22.3
600	1340	6.9	3650	16.5	1.50	30.9	20.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1340

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67-25.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-67-27.6

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1343

Purge End Time: 1340 (Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1340

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67-27.6

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form

KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)

KF

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)

KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃

KF

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)

N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed

KF

Field Parameter Form completed per EPM-SAP-111

KF

Used filters collected and bagged for HP screening

KF

All equipment decontaminated per EPM-SAP-107

KF

**CIMARRON ENVIRONMENTAL RESPONSE TRUST
FIELD PARAMETER FORM**

Sample Location: T-67

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 11.08

Well Depth ($\pm 0.1\text{ft.}$): 31.05

Water Column ($\pm 0.1\text{ft.}$): 19.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Grundfos

Purge Start Time: 1205

Purge End Time: 1210 (*Note: Sample must be collected
within 24 hours of purge time*)

Volume Purged: 13.00

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu\text{m/cm}$ to 3 sig. digits)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)
3.25	7.2	1350	16.1
6.50	7.3	1440	17.3
9.75	7.3	1470	17.7
13.00	7.3	1488	17.5
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$

Sample Date: 12/14/2016

Sample Time: 1210

Weather: Cold and Clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Grundfos

Sample Appearance: Clear

Sampler (*print name*): Dane Kaylor

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-67

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form

DK

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)

DK

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)

DK

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃

DK

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)

N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed

DK

Field Parameter Form completed per EPM-SAP-111

DK

Used filters collected and bagged for HP screening

DK

All equipment decontaminated per EPM-SAP-107

DK

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-9.2

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0817

Purge End Time: 0827 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
400	0822	7.1	810	12.0	1.42	-29.2	371
400	0824	7.1	810	12.1	0.93	-36.5	92.3
400	0826	7.1	810	12.0	0.89	-38.5	44.7
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 0827

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68-9.2

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-11.2

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0830

Purge End Time: 0840 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.50

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
350	0835	7.1	960	12.3	0.59	-72.5	OOR
350	0837	7.0	990	12.5	0.45	-76.7	892
350	0839	7.1	1010	12.6	0.34	-80.3	164
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 0840

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68-11.2

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-13.2 + DUP

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0845

Purge End Time: 0855 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 2.00

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
500	0850	7.0	1070	15.5	0.22	-44.5	75.9
500	0852	7.0	1130	16.2	0.40	-43.2	20.3
500	0854	7.0	1140	16.4	0.24	-36.1	14.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 0855

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68-13.2 + DUP

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	KF
--	----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-15.2

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0900

Purge End Time: 0907 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
500	0903	7.0	1210	16.4	1.07	-30.3	190
500	0905	7.0	1220	16.7	0.53	-41.0	114
500	0907	7.0	1230	16.8	0.32	-53.3	23.0
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 0907

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68-15.2

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-17.2

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0910

Purge End Time: 0917 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 600 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
100	0916	7.1	2360	7.0	4.15	33.4	OOR
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 0917

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68-17.2

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-19.2

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0925

Purge End Time: 0935 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 600 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
100	0930	7.4	2550	8.5	3.71	-80.3	OOR
NO FLOW	0935						
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 0935

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/14/2016

Sample Location ID: T-68-19.2

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-21.2

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0940

Purge End Time: 0950 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 600 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
150	0945	7.3	4530	9.3	2.83	-201.8	OOR
150	0948	7.2	4580	9.6	1.48	-234.6	OOR
150	0950	7.2	4800	9.8	1.31	-244.6	731
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 0950

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68-21.2

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples property labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-23.2

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0955

Purge End Time: 1005 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 600 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
100	1005	7.3	4060	7.9	2.66	-189.4	OOR
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1005

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68-23.2

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-25.2

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1010

Purge End Time: 1017 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 850 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
<50 // GRAB	1017	--	--	--	--	--	--
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1017

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/14/2016

Sample Location ID: T-68-25.2

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	N/A
--	-----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	N/A
---	-----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-68-26.4

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1027

Purge End Time: 1042 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 850 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
130	1036	7.3	3710	9.7	4.20	-69.8	OOR
130	1039	7.2	3840	10.0	3.19	-80.2	OOR
130	1042	7.2	3700	9.7	2.43	-86.4	OOR
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/14/2016

Sample Time: 1042

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68-26.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

**CIMARRON ENVIRONMENTAL RESPONSE TRUST
FIELD PARAMETER FORM**

Sample Location: T-68

Purge Date: 12/14/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.71

Well Depth ($\pm 0.1\text{ft.}$): 30.05

Water Column ($\pm 0.1\text{ft.}$): 19.34

Casing Volume ($\pm 0.1\text{gal.}$): 3.15

Purge Method (*pump & type, bailer & type, etc.*): Grundfos

Purge Start Time: 0750

Purge End Time: 0755 (*Note: Sample must be collected
within 24 hours of purge time*)

Volume Purged: 12.60

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu\text{m/cm}$ to 3 sig. digits)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)
3.15	7.3	1805	17.3
6.30	7.3	1745	17.3
9.45	7.3	1713	17.8
12.60	7.3	1691	18.6
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$

Sample Date: 12/14/2016

Sample Time: 0755

Weather: Cold and Clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Grundfos

Sample Appearance: Clear

Sampler (*print name*): Dane Kaylor

Date: 12/14/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/14/2016

Sample Location ID: T-68

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form

DK

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)

DK

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)

DK

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃

DK

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)

N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed

DK

Field Parameter Form completed per EPM-SAP-111

DK

Used filters collected and bagged for HP screening

DK

All equipment decontaminated per EPM-SAP-107

DK

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-6.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1328

Purge End Time: 1340 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.50

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
200	1335	7.2	1310	8.8	12.05	95.0	343
	1337	7.1	900	7.9	12.06	200.8	154
	1339	7.2	840	7.5	12.20	166.2	42.6
	1340	7.1	810	7.8	12.14	154.3	23.4
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1340

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-84-6.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-8.9 + DUP

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1352

Purge End Time: 1403 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.25

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1356	7.2	710	15.6	0.47	126.8	OOR
	1359	7.2	700	15.7	0.27	47.5	259
	1403	7.2	700	15.7	0.24	23.5	106
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1403

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-84-8.9 + DUP

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	KF
--	----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-10.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1406

Purge End Time: 1415 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.00

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1411	7.2	780	16.2	1.47	-46.8	469
	1413	7.2	790	16.3	0.72	-36.5	157
	1415	7.2	800	16.3	0.38	-45.3	79.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1415

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-84-10.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-12.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1420

Purge End Time: 1429 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.00

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
600	1424	7.1	1040	15.6	1.01	-21.0	327
	1426	7.1	1080	15.8	0.61	-18.5	90.6
	1429	7.1	1090	15.5	0.42	-25.5	33.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1429

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-84-12.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-14.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1430

Purge End Time: 1438 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1434	7.0	1490	15.6	1.50	-27.7	OOR
	1436	7.0	1540	16.0	0.76	-40.0	103
	1438	7.0	1550	16.1	0.37	-44.1	99.9
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1438

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-84-14.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-16.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1442

Purge End Time: 1450 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.00

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1445	7.0	2320	16.1	0.83	5.1	588
	1447	7.0	2370	16.0	0.32	8.1	68
	1449	7.0	2450	15.9	0.37	-44.1	43.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1450

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-84-16.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-18.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1454

Purge End Time: 1505 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.25

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
140	1500	7.0	3970	10.7	1.28	-41.1	401
	1503	7.1	4250	9.8	1.04	-41.4	98.4
	1505	7.1	4310	9.8	1.16	-36.8	66.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1505

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-84-18.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-20.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1512

Purge End Time: 1520 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.40

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
150	1515	7.3	3450	9.5	2.87	-60.4	OOR
	1517	7.3	3460	9.6	13.9	-83.1	OOR
	1520	7.3	3680	9.1	0.88	-203.3	66.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1520

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-84-20.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-22.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1528

Purge End Time: 1540 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.25

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
100	1534	7.3	3620	7.5	2.64	-8.7	OOR
	1537	7.3	3630	6.5	1.40	-26.8	290
	1540	7.3	3720	6.4	1.36	-125.7	98.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1540

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-84-22.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-24.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1547

Purge End Time: 1555 (Note: Sample must be collected within 24 hours of purge time)

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: N/A

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-84-24.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) KF

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed N/A

Field Parameter Form completed per EPM-SAP-111 N/A

Used filters collected and bagged for HP screening N/A

All equipment decontaminated per EPM-SAP-107 N/A

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84-26.9

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1557

Purge End Time: 1600 (Note: Sample must be collected within 24 hours of purge time)

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: N/A

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-84-26.9

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) KF

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed N/A

Field Parameter Form completed per EPM-SAP-111 N/A

Used filters collected and bagged for HP screening N/A

All equipment decontaminated per EPM-SAP-107 N/A

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-84

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 10.37

Well Depth ($\pm 0.1\text{ft.}$): 29.85

Water Column ($\pm 0.1\text{ft.}$): 19.48

Casing Volume ($\pm 0.1\text{gal.}$): 3.17

Purge Method (*pump & type, bailer & type, etc.*): Grundfos

Purge Start Time: 1305

Purge End Time: 1310 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 12.68

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)
3.17	7.1	2060	14.0
6.34	7.1	2030	16.8
9.51	7.1	2040	18.0
12.68	7.1	2100	17.9
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$

Sample Date: 12/13/2016

Sample Time: 1310

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Grundfos

Sample Appearance: Clear

Sampler (*print name*): Dane Kaylor

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-84

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	DK
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	DK
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	DK
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	DK
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	DK
---	----

Field Parameter Form completed per EPM-SAP-111	DK
--	----

Used filters collected and bagged for HP screening	DK
--	----

All equipment decontaminated per EPM-SAP-107	DK
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97 - 11.7

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): 13.2' BTC

Well Depth (± 0.1 ft.): 32.5' BTC

Water Column (± 0.1 ft.): 19.3'

Casing Volume (± 0.1 gal.): 3.1 gallons

Purge Method (pump & type, bailer & type, etc.): peristaltic Pump

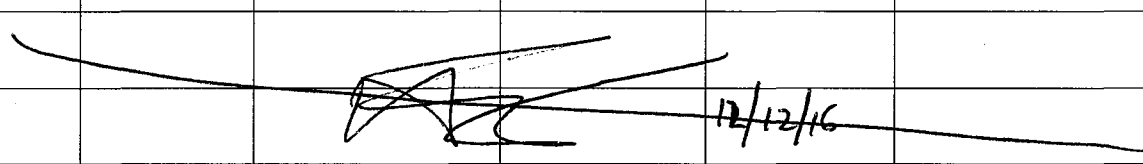
Purge Start Time: 1130

Purge End Time: 1142

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 1.0 gal

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb. (NTU)	Flow Rate (ml/min)
1130	< 0.25	7.29	0.76	12.0	4.27	185.9	—	200
1135	~ 0.4	7.25	0.88	13.5	27.9 %	140.4	10.9	200
1138	0.5	7.27	0.89	13.1	2.25	156.3		200
1140	0.6	7.26	0.89	13.2	2.07	155.6	6.54	200
								
Acceptance Criteria	3 samples ± 0.1 unit	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %	3 samples ± 10 %		

Sample Date: 12/12/16

Sample Time: 1143 (T-97-11.7)

Weather: 50's, clear

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri - Pump

Sample Appearance: clear

Sampler (print name): Kevin Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97-13.7'

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri-Pump

Purge Start Time: 1151

Purge End Time: 1205

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 1.5 gallons

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units \pm 0.1)	Specific Conductivity (μ S/cm to 3 sig. digits)	Temperature ($^{\circ}$ C \pm 0.1 $^{\circ}$)	Dissolved Oxygen (DO) (mg/l \pm 0.1)	Oxidation/Reduction Potential (ORP) (mV \pm 1)	Flow Rate (m/min)
—	—	—	—	—	—	—
0.8	7.30	0.78	13.9	3.39	124.3	841
1.2	7.30	0.74	14.7	3.84	133.0	202
2.0	7.30	0.72	14.8	4.14	133.5	90.7
2.3	7.30	0.72	14.8	4.29	136.2	53.1
<div>Signature: [Signature]</div> <div>Date: 12/12/16</div>						
Acceptance Criteria	3 samples \pm 0.1 unit	3 samples \pm 10 %	3 samples \pm 10 %	3 samples \pm 10 %	3 samples \pm 10 %	

Sample Date: 12/12/16

Sample Time: 1206 (T-97-13.7)

Weather: clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri-Pump

Sample Appearance: clear

Sampler (print name): Kevin Fugate

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97-15.7

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri-pump

Purge Start Time: 1210

Purge End Time: 1227

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 1.4

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb. (NTU)
1210	—	—	—	—	—	—	—
1217	0.7	7.34	0.69	12.5	0.77	83.4	0.0R
1220	0.9	7.30	0.67	12.8	0.67	15.6	0.0R
1223	1.1	7.31	0.68	12.6	0.51	-4.3	508
1226	1.3	7.31	0.67	12.1	0.29	-16.0	213
12/12/16							
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	

Flow Rate
(ml/min)

200

200

200

200

200

Sample Date: 12/12/16

Sample Time: 1228

Weather: clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri-pump

Sample Appearance: clear

Sampler (print name): Kevin Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97-17.7

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri-pump

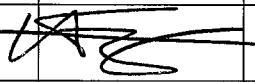
Purge Start Time: 1233

Purge End Time: 1247

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 1.3

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu\text{m/cm}$ to 3 sig. digits)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turbidity (NTU)
1233	-	-	-	-	-	-	-
1238	0.25	7.31	0.70	15.0	1.25	-100.6	916
1241	0.5	7.32	0.71	14.8	0.29	-112.4	149
1244	1.0	7.32	0.71	14.7	0.16	-120.5	49.7
1247	1.3	7.31	0.71	14.9	0.12	-127.3	30.1
							
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	

Flow Rate
(m/min)

~500

~500

~500

~400

~400

Sample Date: 12/12/16

Sample Time: 1248

Weather: clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri-pump

Sample Appearance: clear

Sampler (print name): Kevin Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97-19.7

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Perist-pump

Purge Start Time: 1252

Purge End Time: 1306

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 0.7

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu\text{m}/\text{cm}$ to 3 sig. digits)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb (NTU)	Flow Rate (ml/min)
1252	—	—	—	—	—	—	—	—
1256	0.25	7.32	0.79	11.8	0.71	-40.7	30.1	300
1259	0.4	7.28	0.86	12.2	0.31	-61.7	479	300
1302	0.5	7.28	0.87	11.9	0.20	-80.6	68.9	300
1305	0.6	7.28	0.87	11.6	0.19	-87.5	40.7	300
Signature <u>12/12/16</u>								
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$		

Sample Date: 12/12/16

Sample Time: 1307

Weather: clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Perist-pump

Sample Appearance: clear

Sampler (print name): Kevin Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97-21.7

Purge Date: 12/12/15

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri - Pump

Purge Start Time: 1211

Purge End Time: 1326

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 0.6

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb (NTU)	Flow Rate (ml/min)
1311	—	—	—	—	—	—	—	—
1316	0.3	7.23	1.08	13.0	0.80	-144.2	777	~300
1319	0.4	7.23	1.13	13.4	0.36	-149.3	185	~300
1322	0.5	7.23	1.14	13.5	0.20	-157.3	68.3	~300
1325	0.6	7.24	1.14	13.5	0.16	-184.3	39.2	~300
Signature <u>12/12/16</u>								
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$		

Sample Date: 12/12/16

Sample Time: 1327

Weather: clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri - Pump

Sample Appearance: clear

Sampler (print name): Kevin Fugun

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97-23.7

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri pump

Purge Start Time: 1331

Purge End Time: 1345

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: ~0.7 gal

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turbidity (NTU)	Flow Rate (l/min)
1331	—	—	—	—	—	—	—	—
1336	0.25	7.24	1.37	12.4	0.30	-180.1	0.0R	~ 350
1339	0.4	7.22	1.48	13.6	0.14	-219.2	632	~ 350
1342	0.5	7.23	1.52	13.4	0.10	-237.4	96.5	~ 350
1345	0.7	7.23	1.53	13.2	0.10	-239.4	43.3	~ 350
12/12/16								
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$		

Sample Date: 12/12/16

Sample Time: 1345

Weather: Clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri - pump

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97-25.7

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri-pump

Purge Start Time: 1350

Purge End Time: 1402

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: ~ 0.7

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb. (NTU)
1350	—	—	—	—	—	—
1356 ~ 0.3	7.20	2.22	13.5	1.77	-117.2	184
1359 ~ 0.5	7.22	2.28	12.8	0.41	-128.0	35.7
1402 ~ 0.7	7.21	2.28	13.1	0.19	-134.5	9.27
12/12/16						
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	

Flow Rate

~ 350

~ 350

~ 350

~ 350

Sample Date: 12/12/16

Sample Time: 1403

Weather: _____

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri-pump

Sample Appearance: _____

Sampler (print name): Kevin Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-97-27.7

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri - Pump

Purge Start Time: 1407

Purge End Time: 1419

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: ~1.0 gal.

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb. (NTU)
1407	—	—	—	—	—	—
1412	~0.3	7.18	3.24	15.0	0.09	56.5
1415	~0.6	7.18	3.31	15.2	0.05	40.3
1418	~0.9	7.18	3.32	15.2	0.03	35.1
12/12/16						
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	

Flow Rate
(ml/min)

~400

~400

~400

Sample Date: 12/12/16

Sample Time: 1420

Weather: Clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri - Pump

Sample Appearance: clear

Sampler (print name): Kevin Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-51-9.1

Purge Date: 12/12/15

Depth to Water (± 0.1 ft.): 11.6 (measured in well)

Well Depth (± 0.1 ft.): 21.80 (measured in well)

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Perc - pump

Purge Start Time: 1520

Purge End Time: 1535

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: ~2.0 gal

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb. (NTU)
1520	—	—	—	—	—	—	—
1525	0.6	7.53	1.12	15.8	7.16	104.3	284
1528	1.0	7.52	0.78	16.1	6.71	140.9	53.6
1531	1.4	7.51	0.74	15.9	6.74	142.2	31.5
1534	1.8	7.51	0.74	16.1	6.71	140.8	—
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	

Flow Rate (m/h)

500
500
500
500

Sample Date: 12/12/15

Sample Time: 1536

Weather: Clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Perc - Pump

Sample Appearance: Clear

Sampler (print name): Kevin Fagan

Date: 12/12/15

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-51-11.1

Purge Date: 12/12/15

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri-pump

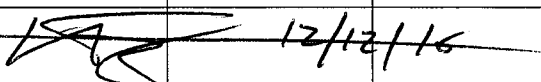
Purge Start Time: 1542

Purge End Time: 1553

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 1.5

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turbidity (NTU)	Flow Rate (ml/min)
1542	—	—	—	—	—	—	—	500
1547	0.5	7.51	0.74	14.8	5.59	151.1	—	500
1548	0.7	7.48	0.77	15.7	6.05	132.5	718	500
1551	1.25	7.48	0.77	15.7	6.12	131.9	174	500
1553	1.4	7.48	0.77	15.7	6.10	128.5	103	500
	 12/12/16							
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$		

Sample Date: 12/12/16

Sample Time: 1554

Weather: clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri-pump

Sample Appearance: clear

Sampler (print name): Kevin Fager

Date: 12/12/15

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-51-13.1

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri-Pump

Purge Start Time: 1558

Purge End Time: 1510

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 1.5

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb. (NTU)
1558	—	—	—	—	—	—
1603	1.0	0.81	16.6	1.94	55.8	00R
1606	1.25	0.81	16.7	1.75	56.7	486
1609	1.5	0.81	16.8	1.62	55.6	206
12/12/16						
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	

Flow Rate
(ml/min)

500

500

500

500

Sample Date: 12/12/16

Sample Time: 1511

Weather: Clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri-Pump

Sample Appearance: clear

Sampler (print name): Kerlin Fugman

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-51-15.1

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri-pump

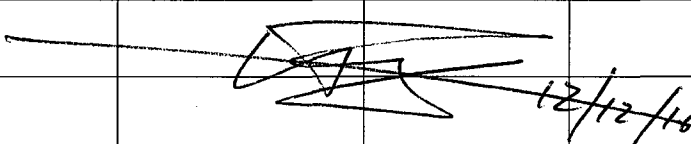
Purge Start Time: 1515

Purge End Time: 1527

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 1.8 gal

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ m/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turbidity (NTU)	Flow Rate (ml/min)
1515	—	—	—	—	—	—	—	500
1620	—	7.23	0.84	17.1	0.25	0.7	—	500
1623	1.0	7.23	0.85	17.0	0.24	-4.8	81.3	500
1626	1.7	7.22	0.85	16.9	0.23	-44.5	—	500
								
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$		

Sample Date: 12/12/16

Sample Time: 1528

Weather: clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri-pump

Sample Appearance: clear

Sampler (print name): Idemir Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-51-17.1

Purge Date: 12/12/15

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri - Pump

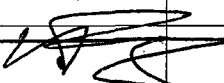
Purge Start Time: 1631

Purge End Time: 1644

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: 0.9

FIELD PARAMETER LOG

	Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu S/cm$ to 3 sig. digits)	Temperature ($^{\circ}C \pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turb. (NTU)
1631	—	—	—	—	—	—	—
1635	—	7.25	0.89	16.3	0.96	-93.9	59.7
1638	0.5	7.24	0.89	16.1	0.18	-102.5	22.7
1641	0.7	7.24	0.89	15.7	0.11	-117.9	14.3
1644	0.9	7.25	0.89	15.5	0.16	-129.9	
 12/12/15							
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	

Flow Rate
(ml/min)
500

500

500

500

500

Sample Date: 12/12/15

Sample Time: 1645

Weather: Clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Clear H Peri - Pump

Sample Appearance: Clear

Sampler (print name): Kevin Fugan

Date: 12/12/15

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-51-19.1

Purge Date: 12/12/16

Depth to Water (± 0.1 ft.): N/A

Well Depth (± 0.1 ft.): N/A

Water Column (± 0.1 ft.): N/A

Casing Volume (± 0.1 gal.): N/A

Purge Method (pump & type, bailer & type, etc.): Peri-pump

Purge Start Time: 1650

Purge End Time: 1701

(Note: Sample must be collected within 24 hours of purge time)

Volume Purged: ~ 1.1 gal.

