

SITE CHARACTERIZATION REPORT ADDENDUM

Targeted Brownfield Assessment

**Muskogee Port Authority
Muskogee County, Oklahoma**

May 03, 2011

Prepared by:

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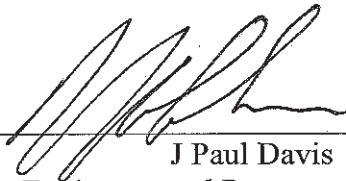
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Environmental Professional in charge of the project:

I declare that to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of this part. I have specific qualifications based on education, training, and experience to assess a property of the nature, history and setting of the subject property. I have developed and performed the all appropriate inquiry in conformance with the standards and practices set forth in 40 CFR Part 312.



J Paul Davis
Environmental Programs Specialist



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1. Introduction

The Site Characterization Report dated February 1, 2007 identified Trichloroethene (TCE) in ground water at concentrations up to 37,000 micrograms per liter ($\mu\text{g/L}$). While this concentration far exceeds the drinking water standard of 5 $\mu\text{g/L}$, exposure via the pathway of direct ingestion can be prevented by institutional controls prohibiting the installation of water wells on the property and preventing occupants from drinking the water.

Of greater concern is that these concentrations of TCE also exceed the Target Groundwater Concentration screening level of 5 $\mu\text{g/L}$.¹ In any area where this screening level is exceeded, mitigation of soil vapor intrusion should be considered in occupied buildings, whether the use of the buildings is residential or industrial. Commonly, the technology used is very similar to that used to mitigate radon intrusion, and for new construction is available at a modest increase in construction and operating cost. If the groundwater is later remediated, it may be possible to stop the vapor mitigation system and its associated operating cost.

The purpose of this Addendum to the Phase II Assessment was to better characterize the extent of the plume of trichloroethene exceeding drinking water standards and target groundwater concentrations in the groundwater, and the gradients driving groundwater movement under the property.

This information is intended to better delineate areas of concern that might need additional investigation, vapor mitigation and/or remediation prior to a new tenant building on the site.

The DEQ is providing technical assistance to the project by evaluating the environmental condition of the property. Funding for this assessment has been provided by the U.S. Environmental Protection Agency (EPA).

1.1 Location and Legal description

The approximate center of the proposed redevelopment site has the coordinates of 35° 46' 29" north latitude and 95° 18' 29" west longitude, and is located in the floodplain of the Arkansas River (Webber Falls Reservoir), a meander of which loops from a point approximately 1.3 miles to the north, to a point 1500 feet to the east. The property is bounded on the south and east by the FMRI, Inc. (formerly Fansteel, Inc.) property, on the west by the 46th Street and by another parcel owned by the Port, and on the north by Don Cayo Boulevard. A topographic vicinity map is presented in Figure 1.

¹ This screening level represents the groundwater concentration which results in a lifetime risk of cancer of 10^{-5} (one in one hundred thousand) from being exposed by inhalation of the associated soil vapor intruding into a residence under default exposure conditions, as described in EPA's draft Subsurface Vapor Intrusion Guidance (EPA, 2002). A screening level based on industrial exposure criteria might be double the Target Groundwater Concentration, but would still clearly be much lower than the TCE concentrations measured. Exposure criteria are described in EPA's interim final Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A) (EPA, 1989).

1.2 Previous Work

For background information on the property the DEQ relied on the 1999 Earth Sciences Phase I Environmental Assessment Report (Ref. 2) and the DEQ's 2007 Phase I Targeted Brownfield Assessment (Ref. 3) of the property directly to the south of the property in question. The DEQ mobilized to the site to collect samples on two occasions, September 6-7 and December 12-13, 2006. During the first sampling event, the DEQ collected composite surface soil samples, subsurface soil samples, and groundwater samples. During the second sampling event, only groundwater samples were collected. The State Environmental Laboratory analyzed the samples and validated the data. The sampling results, analytical data, and description of future actions to be taken by the DEQ were summarized in the Site Characterization Report, dated February 1, 2007. Figure 2 shows the sample locations from work in 2006 and 2010-2011.

Because the temporary wells were removed within days of their installation and were not surveyed, ground-water gradient directions could not be measured, and had to be assumed based on the site's proximity to the Arkansas River to the east, and on hydraulic gradient information submitted to the Nuclear Regulatory Commission as a license condition for the FMRI facility to the east.

2. Sampling Activities

Five additional temporary shallow monitoring wells, MW-01 through MW-05, were installed on December 6 and December 7, 2010. The locations of these temporary wells and the previous soil borings are shown in Figure 2. Soil head-space readings were performed on core samples collected during drilling, and soil from the interval with the highest reading was submitted to the State Environmental Laboratory for analysis for VOC using EPA Method 8260.

The temporary wells were completed with 2-inch Schedule 40 PVC risers and 0.010-inch factory-slotted PVC screens, lockable protective covers and concrete pads in accordance with Oklahoma Water Resource Board regulations, so they could be left in place long enough for water levels to equilibrate. Table 1 lists the approximate locations and justification of the 2006/2007 and 2010 sample locations.

Table 1: Sample Locations

Sample Number	Location	Matrix	Justification
GW01 (MPA-1) 9/7/06	Northeast corner of site,	Aqueous (Grab)	Indicator of hazardous substances in ground water on site
GW02 (MPA-2) 9/7/06	Southeast corner of site	Aqueous (Grab)	Indicator of hazardous substances in ground water on site
GW03 (MPA-3) 9/7/06	Southwest part of site	Aqueous (Grab)	Indicator of hazardous substances in ground water on site

Sample Number	Location	Matrix	Justification
GW04 (MPA-1) 9/7/06	Duplicate water sample of GW01	Aqueous (Grab)	Indicator of hazardous substances in ground water on site / QA sample
SS01 9/6/06	Soils from monitoring well #1	Soil/Sediment (Grab)	Screening for hazardous substances in soil
SS02 9/6/06	Soils from monitoring well #2	Soil/Sediment (Grab)	Screening for hazardous substances in soil
SS03 9/6/06	Soils from monitoring well #3	Soil/Sediment (Grab)	Screening for hazardous substances in soil
SS04 9/6/06	Duplicate soil sample at monitoring well #1	Soil/Sediment (Grab)	Screening for hazardous substances in soil / QA sample
SS05 9/6/06	Northeast part of site 0-6" below surface	Soil (Five Point Composite)	Screening for hazardous substances in soil
SS06 9/6/06	Southeast part of site 0-6" below surface	Soil (Five Point Composite)	Screening for hazardous substances in soil
SS07 9/6/06	Southwest part of site 0-6" below surface	Soil (Five Point Composite)	Screening for hazardous substances in soil
SS08 9/6/06	Central part of site in area of old pond 0-6" below surface	Soil (Five Point Composite)	Screening for hazardous substances in soil
SS09 9/6/06	Northwest part of site 0-6" below surface	Soil (Five Point Composite)	Screening for hazardous substances in soil
SS10 9/6/06	Duplicate soil sample SS05	Soil (Five Point Composite)	Screening for hazardous substances in soil/QA sample
MPA-2W 12/12/06	~ 250 ft. west of impacted well MPA-2	Aqueous (Grab)	Indication of extent of chlorinated solvent plume
MPA-2N 12/12/06	~ 250 ft. north of impacted well MPA-2	Aqueous (Grab)	Indication of extent of chlorinated solvent plume
MPA-2E 12/13/06	~ 250 ft. east of impacted well MPA-2	Aqueous (Grab)	Indication of extent of chlorinated solvent plume
MPA-2NA 12/13/06	~ 500 ft. north of impacted well MPA-2	Aqueous (Grab)	Indication of extent of chlorinated solvent plume
MPA-4N 12/13/06	~ 500 ft. north of impacted well MPA-2	Aqueous (Grab)	Indication of extent of chlorinated solvent plume
MW-01 12/06/10 (Soil) 12/14/10 (GW)	~ 420 ft NW of MPA-2W	Soil and Aqueous (Grab)	Indication of hydraulic gradient and extent of chlorinated solvent plume
MW-02 12/06/10 (Soil) 12/14/10 (GW)	~ 100 ft N of MPA-2N-A	Soil and Aqueous (Grab)	Indication of hydraulic gradient and extent of chlorinated solvent plume
MW-03 12/06/10 (Soil) 12/14/10 (GW)	~ 100 ft N of MPA-2	Soil and Aqueous (Grab)	Indication of hydraulic gradient and extent of chlorinated solvent plume
MW-04 12/07/10 (Soil) 12/14/10 (GW)	~ 200 ft W of MPA-2W	Soil and Aqueous (Grab)	Indication of hydraulic gradient and extent of chlorinated solvent plume
MW-05 12/07/10 (Soil) 12/14/10 (GW)	~ 70 ft SW of MPA-2E	Soil and Aqueous (Grab)	Indication of hydraulic gradient and extent of chlorinated solvent plume

Drill cuttings and purge water were drummed and left on site. DEQ will arrange for a state contractor to remove and properly dispose of the drums. There was a deviation from the Quality

Assurance Project Plan during this project. Quality Control rinsate samples were not collected after the decontamination of the drilling equipment, between samples. It is not expected that this has any affect on the data since the levels of contamination are very high.

The elevations of tops-of-casing, ground levels and top-of concrete pads (relative to an arbitrary datum, not to Mean Sea Level) were surveyed by DEQ personnel the following week. Relative elevations are known to within 0.02 feet, based on the closure error of the survey. Water levels were measured on December 14, 2010 (a week after installation) and again on January 28, 2011. The wells were not checked for the presence of dense, non-aqueous phase liquid (DNAPL).

3. Findings

Analytical results are summarized in Table 2 and 3; the laboratory analytical reports are in Appendix A.

Surface Soil

No surface soils were tested in 2010.