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity (μ S/cm to 3 sig. digits)	Temperature ($^{\circ}$ C $\pm 0.1^{\circ}$)	Dissolved Oxygen (DO) (mg/l ± 0.1)	Oxidation/Reduction Potential (ORP) (mV ± 1)	Turbidity (NTU)
1650	—	—	—	—	—	—
1655	0.5	7.22	1.04	16.4	0.03	-201.5
1658	0.75	7.21	1.04	16.2	0.02	-221.7
1701	1.01	7.21	1.05	16.1	0.02	-218.5
Signature						
12/12/16						
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	3 samples $\pm 10\%$	

Flow Rate
(ml/min)

600

600

600

600

Sample Date: 12/12/16

Sample Time: 1702

Weather: Clear, 50's

Sample Method (bailer (type), pump (type), scoop (type), etc.):

Peri-pump

Sample Appearance: clear

Sampler (print name): Kevin Fagan

Date: 12/12/16

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-7.1 + DUP

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0903

Purge End Time: 0918 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.40

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units \pm)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
500	0909	7.1	730	14.8	2.06	154.1	OOR
500	0911	7.2	740	14.5	2.05	102.8	344
500	0913	7.2	740	15.0	1.91	79.1	127
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	1 sample <10 NTU

Sample Date: 12/13/2016

Sample Time: 0918

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-59-7.1 + DUP

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form DK

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) DK

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) DK

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ DK

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed DK

Field Parameter Form completed per EPM-SAP-111 DK

Used filters collected and bagged for HP screening DK

All equipment decontaminated per EPM-SAP-107 DK

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-9.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0920

Purge End Time: 0930 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.2

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
400	0925	7.0	1370	15.2	0.17	28.6	81.6
600	0927	7.0	1380	15.4	0.13	18.8	11.6
600	0929	7.0	1380	15.4	0.15	13.1	9.61
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	1 sample <10 NTU

Sample Date: 12/13/2016

Sample Time: 0930

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-59-9.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-11.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0933

Purge End Time: 0943 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
400	0937	7.1	1270	14.0	2.18	33.8	160
400	0939	7.1	1270	14.5	0.58	30.4	26.6
400	0943	7.0	1290	13.9	0.31	25.3	
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 0943

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-59-11.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-13.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0948

Purge End Time: 1005 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
60	0957	7.0	1390	6.9	1.70	-25.7	41.7
40	1001	7.0	1400	6.9	1.12	-66.9	26.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1005

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-59-13.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-15.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1010

Purge End Time: 1025 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
200	1016	6.9	1720	11.2	1.12	-30.2	41.7
400	1022	6.8	1750	10.2	0.43	-24.4	26.6
400	1025	6.9	1740	10.8	0.38	-29.9	
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1025

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-59-15.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-17.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1033

Purge End Time: 1039 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.10

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
400	1032	7.0	1800	13.5	1.12	2.6	42.1
400	1035	7.0	1940	13.7	0.36	-17.5	26.6
400	1039	6.9	1870	10.8	0.38	-29.9	
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1039

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-59-17.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-19.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1045

Purge End Time: 1053 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.00

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
400	1048	7.0	2390	14.6	1.00	-59.8	92.6
400	1050	7.0	2400	14.7	0.32	-65.0	28.6
400	1053	7.0	2410	14.2	0.17	-63.7	
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: 1053

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-59-19.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-21.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1058

Purge End Time: 1108 *(Note: Sample must be collected within 24 hours of purge time)*

Volume Purged: 1.00

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
<50							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: N/A

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-59-21.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) KF

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed N/A

Field Parameter Form completed per EPM-SAP-111 N/A

Used filters collected and bagged for HP screening N/A

All equipment decontaminated per EPM-SAP-107 N/A

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-23.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1100

Purge End Time: 1117 (Note: Sample must be collected within 24 hours of purge time)

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: N/A

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-59-23.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) KF

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed N/A

Field Parameter Form completed per EPM-SAP-111 N/A

Used filters collected and bagged for HP screening N/A

All equipment decontaminated per EPM-SAP-107 N/A

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-25.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1119

Purge End Time: 1117 (Note: Sample must be collected within 24 hours of purge time)

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: N/A

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-59-23.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) KF

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed N/A

Field Parameter Form completed per EPM-SAP-111 N/A

Used filters collected and bagged for HP screening N/A

All equipment decontaminated per EPM-SAP-107 N/A

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59-27.1

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1119

Purge End Time: 1140 (Note: Sample must be collected within 24 hours of purge time)

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/kg)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/13/2016

Sample Time: N/A

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/13/2016

Sample Location ID: T-59-27.1

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) KF

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed N/A

Field Parameter Form completed per EPM-SAP-111 N/A

Used filters collected and bagged for HP screening N/A

All equipment decontaminated per EPM-SAP-107 N/A

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: T-59

Purge Date: 12/13/2016

Depth to Water ($\pm 0.1\text{ft.}$): 9.17

Well Depth ($\pm 0.1\text{ft.}$): 29.13

Water Column ($\pm 0.1\text{ft.}$): 19.96

Casing Volume ($\pm 0.1\text{gal.}$): 3.25

Purge Method (*pump & type, bailer & type, etc.*): Grundfos

Purge Start Time: 0825

Purge End Time: 0830 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 13.00

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Purge Volume (<i>gallons</i>)	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
	3.25	7.1	2530	15.6		
	6.50	7.2	2230	16.0		
	9.75	7.1	2220	16.1		
	13.00	7.1	2220	16.8		
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	1 sample <10 NTU

Sample Date: 12/13/2016

Sample Time: 0830

Weather: Cold and windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Grundfos

Sample Appearance: Clear

Sampler (*print name*): Dane Kaylor

Date: 12/13/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/13/2016

Sample Location ID: T-59

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	DK
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	DK
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	DK
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	DK
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	DK
---	----

Field Parameter Form completed per EPM-SAP-111	DK
--	----

Used filters collected and bagged for HP screening	DK
--	----

All equipment decontaminated per EPM-SAP-107	DK
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W32-11.0

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.50

Well Depth ($\pm 0.1\text{ft.}$): 23.55

Water Column ($\pm 0.1\text{ft.}$): 11.05

Casing Volume ($\pm 0.1\text{gal.}$): 1.80

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0823

Purge End Time: 0830 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.80

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	0826	6.9	1460	14.3	1.34	28.0	64.4
600	0828	7.0	1480	14.2	0.68	-20.8	14.2
600	0830	7.0	1480	14.6	0.47	-28.3	12.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 0830

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W32-11.0

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W32-13.0 + DUP

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.50

Well Depth ($\pm 0.1\text{ft.}$): 23.55

Water Column ($\pm 0.1\text{ft.}$): 11.05

Casing Volume ($\pm 0.1\text{gal.}$): 1.80

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0835

Purge End Time: 0842 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.80

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	0837	7.1	1360	15.3	0.46	-38.5	133
600	0839	7.1	1300	15.7	0.29	-49.0	47.6
600	0842	7.1	1270	15.5	0.19	-53.7	15.9
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 0842

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W32-13.0 + DUP

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	KF
--	----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W32-15.0

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.50

Well Depth ($\pm 0.1\text{ft.}$): 23.55

Water Column ($\pm 0.1\text{ft.}$): 11.05

Casing Volume ($\pm 0.1\text{gal.}$): 1.80

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0844

Purge End Time: 0852 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
600	0847	7.1	1010	15.3	0.18	-85.8	OOR
600	0849	7.1	1000	15.5	0.15	-94.0	449
600	0852	7.1	980	15.4	0.12	-90.3	15.9
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 0852

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W32-15.0

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W32-17.0

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.50

Well Depth ($\pm 0.1\text{ft.}$): 23.55

Water Column ($\pm 0.1\text{ft.}$): 11.05

Casing Volume ($\pm 0.1\text{gal.}$): 1.80

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0855

Purge End Time: 0902 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	0858	7.0	950	15.6	1.49	97.8	277
600	0900	7.0	950	15.7	1.13	-96.4	75.9
600	0902	7.1	980	15.4	0.12	-90.3	15.9
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 0902

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W32-17.0

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W32-19.0

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.50

Well Depth ($\pm 0.1\text{ft.}$): 23.55

Water Column ($\pm 0.1\text{ft.}$): 11.05

Casing Volume ($\pm 0.1\text{gal.}$): 1.80

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 0905

Purge End Time: 0910 *(Note: Sample must be collected within 24 hours of purge time)*

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: N/A

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W32-19.0

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) N/A

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed KF

Field Parameter Form completed per EPM-SAP-111 KF

Used filters collected and bagged for HP screening KF

All equipment decontaminated per EPM-SAP-107 KF

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W32

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.50

Well Depth ($\pm 0.1\text{ft.}$): 23.55

Water Column ($\pm 0.1\text{ft.}$): 11.05

Casing Volume ($\pm 0.1\text{gal.}$): 1.80

Purge Method (*pump & type, bailer & type, etc.*): Grundfos

Purge Start Time: 0745

Purge End Time: 0750 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 5.40

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu\text{m/cm}$ to 3 sig. digits)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)
1.80	7.3	1009	15.7
3.60	7.4	1045	15.9
5.40	7.4	1050	16.8
<i>Acceptance Criteria</i>	<i>3 samples ± 0.1 unit</i>	<i>3 samples $\pm 10\%$</i>	<i>3 samples $\pm 10\%$</i>

Sample Date: 12/15/2016

Sample Time: 0750

Weather: Cold and Clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Grundfos

Sample Appearance: Clear

Sampler (*print name*): Dane Kaylor

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W32

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form

DK

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)

DK

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)

DK

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃

DK

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)

N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed

DK

Field Parameter Form completed per EPM-SAP-111

DK

Used filters collected and bagged for HP screening

DK

All equipment decontaminated per EPM-SAP-107

DK

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-10.5

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1000

Purge End Time: 1008 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1002	7.0	1260	13.5	1.37	-18.3	233
500	1004	7.0	1290	13.8	0.85	-22.9	77.5
500	1006	7.0	1290	14.1	0.61	-27.2	42.7
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1008

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W44-10.5

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-12.5

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1009

Purge End Time: 1018 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1012	7.0	1290	14.5	0.39	-67.0	340
600	1014	7.0	1320	15.1	0.25	-76.9	57.1
600	1016	7.0	1340	15.2	0.21	-86.2	33.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1018

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W44-12.5

Checklist Item	Sampler Initials
-----------------------	-------------------------

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples property labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-14.5

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1019

Purge End Time: 1024 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1020	7.0	1280	15.0	0.30	-30.0	386
500	1022	7.0	1290	15.3	0.19	-23.8	91.3
500	1024	7.0	1280	15.4	0.17	-16.2	38.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1024

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W44-14.5

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples property labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-16.5

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1026

Purge End Time: 1032 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1028	7.0	1300	15.3	0.30	-40.2	477
500	1030	7.0	1320	15.6	0.12	-33.3	130
500	1024	7.0	1320	15.5	0.10	-38.4	55.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1032

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/15/2016

Sample Location ID: 02W44-16.5

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-18.5

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1034

Purge End Time: 1040 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1036	7.0	1330	15.5	0.51	17.2	257
500	1038	7.0	1370	15.9	0.14	29.5	29.9
500	1040	7.0	1370	16.0	0.12	34.7	22.4
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1040

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/15/2016

Sample Location ID: 02W44-18.5

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-20.5

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1041

Purge End Time: 1050 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
180	1046	7.1	1130	13.5	0.81	-55.3	554
180	1048	7.1	1120	12.9	0.80	-74.2	23.3
180	1050	7.1	1090	12.8	0.73	-82.4	14.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1050

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/15/2016

Sample Location ID: 02W44-20.5

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-22.5 + DUP

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1056

Purge End Time: 1102 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1058	7.1	1080	15.5	0.42	-66.1	190
600	1100	7.1	1120	16.0	0.17	-67.1	81.8
600	1102	7.0	1130	15.8	0.15	-69.4	39.1
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1102

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W44-22.5 + DUP

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	KF
--	----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-24.5

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1107

Purge End Time: 1115 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.40

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
200	1111	7.2	1630	12.6	0.52	-98.3	297
200	1113	7.1	1670	12.4	0.31	-121.0	233
200	1115	7.1	1680	12.2	0.28	-120.0	72.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1115

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/15/2016

Sample Location ID: 02W44-24.5

Checklist Item	Sampler Initials
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Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44-25.5
Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Purge Date: 12/15/2016
Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1120

Purge End Time: 1122 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: N/A

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 02W44-25.5

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	N/A
--	-----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	N/A
--	-----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	N/A
---	-----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 02W44

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.00

Well Depth ($\pm 0.1\text{ft.}$): 28.98

Water Column ($\pm 0.1\text{ft.}$): 16.98

Casing Volume ($\pm 0.1\text{gal.}$): 2.75

Purge Method (*pump & type, bailer & type, etc.*): Grundfos

Purge Start Time: 0925

Purge End Time: 0930 *(Note: Sample must be collected within 24 hours of purge time)*

Volume Purged: 5.40

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu\text{m/cm}$ to 3 sig. digits)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)
2.75	7.3	1215	15.8
5.50	7.2	1206	15.9
8.25	7.2	1210	16.0
<i>Acceptance Criteria</i>	<i>3 samples ± 0.1 unit</i>	<i>3 samples $\pm 10\%$</i>	<i>3 samples $\pm 10\%$</i>

Sample Date: 12/15/2016

Sample Time: 0930

Weather: Cold and Clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Grundfos

Sample Appearance: Clear

Sampler (*print name*): Dane Kaylor

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/15/2016

Sample Location ID: 02W44

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form

DK

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)

DK

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)

DK

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃

DK

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)

N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed

DK

Field Parameter Form completed per EPM-SAP-111

DK

Used filters collected and bagged for HP screening

DK

All equipment decontaminated per EPM-SAP-107

DK

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: TMW-24-10.7

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1300

Purge End Time: 1306 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.70

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1302	7.0	1470	15.3	0.92	-75.3	569
600	1304	7.0	1460	15.6	0.71	-63.4	175
600	1306	7.0	1450	15.7	0.57	-54.1	77.7
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1306

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/15/2016

Sample Location ID: TMW-24-10.7

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: TMW-24-12.7

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1310

Purge End Time: 1316 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1312	7.0	1350	15.4	1.06	-55.4	795
500	1314	7.1	1300	16.2	0.75	-72.4	357
600	1316	7.0	1310	16.0	0.69	-73.7	180
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1316

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/15/2016

Sample Location ID: TMW-24-12.7

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: TMW-24-14.7

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1318

Purge End Time: 1326 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
600	1322	7.1	1270	15.8	0.35	-91.7	912
600	1324	7.1	1260	16.3	0.15	-104.1	230
600	1326	7.0	1260	16.5	0.11	-104.0	87.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1326

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: TMW-24-14.7

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: TMW-24-16.7

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1328

Purge End Time: 1336 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.75

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
400	1330	7.2	1120	15.8	0.23	-118.0	150
400	1332	7.2	1090	15.7	0.15	-119.4	82.3
400	1334	7.2	1090	15.6	0.15	-119.5	35.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1336

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: TMW-24-16.7

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: TMW-24-18.7

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1337

Purge End Time: 1340 (Note: Sample must be collected within 24 hours of purge time)

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: N/A

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: TMW-24-18.7

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) N/A

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed KF

Field Parameter Form completed per EPM-SAP-111 KF

Used filters collected and bagged for HP screening KF

All equipment decontaminated per EPM-SAP-107 KF

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: TMW-24-20.7

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1337

Purge End Time: 1340 (Note: Sample must be collected within 24 hours of purge time)

Volume Purged: N/A

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
NO FLOW							
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: N/A

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: TMW-24-20.7

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form KF

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP) N/A

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP) KF

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃ N/A

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1) N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed KF

Field Parameter Form completed per EPM-SAP-111 KF

Used filters collected and bagged for HP screening KF

All equipment decontaminated per EPM-SAP-107 KF

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: TMW-24-22.7

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1347

Purge End Time: 1355 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.50

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
400	1349	7.2	1030	13.4	1.26	-117.1	301
400	1352	7.2	1060	14.6	0.53	-109.9	72.5
400	1355	7.1	1070	14.5	0.30	-97.5	15.1
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1355

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: TMW-24-22.7

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: TMW-24-24.7 + DUP

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1357

Purge End Time: 1405 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.60

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
600	1359	7.1	1030	15.4	0.82	-105.0	131
600	1401	7.1	1030	15.3	0.65	-104.2	20.5
600	1403	7.1	1020	15.4	0.47	-99.2	11.6
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1405

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: TMW-24-24.7 + DUP

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	KF
--	----

Post-Sampling

Samples property labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

**CIMARRON ENVIRONMENTAL RESPONSE TRUST
FIELD PARAMETER FORM**

Sample Location: TMW-24

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 12.16

Well Depth ($\pm 0.1\text{ft.}$): 28.75

Water Column ($\pm 0.1\text{ft.}$): 16.59

Casing Volume ($\pm 0.1\text{gal.}$): 2.70

Purge Method (*pump & type, bailer & type, etc.*): Grundfos

Purge Start Time: 1235

Purge End Time: 1240

(Note: Sample must be collected
within 24 hours of purge time)

Volume Purged: 8.10

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu\text{m/cm}$ to 3 sig. digits)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)
2.70	7.4	976	15.4
5.40	7.4	978	16.0
8.10	7.4	973	16.3
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$