Previously, however, the surface soils were tested in 2006 for metals contamination due to the former operations of Fansteel, Inc. The Phase I ESA and DEQ's institutional knowledge of the area showed no reason to suspect organic contaminants in the surface soil of this property. However, because fugitive metal dust from Fansteel/FMRI could have impacted this property, samples for metals analyses were collected in 2006. As reported in the 2007 report, the laboratory analyses did not detect metal contamination in the surface soil above EPA Region 6's screening levels for outdoor industrial workers.

Subsurface Soil

During the December 2010 sampling event, subsurface soil samples were collected from MW-01, MW-02, MW-03, MW-04 and MW-05, and were analyzed for Volatile Organic Compounds (VOC) using EPA Method 8260. Only trichloroethene (TCE) was detected, and that was in a duplicate sample, collected to assess sampling uncertainty, for MW-03 (480 micrograms per kilogram or $\mu\text{g/kg}$, estimated value) at a depth of 24.0 to 24.5 feet. The actual sample for the same interval, and all the other soil samples collected in the December 2010 sampling event, had TCE concentrations below the detection limit of 15 $\mu\text{g/kg}$, which was well below the EPA Regional Screening Level² (RSL) of 0.014 $\mu\text{g/kg}$ for industrial soil for TCE. The RSL replaces the EPA Region 6 screening level. However, this TCE detection limit was over the "Protection of ground water" RSL of 1.8 $\mu\text{g/kg}$, which indicates the risk should be considered that this compound could leach from the soil into groundwater at concentrations greater than drinking water standards. The December 2010 soil samples were not analyzed for semivolatile compounds or metals.

² Published RSL values for soil are expressed in milligrams per kilogram (mg/kg), but have been converted to micrograms per kilogram ($\mu\text{g/kg}$) for comparison purposes in this report.

As noted in the 2007 report, during the September 2006 sampling event, subsurface soils samples were collected in MPA-1, MPA-2, and MPA -3. Only MPA-2 showed elevated levels of trichloroethene (aka trichloroethylene and TCE). This sample location had 3000 micrograms per kilogram ($\mu\text{g/kg}$) of TCE at a depth of 30.5 feet below ground surface (bgs) and 12,000 $\mu\text{g/kg}$ arsenic at 27 feet bgs. The EPA Region 6 industrial outdoor worker screening level for TCE is 100 ($\mu\text{g/kg}$) and for arsenic it is 1800 $\mu\text{g/kg}$.

Ground water

Because the focus of the Addendum Site Characterization work was on determining the extent of potential soil vapor intrusion issues and on determining hydraulic gradients, during the 2010 sampling event, ground water samples were analyzed only for VOC.

Water level elevations measured on December 14, 2010 and January 28, 2011, and the resulting potentiometric surface contours are shown in Figures 3 and 4, respectively. The December 2010 potentiometric surface shows a hydraulic gradient to the north between MW-03, MW-04 and MW-05, near the south property line with FMRI, and to the west between MW-01, MW-03 and MW-05 near the east property line with FMRI, and converging to a northwesterly direction near MW-02. The January 2011 potentiometric surface is similar, but does not show the westerly gradient between MW-01, MW-03 and MW-05. For both events, the potentiometric surface gradients differ from the easterly gradient previously assumed, based on gradients reported by FMRI, and the implications of this new gradient information are discussed in the section “Fate and Transport” below.

The ground water analytical results are summarized in Table 2, and are plotted against well location in Figure 5.

As tabulated in Table 2, the highest TCE concentrations in ground water were in MW-03 (25,000 $\mu\text{g/L}$), MW-01 (490 $\mu\text{g/L}$) and MW-04 (420 $\mu\text{g/L}$). This distribution is consistent with the 2006 results. The laboratory detection limits for the sample from MW-03 were too high to determine whether Tetrachloroethene (PCE), 1,1,1-Trichloroethane (1,1,1-TCA) and 1,1-Dichloroethene (1,1-DCE) were present in concentrations consistent with those found in GW-02 (aka MPA-2) and MPA-2N in 2006. The highest concentrations appear to lie within a south-to-north trending band or “plume” between the south property line, MW-03 and MW-01, and including the locations of the abandoned wells GW-02 and MPA-2-N and MPA-2N-A.

Figure 5 shows the distribution of these compounds based on the combined 2006 and 2010 sampling events. The combined results suggest that the concentration of TCE in the ground water is high enough that measures to mitigate soil vapor intrusion should be considered in any occupied buildings on the property east of MW-04 and south of MW-01.

Fate and Transport

Based on the hydraulic gradients and contaminant distributions, we suspect the plume may have originated as a small spill of organic solvent or solvents, consisting mainly of TCE, somewhere

to the south. Such solvents, if released to the environment, can form a "dense, non-aqueous phase liquid" (DNAPL).

DNAPL was not observed at the site; the TCE and other compounds we observed at the site were dissolved in water. At other sites, however, concentrations as high as those observed in MW-03 have been associated with the presence of DNAPL nearby. When released to the environment, DNAPL can sink through the soil and substrate until it encounters low-permeability material such as bedrock. The DNAPL would then follow the contour of the bedrock.

Whether present in dissolved form or as DNAPL, as these compounds migrate, they degrade. Under anaerobic conditions, as are normally present deep in the subsurface, tetrachloroethene will naturally degrade into trichloroethene, which will in turn degrade into its "daughter" or degradation products; 1,1-dichloroethene, cis-1,2-dichloroethene, and trans-1,2-dichloroethene. These daughter products are present in the samples but in low concentrations. Ultimately these chemicals degrade to vinyl chloride, which was not detected during this sampling event. Vinyl chloride is more resistant to anaerobic degradation, but will degrade to ethane under aerobic conditions (Center for Public Environmental Oversight, 1998).

The source and ultimate fate of the plume are still not known. More information is needed before DEQ can determine what necessary actions need to be taken to manage the risk.

Due to the potential impact this plume might have on FMRI's waste water discharge permit, DEQ's Water Quality Division is reevaluating FMRI's Oklahoma Pollution Discharge Elimination System (OPDES) permit. DEQ's requests to sample FMRI's potentially affected monitoring wells for volatile organic compounds have so far been denied, but discussions are ongoing. The information gained from this sampling event could give some detail about the southern and eastern extent of the plume. It may not provide enough detail to determine the origination of the plume.

Quality Assurance/Quality Control

The EPA Approved Quality Assurance Project Plan for Targeted Brownfield Assessments was followed during this assessment. There was one deviation; rinsate samples were not collected after the decontamination of the drilling equipment, between borings.

Duplicate samples were collected at selected locations to evaluate the accuracy of the laboratory. They were not collected for comparison to screening levels

Water samples were not filtered in the field. The metal contamination may be representative of suspended sediment and not dissolved metals in the groundwater.

Table 2: Summary of the VOC Analytical Results for Ground Water Samples
[micrograms per liter (µg/L)]

Chemical Name	MCL (µg/L)	GW01 MPA – 1 30 ft 9/7/06	GW02 MPA-2 35 ft 9/7/06	GW03 MPA-3 37.5 ft 9/7/06	GW04 MPA-1 30 ft Dup. of GW01 9/7/06	MPA-2W 35 ft 12/12/06	MPA-2E 30 ft 12/13/06	MPA-2N 24 ft 12/12/06	MPA-2NA 24 ft 12/13/06	MPA-4N 24 ft Dup. of MPA- 2NA 12/13/06
Tetrachloroethene	5	< 10	69 J	< 10	< 10	< 10	< 10	< 100	< 10	< 100
1,1-Dichloroethene	7	< 10	1500	< 10	< 10	< 10	< 10	< 100	250	290
1,1,1-Trichloroethane	200	< 10	320	< 10	< 10	< 10	< 10	< 100	62	71
Trichloroethene	5	< 10	37000	< 10	< 10	83	610	12000	6500	6900
Cis-1,2-Dichloroethene	70	----	93 J	----	----	----	80	----	----	----

Chemical Name	MCL (µg/L)	MW-01 14.5-24.5 ft 12/14/10	MW-02 24.5-34.5 ft 12/14/10	MW-03 21.0-31.0 ft 12/14/10	MW-04 27.3-37.3 ft 12/14/10	MW-05 19.5-29.5 ft 12/14/10
Tetrachloroethene	5	< 50	< 10	< 2000	< 10	< 50
1,1-Dichloroethene	7	< 50	< 10	< 2000	< 10	< 50
1,1,1-Trichloroethane	200	< 50	< 10	< 2000	< 10	< 50
Trichloroethene	5	490	< 10	25000	< 10	420
Cis-1,2-Dichloroethene	70		< 10	< 2000	< 10	59

---- Analyzed for but not detected

< Analyzed for but not detected (detection limit stated)

xxx Not analyzed for

J Estimated value

JB Also found in blanks, estimated value

Exceeds EPA's Maximum Contaminant Level for Groundwater

Estimated Value ("J" or "JB") exceeds MCL

Detection Limit exceeds MCL

Table 3: Summary of the VOC Analytical Results for Soil Samples
[micrograms per kilograms (µg/kg)]

Chemical Name	Industrial Outdoor Screening Levels (µg/kg)	SS-01 MPA – 1 22 ft 09/06/06	SS-02 MPA-2 30.5 ft 09/06/06	SS-03 MPA-3 31 ft 09/06/06	SS-04 MPA-1 Duplicate of SS03 09/06/06	SS-11 MPA-2 27 ft 09/06/06
Tetrachloroethene		< 12	< 120	< 12	< 10	< 12
1,1-Dichloroethene	1,100,000	< 12	44 J	< 12	< 10	< 12
1,1,1-Trichloroethane	38,000,000	< 12	25 J	< 12	< 10	< 12
Trichloroethene	14,000	< 12	3000	< 12	< 10	48

Chemical Name	Industrial Outdoor Screening Levels (µg/kg)	MW-01 17.0-17.5 ft 12/06/10	MW-02 1.5-1.6 ft 12/06/10	MW-03 14.5-14.6 ft 12/06/10	MW-03 24.0-24.5 ft 12/06/10	MW-03 24.0-24.5 ft DUP 12/06/10	MW-04 29.5-29.6 ft 12/07/10	MW-05 24.5-24.6 ft 12/07/10
Tetrachloroethene		< 15	< 15	< 15	< 15	< 16	< 15	< 15
1,1-Dichloroethene	1,100,000	< 15	< 15	< 15	< 15	< 16	< 15	< 15
1,1,1-Trichloroethane	38,000,000	< 15	< 15	< 15	< 15	< 16	< 15	< 15
Trichloroethene	14,000	< 15	< 15	< 15	< 15	480 J	< 15	< 15

---- Analyzed for but not detected

xxx Not analyzed for

J Estimated value

JB Also found in blanks, estimated value

Above industrial outdoor worker screening levels

4. Conclusions

The analyses of the samples collected from the Port of Muskogee's property indicate high levels of chlorinated solvents and metals in the groundwater. The metals are discussed in the 2007 report.

The extent of dissolved TCE in the ground water is now thought to include much of the easternmost 400 feet of the property, and the potential for soil vapor intrusion should be considered over the easternmost 600 feet of the property. TCE was detected at a very high concentration in MW-03 (slightly lower than the concentration in MPA-2 in 2006), and with concentrations that are somewhat smaller, but still well above Target Groundwater Levels³ in wells MW-05 and MW-01. The plume appears to have spread to the north, based on concentration gradients and groundwater gradients. TCE is a volatile organic compound and whether present as a dense non-aqueous liquid or a dissolved at low concentrations in ground water, it volatilizes. The gaseous TCE can move considerable distances vertically and horizontally through the soils, and can accumulate within surface structures. The 2007 report noted headspace readings using a Photoionization Detector (PID) of organic vapor, at a depth of three feet in GW-01, near the north end of the property, although the composition of the organic vapor was not determined.

Volatile organic vapors from the soil have the potential to enter and concentrate inside buildings. These vapors move depending on pressure gradients – from high pressure to low pressure (DEQ, 2007). Disturbing the subsurface changes the pressure gradient – this is especially true when installing subgrade structures such as sewers. The packing around the sewer lines is less compacted than the soils around it and vapors can migrate into buildings through this media. Engineering controls such as vapor barriers can help prevent the vapors from entering the buildings because they effectively seal the foundation and around utility corridors.

The temporary monitoring wells MW-01 through MW-05 have been left in place pending a decision from the Muskogee Port Authority whether to pursue source identification, plume tracking, or cost recovery.

Any new development of the surface should take into consideration the environmental issues in the subsurface. The design and construction engineers for new development on the property should be made aware of the groundwater plume and the potential for soil vapor intrusion into occupied structures.

5. Environmental Professional's Opinion

There is a known ground water plume under the easternmost 600 feet of the site. The extent and source of the plume has not been determined. The plume should be investigated further. The ground water under the site should not be used. Care should be taken during construction to ensure that vapors from the plume do not have a conduit into structures.

³ Target Groundwater Levels are screening levels above which the risk of soil vapor intrusion should not be ignored.

The DEQ has repeatedly been denied access from FMRI to investigate the ground water under FMRI's property since the contaminants may also be reaching FMRI's ground water treatment system. This investigation would provide some information about the extent of the plume.

6. Recommendations

The DEQ will continue to inform the Port of any additional information/data it finds during its investigations. As the Port and its tenants proceed with their development plans, they should consider vapor intrusion mitigation in the design of any occupied structures in the eastern portion of the subject property. If anything unusual is found during construction, the Port should notify the DEQ of the discovery. The DEQ will work with the Port to resolve the environmental issues that have been discovered. The DEQ stands ready to remove the wells, should the Port Authority decide not to pursue source identification, plume tracking or cost recovery associated with the plume of dissolved TCE.

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Figures

Figure 1: Topographic Map

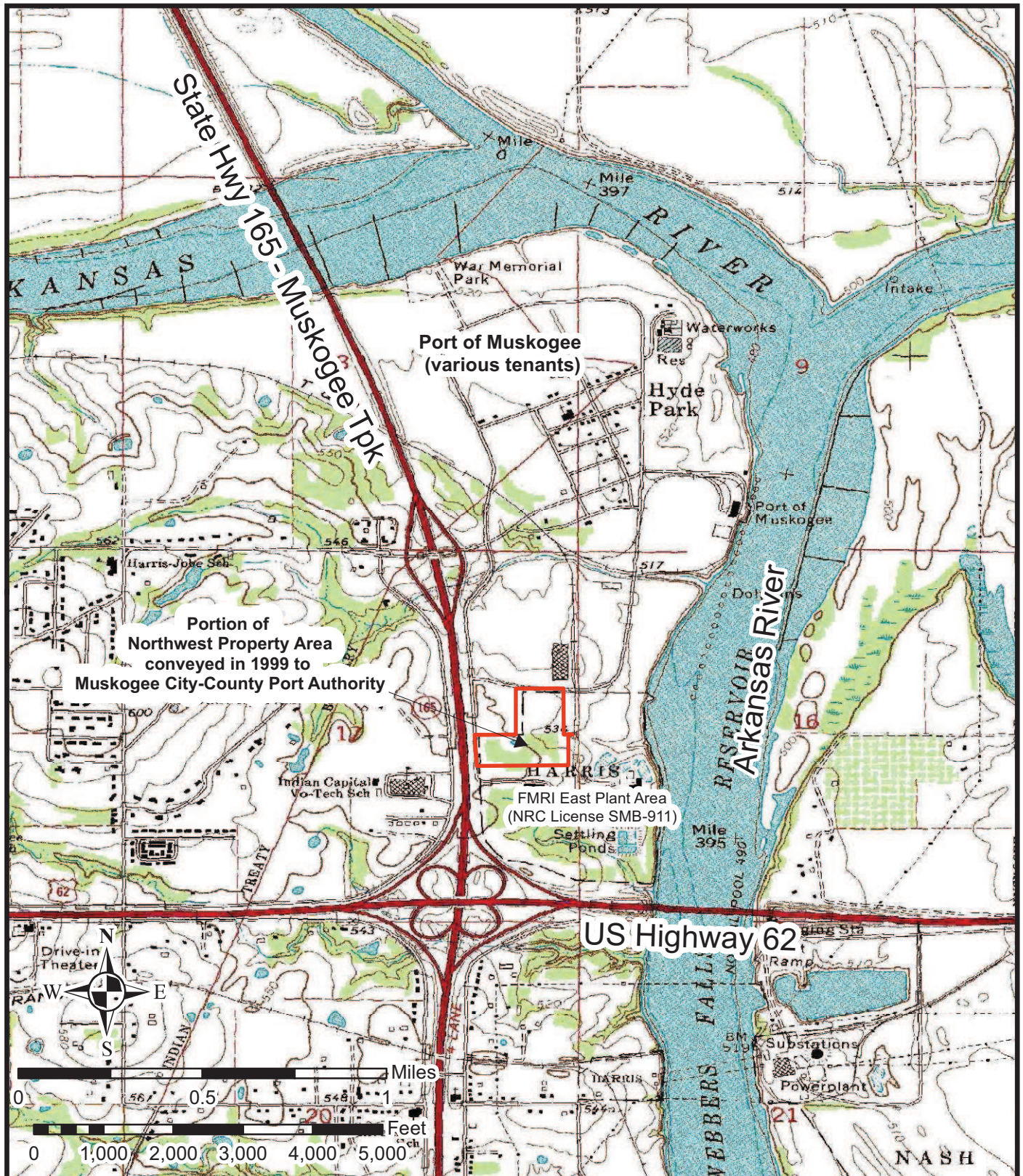
Figure 2: Site Map with Sample Locations

Figure 3: Relative Water Level Elevations (12/07/10)

Figure 4: Relative Water Level Elevations (01/28/11)

Figure 5: Historic Volatile Organic Compounds in Ground Water

**Figure 1: Topographic Location Map
Muskogee Port Authority / FMRI Site
Muskogee, OK**



Map created by Savannah Richards
on 03/14/2011.