Sample Date: 12/15/2016

Sample Time: 1240

Weather: Warm and Windy

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Grundfos

Sample Appearance: Clear

Sampler (*print name*): Dane Kaylor

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: TMW-24

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form

DK

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)

DK

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)

DK

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃

DK

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)

N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed

DK

Field Parameter Form completed per EPM-SAP-111

DK

Used filters collected and bagged for HP screening

DK

All equipment decontaminated per EPM-SAP-107

DK

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-7.4

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1450

Purge End Time: 1500 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.00

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
600	1456	7.1	1260	13.2	1.94	-41.8	16.8
600	1458	7.1	1270	13.4	1.07	-44.7	7.07
600	1500	7.0	1290	13.8	0.39	-51.4	5.32
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1500

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373-7.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-9.4

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1503

Purge End Time: 1510 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.00

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
600	1505	7.2	1060	14.5	0.33	-65.8	41.6
600	1508	7.2	1020	14.5	0.31	-71.2	17.6
600	1510	7.2	1000	14.7	0.23	-74.2	10.5
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1510

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

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Date: 12/15/2016

Sample Location ID: 1373-9.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples property labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-11.4

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1512

Purge End Time: 1520 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.70

FIELD PARAMETER LOG

Flow Rate (<i>ml/min</i>)	Time	pH (<i>std. units ± 0.1</i>)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (<i>mg/L</i>)	ORP (<i>mV</i>)	Turbidity (<i>NTU</i>)
600	1515	7.1	1050	15.1	0.33	-97.4	63.6
600	1517	7.2	1070	15.2	0.26	-104.3	18.8
600	1520	7.1	1070	15.2	0.19	-107.2	13.2
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1520

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373-11.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-13.4

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1523

Purge End Time: 1530 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.80

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1525	7.2	1060	15.5	0.13	-110.3	150
600	1527	7.1	1070	15.4	0.35	-109.8	36.6
600	1530	7.1	1070	15.5	0.32	-110.8	20.3
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1530

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373-13.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-15.4

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1532

Purge End Time: 1536 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1200 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
<100	GRAB // 1536	7.1	1080	14.3	0.23	-111.0	235
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1536

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373-15.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-17.4

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1542

Purge End Time: 1550 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 0.50

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
500	1545	7.2	1090	14.1	0.32	-110.3	64.8
500	1547	7.2	1110	14.4	0.14	-99.6	12.4
500	1550	7.1	1110	14.5	0.14	-100.3	8.71
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1550

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373-17.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-19.4

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1551

Purge End Time: 1554 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 750 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
<100	1554 // GRAB						
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1554

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373-19.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-21.4

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1600

Purge End Time: 1605 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 750 ml

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
<100	1605 // GRAB						
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1605

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373-21.4

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

CIMARRON ENVIRONMENTAL RESPONSE TRUST FIELD PARAMETER FORM

Sample Location: 1373-24.3

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Peristaltic

Purge Start Time: 1615

Purge End Time: 1622 (*Note: Sample must be collected within 24 hours of purge time*)

Volume Purged: 1.00

FIELD PARAMETER LOG

Flow Rate (ml/min)	Time	pH (std. units ± 0.1)	S. Conductivity ($\mu\text{m/cm}$)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
600	1618	7.1	1400	15.2	0.45	-110.6	35.0
600	1620	7.2	1430	15.2	0.26	-110.9	21.0
600	1622	7.1	1450	15.3	0.16	-111.9	14.8
Acceptance Criteria	N/A	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$	N/A	N/A	N/A

Sample Date: 12/15/2016

Sample Time: 1622

Weather: Cold and clear

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Peristaltic

Sample Appearance: Clear

Sampler (*print name*): Kevin Fagan

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373-24.3

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form	KF
---	----

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)	KF
--	----

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)	KF
---	----

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO ₃	KF
--	----

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)	N/A
--	-----

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed	KF
---	----

Field Parameter Form completed per EPM-SAP-111	KF
--	----

Used filters collected and bagged for HP screening	KF
--	----

All equipment decontaminated per EPM-SAP-107	KF
--	----

**CIMARRON ENVIRONMENTAL RESPONSE TRUST
FIELD PARAMETER FORM**

Sample Location: 1373

Purge Date: 12/15/2016

Depth to Water ($\pm 0.1\text{ft.}$): 8.93

Well Depth ($\pm 0.1\text{ft.}$): 27.60

Water Column ($\pm 0.1\text{ft.}$): 18.97

Casing Volume ($\pm 0.1\text{gal.}$): 3.04

Purge Method (*pump & type, bailer & type, etc.*): Grundfos

Purge Start Time: 1415

Purge End Time: 1422

(Note: Sample must be collected
within 24 hours of purge time)

Volume Purged: 9.12

FIELD PARAMETER LOG

Purge Volume (gallons)	pH (std. units ± 0.1)	Specific Conductivity ($\mu\text{m/cm}$ to 3 sig. digits)	Temperature ($^{\circ}\text{C} \pm 0.1^{\circ}$)
3.04	7.4	1517	15.6
6.08	7.4	1545	15.8
9.12	7.3	1559	16.1
Acceptance Criteria	3 samples ± 0.1 unit	3 samples $\pm 10\%$	3 samples $\pm 10\%$

Sample Date: 12/15/2016

Sample Time: 1422

Weather: Cold and overcast

Sample Method (*bailer (type), pump (type), scoop (type), etc.*):

Filtered Grundfos

Sample Appearance: Clear

Sampler (*print name*): Dane Kaylor

Date: 12/15/2016

Note: Use chain of custody form to indicate which sample bottles were filtered and filter size.

CIMARRON ENVIRONMENTAL RESPONSE TRUST GROUNDWATER SAMPLING CHECKLIST

This checklist is provided as a supplement to the Cimarron Environmental Response Trust (CERT) Sampling and Analysis Plan (SAP) to ensure proper data collection and documentation. All field personnel must be familiar with the CERT SAP and the Standard Operating Procedures for sample collection and documentation.

Date: 12/15/2016

Sample Location ID: 1373

Checklist Item

Sampler Initials

Pre-Sampling

Depth to water and total well depth measured and recorded on field parameter form

DK

Well purged a minimum of three (3) well casing volumes (make notation on the field parameter form if deviating from SAP)

DK

Field parameters collected and recorded on field parameter form (make notation if deviating from SAP)

DK

Filtered Samples Collected

Uranium – U235 & U238 by EAP 200.8 – 250 ml plastic bottle preserved with HNO₃

DK

QA/QC samples collected (duplicate samples as indicated on APF Attachment 1)

N/A

Post-Sampling

Samples properly labeled and placed in coolers on ice as needed

DK

Field Parameter Form completed per EPM-SAP-111

DK

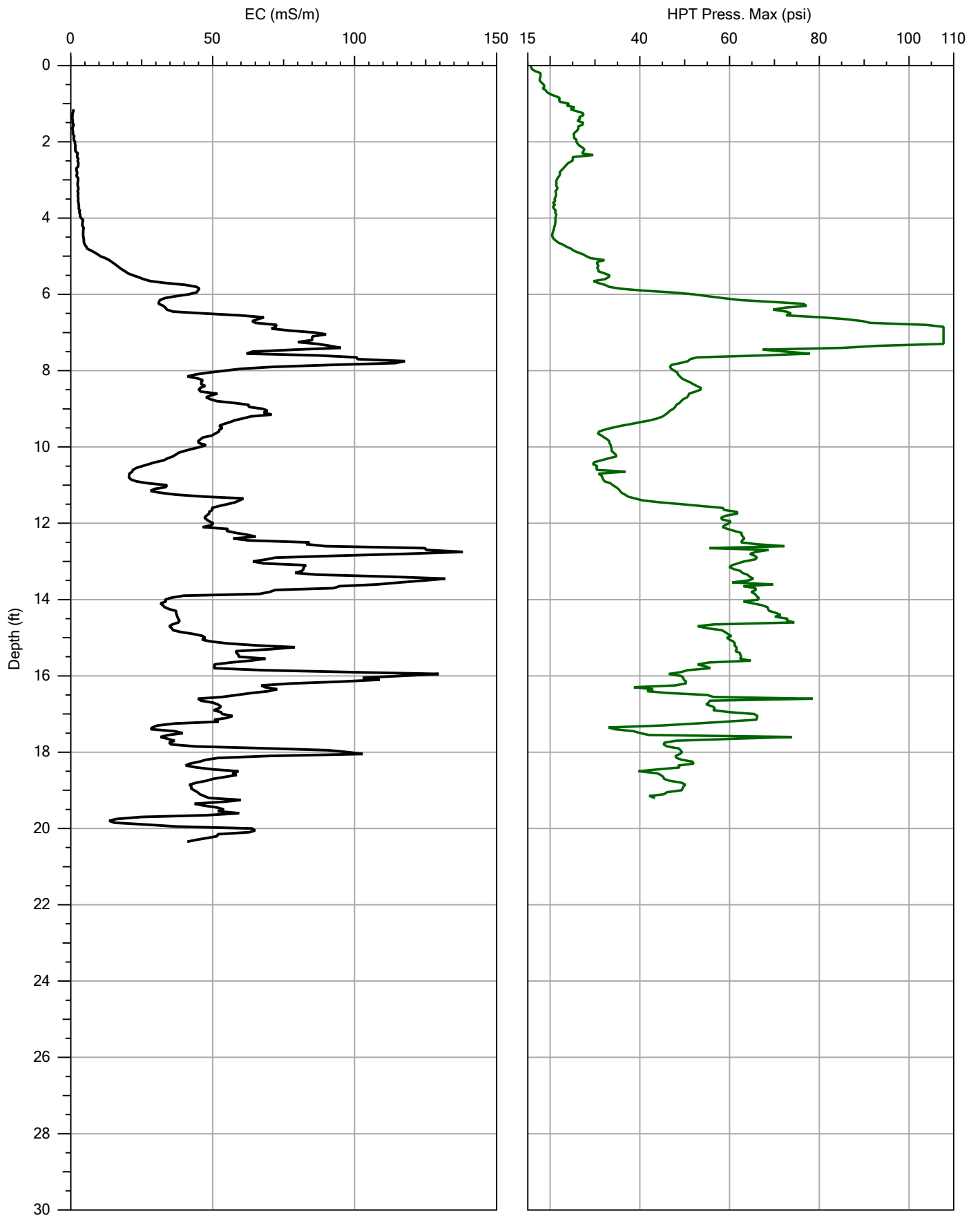
Used filters collected and bagged for HP screening

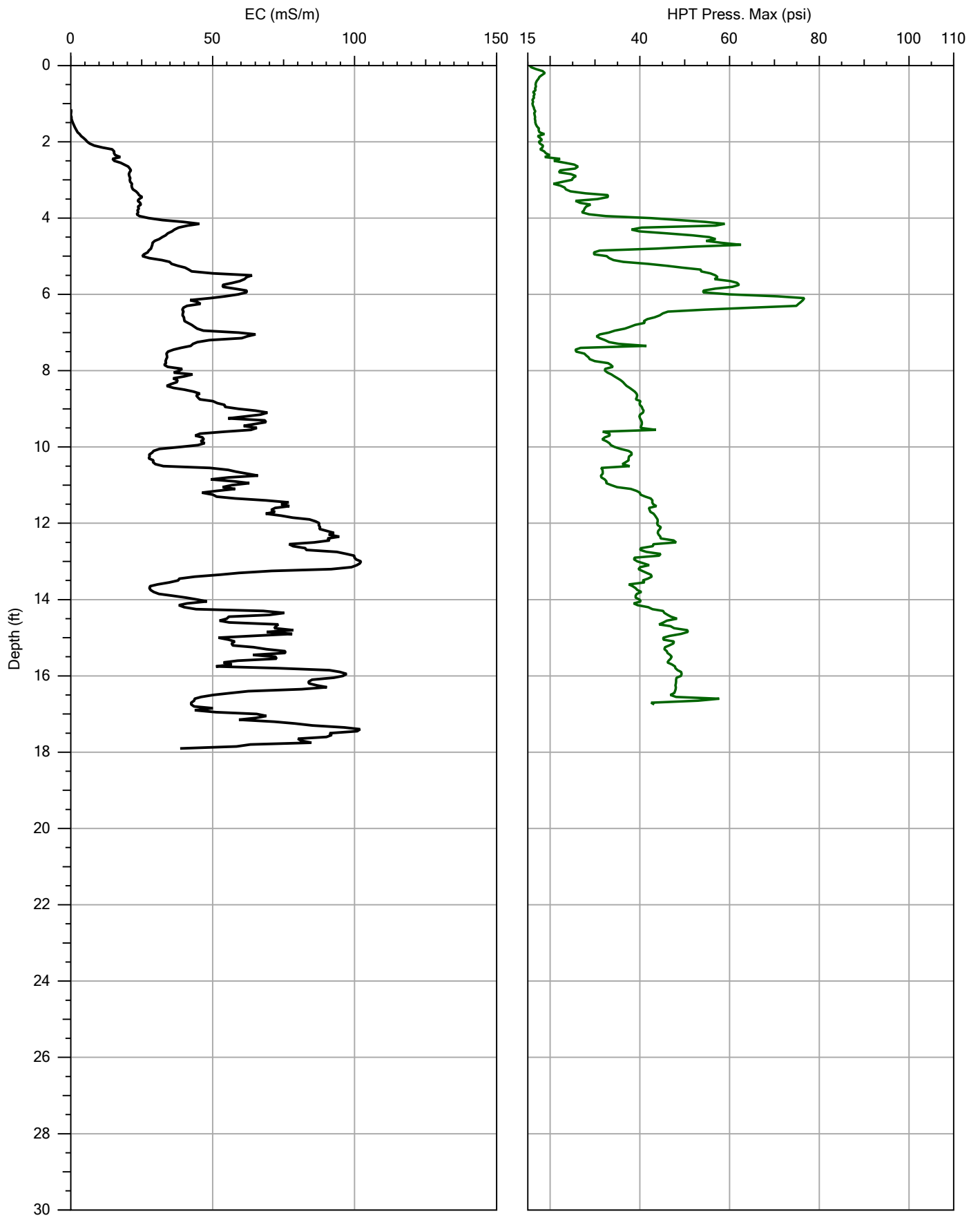
DK

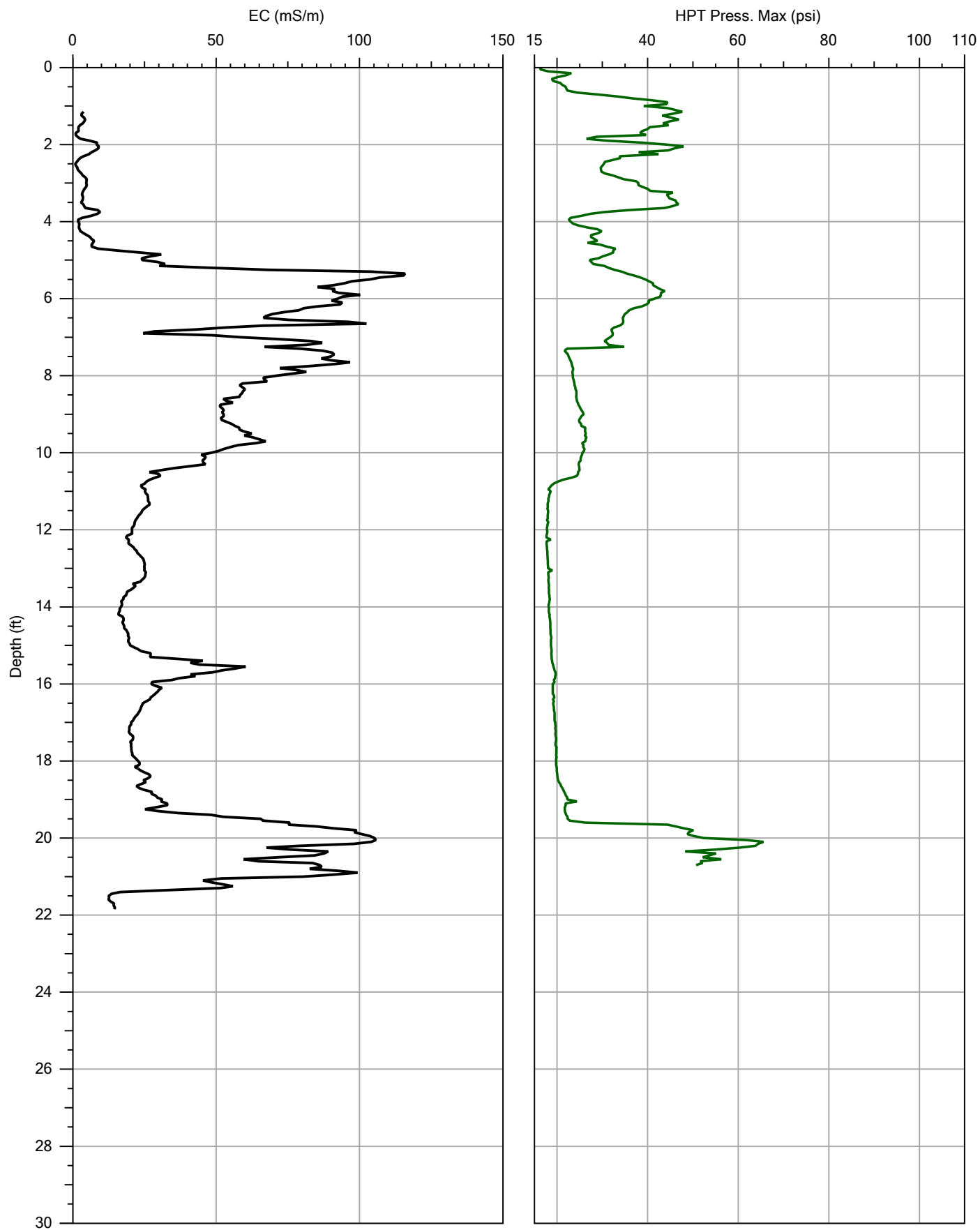
All equipment decontaminated per EPM-SAP-107