**Figure 2: Well and Sampling Point Locations
Muskogee Port Authority / FMRI Site
Muskogee, OK**

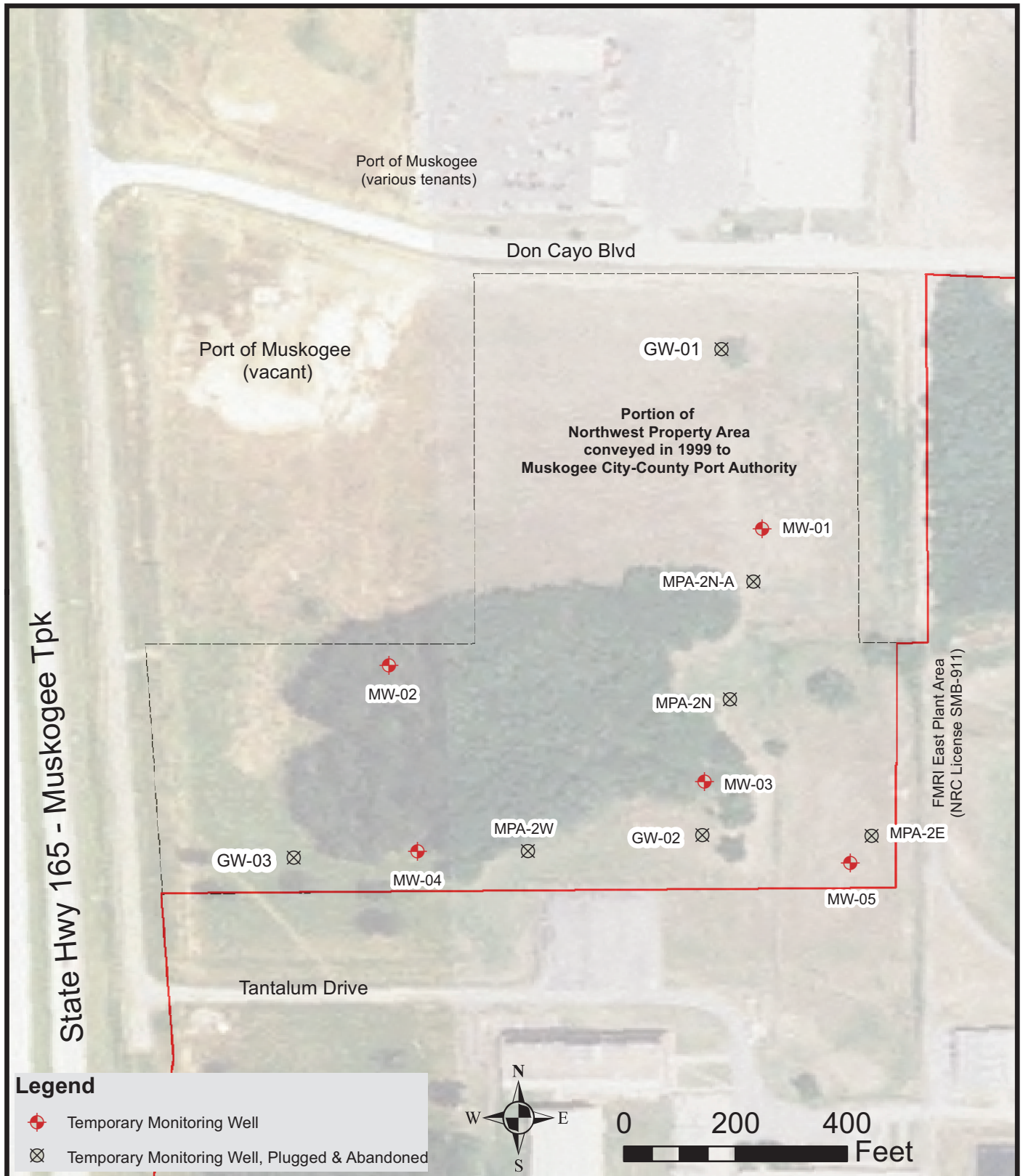
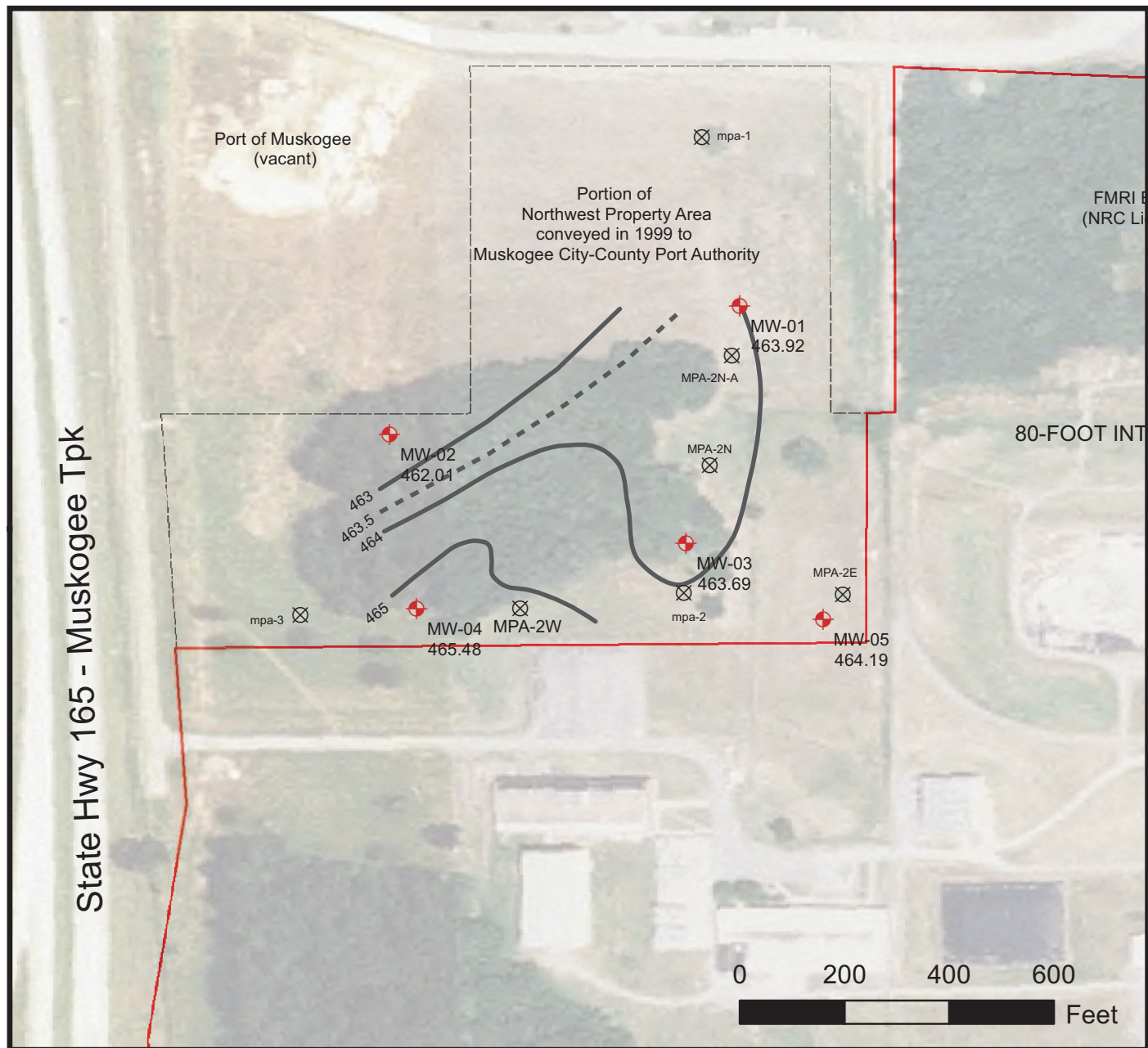


Figure 3: Relative Water Level Elevations (12/07/10)
Muskogee Port Authority / FMRI Site
Muskogee, OK



Legend

- ◆ Temporary Monitoring Wells with Water Level Elevations from 12/07/10
- × Temporary Monitoring Well, Plugged & Abandoned

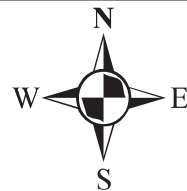
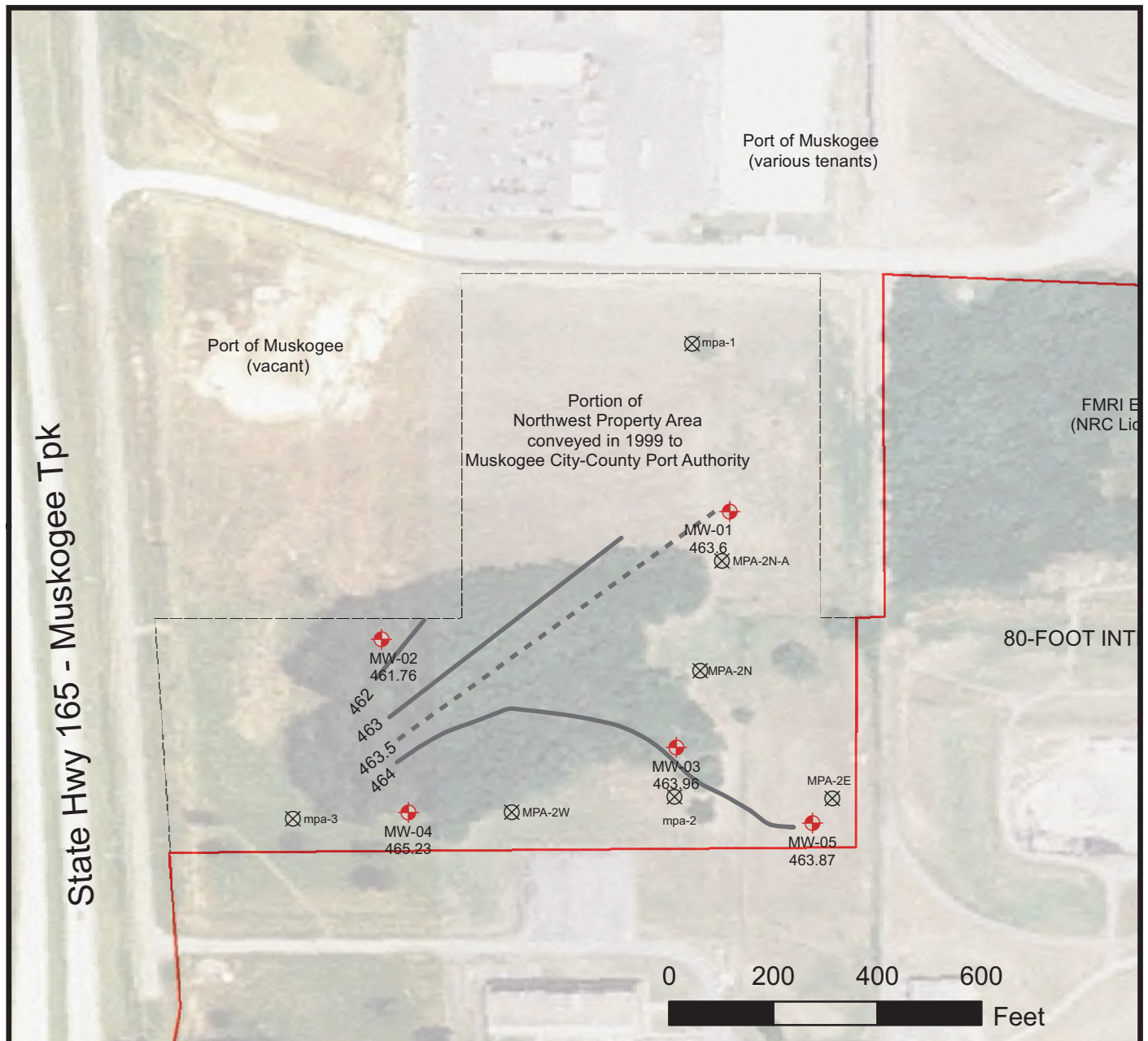


Figure 4: Relative Water Level Elevations (01/28/11)
Muskogee Port Authority / FMRI Site
Muskogee, OK

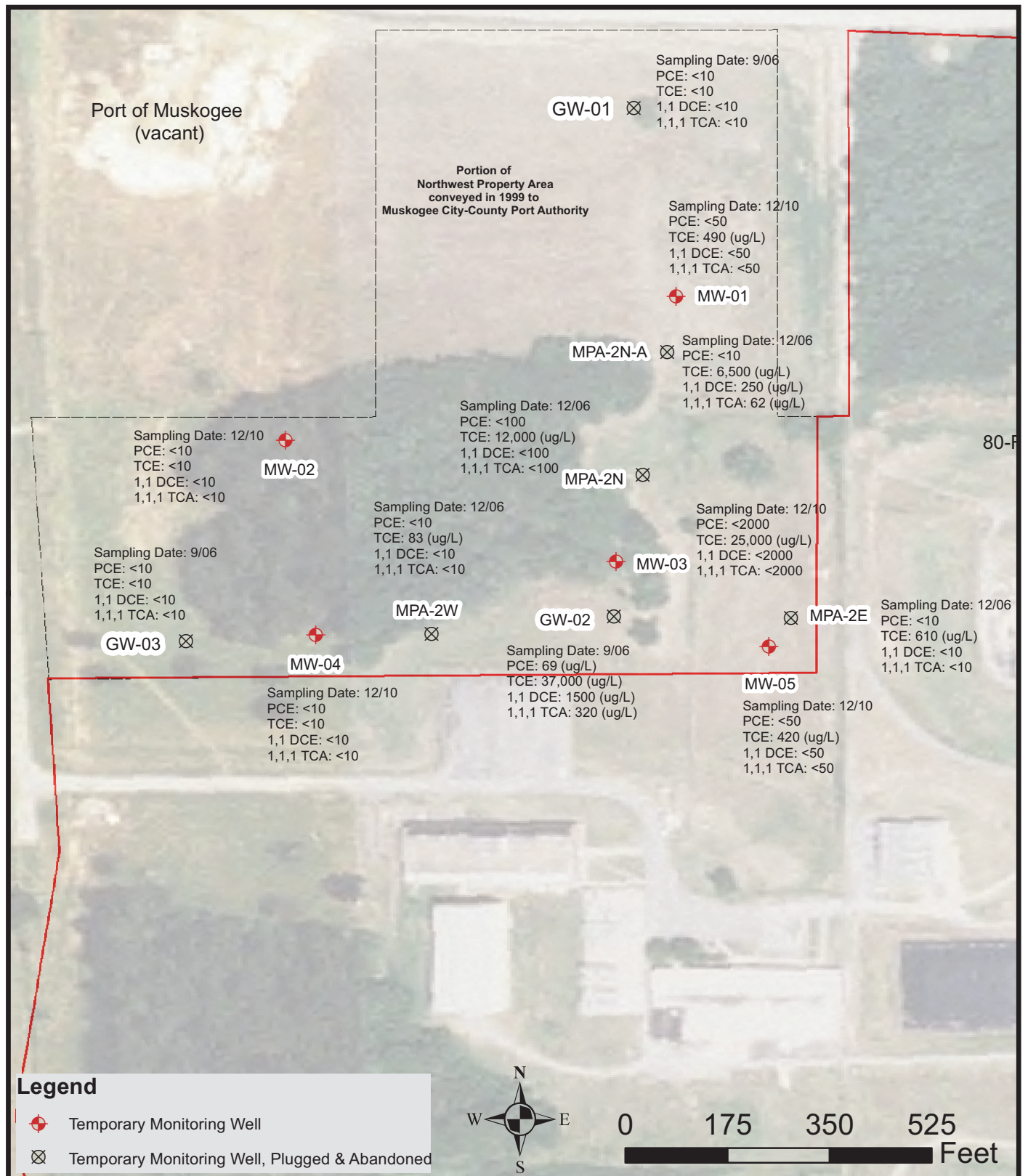


Legend

- ✕ January 2011 Temporary Monitoring Wells with Water Level Elevations from 01/28/11
- ✕ Temporary Monitoring Well, Plugged & Abandoned



**Figure 5: Historic Volatile Organic Compounds in Ground Water
Muskogee Port Authority / FMRI Site
Muskogee, OK**



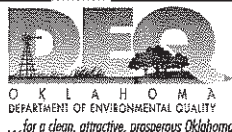
Appendix A:

Boring Logs

DRILLING/SAMPLING ACTIVITY RECORD				PROJECT CODE	SAMPLING PERSONNEL	Date
				292054509	J Paul Davis, Travis Estes, Hal Cantwell	12/6/2010
SITE Muskogee City-County Port Authority, FMRI NW Property				SAMPLING STATION	COORDINATES	SHEET NO.
				MW-01	35.780358 N, 95.308187 W	1
DRILLING METHOD/EQUIPMENT				HOLE SIZE	DRILLING CONTRACTOR/DRILLER'S NAME	
Hollow Stem Auger				2 inch well	Davis Drilling / Roland Davis	
CHRONOLOGICAL RECORD				SKETCH (LOCATION, ORIENTATION, FACILITIES, OTHER NOTES)		
TIME		ACTIVITY				
14:00		Start drilling				
15:40		Well complete				
GROUND EL.				T/CASING EL.		DEPT H H2O
						TIME/ DATE
				GROUTING (Mix Design, Method) Temporary well - Screen 14.5'-24.5', Sand pack 13'-27', bentonite chips 2'-13', concrete 0'-2' with lockable above-grade cover.		DECONTAMINATION (Method) High pressure water spray

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION
0'		ML	Moist, dark brown 7.5YR3/4 slightly clayey silt TOPSOIL with roots, 0' - 1.5'					
1'							0.0	
2'		MH	Slightly moist to dry, hard, grayish brown 10YR5/2 clayey silt with occasional roots or root traces, 1.5'-13'	100%				
3'								
4'								
5'								
6'								
7'				100%				
8'							0.0	
9'								
10'			Becomes reddish yellow 5YR6/8 mottled with light gray below 10'.					
11'				100%				
12'								
13'		ML	Slightly moist reddish brown, slightly clayey sandy silt 13' - 15'				0.6	
14'					14-14.5	15:30		
15'								
16'		MH	Slightly moist strong brown mottled with reddish brown clayey silt with root traces, 15' - 17'	100%			4.4	
17'		MH	Slightly moist, stiff yellowish red 5YR5/6 clayey silt, 17'-19.5'		17-17.5	15:30		
18'								
19'							2.0	
20'		SM	Moist reddish yellow 7.5YR6/6 silty fine sand, 19.5' - 20'					
		SM	Moist yellowish brown 10YR5/4 fine silty sand 20' - 25'					



SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD	PROJECT CODE	SAMPLING PERSONNEL		Date
	292054509	J Paul Davis, Travis Estes, Hal Cantwell		12/6/2010
SITE Muskogee City-County Port Authority, FMRI NW Property	SAMPLING STATION		COORDINATES	SHEET NO.
	MW-01		35.780358 N, 95.308187 W	2

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION
21'		SM						
22'			Becomes strong brown 22'-23'	60%				
23'								
24'							1.5	
25'		SH	Dark gray shale, friable, 25.0' - 27.0' TD. Breaks into irregular, sharp 1- to 5-mm thick flakes				0.0	
26'				100%				
27'								
28'								
29'								
30'								
31'								
32'								
33'								
34'								
35'								
36'								
37'								
38'								
39'								
40'								
41'								
42'								
43'								
44'								
45'								
46'								
47'								
48'								
49'								
50'								



SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD				PROJECT CODE	SAMPLING PERSONNEL	Date
				292054509	J Paul Davis, Travis Estes, Hal Cantwell	12/6/2010
SITE Muskogee City-County Port Authority, FMRI NW Property				SAMPLING STATION	COORDINATES	SHEET NO.
				MW-02	35.780581 N, 95.310726 W	1
DRILLING METHOD/EQUIPMENT				HOLE SIZE	DRILLING CONTRACTOR/DRILLER'S NAME	
Hollow Stem Auger				2 inch well	Davis Drilling / Roland Davis	
CHRONOLOGICAL RECORD				SKETCH (LOCATION, ORIENTATION, FACILITIES, OTHER NOTES)		
TIME		ACTIVITY				
11:00		Start drilling				
13:30		Well complete				
GROUND EL.				T/CASING EL.		DEPT H H2O
						TIME/ DATE
				Temporary well - Screen 24.5'-34.5', Sand pack 22.75'-35", bentonite chips 2'-22.75', concrete 0'-2' with lockable above-grade cover.		DECONTAMINATION (Method)
						High pressure water spray

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION
0'		ML	Dry to sl. moist, brown 7.5YR5/4 silt topsoil with root hairs, 0' - 1.5'					
1'		CL	Dry to slightly moist, hard, dark brown 10YR4/3 speckled with yellowish red silty clay 1.5'-12'	100%			0.0	
2'								
3'								
4'								
5'			Root traces visible to 6'					
6'			Becomes mottled with gray and reddish brown (5YR4/6)	100%			0.0	
7'								
8'								
9'			Becomes dark reddish brown 5YR3/4					
10'								
11'								
12'		ML	Dry, pale brown 10R6/3 sandy silt 12'-13'	100%			0.0	
13'		MH	Dry to sl. Moist grayish brown 10YR5/2 clayey silt, 13'- 14'					
14'		CL	Grades to silty clay, 14' - 16'					
15'								
16'		ML	Grades to slightly clayey silt, 16' - 19.5'	100%			0.0	
17'								
18'								
19'		MH	Dry to sl. Moist, hard gray clayey silt 19.5' -23.5'					
20'			Becomes light brownish gray mottled with yellowish red.					



SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD	PROJECT CODE	SAMPLING PERSONNEL		Date
	292054509	J Paul Davis, Travis Estes, Hal Cantwell		12/6/2010
SITE Muskogee City-County Port Authority, FMRI NW Property	SAMPLING STATION		COORDINATES	SHEET NO.
	MW-02		35.780581 N, 95.310726 W	2

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION
21'		MH	Dry to sl. Moist, hard light brownish gray 10YR6/2 mottled w/ yellowish red clayey silt 19.5' -23.5' (cont)					
22'				100%				
23'								
24'		ML	Gray sandy silt layer				0.0	
25'		MH	Dry to slightly moist hard brownish gray clayey silt 24.5' - 26.0'					
26'		ML - SW	Moist reddish brown to yellowish red, fine sandy silt to silty sand 26' - 30'	100%				
27'								
28'							0.0	
29'								
30'		SM	Wet, yellowish red 5YR4/6 fine silty sand with occasional lenses (0' to 0.2' thick) of sandy clay 30' - 33'					
31'								
32'								
33'			Wet strong brown 7.5YR5/6 fine to medium sand 33' to 34.95'					
34'					34-34.5	13:20	0.0	
35'				Dark Gray hard shale in tip of split spoon at TD, 35.0'				
36'								
37'								
38'								
39'								
40'								
41'								
42'								
43'								
44'								
45'								
46'								
47'								
48'								
49'								
50'								



SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD				PROJECT CODE	SAMPLING PERSONNEL	Date
				292054509	J Paul Davis, Travis Estes, Hal Cantwell	12/6/2010
SITE Muskogee City-County Port Authority, FMRI NW Property				SAMPLING STATION	COORDINATES	SHEET NO.
				MW-03	35.779792 N; 95.308577 W	1
DRILLING METHOD/EQUIPMENT				HOLE SIZE	DRILLING CONTRACTOR/DRILLER'S NAME	
Hollow Stem Auger				2 inch well	Davis Drilling / Roland Davis	
CHRONOLOGICAL RECORD				SKETCH (LOCATION, ORIENTATION, FACILITIES, OTHER NOTES)		
TIME		ACTIVITY				
16:00		Start drilling				
18:00		Well complete				
GROUND EL.				T/CASING EL.	DEPT H H2O	TIME/ DATE
				Temporary well - Screen 21.0' - 31.0', Sand pack 18.0' - 31.5', bentonite chips 2'-18.0', concrete 0'-2' with lockable above-grade cover.		DECONTAMINATION (Method)
						High pressure water spray

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION
0'		ML	Moist, reddish brown 5YR5/3 silt, Topsoil with roots. 0' - 1.5'					
1'		ML	Dry to slightly moist light yellowish brown 10YR6/4 silt. 1.5' - 2.5'	100%			0.6	
2'		MH	Dry to slightly moist, stiff, dark yellowish brown, 10YR4/4 speckled with reddish brown clayey silt 2.5' - 5.0'				0.4	
3'							3.6	
4'							8.1	
5'		MH	Dry to slightly moist, stiff, light brownish gray 10YR6/2 clayey silt with occasional root tracks filled with strong brown clayey silt, 5.0'-15.0'	100%			5.4	
6'							8.3	
7'							3.0	
8'							29.0	
9'							36.4	
10'			Becomes slightly moist				41.4	
11'				100%			23.4	
12'							67.5	
13'							42.3	
14'					14.5-14.6	17:45	240.0	
15'		MH	Slightly moist, stiff, light brownish gray mottled with brown to reddish yellow, clayey silt. 15.0' - 25.0'					
16'				100%				
17'								
18'								
19'			Root traces visible down to 20'					
20'				100%				


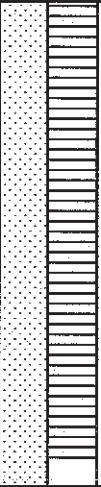

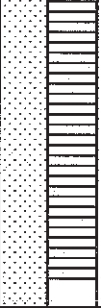
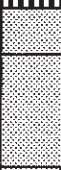
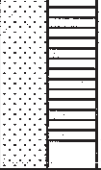




SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD		PROJECT CODE	SAMPLING PERSONNEL	Date
		292054509	J Paul Davis, Travis Estes, Hal Cantwell	12/6/2010
SITE	Muskogee City-County Port Authority, FMRI NW Property	SAMPLING STATION	COORDINATES	SHEET NO.
		MW-03	35.779792 N, 95.308577 W	2

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION	
21'		MH	Slightly moist, stiff, light brownish gray mottled with brown to reddish yellow, clayey silt, continued.						
22'				100%			67.2		
23'									
24'						24.0-24.5	17:45		93.0
25'		MH	Sl. moist stiff light brownish gray clayey silt 25.0' - 28.0'				23.1		
26'									
27'				90%					
28'			SW	Lt gray fine silty sand with black laminae on base, 28'-29'					245.4
29'		SW	Wet brown silty fine to medium sand, 30.5-31.4'				191.6		
30'				80%					
31'			SH	Dark gray friable shale, 31.4'-31.5' TD					
32'									
33'									
34'									
35'									
36'									
37'									
38'									
39'									
40'									
41'									
42'									
43'									
44'									
45'									
46'									
47'									
48'									
49'									
50'									

Note: Field PID readings were measured directly in fresh core, still warm from the core barrel, by splitting core and inserting probe tip.
Tests done in samples kept in ziplock bags and allowed to sit cooled down to near freezing, had readings 60% lower in corresponding interval.



SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD				PROJECT CODE	SAMPLING PERSONNEL		Date
				292054509	J Paul Davis, Travis Estes, Hal Cantwell		12/7/2010
SITE Muskogee City-County Port Authority, FMRI NW Property				SAMPLING STATION		COORDINATES	SHEET NO.
				MW-04		35.781625 N, 95.310530 W	1
DRILLING METHOD/EQUIPMENT				HOLE SIZE	DRILLING CONTRACTOR/DRILLER'S NAME		
Hollow Stem Auger				2 inch well	Davis Drilling / Roland Davis		
CHRONOLOGICAL RECORD				SKETCH (LOCATION, ORIENTATION, FACILITIES, OTHER NOTES)			
TIME		ACTIVITY					
8:30		Start drilling					
10:00		Well complete					
GROUND EL.				T/CASING EL.		DEPT H H2O	TIME/ DATE
Temporary well - Screen 27.3' - 37.3', Sand pack 25.0' - 38.0', bentonite chips 2'-25.0', concrete 0'-2' with lockable above-grade cover.				GROUTING (Mix Design, Method)		DECONTAMINATION (Method)	
						High pressure water spray	

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION
0'		ML	Moist dark brown 10YR3/4 med. Dense silt. 0.0' - 1.5'					
1'			Topsoil with roots					
2'		CL	Moist dark brown 10YR3/3 stiff silty clay 1.5' - 3.0'				0.0	
3'				100%				
4'		MH	Slightly moist, stiff, dark yellowish brown speckled with reddish yellow clayey silt 3.0' - 10.0'				0.0	
5'							0.0	
6'				100%			0.0	
7'							0.0	
8'								
9'								
10'		CL	Slightly moist, stiff to very stiff, yellowish red 5YR5/6 silty clay speckled with gray, 10.0' - 17.0'				0.3	
11'								
12'				100%			0.0	
13'			Becomes mostly gray speckled with grayish brown below 13'				0.0	
14'							0.0	
15'							0.0	
16'								
17'		MH	Slightly moist, stiff light yellowish brown 10YR6/4 clayey silt, from 17.0' to 20.0'				0.3	
18'				100%				
19'							0.9	
20'		MH	Slightly moist, stiff, light yellowish brown 2.5Y6/4 clayey silt, from 20.0' to 24.0'					



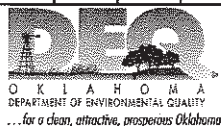
SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD		PROJECT CODE	SAMPLING PERSONNEL	Date
		292054509	J Paul Davis, Travis Estes, Hal Cantwell	12/7/2010
SITE	Muskogee City-County Port Authority, FMRI NW Property	SAMPLING STATION	COORDINATES	SHEET NO.
		MW-04	35.781625 N, 95.310530 W	2

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION
21'		MH	Slightly moist, stiff, light yellowish brown 2.5Y6/4 clayey silt, from 20.0' to 24.0', continued				0.1	
22'				100%				
23'								
24'		ML	Slightly moist, dense, light yellowish brown 2.5Y6/4 mottled with yellowish red 5YR4/6, slightly clayey silt, from 24.0' - 29.5'. Becomes yellowish red below 26'				0.1	
25'								
26'				100%				
27'								
28'								
29'								
29'		MH	Moist, stiff, brown 7.5YR5/4 clayey silt 29.5' - 31.5'		29.5-29.6	10:15	0.4	
30'								
31'								
31'		CL	Thin layer moist soft yellowish red silty clay, 31.5'-31.55'					
32'		SW	Wet, loose, light yellowish brown 2.5YR6/4 fine to medium sand, 31.55' - 35.0'. Poor recovery.	80%				
33'								
34'								
35'		SP	Wet, loose light brownish gray 2.5YR6/2 medium sand from 35.0' - 37.0'.					
36'				80%			0.0	
37'								
37'		SW	2 layers silty fine gray sand / yellowish red med. sand					
		SH	Dark gray shale, dry, 37.5'-38.0' TD				0.2	
38'								
39'								
40'								
41'								
42'								
43'								
44'								
45'								
46'								
47'								
48'								
49'								
50'								



SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD				PROJECT CODE	SAMPLING PERSONNEL	Date
				292054509	J Paul Davis, Travis Estes, Hal Cantwell	12/7/2010
SITE Muskogee City-County Port Authority, FMRI NW Property				SAMPLING STATION	COORDINATES	SHEET NO.
				MW-05	35.779240 N, 95.307584 W	1
DRILLING METHOD/EQUIPMENT				HOLE SIZE	DRILLING CONTRACTOR/DRILLER'S NAME	
Hollow Stem Auger				2 inch well	Davis Drilling / Roland Davis	
CHRONOLOGICAL RECORD						
TIME	ACTIVITY					
10:30 12:50	Start drilling Well complete					
GROUTING (Mix Design, Method)				DECONTAMINATION (Method)		
GROUND EL.	T/CASING EL.	DEPT H H2O	TIME/ DATE	Temporary well - Screen 19.5'-29.5', Sand pack 25.0'-13.5', bentonite chips 2'-13.5', concrete 0'-2' with lockable above-grade cover.		
				High pressure water spray		

BORING LOG

DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION
0'		ML	Moist brown 7.5YR4/4 sandy clayey silt w/ roots. 0.0' - 0.5'					
1'		MH	Dry stiff, strong brown 7.5YR5/6 clayey silt with root traces from 0.5' - 3.5'	100%			0.0	
2'							0.0	
3'							0.0	
4'		MH	Dry, stiff, gray 7.5YR5/1 speckled strong brown, clayey silt with dark brown root traces. 3.5' - 10.0'				0.0	
5'				100%			0.7	
6'							0.3	
7'							0.2	
8'							0.1	
9'							0.1	
10'		ML	Dry, stiff, gray 7.5YR5/1 speckled strong brown, slightly clayey silt with dark brown root traces. 10.0' - 13.5'	100%			0.2	
11'							0.0	
12'							0.1	
13'		ML	Slightly moist dense reddish yellow 5YR6/8 slightly clayey silt with root traces. 13.5' - 15.0'				0.2	
14'							0.0	
15'		ML	Slightly moist to moist, dense, reddish brown silt with trace of clay, mottled with light brownish gray. Occasional root traces. 15.0' - 19.0'	100%			0.1	
16'								
17'					17-17.5	12:00		
18'								
19'		ML	As above but with abundant root traces. 19.0' - 20.0'				0.0	
20'		ML	Moist, weak, brown 2.5YR5/4 slightly clayey silt. 20.0' - 24.5' Root traces visible 20' to 22'.				0.3	



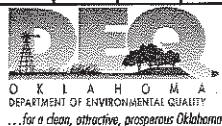
SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

DRILLING/SAMPLING ACTIVITY RECORD		PROJECT CODE	SAMPLING PERSONNEL	Date
		292054509	J Paul Davis, Travis Estes, Hal Cantwell	12/7/2010
SITE	Muskogee City-County Port Authority, FMRI NW Property	SAMPLING STATION	COORDINATES	SHEET NO.
		MW-05	35.779240 N, 95.307584 W	2

BORING LOG

BORING LOG									
DEPTH BELOW SURFACE	GRAPHIC LOG	SOIL CLASSIFICATION	DESCRIPTION / CLASSIFICATION	% CORE RECOV.	SAMPLE LOG	TIME OF SAMPLE RECOVERY	FIELD VAPOR TEST READINGS	WELL CONSTRUCTION	
21'		ML	Moist, weak, brown 2.5YR5/4 slightly clayey silt continued Root traces visible 20' to 22'.						
22'				100%			0.6		
23'									
24'		ML	Moist yellowish brown 10YR5/8 fine sandy silt 24.5-26.0		24.5-24.6	12:00	4.3		
25'									
26'		SW	Wet, strong brown 7.5YR5/8 fine to medium sand 26.0' - 28.5'. Thin layer of yellowish red medium sand at base.	90%			0.6		
27'									
28'		SH	Soft dark gray to black shale. 28.5' - 30.0' TD				0.2		
29'									
30'									
31'									
32'									
33'									
34'									
35'									
36'									
37'									
38'									
39'									
40'									
41'									
42'									
43'									
44'									
45'									
46'									
47'									
48'									
49'									
50'									



SIGNATURE OF SAMPLE TEAM LEADER

FIGURE NO.

Appendix B:

Analytical Reports

Sample Number: 496960
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1530
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.50		12/09/10	8260BM	
Benzene	<	15.0	UG/KG	12/09/10	8260BM	
Bromoform	<	15.0	UG/KG	12/09/10	8260BM	
Carbon tetrachloride	<	15.0	UG/KG	12/09/10	8260BM	
Chlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
Dibromochloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroform	<	15.0	UG/KG	12/09/10	8260BM	
Bromodichloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Ethylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
Methyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
Methylene chloride	<	15.0	UG/KG	12/09/10	8260BM	
Tetrachloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Toluene	<	15.0	UG/KG	12/09/10	8260BM	
Trichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Vinyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
1,1,1-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2,2-Tetrachloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloropropane	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
Total Xylenes	<	15.0	UG/KG	12/09/10	8260BM	
Acetone	<	15.0	UG/KG	12/09/10	8260BM	
Methylethyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
2-Hexanone	<	15.0	UG/KG	12/09/10	8260BM	
Methylisobutyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
Styrene	<	15.0	UG/KG	12/09/10	8260BM	
Carbon disulfide	<	15.0	UG/KG	12/09/10	8260BM	

Sample Number: 496960
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1530
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
 EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		17.0	%	12/09/10	1005 M	
Dichlorodifluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
Trichlorofluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	15.0	UG/KG	12/09/10	8260BM	
Methyl Acetate	<	15.0	UG/KG	12/09/10	8260BM	
Methyl tert-butyl ether (M	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Cyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
Methylcyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromoethane	<	15.0	UG/KG	12/09/10	8260BM	
Isopropylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,3-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,4-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromo-3-chloropropane	<	15.0	UG/KG	12/09/10	8260BM	
1,2,4-Trichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		102
4-BROMOFLUOROBENZENE		91
TOLUENE-D8		96

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 496960
Project Code: SW-SP
Agency Number:
Date Collected: 12/6/2010
Time Collected: 1530
Date Received: 12/8/2010
Date Completed: 12/20/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

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SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-1 S#2;17.0-17.5FT

ANALYST'S COMMENTS:

*

* ANALYST



Sample Number: 496961
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1320
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
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 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.50		12/09/10	8260BM	
Benzene	<	15.0	UG/KG	12/09/10	8260BM	
Bromoform	<	15.0	UG/KG	12/09/10	8260BM	
Carbon tetrachloride	<	15.0	UG/KG	12/09/10	8260BM	
Chlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
Dibromochloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroform	<	15.0	UG/KG	12/09/10	8260BM	
Bromodichloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Ethylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
Methyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
Methylene chloride	<	15.0	UG/KG	12/09/10	8260BM	
Tetrachloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Toluene	<	15.0	UG/KG	12/09/10	8260BM	
Trichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Vinyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
1,1,1-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2,2-Tetrachloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloropropane	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
Total Xylenes	<	15.0	UG/KG	12/09/10	8260BM	
Acetone	<	15.0	UG/KG	12/09/10	8260BM	
Methylethyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
2-Hexanone	<	15.0	UG/KG	12/09/10	8260BM	
Methylisobutyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
Styrene	<	15.0	UG/KG	12/09/10	8260BM	
Carbon disulfide	<	15.0	UG/KG	12/09/10	8260BM	

Sample Number: 496961
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1320
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
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 Location Code:
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 Facility:
 Report Date: 12/20/2010

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OKLAHOMA, 73102-6010
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Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		18.0	%	12/09/10	1005 M	
Dichlorodifluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
Trichlorofluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloro-1,2,2-trifluoroethane	<	15.0	UG/KG	12/09/10	8260BM	
Methyl Acetate	<	15.0	UG/KG	12/09/10	8260BM	
Methyl tert-butyl ether (MTBE)	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Cyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
Methylcyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromoethane	<	15.0	UG/KG	12/09/10	8260BM	
Isopropylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,3-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,4-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromo-3-chloropropane	<	15.0	UG/KG	12/09/10	8260BM	
1,2,4-Trichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		91
1,2-DICHLOROETHANE-D4		94
TOLUENE-D8		97

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:

GCMS

Sample Number: 496961
Project Code: SW-SP
Agency Number:
Date Collected: 12/6/2010
Time Collected: 1320
Date Received: 12/8/2010
Date Completed: 12/20/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

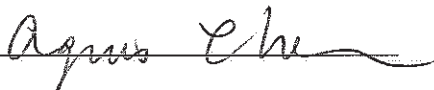
SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-2 POND; 1.5-1.6FT

ANALYST'S COMMENTS:

*

* ANALYST



Sample Number: 496962
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1745
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.50		12/09/10	8260BM	
Benzene	<	15.0	UG/KG	12/09/10	8260BM	
Bromoform	<	15.0	UG/KG	12/09/10	8260BM	
Carbon tetrachloride	<	15.0	UG/KG	12/09/10	8260BM	
Chlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
Dibromochloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroform	<	15.0	UG/KG	12/09/10	8260BM	
Bromodichloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Ethylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
Methyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
Methylene chloride	<	15.0	UG/KG	12/09/10	8260BM	
Tetrachloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Toluene	<	15.0	UG/KG	12/09/10	8260BM	
Trichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Vinyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
1,1,1-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2,2-Tetrachloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloropropane	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
Total Xylenes	<	15.0	UG/KG	12/09/10	8260BM	
Acetone	<	15.0	UG/KG	12/09/10	8260BM	
Methylethyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
2-Hexanone	<	15.0	UG/KG	12/09/10	8260BM	
Methylisobutyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
Styrene	<	15.0	UG/KG	12/09/10	8260BM	
Carbon disulfide	<	15.0	UG/KG	12/09/10	8260BM	