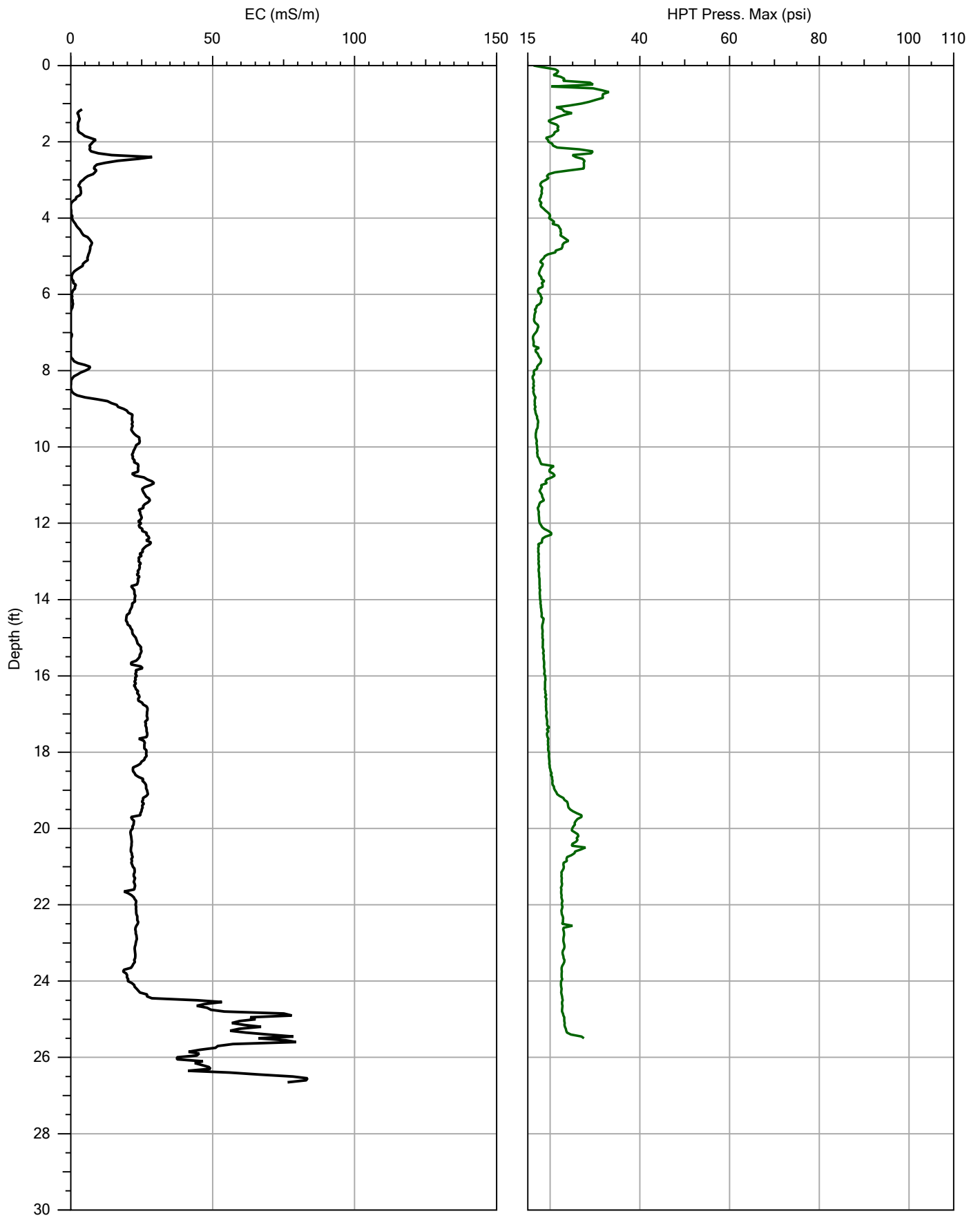
DK

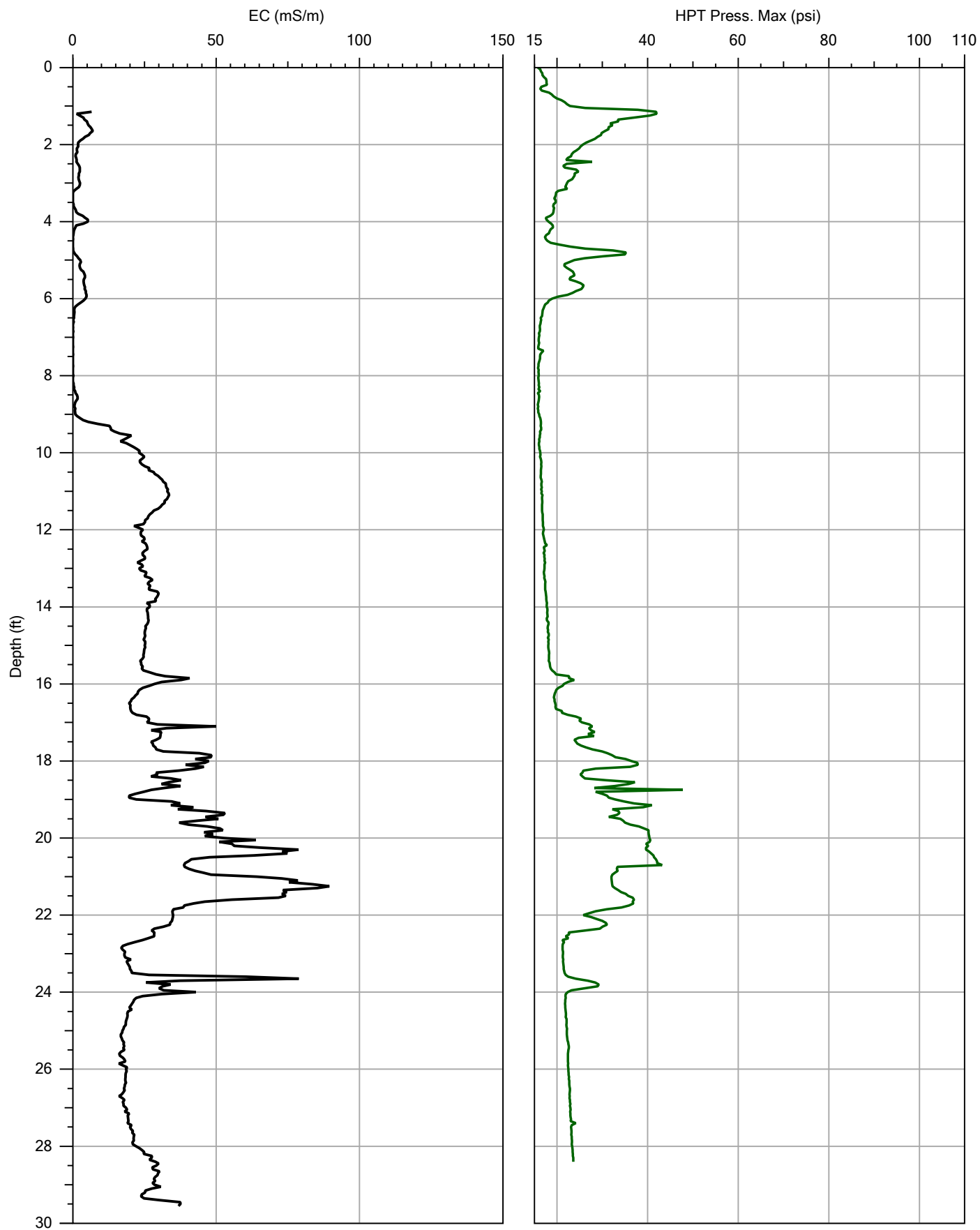
**APPENDIX C – HPT
AND EC LOGS**

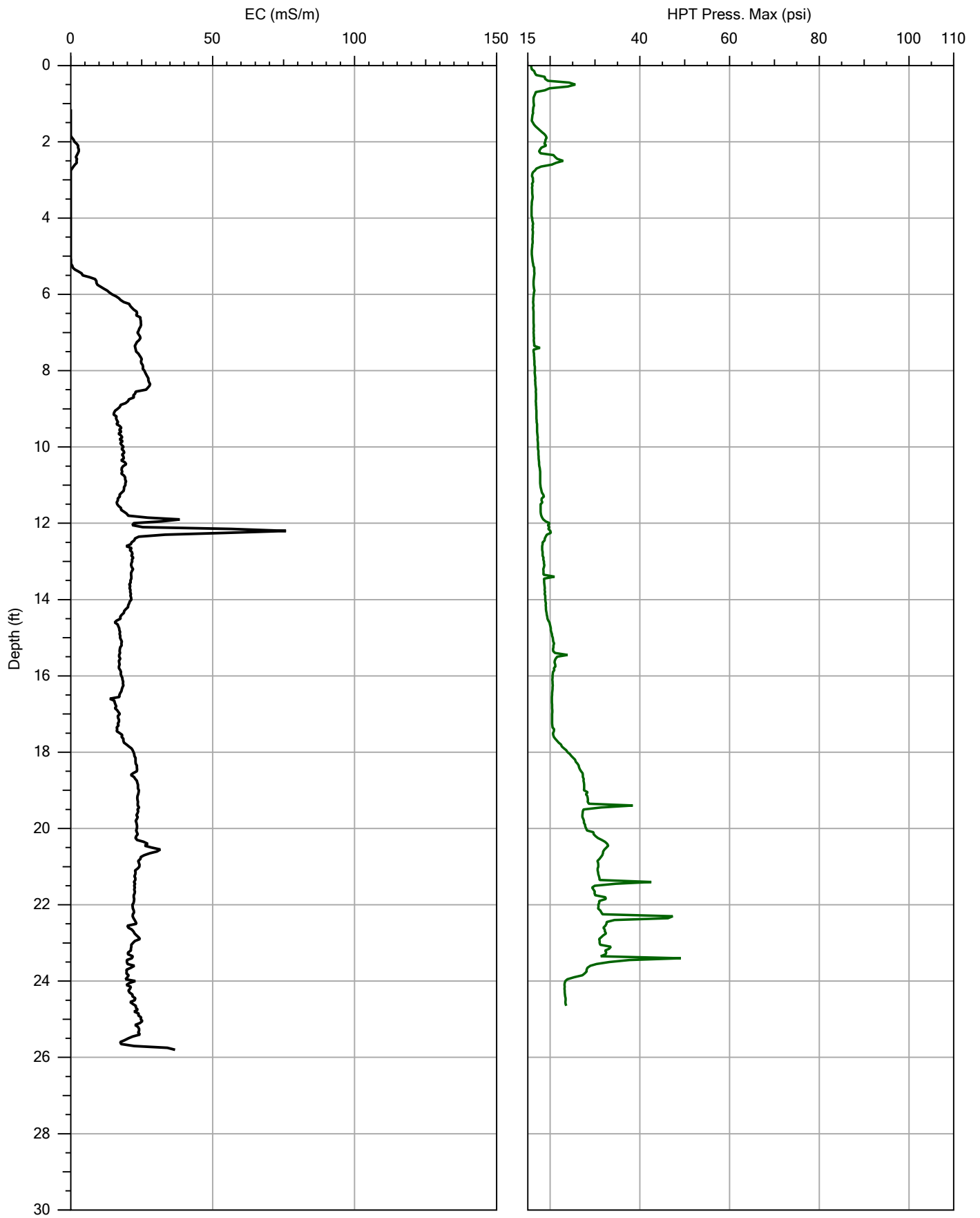


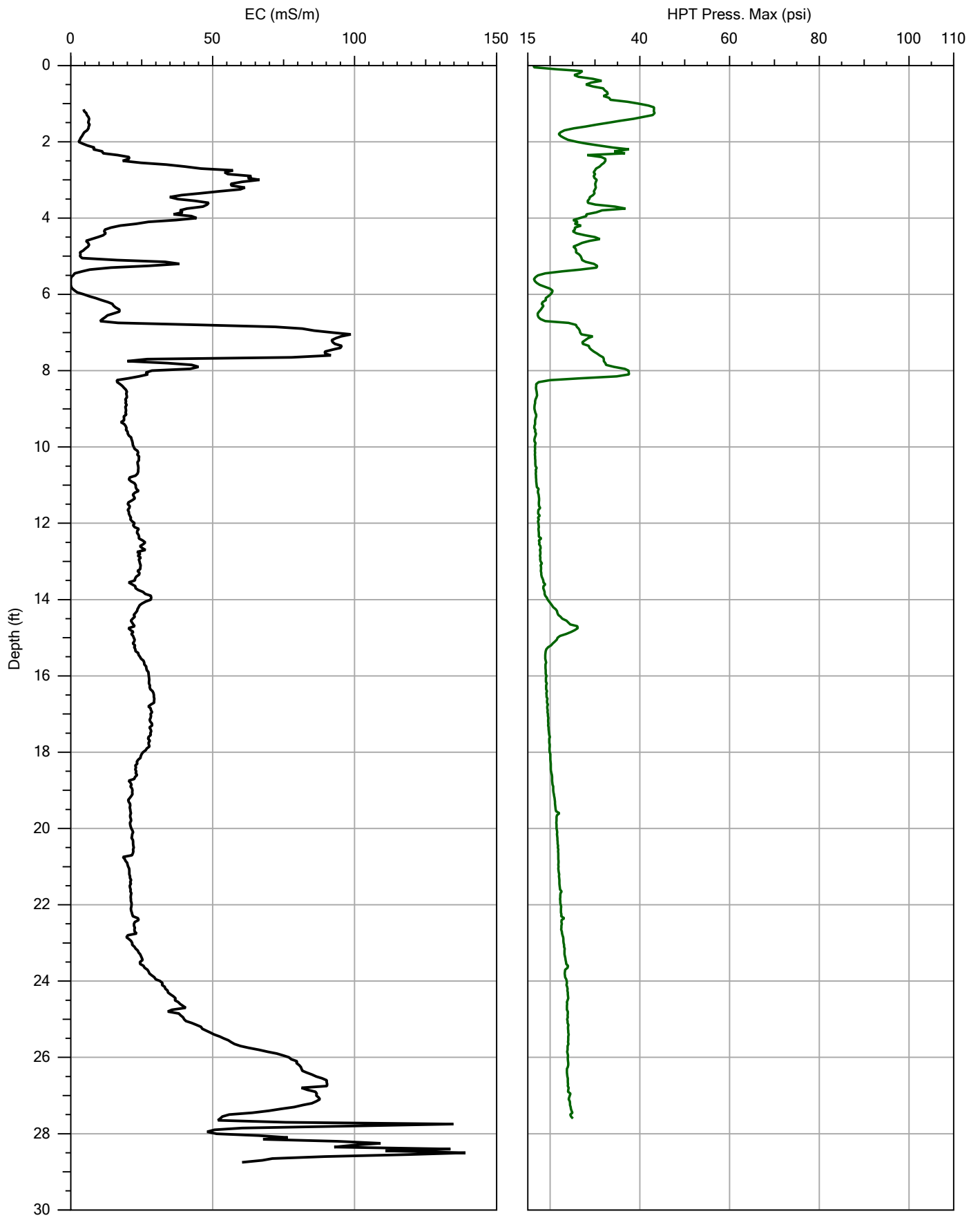


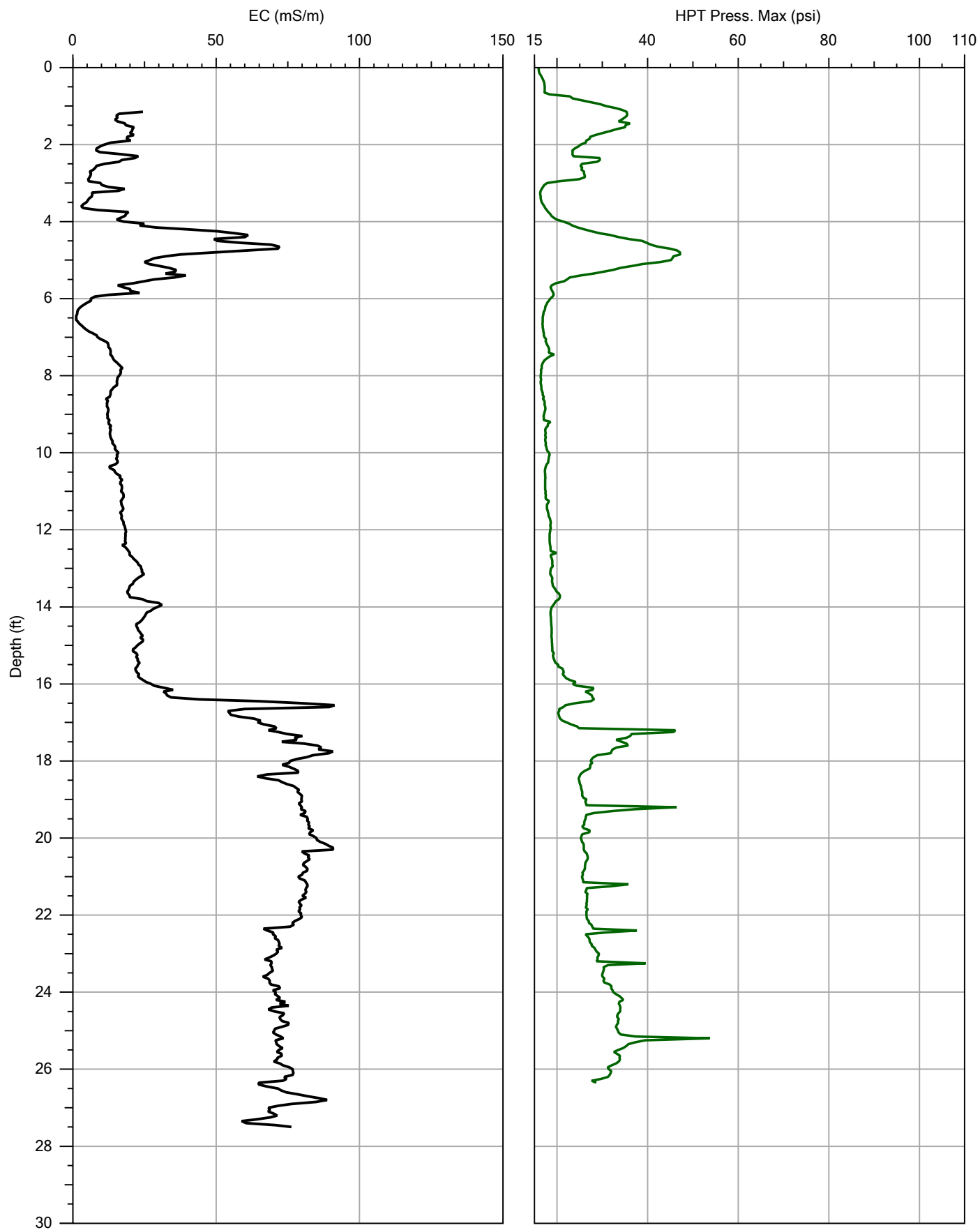


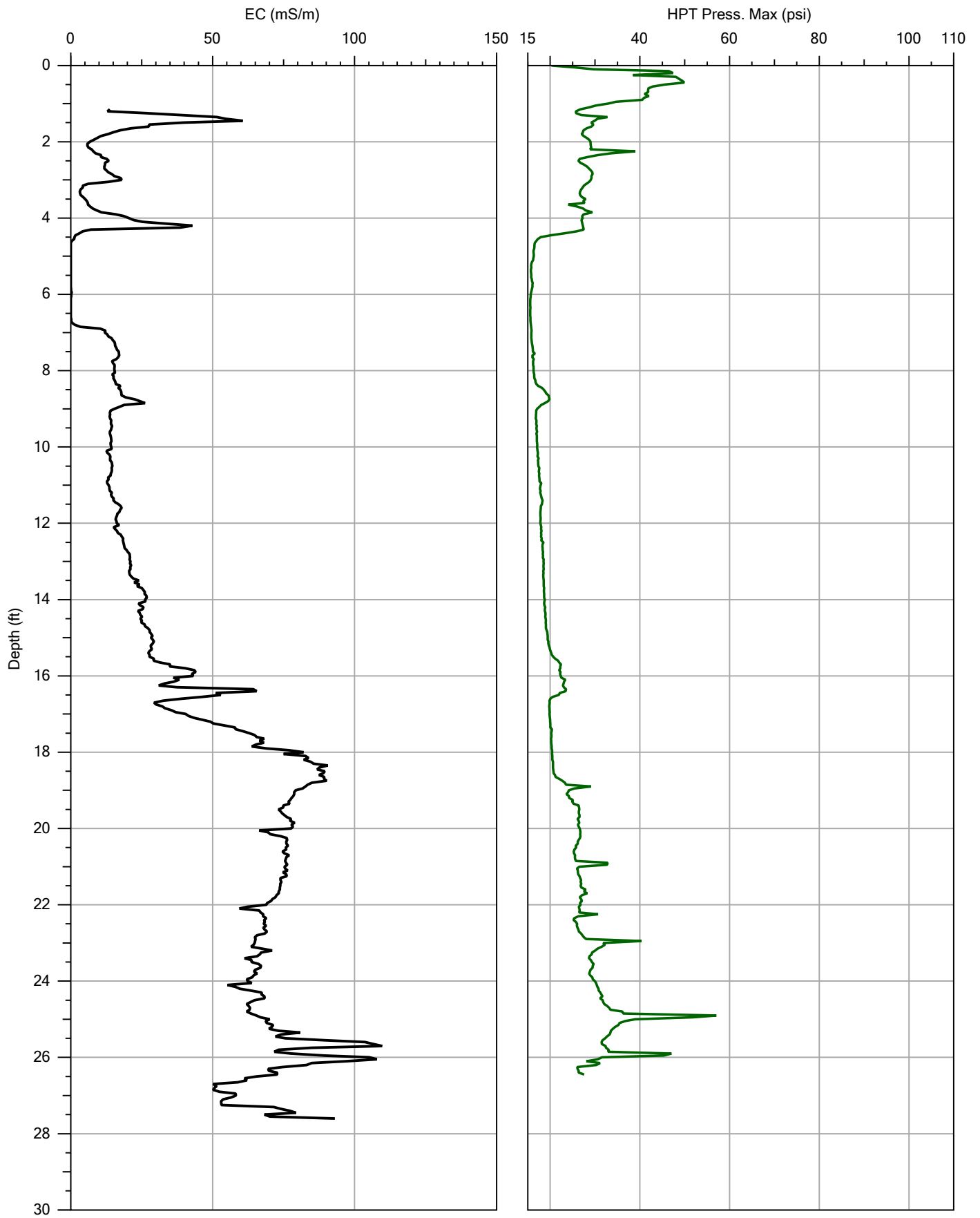


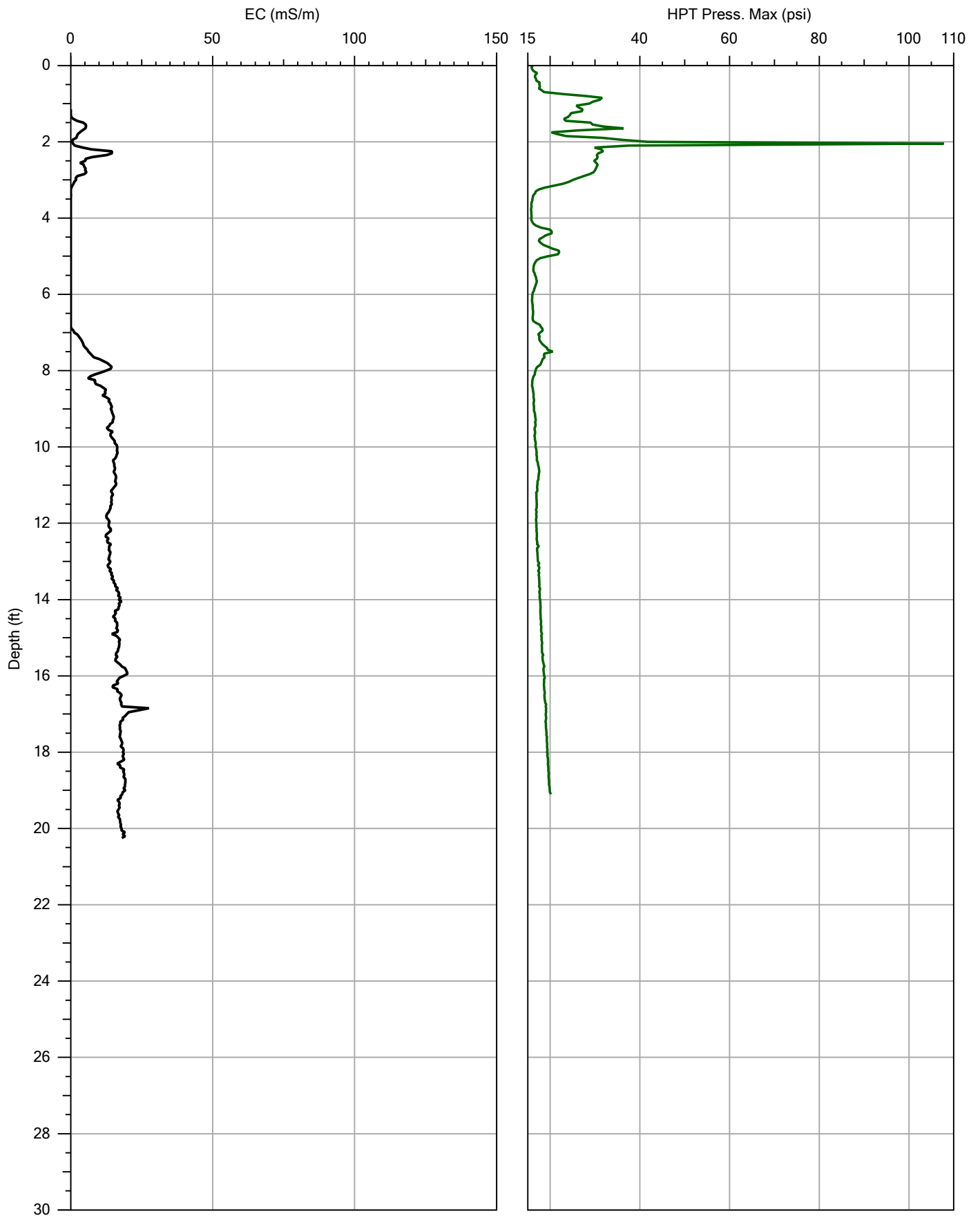


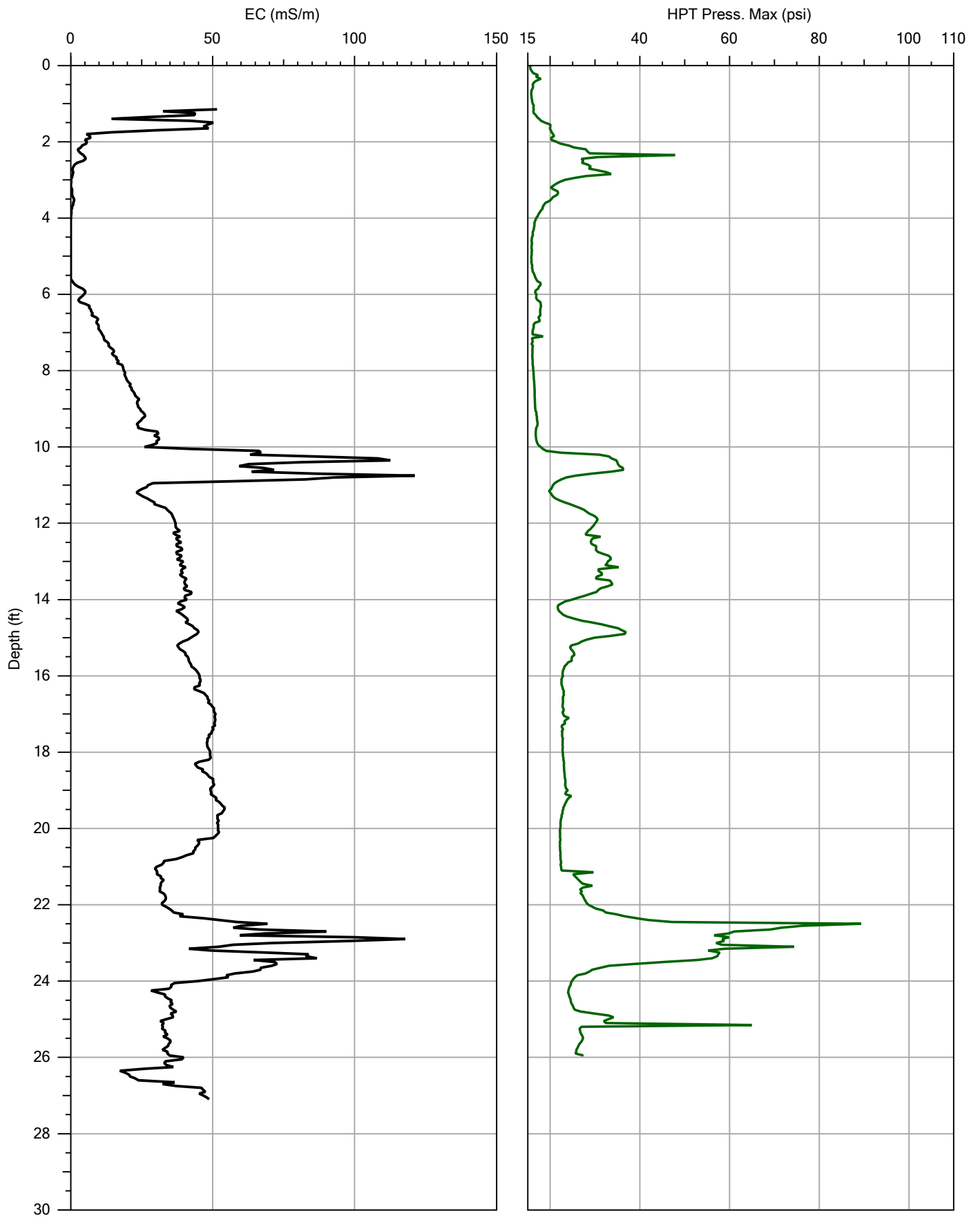


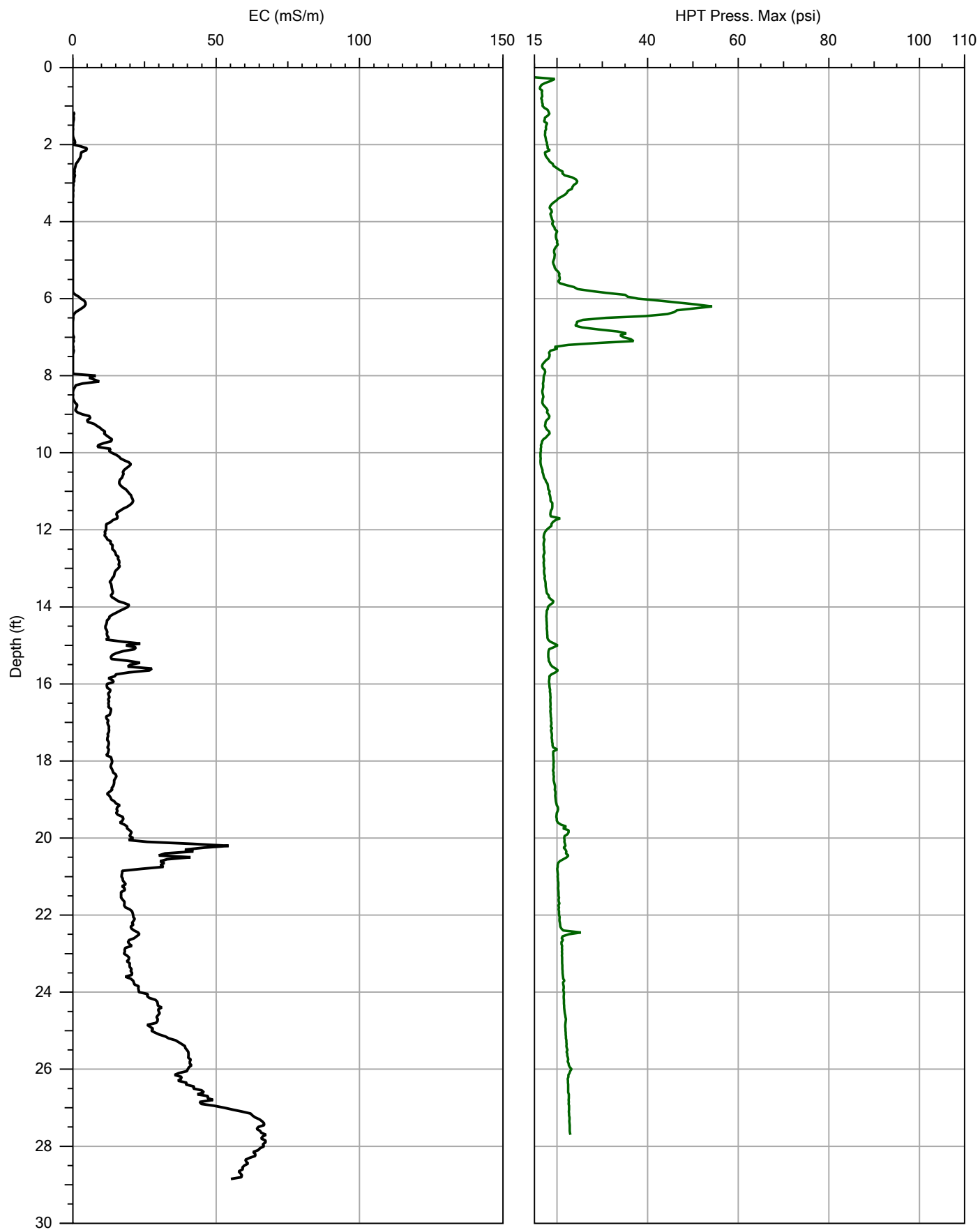












**APPENDIX D –
LABORATORY
ANALYTICAL
REPORTS**

March 07, 2016

Mr. Jeff Lux
Environmental Properties Management, LLC
615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102

Re: Cimarron February 2016 GWM
Work Order: 391691

Dear Mr. Lux:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 19, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4453.

Sincerely,

Chelsea Seagle
Chelsea Seagle for
Edith Kent
Project Manager

Purchase Order: tbd
Chain of Custody: 2016-001, 2016-002 and 2016-003
Enclosures



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Case Narrative

**CASE NARRATIVE
for
Burns & McDonnell
Cimarron February 2016 GWM
SDG:391691**

March 07, 2016

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 19, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note There are no additional items of note concerning this SDG.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
391691001	MWWA-03
391691002	MWWA-03DUP
391691003	MWWA-09
391691004	T-62
391691005	T-76
391691006	T-69
391691007	T-57
391691008	T-58
391691009	T-77
391691010	T-79
391691011	T-79DUP
391691012	T-96
391691013	T-86
391691014	T-59
391691015	T-88
391691016	T-88DUP

Case Narrative

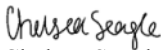
Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and



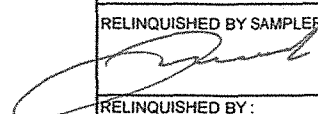
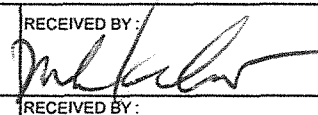
Metals.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.


Chelsea Seagle for
Edith Kent
Project Manager

Chain of Custody and Supporting Documentation

391691

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST										COC #: 2016-001																																																																																															
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CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

COC #: 2016-002

SHIP TO:

Company Name: GEL Laboratories LLC
 Address: 2040 Savage Road
 Address: Charleston, SC 29407
 Contact Person: Edith Kent
 Phone: 843-769-7376, ext. 4505

SHIP FROM:

Environmental Properties Management
 100 N. Hwy 74
 Guthrie, OK 73044

ANALYSIS REQUESTED

I ATTEST THAT THE PROPER FIELD SAMPLING PROCEDURES WERE USED DURING THE COLLECTION OF THESE SAMPLES.

SAMPLER SIGNATURE: 

Contact Person: Jeff Lux

Phone: 405-642-5152

SITE:

CIMARRON FACILITY

SAMPLE TYPE

SOLID

WATER

SAMPLE			CONTAINER			SOLID		WATER			Dissolved Uranium (EPA 200.8)	Nitrate/Nitrite (EPA 353.2)	Fluoride (EPA 300.0)							
ID	DATE	TIME	NO.	TYPE	SIZE	SOIL	OTHER	"X" IF WATER	PRESERV.	FILTERED .45µ Y/N										
T-76	2/16/2016	1035	1	P	250 mL			X	HNO3	Y	X									
T-76	2/16/2016	1035	1	P	125 mL			X	H2SO4	N		X								
T-76	2/16/2016	1035	1	P	125 mL			X	none	N			X							
T-69	2/16/2016	1100	1	P	250 mL			X	HNO3	Y	X									
T-69	2/16/2016	1100	1	P	125 mL			X	H2SO4	N		X								
T-57	2/16/2016	1120	1	P	125 mL			X	H2SO4	N		X								
T-57	2/16/2016	1120	1	P	125 mL			X	none	N			X							
T-58	2/16/2016	1135	1	P	125 mL			X	H2SO4	N		X								
T-77	2/16/2016	1150	1	P	250 mL			X	HNO3	Y	X									
T-77	2/16/2016	1150	1	P	125 mL			X	H2SO4	N		X								
T-77	2/16/2016	1150	1	P	125 mL			X	none	N			X							
T-79	2/16/2016	1205	1	P	250 mL			X	HNO3	Y	X									

Potential Hazardous Characteristics

☒ Non-Haz ☐ RCRA D001,2&3, or 4 ☐ RCRA Listed ☐ Radioactive ☐ Unknown

Sample Disposal

☒ Disposal Lab ☐ Return to Client ☐ Holding pending further instructions

THIS SAMPLE MEETS ALL APPROPRIATE RADIOLOGICAL REQUIREMENTS:

HP INITIAL: 

RELINQUISHED BY SAMPLER:

DATE:

TIME:

RECEIVED BY:

DATE:

TIME:

EDD REPORT TO:

(Report Level?) EQUIS dhorne@burnsmcd.com
 GEL EDD mbeckman@burnsmcd.com; jlux@envpm.com

RELINQUISHED BY:

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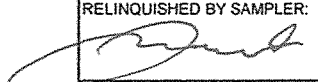
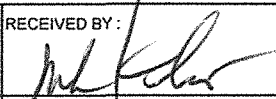
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HARD COPY REPORT (PDF) TO:

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Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CM.RN</u>		SDG/AR/COC/Work Order: <u>391091, 391098, 391704</u>	
Received By: <u>MT</u>		Date Received: <u>2-19-16</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
COC/Samples marked as radioactive?	<input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>gms</u>	
Classified Radioactive II or III by RSO?	<input type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?	
COC/Samples marked containing PCBs?	<input type="checkbox"/>		
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.	
Shipped as a DOT Hazardous?	<input type="checkbox"/>	Hazard Class Shipped:	UN#:
Samples identified as Foreign Soil?	<input type="checkbox"/>		

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>6</u>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>130462961</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 Do Low Level Perchlorate samples have headspace as required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 VOA vials contain acid preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If unknown, select No)
8 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
9 Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
11 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
12 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
13 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
14 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>7756 8194 3380 16°</u> <u>4137 6°</u>

Comments (Use Continuation Form if needed):

Laboratory Certification

List of current GEL Certifications as of 07 March 2016

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
Burns & McDonnell (CMRN)
SDG #: 391691

Sample ID	Client ID
391691001	MWWA-03
391691002	MWWA-03DUP
391691003	MWWA-09
391691004	T-62
391691005	T-76
391691006	T-69
391691009	T-77
391691010	T-79
391691011	T-79DUP
391691012	T-96
391691014	T-59
391691015	T-88
391691016	T-88DUP
1203493391	Method Blank (MB)
1203493392	Laboratory Control Sample (LCS)
1203493397	391691001(MWWA-03L) Serial Dilution (SD)
1203493398	391704002(1381L) Serial Dilution (SD)
1203493393	391691001(MWWA-03D) Sample Duplicate (DUP)
1203493394	391704002(1381D) Sample Duplicate (DUP)
1203493395	391691001(MWWA-03S) Matrix Spike (MS)
1203493396	391704002(1381S) Matrix Spike (MS)

Sample Analysis

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch:	1546418
Prep Batch :	1546415
Standard Operating Procedures:	GL-MA-E-014 REV# 27 and GL-MA-E-016 REV# 15
Analytical Method:	EPA 200.8
Prep Method :	EPA 200.2

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 391691001 (MWWA-03) and 391704002 (1381).

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. The relative percent differences (RPD) between the sample and its duplicate (DUP) were within acceptable limits for all applicable analytes.

Serial Dilution % Difference Statement

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 391691001 (MWWA-03), 391691002 (MWWA-03DUP), 391691003 (MWWA-09), 391691004 (T-62) and 391691005 (T-76) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Analyte	391691				
	001	002	003	004	005
Uranium	10X	10X	10X	10X	10X

Preparation Information

The samples in this SDG were not diluted and prepared according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391691 GEL Work Order: 391691

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- B Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Nik-Cole Elmore

Date: 15 MAR 2016

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: MWWA-03
Sample ID: 391691001
Matrix: Water
Collect Date: 16-FEB-16 09:45
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		312	0.670	2.00	ug/L	10	BAJ	03/04/16	1159	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: MWWA-03DUP
Sample ID: 391691002
Matrix: Water
Collect Date: 16-FEB-16 09:45
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		336	0.670	2.00	ug/L	10	BAJ	03/04/16	1206	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: MWWA-09
Sample ID: 391691003
Matrix: Water
Collect Date: 16-FEB-16 10:00
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		156	0.670	2.00	ug/L	10	BAJ	03/04/16	1208	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-62
Sample ID: 391691004
Matrix: Water
Collect Date: 16-FEB-16 10:20
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		165	0.670	2.00	ug/L	10	BAJ	03/04/16	1209	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-76
Sample ID: 391691005
Matrix: Water
Collect Date: 16-FEB-16 10:35
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		154	0.670	2.00	ug/L	10	BAJ	03/04/16	1210	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-69
Sample ID: 391691006
Matrix: Water
Collect Date: 16-FEB-16 11:00
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		51.7	0.067	0.200	ug/L	1	BAJ	03/03/16	1859	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-77
Sample ID: 391691009
Matrix: Water
Collect Date: 16-FEB-16 11:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		55.1	0.067	0.200	ug/L	1	BAJ	03/03/16	1901	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-79
Sample ID: 391691010
Matrix: Water
Collect Date: 16-FEB-16 12:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		53.0	0.067	0.200	ug/L	1	BAJ	03/03/16	1904	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-79DUP
Sample ID: 391691011
Matrix: Water
Collect Date: 16-FEB-16 12:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		51.5	0.067	0.200	ug/L	1	BAJ	03/03/16	1906	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-96
Sample ID: 391691012
Matrix: Water
Collect Date: 16-FEB-16 12:30
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		31.5	0.067	0.200	ug/L	1	BAJ	03/03/16	1909	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-59
Sample ID: 391691014
Matrix: Water
Collect Date: 16-FEB-16 14:40
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		76.4	0.067	0.200	ug/L	1	BAJ	03/03/16	1912	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-88
Sample ID: 391691015
Matrix: Water
Collect Date: 16-FEB-16 14:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		8.08	0.067	0.200	ug/L	1	BAJ	03/03/16	1919	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-88DUP
Sample ID: 391691016
Matrix: Water
Collect Date: 16-FEB-16 14:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		8.27	0.067	0.200	ug/L	1	BAJ	03/03/16	1922	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 15, 2016

Page 1 of 2

Environmental Properties Management, LLC

615 N. Hudson

Suite 200

Oklahoma City, Oklahoma

Contact: Mr. Jeff Lux

Workorder: 391691

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1546418										
QC1203493393	391691001	DUP									
Uranium		312		323	ug/L	3.57		(0%-20%)	BAJ	03/04/16	12:00
QC1203493394	391704002	DUP									
Uranium		75.7		75.9	ug/L	0.351		(0%-20%)		03/03/16	19:27
QC1203493392	LCS										
Uranium	50.0			50.8	ug/L		102	(85%-115%)		03/04/16	11:57
QC1203493391	MB										
Uranium			U	ND	ug/L					03/04/16	11:56
QC1203493395	391691001	MS									
Uranium	50.0	312		353	ug/L		N/A	(75%-125%)		03/04/16	12:01
QC1203493396	391704002	MS									
Uranium	50.0	75.7		127	ug/L		102	(75%-125%)		03/03/16	19:30
QC1203493397	391691001	SDILT									
Uranium		31.2		6.35	ug/L	1.87		(0%-10%)		03/04/16	12:02
QC1203493398	391704002	SDILT									
Uranium		75.7		15.1	ug/L	.0502		(0%-10%)		03/03/16	19:32

Notes:

The Qualifiers in this report are defined as follows:

< Result is less than value reported

> Result is greater than value reported

E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria

FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies

H Analytical holding time was exceeded

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

N/A RPD or %Recovery limits do not apply.

N1 See case narrative

ND Analyte concentration is not detected above the detection limit

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 391691

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
Burns & McDonnell (CMRN)
SDG #: 391691**

Method/Analysis Information

Product: Ion Chromatography
Analytical Batch: 1546601 **Method:** EPA300.0 Fluoride in Liquid

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
391691001	MWWA-03
391691002	MWWA-03DUP
391691003	MWWA-09
391691004	T-62
391691005	T-76
391691007	T-57
391691009	T-77
1203493961	Method Blank (MB)
1203493962	Laboratory Control Sample (LCS)
1203493963	391691001(MWWA-03) Sample Duplicate (DUP)
1203493964	391698017(1346) Sample Duplicate (DUP)
1203493965	391691001(MWWA-03) Post Spike (PS)
1203493966	391698017(1346) Post Spike (PS)
1203493967	391691001(MWWA-03) Post Spike Duplicate (PSD)
1203493968	391698017(1346) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 25.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391691001 (MWWA-03) and 391698017 (1346) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The following samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391691001 (MWWA-03) and 391691002 (MWWA-03DUP) were diluted because target analyte concentrations exceeded the calibration range. Samples 1203493964 (1346DUP), 1203493966 (1346PS) and 1203493968 (1346PSD) were diluted based on historical data.

Analyte	391691	
	001	002
Fluoride	5X	5X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391691001 (MWWA-03), 391691002 (MWWA-03DUP), 391691003 (MWWA-09), 391691004 (T-62), 391691005 (T-76), 391691007 (T-57) and 391691009 (T-77) were manually integrated to correctly position the baseline as set in the calibration standards.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	Nitrate Nitrite by Cadmium Reduction	
Analytical Batch:	1546460	Method: EPA 353.2 Nitrogen, Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
391691001	MWWA-03
391691002	MWWA-03DUP
391691003	MWWA-09
391691004	T-62
391691005	T-76
391691006	T-69
391691007	T-57
391691008	T-58
391691009	T-77
391691010	T-79
391691011	T-79DUP
391691012	T-96
391691013	T-86
391691014	T-59
391691015	T-88
391691016	T-88DUP
1203493522	Method Blank (MB)
1203493523	Laboratory Control Sample (LCS)
1203493524	391691001(MWWA-03) Sample Duplicate (DUP)
1203493527	391691001(MWWA-03) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Sample 391691001 (MWWA-03) was selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits where applicable.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following samples 391691003 (MWWA-09), 391691004 (T-62), 391691005 (T-76), 391691006 (T-69), 391691007 (T-57), 391691008 (T-58), 391691012 (T-96), 391691013 (T-86), 391691014 (T-59), 391691015 (T-88) and 391691016 (T-88DUP) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	391691											
	003	004	005	006	007	008	012	013	014	015	016	
Several	50X	100X	25X	50X	100X	50X	50X	50X	100X	100X	100X	

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391691 GEL Work Order: 391691

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- H Analytical holding time was exceeded
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Thomas Lewis

Date: 14 MAR 2016

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: MWWA-03
Sample ID: 391691001
Matrix: Water
Collect Date: 16-FEB-16 09:45
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		9.55	0.165	0.500	mg/L	5	RXB5	02/23/16	2230	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.123	0.017	0.050	mg/L	1	AXH3	02/22/16	1042	1546460	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: MWWA-03DUP
Sample ID: 391691002
Matrix: Water
Collect Date: 16-FEB-16 09:45
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		9.62	0.165	0.500	mg/L	5	RXB5	02/24/16	0036	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.126	0.017	0.050	mg/L	1	AXH3	02/22/16	1046	1546460	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: MWWA-09
Sample ID: 391691003
Matrix: Water
Collect Date: 16-FEB-16 10:00
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		3.60	0.033	0.100	mg/L	1	RXB5	02/21/16	0638	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		30.0	0.850	2.50	mg/L	50	AXH3	02/22/16	1123	1546460	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-62
Sample ID: 391691004
Matrix: Water
Collect Date: 16-FEB-16 10:20
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		2.80	0.033	0.100	mg/L	1	RXB5	02/21/16	0709	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		78.7	1.70	5.00	mg/L	100	AXH3	02/22/16	1124	1546460	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-76
Sample ID: 391691005
Matrix: Water
Collect Date: 16-FEB-16 10:35
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		2.69	0.033	0.100	mg/L	1	RXB5	02/21/16	0741	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		24.4	0.425	1.25	mg/L	25	AXH3	02/22/16	1050	1546460	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-69
Sample ID: 391691006
Matrix: Water
Collect Date: 16-FEB-16 11:00
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		63.0	0.850	2.50	mg/L	50	AXH3	02/22/16	1051	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-57
Sample ID: 391691007
Matrix: Water
Collect Date: 16-FEB-16 11:20
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		4.12	0.033	0.100	mg/L	1	RXB5	02/21/16	0812	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		58.1	1.70	5.00	mg/L	100	AXH3	02/22/16	1130	1546460	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-58
Sample ID: 391691008
Matrix: Water
Collect Date: 16-FEB-16 11:35
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		34.1	0.850	2.50	mg/L	50	AXH3	02/22/16	1058	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-77
Sample ID: 391691009
Matrix: Water
Collect Date: 16-FEB-16 11:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		0.667	0.033	0.100	mg/L	1	RXB5	02/21/16	0843	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.45	0.017	0.050	mg/L	1	AXH3	02/22/16	1059	1546460	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-79
Sample ID: 391691010
Matrix: Water
Collect Date: 16-FEB-16 12:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.280	0.017	0.050	mg/L	1	AXH3	02/22/16	1100	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-79DUP
Sample ID: 391691011
Matrix: Water
Collect Date: 16-FEB-16 12:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.292	0.017	0.050	mg/L	1	AXH3	02/22/16	1101	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-96
Sample ID: 391691012
Matrix: Water
Collect Date: 16-FEB-16 12:30
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		17.8	0.850	2.50	mg/L	50	AXH3	02/22/16	1131	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-86
Sample ID: 391691013
Matrix: Water
Collect Date: 16-FEB-16 14:25
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		16.9	0.850	2.50	mg/L	50	AXH3	02/22/16	1132	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-59
Sample ID: 391691014
Matrix: Water
Collect Date: 16-FEB-16 14:40
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		103	1.70	5.00	mg/L	100	AXH3	02/22/16	1133	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-88
Sample ID: 391691015
Matrix: Water
Collect Date: 16-FEB-16 14:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		21.8	1.70	5.00	mg/L	100	AXH3	02/22/16	1135	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-88DUP
Sample ID: 391691016
Matrix: Water
Collect Date: 16-FEB-16 14:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		25.5	1.70	5.00	mg/L	100	AXH3	02/22/16	1136	1546460	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 14, 2016

Page 1 of 2

Environmental Properties Management, LLC

615 N. Hudson

Suite 200

Oklahoma City, Oklahoma

Contact: Mr. Jeff Lux

Workorder: 391691

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1546601										
QC1203493963	391691001	DUP									
Fluoride			9.55	9.53	mg/L	0.215		(0%-20%)	RXB5	02/23/16	23:02
QC1203493964	391698017	DUP									
Fluoride			9.89	9.88	mg/L	0.0526		(0%-20%)		02/21/16	10:49
QC1203493962	LCS										
Fluoride	2.50			2.51	mg/L		100	(90%-110%)		02/21/16	02:26
QC1203493961	MB										
Fluoride			U	ND	mg/L					02/21/16	01:55
QC1203493965	391691001	PS									
Fluoride	2.50		1.91	4.43	mg/L		101	(90%-110%)		02/23/16	23:33
QC1203493966	391698017	PS									
Fluoride	2.50		2.47	5.11	mg/L		105	(90%-110%)		02/21/16	11:20
QC1203493967	391691001	PSD									
Fluoride	2.50		1.91	4.43	mg/L	0.0113	101	(0%-20%)		02/24/16	00:04
QC1203493968	391698017	PSD									
Fluoride	2.50		2.47	5.10	mg/L	0.0823	105	(0%-20%)		02/21/16	11:52
Nutrient Analysis											
Batch	1546460										
QC1203493524	391691001	DUP									
Nitrogen, Nitrate/Nitrite			0.123	0.123	mg/L	0 ^		(+/-0.050)	AXH3	02/22/16	10:44
QC1203493523	LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.06	mg/L		106	(90%-110%)		02/22/16	10:41
QC1203493522	MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					02/22/16	10:40
QC1203493527	391691001	PS									
Nitrogen, Nitrate/Nitrite	1.00		0.123	1.12	mg/L		99.7	(90%-110%)		02/22/16	10:45

Notes:

The Qualifiers in this report are defined as follows:

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 391691

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<	Result is less than value reported										
>	Result is greater than value reported										
B	The target analyte was detected in the associated blank.										
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range										
H	Analytical holding time was exceeded										
J	Value is estimated										
N/A	RPD or %Recovery limits do not apply.										
N1	See case narrative										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
d	5-day BOD--The 2:1 depletion requirement was not met for this sample										
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

March 07, 2016

Mr. Jeff Lux
Environmental Properties Management, LLC
615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102

Re: Cimarron February 2016 GWM
Work Order: 391698

Dear Mr. Lux:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 19, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4453.

Sincerely,

Chelsea Seagle
Chelsea Seagle for
Edith Kent
Project Manager

Purchase Order: tbd
Chain of Custody: 2016-004 and 2016-005
Enclosures



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Case Narrative

**CASE NARRATIVE
for
Burns & McDonnell
Cimarron February 2016 GWM
SDG:391698**

March 07, 2016

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 19, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note There are no additional items of note concerning this SDG.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
391698001	T-61
391698002	T-91
391698003	T-97
391698004	02W40
391698005	02W39
391698006	1315R
391698007	TWM-09
391698008	TWM-09DUP
391698009	02W01
391698010	02W32
391698011	02W08
391698012	02W44
391698013	1361
391698014	1365
391698015	TMW-24
391698016	1373
391698017	1346
391698018	1346DUP
391698019	1393

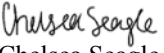
Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

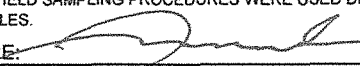
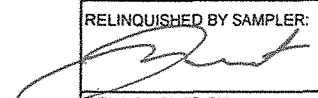
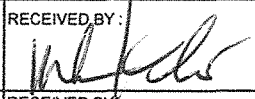
The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and Metals.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.



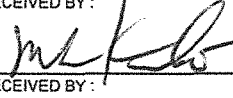

Chelsea Seagle for
Edith Kent
Project Manager

Chain of Custody and Supporting Documentation

391698

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST										COC #: 2016-004																																																																																																																																																																															
SHIP TO: Company Name: GEL Laboratories LLC Address: 2040 Savage Road Address: Charleston, SC 29407 Contact Person: Edith Kent Phone: 843-769-7376, ext. 4505 I ATTEST THAT THE PROPER FIELD SAMPLING PROCEDURES WERE USED DURING THE COLLECTION OF THESE SAMPLES. SAMPLER SIGNATURE:  SITE: <u>CIMARRON FACILITY</u>						SHIP FROM: Environmental Properties Management 100 N. Hwy 74 Guthrie, OK 73044 Contact Person: Jeff Lux Phone: 405-642-5152						ANALYSIS REQUESTED																																																																																																																																																																													
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TVM-09DUP	2/17/2016	1010	1	P	250 mL			X	HNO3	Y																																																																																																																																																																															
02W01	2/17/2016	1035	1	P	250 mL			X	HNO3	Y																																																																																																																																																																															
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RELINQUISHED BY SAMPLER:  DATE: <u>2/18/16</u> TIME: <u>1600</u>						RECEIVED BY:  DATE: <u>2-19-16</u> TIME: <u>0900</u>						EDD REPORT TO: (Report Level?) EQUIS <u>dhorne@burnsmcd.com</u> GEL EDD <u>mbeckman@burnsmcd.com; jlux@envpm.com</u>																																																																																																																																																																													
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391698

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST										COC #: 2016-005																																																																																																																																																																											
SHIP TO: Company Name: GEL Laboratories LLC Address: 2040 Savage Road Address: Charleston, SC 29407 Contact Person: Edith Kent Phone: 843-769-7376, ext. 4505 I ATTEST THAT THE PROPER FIELD SAMPLING PROCEDURES WERE USED DURING THE COLLECTION OF THESE SAMPLES. SAMPLER SIGNATURE:  SITE: CIMAARRON FACILITY						SHIP FROM: Environmental Properties Management 100 N. Hwy 74 Guthrie, OK 73044 Contact Person: Jeff Lux Phone: 405-642-5152						ANALYSIS REQUESTED																																																																																																																																																																									
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Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CM RN</u>		SDG/AR/COC/Work Order: <u>391091, 391098, 391704</u>	
Received By: <u>MT</u>		Date Received: <u>2-19-16</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
COC/Samples marked as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>gmo</u>	
Classified Radioactive II or III by RSO?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?	
COC/Samples marked containing PCBs?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Package, COC, and/or Samples marked as beryllium or asbestos containing?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.	
Shipped as a DOT Hazardous?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hazard Class Shipped: UN#:	
Samples identified as Foreign Soil?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>6°C</u>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>130462961</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 Do Low Level Perchlorate samples have headspace as required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 VOA vials contain acid preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If unknown, select No)
8 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
9 Are Encore containers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
11 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
12 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
13 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
14 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air <input checked="" type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other <input type="checkbox"/> <u>7756 8194 3380 16°C</u> <u>4137 6°C</u>

Comments (Use Continuation Form if needed):

Laboratory Certification

List of current GEL Certifications as of 07 March 2016

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
Burns & McDonnell (CMRN)
SDG #: 391698

Sample ID	Client ID
391698001	T-61
391698003	T-97
391698004	02W40
391698005	02W39
391698006	1315R
391698007	TWM-09
391698008	TWM-09DUP
391698009	02W01
391698010	02W32
391698011	02W08
391698012	02W44
391698013	1361
391698014	1365
391698015	TMW-24
391698016	1373
391698019	1393
1203493408	Method Blank (MB)
1203493409	Laboratory Control Sample (LCS)
1203493414	391698001(T-61L) Serial Dilution (SD)
1203493415	391698010(02W32L) Serial Dilution (SD)
1203493410	391698001(T-61D) Sample Duplicate (DUP)
1203493411	391698010(02W32D) Sample Duplicate (DUP)
1203493412	391698001(T-61S) Matrix Spike (MS)
1203493413	391698010(02W32S) Matrix Spike (MS)

Sample Analysis

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch:	1546425
Prep Batch :	1546424
Standard Operating Procedures:	GL-MA-E-014 REV# 27 and GL-MA-E-016 REV# 15
Analytical Method:	EPA 200.8
Prep Method :	EPA 200.2

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 391698001 (T-61) and 391698010 (02W32).

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. The relative percent differences (RPD) between the sample and its duplicate (DUP) were within acceptable limits for all applicable analytes.

Serial Dilution % Difference Statement

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 391698004 (02W40), 391698005 (02W39), 391698006 (1315R), 391698007 (TWM-09), 391698008 (TWM-09DUP), 391698009 (02W01), 391698010 (02W32), 391698011 (02W08), 391698012 (02W44) and 391698014 (1365) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Analyte	391698									
	004	005	006	007	008	009	010	011	012	014
Uranium	100X	10X	100X	100X	100X	100X	10X	10X	10X	10X

Preparation Information

The samples in this SDG were not diluted and prepared according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391698 GEL Work Order: 391698

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Nik-Cole Elmore

Date: 15 MAR 2016

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-61
Sample ID: 391698001
Matrix: Water
Collect Date: 16-FEB-16 15:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		25.6	0.067	0.200	ug/L	1	BAJ	03/04/16	1219	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-97
Sample ID: 391698003
Matrix: Water
Collect Date: 16-FEB-16 15:35
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		57.7	0.067	0.200	ug/L	1	BAJ	03/04/16	1224	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 02W40
Sample ID: 391698004
Matrix: Water
Collect Date: 17-FEB-16 09:20
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		1120	6.70	20.0	ug/L	100	BAJ	03/04/16	1225	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 02W39
Sample ID: 391698005
Matrix: Water
Collect Date: 17-FEB-16 09:35
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		600	0.670	2.00	ug/L	10	BAJ	03/04/16	1230	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1315R
Sample ID: 391698006
Matrix: Water
Collect Date: 17-FEB-16 09:55
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		1190	6.70	20.0	ug/L	100	BAJ	03/04/16	1231	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: TWM-09
Sample ID: 391698007
Matrix: Water
Collect Date: 17-FEB-16 10:10
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		2620	6.70	20.0	ug/L	100	BAJ	03/04/16	1232	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: TWM-09DUP
Sample ID: 391698008
Matrix: Water
Collect Date: 17-FEB-16 10:10
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		2500	6.70	20.0	ug/L	100	BAJ	03/04/16	1233	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 02W01
Sample ID: 391698009
Matrix: Water
Collect Date: 17-FEB-16 10:35
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		2370	6.70	20.0	ug/L	100	BAJ	03/04/16	1235	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 02W32
Sample ID: 391698010
Matrix: Water
Collect Date: 17-FEB-16 10:55
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		283	0.670	2.00	ug/L	10	BAJ	03/04/16	1236	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 02W08
Sample ID: 391698011
Matrix: Water
Collect Date: 17-FEB-16 11:10
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		400	0.670	2.00	ug/L	10	BAJ	03/04/16	1245	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 02W44
Sample ID: 391698012
Matrix: Water
Collect Date: 17-FEB-16 11:20
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		447	0.670	2.00	ug/L	10	BAJ	03/04/16	1246	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1361
Sample ID: 391698013
Matrix: Water
Collect Date: 17-FEB-16 11:35
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		83.6	0.067	0.200	ug/L	1	BAJ	03/04/16	1247	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1365
Sample ID: 391698014
Matrix: Water
Collect Date: 17-FEB-16 11:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		116	0.670	2.00	ug/L	10	BAJ	03/04/16	1249	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: TMW-24
Sample ID: 391698015
Matrix: Water
Collect Date: 17-FEB-16 12:00
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		80.4	0.067	0.200	ug/L	1	BAJ	03/04/16	1250	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1373
Sample ID: 391698016
Matrix: Water
Collect Date: 17-FEB-16 12:10
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		57.5	0.067	0.200	ug/L	1	BAJ	03/04/16	1251	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1393
Sample ID: 391698019
Matrix: Water
Collect Date: 17-FEB-16 14:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		13.5	0.067	0.200	ug/L	1	BAJ	03/04/16	1252	1546425	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546424

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: March 15, 2016

Page 1 of 2

Environmental Properties Management, LLC

615 N. Hudson

Suite 200

Oklahoma City, Oklahoma

Contact: Mr. Jeff Lux

Workorder: 391698

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1546425										
QC1203493410	391698001	DUP									
Uranium		25.6		26.1	ug/L	2.23		(0%-20%)	BAJ	03/04/16	12:20
QC1203493411	391698010	DUP									
Uranium		283		275	ug/L	2.79		(0%-20%)		03/04/16	12:37
QC1203493409	LCS										
Uranium	50.0			50.2	ug/L		100	(85%-115%)		03/04/16	12:18
QC1203493408	MB										
Uranium			U	ND	ug/L					03/04/16	12:16
QC1203493412	391698001	MS									
Uranium	50.0	25.6		76.1	ug/L		101	(75%-125%)		03/04/16	12:21
QC1203493413	391698010	MS									
Uranium	50.0	283		336	ug/L		N/A	(75%-125%)		03/04/16	12:38
QC1203493414	391698001	SDILT									
Uranium		25.6		5.33	ug/L	4.18		(0%-10%)		03/04/16	12:23
QC1203493415	391698010	SDILT									
Uranium		28.3		5.63	ug/L	.533		(0%-10%)		03/04/16	12:40

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit

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QC Summary

Workorder: 391698

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
Burns & McDonnell (CMRN)
SDG #: 391698**

Method/Analysis Information

Product: Ion Chromatography

Analytical Batch: 1546601

Method: EPA300.0 Fluoride in Liquid

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
391698017	1346
391698018	1346DUP
1203493961	Method Blank (MB)
1203493962	Laboratory Control Sample (LCS)
1203493963	391691001(MWWA-03) Sample Duplicate (DUP)
1203493964	391698017(1346) Sample Duplicate (DUP)
1203493965	391691001(MWWA-03) Post Spike (PS)
1203493966	391698017(1346) Post Spike (PS)
1203493967	391691001(MWWA-03) Post Spike Duplicate (PSD)
1203493968	391698017(1346) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 25.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391691001 (MWWA-03) and 391698017 (1346) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The following samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391698017 (1346) and 391698018 (1346DUP) were diluted because target analyte concentrations exceeded the calibration range. Samples 1203493964 (1346DUP), 1203493966 (1346PS), 1203493968 (1346PSD), 391698017 (1346) and 391698018 (1346DUP) were diluted based on historical data.

Analyte	391698	
	017	018
Fluoride	4X	4X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391698017 (1346) and 391698018 (1346DUP) were manually integrated to correctly position the baseline as set in the calibration standards.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	Nitrate Nitrite by Cadmium Reduction	
Analytical Batch:	1546807	Method: EPA 353.2 Nitrogen, Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
391698001	T-61
391698002	T-91
391698003	T-97
391698017	1346
391698018	1346DUP
391698019	1393
1203494445	Method Blank (MB)
1203494446	Laboratory Control Sample (LCS)
1203494447	391698001(T-61) Sample Duplicate (DUP)
1203494448	391698002(T-91) Sample Duplicate (DUP)
1203494449	391698001(T-61) Post Spike (PS)
1203494450	391698002(T-91) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391698001 (T-61) and 391698002 (T-91) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Nitrate/Nitrite	1203494450 (T-91PS)	113* (90%-110%)

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following samples 1203494447 (T-61DUP), 1203494448 (T-91DUP), 1203494449 (T-61PS), 1203494450 (T-91PS), 391698001 (T-61), 391698002 (T-91), 391698003 (T-97), 391698017 (1346), 391698018 (1346DUP) and 391698019 (1393) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	391698					
	001	002	003	017	018	019
Nitrogen, Nitrate/Nitrite	25X	25X	5X	500X	500X	50X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

A data exception report (DER) 1495027 was generated for sample 1203494450 (T-91PS) in this SDG/batch.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391698 GEL Work Order: 391698

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- H Analytical holding time was exceeded
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Thomas Lewis

Date: 14 MAR 2016

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-61
Sample ID: 391698001
Matrix: Water
Collect Date: 16-FEB-16 15:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		37.0	0.425	1.25	mg/L	25	AXH3	02/22/16	1425	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-91
Sample ID: 391698002
Matrix: Water
Collect Date: 16-FEB-16 15:20
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		20.1	0.425	1.25	mg/L	25	AXH3	02/22/16	1434	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-97
Sample ID: 391698003
Matrix: Water
Collect Date: 16-FEB-16 15:35
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		4.28	0.085	0.250	mg/L	5	AXH3	02/22/16	1437	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1346
Sample ID: 391698017
Matrix: Water
Collect Date: 17-FEB-16 13:55
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		9.89	0.132	0.400	mg/L	4	RXB5	02/21/16	1018	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		397	8.50	25.0	mg/L	500	AXH3	02/22/16	1507	1546807	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1346DUP
Sample ID: 391698018
Matrix: Water
Collect Date: 17-FEB-16 13:55
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time Batch	Method
Ion Chromatography										
EPA300.0 Fluoride in Liquid "As Received"										
Fluoride		10.0	0.132	0.400	mg/L	4	RXB5	02/21/16	1223 1546601	1
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite		417	8.50	25.0	mg/L	500	AXH3	02/22/16	1508 1546807	2
The following Analytical Methods were performed:										
Method	Description					Analyst Comments				
1	EPA 300.0									
2	EPA 353.2									

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1393
Sample ID: 391698019
Matrix: Water
Collect Date: 17-FEB-16 14:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		44.3	0.850	2.50	mg/L	50	AXH3	02/22/16	1441	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 14, 2016

Page 1 of 2

Environmental Properties Management, LLC

615 N. Hudson

Suite 200

Oklahoma City, Oklahoma

Contact: Mr. Jeff Lux

Workorder: 391698

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1546601										
QC1203493963	391691001	DUP									
Fluoride			9.55	9.53	mg/L	0.215		(0%-20%)	RXB5	02/23/16	23:02
QC1203493964	391698017	DUP									
Fluoride			9.89	9.88	mg/L	0.0526		(0%-20%)		02/21/16	10:49
QC1203493962	LCS										
Fluoride	2.50			2.51	mg/L		100	(90%-110%)		02/21/16	02:26
QC1203493961	MB										
Fluoride			U	ND	mg/L					02/21/16	01:55
QC1203493965	391691001	PS									
Fluoride	2.50		1.91	4.43	mg/L		101	(90%-110%)		02/23/16	23:33
QC1203493966	391698017	PS									
Fluoride	2.50		2.47	5.11	mg/L		105	(90%-110%)		02/21/16	11:20
QC1203493967	391691001	PSD									
Fluoride	2.50		1.91	4.43	mg/L	0.0113	101	(0%-20%)		02/24/16	00:04
QC1203493968	391698017	PSD									
Fluoride	2.50		2.47	5.10	mg/L	0.0823	105	(0%-20%)		02/21/16	11:52
Nutrient Analysis											
Batch	1546807										
QC1203494447	391698001	DUP									
Nitrogen, Nitrate/Nitrite			37.0	37.5	mg/L	1.34		(0%-20%)	AXH3	02/22/16	14:27
QC1203494448	391698002	DUP									
Nitrogen, Nitrate/Nitrite			20.1	18.7	mg/L	7.35		(0%-20%)		02/22/16	14:35
QC1203494446	LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.05	mg/L		105	(90%-110%)		02/22/16	14:24
QC1203494445	MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					02/22/16	14:23
QC1203494449	391698001	PS									
Nitrogen, Nitrate/Nitrite	1.00		1.48	2.53	mg/L		105	(90%-110%)		02/22/16	14:33
QC1203494450	391698002	PS									
Nitrogen, Nitrate/Nitrite	1.00		0.804	1.93	mg/L		113 *	(90%-110%)		02/22/16	14:36

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 391698

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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Nutrient Analysis

Batch 1546807

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J Value is estimated
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr. 22-FEB-16	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: LACHAT Flow Injection Analyzer	Test / Method: EPA 353.2	Matrix Type: Liquid	Client Code: CMRN
Batch ID: 1546807	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 391698,391704 Application Issues: Failed Recovery for MS/MSD, or PS/PSD			
Specification and Requirements Exception Description:		DER Disposition:	
1. Failed Recovery for MS/MSD, or PS/PSD: QC 1203494450PS		1. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity. Nitrogen, Nitrate/Nitrite 1203494450 (T-91PS) [113* (90%-110%)].	

Originator's Name:
Aubrey Kingsbury 23-FEB-16

Data Validator/Group Leader:
Kristen Mizzell 23-FEB-16

March 16, 2016

Mr. Jeff Lux
Environmental Properties Management, LLC
615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102

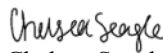
Re: Cimarron February 2016 GWM
Work Order: 391704

Dear Mr. Lux:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on February 19, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4453.

Sincerely,


Chelsea Seagle for
Edith Kent
Project Manager

Purchase Order: tbd
Chain of Custody: 2016-006, 2016-007 and 2016-008
Enclosures



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Case Narrative

**CASE NARRATIVE
for
Burns & McDonnell
Cimarron February 2016 GWM
SDG:391704**

March 16, 2016

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 19, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note There are no additional items of note concerning this SDG.

Sample Identification The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
391704001	1393
391704002	1381
391704003	1385
391704004	1387
391704005	1313
391704006	1312
391704007	1352
391704008	1356
391704009	1348
391704010	1319B-1
391704011	1319B-3
391704012	1331
391704013	1377
391704014	T-54
391704015	T-99
391704016	T-100

Case Narrative


Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals

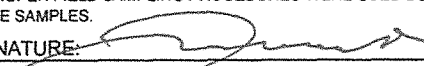
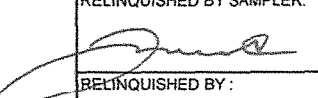

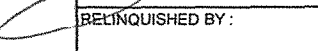
and Radiochemistry.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.


Chelsea Seagle for
Edith Kent
Project Manager

Chain of Custody and Supporting Documentation

391704

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST										COC #: 2016-006																																																																																																																																																																					
SHIP TO: Company Name: GEL Laboratories LLC Address: 2040 Savage Road Address: Charleston, SC 29407 Contact Person: Edith Kent Phone: 843-769-7376, ext. 4505 I ATTEST THAT THE PROPER FIELD SAMPLING PROCEDURES WERE USED DURING THE COLLECTION OF THESE SAMPLES. SAMPLER SIGNATURE: 						SHIP FROM: Environmental Properties Management 100 N. Hwy 74 Guthrie, OK 73044 Contact Person: Jeff Lux Phone: 405-642-5152						ANALYSIS REQUESTED																																																																																																																																																																			
												Dissolved Uranium (EPA 200.8) Nitrate/Nitrite (EPA 353.2) Fluoride (EPA 300.0)																																																																																																																																																																			
SITE: CIMAARRON FACILITY						SAMPLE TYPE																																																																																																																																																																									
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">SAMPLE</th> <th colspan="3">CONTAINER</th> <th colspan="2">SOLID</th> <th colspan="3">WATER</th> </tr> <tr> <th>ID</th> <th>DATE</th> <th>TIME</th> <th>NO.</th> <th>TYPE</th> <th>SIZE</th> <th>SOIL</th> <th>OTHER</th> <th>"X" IF WATER</th> <th>PRESERV.</th> <th>FILTERED .45µ Y/N</th> </tr> </thead> <tbody> <tr><td>1393</td><td>2/17/2016</td><td>1405</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>none</td><td>N</td></tr> <tr><td>1381</td><td>2/17/2016</td><td>1430</td><td>1</td><td>P</td><td>250 mL</td><td></td><td></td><td>X</td><td>HNO3</td><td>Y</td></tr> <tr><td>1381</td><td>2/17/2016</td><td>1430</td><td>1</td><td>P</td><td>250 mL</td><td></td><td></td><td>X</td><td>H2SO4</td><td>N</td></tr> <tr><td>1385</td><td>2/17/2016</td><td>1450</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>H2SO4</td><td>N</td></tr> <tr><td>1385</td><td>2/17/2016</td><td>1450</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>none</td><td>N</td></tr> <tr><td>1387</td><td>2/17/2016</td><td>1510</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>H2SO4</td><td>N</td></tr> <tr><td>1387</td><td>2/17/2016</td><td>1510</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>none</td><td>N</td></tr> <tr><td>1313</td><td>2/17/2016</td><td>1550</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>H2SO4</td><td>N</td></tr> <tr><td>1313</td><td>2/17/2016</td><td>1550</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>none</td><td>N</td></tr> <tr><td>1312</td><td>2/18/2016</td><td>945</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>H2SO4</td><td>N</td></tr> <tr><td>1312</td><td>2/18/2016</td><td>945</td><td>1</td><td>P</td><td>125 mL</td><td></td><td></td><td>X</td><td>none</td><td>N</td></tr> <tr><td>1352</td><td>2/18/2016</td><td>1005</td><td>1</td><td>P</td><td>250 mL</td><td></td><td></td><td>X</td><td>HNO3</td><td>Y</td></tr> </tbody> </table>						SAMPLE			CONTAINER			SOLID		WATER			ID	DATE	TIME	NO.	TYPE	SIZE	SOIL	OTHER	"X" IF WATER	PRESERV.	FILTERED .45µ Y/N	1393	2/17/2016	1405	1	P	125 mL			X	none	N	1381	2/17/2016	1430	1	P	250 mL			X	HNO3	Y	1381	2/17/2016	1430	1	P	250 mL			X	H2SO4	N	1385	2/17/2016	1450	1	P	125 mL			X	H2SO4	N	1385	2/17/2016	1450	1	P	125 mL			X	none	N	1387	2/17/2016	1510	1	P	125 mL			X	H2SO4	N	1387	2/17/2016	1510	1	P	125 mL			X	none	N	1313	2/17/2016	1550	1	P	125 mL			X	H2SO4	N	1313	2/17/2016	1550	1	P	125 mL			X	none	N	1312	2/18/2016	945	1	P	125 mL			X	H2SO4	N	1312	2/18/2016	945	1	P	125 mL			X	none	N	1352	2/18/2016	1005	1	P	250 mL			X	HNO3	Y																
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1385	2/17/2016	1450	1	P	125 mL			X	none	N																																																																																																																																																																					
1387	2/17/2016	1510	1	P	125 mL			X	H2SO4	N																																																																																																																																																																					
1387	2/17/2016	1510	1	P	125 mL			X	none	N																																																																																																																																																																					
1313	2/17/2016	1550	1	P	125 mL			X	H2SO4	N																																																																																																																																																																					
1313	2/17/2016	1550	1	P	125 mL			X	none	N																																																																																																																																																																					
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1312	2/18/2016	945	1	P	125 mL			X	none	N																																																																																																																																																																					
1352	2/18/2016	1005	1	P	250 mL			X	HNO3	Y																																																																																																																																																																					
Potential Hazardous Characteristics <input checked="" type="checkbox"/> Non-Haz <input type="checkbox"/> RCRA D001,2&3, or 4 <input type="checkbox"/> RCRA Listed <input type="checkbox"/> Radioactive <input type="checkbox"/> Unknown										Sample Disposal <input checked="" type="checkbox"/> Disposal Lab <input type="checkbox"/> Return to Client <input type="checkbox"/> Holding pending further instructions																																																																																																																																																																					
THIS SAMPLE MEETS ALL APPROPRIATE RADIOLOGICAL REQUIREMENTS:										HP INITIAL: <u>DF</u>																																																																																																																																																																					
RELINQUISHED BY SAMPLER:  DATE: 2/18/16 TIME: 1600										RECEIVED BY:  DATE: 2-19-16 TIME: 0900																																																																																																																																																																					
RELINQUISHED BY:  DATE: TIME:										RECEIVED BY: DATE: TIME:																																																																																																																																																																					
EDD REPORT TO: (Report Level?) EQUIS dhorne@burnsmcd.com GEL EDD mbeckman@burnsmcd.com ; ilux@envpm.com										HARD COPY REPORT (.PDF) TO: (Report Level?) ilux@envpm.com mbeckman@burnsmcd.com																																																																																																																																																																					

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DOCUMENT CONTROL:

QA Review

DATE: 02/18/2016

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QA Review

DATE: 02/18/2016



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: <u>CM RN</u>		SDG/AR/COC/Work Order: <u>3911091, 3911098, 391104</u>	
Received By: <u>MT</u>		Date Received: <u>2-19-16</u>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>gmo</u>	
Classified Radioactive II or III by RSO?	<input checked="" type="checkbox"/>	If yes, Were swipes taken of sample containers < action levels?	
COC/Samples marked containing PCBs?	<input checked="" type="checkbox"/>		
Package, COC, and/or Samples marked as beryllium or asbestos containing?	<input checked="" type="checkbox"/>	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.	
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:	
Samples identified as Foreign Soil?	<input checked="" type="checkbox"/>		

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius <u>6 C</u>
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>132462861</u> Secondary Temperature Device Serial # (If Applicable):
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 Do Low Level Perchlorate samples have headspace as required?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7 VOA vials contain acid preservation?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(If unknown, select No)
8 VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
9 Are Encore containers present?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
10 Samples received within holding time?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
11 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
12 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
13 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
14 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
16 Carrier and tracking number.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other <u>7756 8194 3380 16C</u> <u>4137 6C</u>

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials casDate 02/19/16Page 1 of 1

GL-CHL-SR-001 Rev 2

Laboratory Certification

List of current GEL Certifications as of 16 March 2016

State	Certification
Alaska	UST-0110
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122016-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-16-11
Utah NELAP	SC000122016-20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
Burns & McDonnell (CMRN)
SDG #: 391704

Sample ID	Client ID
391704002	1381
391704007	1352
391704008	1356
391704009	1348
391704012	1331
391704015	T-99
1203493391	Method Blank (MB)
1203493392	Laboratory Control Sample (LCS)
1203493398	391704002(1381L) Serial Dilution (SD)
1203493394	391704002(1381D) Sample Duplicate (DUP)
1203493396	391704002(1381S) Matrix Spike (MS)

Sample Analysis

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch:	1546418
Prep Batch :	1546415
Standard Operating Procedures:	GL-MA-E-014 REV# 27 and GL-MA-E-016 REV# 15
Analytical Method:	EPA 200.8
Prep Method :	EPA 200.2

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements

The CRDL/PQL standard recoveries met the referenced advisory control limits.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following sample was selected as the quality control (QC) sample for this SDG: 391704002 (1381).

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement

The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. The relative percent differences (RPD) between the sample and its duplicate (DUP) were within acceptable limits for all applicable analytes.

Serial Dilution % Difference Statement

All applicable analytes in the serial dilution (SDILT) demonstrated acceptable correlation to its associated sample and met the established acceptance percent difference criteria.

Technical Information**Holding Time Specifications**

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Samples 391704007 (1352) and 391704008 (1356) were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument.

Analyte	391704	
	007	008
Uranium	10X	10X

Preparation Information

The samples in this SDG were not diluted and prepared according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

A data exception report was not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391704 GEL Work Order: 391704

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- B Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Nik-Cole Elmore

Date: 15 MAR 2016

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1381
Sample ID: 391704002
Matrix: Water
Collect Date: 17-FEB-16 14:30
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		75.7	0.067	0.200	ug/L	1	BAJ	03/03/16	1925	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1352
Sample ID: 391704007
Matrix: Water
Collect Date: 18-FEB-16 10:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		149	0.670	2.00	ug/L	10	BAJ	03/04/16	1211	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1356
Sample ID: 391704008
Matrix: Water
Collect Date: 18-FEB-16 10:25
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		258	0.670	2.00	ug/L	10	BAJ	03/04/16	1213	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1348
Sample ID: 391704009
Matrix: Water
Collect Date: 18-FEB-16 10:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		67.0	0.067	0.200	ug/L	1	BAJ	03/03/16	1945	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1331
Sample ID: 391704012
Matrix: Water
Collect Date: 18-FEB-16 12:10
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		22.1	0.067	0.200	ug/L	1	BAJ	03/03/16	1948	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 15, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-99
Sample ID: 391704015
Matrix: Water
Collect Date: 18-FEB-16 14:10
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
200.2/200.8 Dissolved Uranium "As Received"											
Uranium		36.8	0.067	0.200	ug/L	1	BAJ	03/03/16	1950	1546418	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JP1	02/19/16	1730	1546415

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 15, 2016

Page 1 of 2

Environmental Properties Management, LLC

615 N. Hudson

Suite 200

Oklahoma City, Oklahoma

Contact: Mr. Jeff Lux

Workorder: 391704

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch	1546418										
QC1203493394	391704002	DUP									
Uranium		75.7		75.9	ug/L	0.351		(0%-20%)	BAJ	03/03/16	19:27
QC1203493392	LCS										
Uranium	50.0			50.8	ug/L		102	(85%-115%)		03/04/16	11:57
QC1203493391	MB										
Uranium			U	ND	ug/L					03/04/16	11:56
QC1203493396	391704002	MS									
Uranium	50.0	75.7		127	ug/L		102	(75%-125%)		03/03/16	19:30
QC1203493398	391704002	SDILT									
Uranium		75.7		15.1	ug/L	.0502		(0%-10%)		03/03/16	19:32

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Other specific qualifiers were required to properly define the results. Consult case narrative.
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

GEL LABORATORIES LLC

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QC Summary

Workorder: 391704

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
----------	-----	--------	------	----	-------	--------	------	-------	-------	------	------

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
Burns & McDonnell (CMRN)
SDG #: 391704**

Method/Analysis Information

Product: Ion Chromatography
Analytical Batch: 1546601 **Method:** EPA300.0 Fluoride in Liquid

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
391704001	1393
391704003	1385
391704004	1387
391704005	1313
391704006	1312
391704009	1348
1203493961	Method Blank (MB)
1203493962	Laboratory Control Sample (LCS)
1203493963	391691001(MWWA-03) Sample Duplicate (DUP)
1203493964	391698017(1346) Sample Duplicate (DUP)
1203493965	391691001(MWWA-03) Post Spike (PS)
1203493966	391698017(1346) Post Spike (PS)
1203493967	391691001(MWWA-03) Post Spike Duplicate (PSD)
1203493968	391698017(1346) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 25.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391691001 (MWWA-03) and 391698017 (1346) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recoveries for this sample set were within the required acceptance limits where applicable.

MS/MSD Relative Percent Difference (RPD) Statement

The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The following samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391704001 (1393), 391704003 (1385), 391704004 (1387), 391704005 (1313), 391704006 (1312) and 391704009 (1348) were diluted because target analyte concentrations exceeded the calibration range. Samples 1203493964 (1346DUP), 1203493966 (1346PS), 1203493968 (1346PSD), 391704001 (1393), 391704003 (1385), 391704004 (1387), 391704005 (1313), 391704006 (1312) and 391704009 (1348) were diluted based on historical data.

Analyte	391704					
	001	003	004	005	006	009
Fluoride	4X	2X	5X	20X	5X	2X

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations

Samples 1203493963 (MWWA-03DUP), 1203493964 (1346DUP), 1203493965 (MWWA-03PS), 1203493966 (1346PS), 1203493967 (MWWA-03PSD), 1203493968 (1346PSD), 391704004 (1387) and 391704009 (1348) were manually integrated to correctly position the baseline as set in the calibration standards.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	Nitrate Nitrite by Cadmium Reduction	
Analytical Batch:	1546807	Method: EPA 353.2 Nitrogen, Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
391704002	1381
391704003	1385
391704004	1387
391704005	1313
391704006	1312
391704007	1352
391704008	1356
391704009	1348
391704010	1319B-1
391704011	1319B-3
391704014	T-54
391704015	T-99
391704016	T-100
1203494445	Method Blank (MB)
1203494446	Laboratory Control Sample (LCS)
1203494447	391698001(T-61) Sample Duplicate (DUP)
1203494448	391698002(T-91) Sample Duplicate (DUP)
1203494449	391698001(T-61) Post Spike (PS)
1203494450	391698002(T-91) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information

All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

Samples 391698001 (T-61) and 391698002 (T-91) were selected for QC analysis.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Nitrate/Nitrite	1203494450 (T-91PS)	113* (90%-110%)

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity

All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions

The following samples 1203494447 (T-61DUP), 1203494448 (T-91DUP), 1203494449 (T-61PS), 1203494450 (T-91PS), 391704002 (1381), 391704003 (1385), 391704004 (1387), 391704005 (1313), 391704006 (1312), 391704007 (1352), 391704008 (1356), 391704009 (1348), 391704010 (1319B-1), 391704011 (1319B-3), 391704014 (T-54), 391704015 (T-99) and 391704016 (T-100) were diluted because target analyte concentrations exceeded the calibration range.

Analyte	391704													
	002	003	004	005	006	007	008	009	010	011	014	015	016	
Several	500X	1000X	100X	200X	500X	50X	10X	10X	50X	125X	500X	50X	25X	

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information**Data Exception (DER) Documentation**

A data exception report (DER) 1495027 was generated for sample 1203494450 (T-91PS) in this SDG/batch.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391704 GEL Work Order: 391704

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- H Analytical holding time was exceeded
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Thomas Lewis

Date: 14 MAR 2016

Title: Data Validator

Sample Data Summary

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1393
Sample ID: 391704001
Matrix: Water
Collect Date: 17-FEB-16 14:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		3.92	0.132	0.400	mg/L	4	RXB5	02/21/16	1255	1546601	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1381
Sample ID: 391704002
Matrix: Water
Collect Date: 17-FEB-16 14:30
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		685	8.50	25.0	mg/L	500	AXH3	02/22/16	1442	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1385
Sample ID: 391704003
Matrix: Water
Collect Date: 17-FEB-16 14:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		4.92	0.066	0.200	mg/L	2	RXB5	02/21/16	1429	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		954	17.0	50.0	mg/L	1000	AXH3	02/22/16	1509	1546807	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1387
Sample ID: 391704004
Matrix: Water
Collect Date: 17-FEB-16 15:10
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		6.19	0.165	0.500	mg/L	5	RXB5	02/21/16	1500	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		56.3	1.70	5.00	mg/L	100	AXH3	02/22/16	1449	1546807	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1313
Sample ID: 391704005
Matrix: Water
Collect Date: 17-FEB-16 15:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		47.5	0.660	2.00	mg/L	20	RXB5	02/21/16	1532	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		119	3.40	10.0	mg/L	200	AXH3	02/22/16	1511	1546807	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1312
Sample ID: 391704006
Matrix: Water
Collect Date: 18-FEB-16 09:45
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		7.92	0.165	0.500	mg/L	5	RXB5	02/21/16	1603	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		361	8.50	25.0	mg/L	500	AXH3	02/22/16	1512	1546807	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1352
Sample ID: 391704007
Matrix: Water
Collect Date: 18-FEB-16 10:05
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		59.0	0.850	2.50	mg/L	50	AXH3	02/22/16	1453	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

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Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1356
Sample ID: 391704008
Matrix: Water
Collect Date: 18-FEB-16 10:25
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		9.89	0.170	0.500	mg/L	10	AXH3	02/22/16	1513	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

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Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1348
Sample ID: 391704009
Matrix: Water
Collect Date: 18-FEB-16 10:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA300.0 Fluoride in Liquid "As Received"											
Fluoride		7.78	0.066	0.200	mg/L	2	RXB5	02/21/16	1635	1546601	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		11.3	0.170	0.500	mg/L	10	AXH3	02/22/16	1455	1546807	2
The following Analytical Methods were performed:											
Method	Description					Analyst Comments					
1	EPA 300.0										
2	EPA 353.2										

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1319B-1
Sample ID: 391704010
Matrix: Water
Collect Date: 18-FEB-16 11:20
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		46.3	0.850	2.50	mg/L	50	AXH3	02/22/16	1514	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: 1319B-3
Sample ID: 391704011
Matrix: Water
Collect Date: 18-FEB-16 11:50
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		61.0	2.13	6.25	mg/L	125	AXH3	02/22/16	1515	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-54
Sample ID: 391704014
Matrix: Water
Collect Date: 18-FEB-16 13:45
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		195	8.50	25.0	mg/L	500	AXH3	02/22/16	1517	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-99
Sample ID: 391704015
Matrix: Water
Collect Date: 18-FEB-16 14:10
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		36.8	0.850	2.50	mg/L	50	AXH3	02/22/16	1523	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

GEL LABORATORIES LLC

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Certificate of Analysis

Report Date: March 14, 2016

Company : Environmental Properties Management, LLC
Address : 615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Client Sample ID: T-100
Sample ID: 391704016
Matrix: Water
Collect Date: 18-FEB-16 14:30
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		32.3	0.425	1.25	mg/L	25	AXH3	02/22/16	1506	1546807	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 353.2	

Notes:

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 14, 2016

Page 1 of 2

Environmental Properties Management, LLC

615 N. Hudson

Suite 200

Oklahoma City, Oklahoma

Contact: Mr. Jeff Lux

Workorder: 391704

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography											
Batch	1546601										
QC1203493963	391691001	DUP									
Fluoride			9.55	9.53	mg/L	0.215		(0%-20%)	RXB5	02/23/16	23:02
QC1203493964	391698017	DUP									
Fluoride			9.89	9.88	mg/L	0.0526		(0%-20%)		02/21/16	10:49
QC1203493962	LCS										
Fluoride	2.50			2.51	mg/L		100	(90%-110%)		02/21/16	02:26
QC1203493961	MB										
Fluoride			U	ND	mg/L					02/21/16	01:55
QC1203493965	391691001	PS									
Fluoride	2.50		1.91	4.43	mg/L		101	(90%-110%)		02/23/16	23:33
QC1203493966	391698017	PS									
Fluoride	2.50		2.47	5.11	mg/L		105	(90%-110%)		02/21/16	11:20
QC1203493967	391691001	PSD									
Fluoride	2.50		1.91	4.43	mg/L	0.0113	101	(0%-20%)		02/24/16	00:04
QC1203493968	391698017	PSD									
Fluoride	2.50		2.47	5.10	mg/L	0.0823	105	(0%-20%)		02/21/16	11:52
Nutrient Analysis											
Batch	1546807										
QC1203494447	391698001	DUP									
Nitrogen, Nitrate/Nitrite			37.0	37.5	mg/L	1.34		(0%-20%)	AXH3	02/22/16	14:27
QC1203494448	391698002	DUP									
Nitrogen, Nitrate/Nitrite			20.1	18.7	mg/L	7.35		(0%-20%)		02/22/16	14:35
QC1203494446	LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.05	mg/L		105	(90%-110%)		02/22/16	14:24
QC1203494445	MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					02/22/16	14:23
QC1203494449	391698001	PS									
Nitrogen, Nitrate/Nitrite	1.00		1.48	2.53	mg/L		105	(90%-110%)		02/22/16	14:33
QC1203494450	391698002	PS									
Nitrogen, Nitrate/Nitrite	1.00		0.804	1.93	mg/L		113 *	(90%-110%)		02/22/16	14:36

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QC Summary

Workorder: 391704

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
----------	-----	--------	------	----	-------	------	------	-------	-------	------	------

Nutrient Analysis

Batch 1546807

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J Value is estimated
- N/A RPD or %Recovery limits do not apply.
- N1 See case narrative
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT			
Mo.Day Yr. 22-FEB-16	Division: Industrial	Quality Criteria: Specifications	Type: Process
Instrument Type: LACHAT Flow Injection Analyzer	Test / Method: EPA 353.2	Matrix Type: Liquid	Client Code: CMRN
Batch ID: 1546807	Sample Numbers: See Below		
Potentially affected work order(s)(SDG): 391698,391704 Application Issues: Failed Recovery for MS/MSD, or PS/PSD			
Specification and Requirements		DER Disposition:	
Exception Description: 1. Failed Recovery for MS/MSD, or PS/PSD: QC 1203494450PS		1. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity. Nitrogen, Nitrate/Nitrite 1203494450 (T-91PS) [113* (90%-110%)].	

Originator's Name:
Aubrey Kingsbury 23-FEB-16

Data Validator/Group Leader:
Kristen Mizzell 23-FEB-16

Radiological Analysis

Case Narrative

**Radiochemistry
Technical Case Narrative
Burns & McDonnell (CMRN)
SDG #: 391704**

Method/Analysis Information

Product: Alphaspec Pu, Liquid
Analytical Method: DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number: 1547835

Sample ID	Client ID
391704012	1331
391704013	1377
1203497032	Method Blank (MB)
1203497035	Laboratory Control Sample (LCS)
1203497033	391704012(1331) Sample Duplicate (DUP)
1203497034	391704012(1331) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 26.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

QC Information

All of the QC samples met the required acceptance limits.

Designated QC

The following sample was used for QC: 391704012 (1331).

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

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Qualifier Definition Report for

CMRN001 Burns & McDonnell

Client SDG: 391704 GEL Work Order: 391704

The Qualifiers in this report are defined as follows:

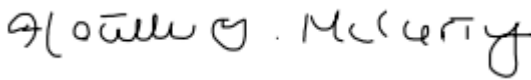
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Heather McCarty

Date: 16 MAR 2016

Title: Analyst II

Sample Data Summary

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Environmental Properties
Address : Management, LLC
615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102
Contact: Mr. Jeff Lux
Project: Cimarron February 2016 GWM

Report Date: March 16, 2016

Client Sample ID: 1331
Sample ID: 391704012
Matrix: Water
Collect Date: 18-FEB-16
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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Rad Alpha Spec Analysis

Alphaspec Pu, Liquid "As Received"

Plutonium-238	U	-0.0132	+/-0.197	0.461	+/-0.198	1.00	pCi/L		JXE2	03/07/16	0954	1547835	1
Plutonium-239/240	U	0.00263	+/-0.195	0.433	+/-0.195	1.00	pCi/L						

The following Analytical Methods were performed

Method	Description
--------	-------------

1	DOE EML HASL-300, Pu-11-RC Modified
---	-------------------------------------

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1547835	80.3	(15%-125%)

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Environmental Properties
Address : Management, LLC
615 N. Hudson
Suite 200
Oklahoma City, Oklahoma 73102

Report Date: March 16, 2016

Contact: Mr. Jeff Lux

Project: Cimarron February 2016 GWM

Client Sample ID: 1377
Sample ID: 391704013
Matrix: Water
Collect Date: 18-FEB-16
Receive Date: 19-FEB-16
Collector: Client

Project: CMRN00117
Client ID: CMRN001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	-------------	-----	-----	----	-------	----	---------	------	------	-------	------

Rad Alpha Spec Analysis

Alphaspec Pu, Liquid "As Received"

Plutonium-238	U	0.00	+/-0.139	0.207	+/-0.139	1.00	pCi/L		JXE2	03/07/16	0954	1547835	1
Plutonium-239/240	U	0.0358	+/-0.199	0.381	+/-0.199	1.00	pCi/L						

The following Analytical Methods were performed

Method	Description
--------	-------------

1 DOE EML HASL-300, Pu-11-RC Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1547835	80.6	(15%-125%)

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Quality Control Summary

GEL LABORATORIES LLC

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QC Summary

Report Date: March 16, 2016

Page 1 of 2

Client : Environmental Properties Management, LLC
615 N. Hudson

Suite 200
Oklahoma City, Oklahoma

Contact: Mr. Jeff Lux

Workorder: 391704

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	1547835										
QC1203497033	391704012	DUP									
Plutonium-238	U	-0.0132	U	0.0598	pCi/L	0		N/A	JXE2	03/07/1609:54	
	Uncert:	+/-0.197		+/-0.298							
	TPU:	+/-0.198		+/-0.298							
Plutonium-239/240	U	0.00263	U	0.0569	pCi/L	0		N/A			
	Uncert:	+/-0.195		+/-0.255							
	TPU:	+/-0.195		+/-0.255							
QC1203497035	LCS										
Plutonium-238			U	0.123	pCi/L				JXE2	03/07/1609:54	
	Uncert:			+/-0.325							
	TPU:			+/-0.325							
Plutonium-239/240	19.8			19.6	pCi/L		99.4	(75%-125%)			
	Uncert:			+/-2.46							
	TPU:			+/-3.64							
QC1203497032	MB										
Plutonium-238			U	0.0237	pCi/L				JXE2	03/07/1609:54	
	Uncert:			+/-0.248							
	TPU:			+/-0.248							
Plutonium-239/240			U	-0.0609	pCi/L						
	Uncert:			+/-0.184							
	TPU:			+/-0.184							
QC1203497034	391704012	MS									
Plutonium-238	U	-0.0132	U	0.0662	pCi/L				JXE2	03/07/1609:54	
	Uncert:	+/-0.197		+/-0.355							
	TPU:	+/-0.198		+/-0.355							
Plutonium-239/240	19.8	U	0.00263	20.7	pCi/L		105	(75%-125%)			
	Uncert:	+/-0.195		+/-2.47							
	TPU:	+/-0.195		+/-3.72							

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.

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QC Summary

Workorder: 391704

Page 2 of 2

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.									
M	M if above MDC and less than LLD									
M	REMP Result > MDC/CL and < RDL									
N/A	RPD or %Recovery limits do not apply.									
N1	See case narrative									
ND	Analyte concentration is not detected above the detection limit									
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.									
R	Sample results are rejected									
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.									
UI	Gamma Spectroscopy--Uncertain identification									
UJ	Gamma Spectroscopy--Uncertain identification									
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.									
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.									
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.									
h	Preparation or preservation holding time was exceeded									

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

** Indicates analyte is a surrogate/tracer compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.



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