Sample Number: 496962
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1745
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		17.0	%	12/09/10	1005 M	
Dichlorodifluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
Trichlorofluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloro-1,2,2-trif.	<	15.0	UG/KG	12/09/10	8260BM	
Methyl Acetate	<	15.0	UG/KG	12/09/10	8260BM	
Methyl tert-butyl ether (M	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Cyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
Methylcyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromoethane	<	15.0	UG/KG	12/09/10	8260BM	
Isopropylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,3-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,4-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromo-3-chloropropane	<	15.0	UG/KG	12/09/10	8260BM	
1,2,4-Trichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		99
4-BROMOFLUOROBENZENE		90
TOLUENE-D8		94

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 496962
Project Code: SW-SP
Agency Number:
Date Collected: 12/6/2010
Time Collected: 1745
Date Received: 12/8/2010
Date Completed: 12/20/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-3; 14.5-14.6FT

ANALYST'S COMMENTS:

*

* ANALYST

Agnes Che

Sample Number: 496963
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1745
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.50		12/09/10	8260BM	
Benzene	<	15.0	UG/KG	12/09/10	8260BM	
Bromoform	<	15.0	UG/KG	12/09/10	8260BM	
Carbon tetrachloride	<	15.0	UG/KG	12/09/10	8260BM	
Chlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
Dibromochloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroform	<	15.0	UG/KG	12/09/10	8260BM	
Bromodichloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Ethylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
Methyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
Methylene chloride	<	15.0	UG/KG	12/09/10	8260BM	
Tetrachloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Toluene	<	15.0	UG/KG	12/09/10	8260BM	
Trichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Vinyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
1,1,1-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2,2-Tetrachloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloropropane	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
Total Xylenes	<	15.0	UG/KG	12/09/10	8260BM	
Acetone	<	15.0	UG/KG	12/09/10	8260BM	
Methylethyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
2-Hexanone	<	15.0	UG/KG	12/09/10	8260BM	
Methylisobutyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
Styrene	<	15.0	UG/KG	12/09/10	8260BM	
Carbon disulfide	<	15.0	UG/KG	12/09/10	8260BM	

Sample Number: 496963
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1745
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		18.0	%	12/09/10	1005 M	
Dichlorodifluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
Trichlorofluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl.	<	15.0	UG/KG	12/09/10	8260BM	
Methyl Acetate	<	15.0	UG/KG	12/09/10	8260BM	
Methyl tert-butyl ether (M	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Cyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
Methylcyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromoethane	<	15.0	UG/KG	12/09/10	8260BM	
Isopropylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,3-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,4-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromo-3-chloropropane	<	15.0	UG/KG	12/09/10	8260BM	
1,2,4-Trichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		91
TOLUENE-D8		95
1,2-DICHLOROETHANE-D4		89

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 496963
Project Code: SW-SP
Agency Number:
Date Collected: 12/6/2010
Time Collected: 1745
Date Received: 12/8/2010
Date Completed: 12/20/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:

MW-3 S#2; 24.0-24.5FT

ANALYST'S COMMENTS:

*

* ANALYST

Agnes Chu

Sample Number: 496964
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1745
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.60		12/09/10	8260BM	
Benzene	<	16.0	UG/KG	12/09/10	8260BM	
Bromoform	<	16.0	UG/KG	12/09/10	8260BM	
Carbon tetrachloride	<	16.0	UG/KG	12/09/10	8260BM	
Chlorobenzene	<	16.0	UG/KG	12/09/10	8260BM	
Dibromochloromethane	<	16.0	UG/KG	12/09/10	8260BM	
Chloroethane	<	16.0	UG/KG	12/09/10	8260BM	
Chloroform	<	16.0	UG/KG	12/09/10	8260BM	
Bromodichloromethane	<	16.0	UG/KG	12/09/10	8260BM	
Ethylbenzene	<	16.0	UG/KG	12/09/10	8260BM	
Methyl chloride	<	16.0	UG/KG	12/09/10	8260BM	
Methylene chloride	<	16.0	UG/KG	12/09/10	8260BM	
Tetrachloroethene	<	16.0	UG/KG	12/09/10	8260BM	
Toluene	<	16.0	UG/KG	12/09/10	8260BM	
Trichloroethene	J	480.0	UG/KG	12/09/10	8260BM	
Vinyl chloride	<	16.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethane	<	16.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethene	<	16.0	UG/KG	12/09/10	8260BM	
1,1,1-Trichloroethane	<	16.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloroethane	<	16.0	UG/KG	12/09/10	8260BM	
1,1,2,2-Tetrachloroethane	<	16.0	UG/KG	12/09/10	8260BM	
1,2-Dichloroethane	<	16.0	UG/KG	12/09/10	8260BM	
1,2-Dichloropropane	<	16.0	UG/KG	12/09/10	8260BM	
trans-1,2-Dichloroethene	<	16.0	UG/KG	12/09/10	8260BM	
trans-1,3-Dichloropropene	<	16.0	UG/KG	12/09/10	8260BM	
cis-1,3-Dichloropropene	<	16.0	UG/KG	12/09/10	8260BM	
Total Xylenes	<	16.0	UG/KG	12/09/10	8260BM	
Acetone	<	16.0	UG/KG	12/09/10	8260BM	
Methylethyl ketone	<	16.0	UG/KG	12/09/10	8260BM	
2-Hexanone	<	16.0	UG/KG	12/09/10	8260BM	
Methylisobutyl ketone	<	16.0	UG/KG	12/09/10	8260BM	
Styrene	<	16.0	UG/KG	12/09/10	8260BM	
Carbon disulfide	<	16.0	UG/KG	12/09/10	8260BM	

Sample Number: 496964
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/6/2010
 Time Collected: 1745
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
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 Report Date: 12/20/2010

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 EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		22.0	%	12/09/10	1005 M	
Dichlorodifluoromethane	<	16.0	UG/KG	12/09/10	8260BM	
Trichlorofluoromethane	<	16.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	16.0	UG/KG	12/09/10	8260BM	
Methyl Acetate	<	16.0	UG/KG	12/09/10	8260BM	
Methyl tert-butyl ether (M	<	16.0	UG/KG	12/09/10	8260BM	
cis-1,2-Dichloroethene	<	16.0	UG/KG	12/09/10	8260BM	
Cyclohexane	<	16.0	UG/KG	12/09/10	8260BM	
Methylcyclohexane	<	16.0	UG/KG	12/09/10	8260BM	
1,2-Dibromoethane	<	16.0	UG/KG	12/09/10	8260BM	
Isopropylbenzene	<	16.0	UG/KG	12/09/10	8260BM	
1,2-Dichlorobenzene	<	16.0	UG/KG	12/09/10	8260BM	
1,3-Dichlorobenzene	<	16.0	UG/KG	12/09/10	8260BM	
1,4-Dichlorobenzene	<	16.0	UG/KG	12/09/10	8260BM	
1,2-Dibromo-3-chloropropan	<	16.0	UG/KG	12/09/10	8260BM	
1,2,4-Trichlorobenzene	<	16.0	UG/KG	12/09/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		90
TOLUENE-D8		94
1,2-DICHLOROETHANE-D4		99

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 496964
Project Code: SW-SP
Agency Number:
Date Collected: 12/6/2010
Time Collected: 1745
Date Received: 12/8/2010
Date Completed: 12/20/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:

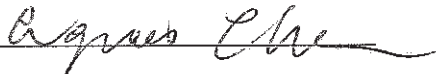
MW-3 S#3 (DUPLICATE) 24.0-24.5FT

ANALYST'S COMMENTS:

(J) The associated value is an estimated quantity

*

* ANALYST



Sample Number: 496965
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/7/2010
 Time Collected: 1015
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.50		12/09/10	8260BM	
Benzene	<	15.0	UG/KG	12/09/10	8260BM	
Bromoform	<	15.0	UG/KG	12/09/10	8260BM	
Carbon tetrachloride	<	15.0	UG/KG	12/09/10	8260BM	
Chlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
Dibromochloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroform	<	15.0	UG/KG	12/09/10	8260BM	
Bromodichloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Ethylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
Methyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
Methylene chloride	<	15.0	UG/KG	12/09/10	8260BM	
Tetrachloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Toluene	<	15.0	UG/KG	12/09/10	8260BM	
Trichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Vinyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
1,1,1-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2,2-Tetrachloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloropropane	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
Total Xylenes	<	15.0	UG/KG	12/09/10	8260BM	
Acetone	<	15.0	UG/KG	12/09/10	8260BM	
Methylethyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
2-Hexanone	<	15.0	UG/KG	12/09/10	8260BM	
Methylisobutyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
Styrene	<	15.0	UG/KG	12/09/10	8260BM	
Carbon disulfide	<	15.0	UG/KG	12/09/10	8260BM	

Sample Number: 496965
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/7/2010
 Time Collected: 1015
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
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 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
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OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		22.0	%	12/09/10	1005 M	
Dichlorodifluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
Trichlorofluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	15.0	UG/KG	12/09/10	8260BM	
Methyl Acetate	<	15.0	UG/KG	12/09/10	8260BM	
Methyl tert-butyl ether (M	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Cyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
Methylcyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromoethane	<	15.0	UG/KG	12/09/10	8260BM	
Isopropylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,3-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,4-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromo-3-chloropropane	<	15.0	UG/KG	12/09/10	8260BM	
1,2,4-Trichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		106
TOLUENE-D8		88
1,2-DICHLOROETHANE-D4		13

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 496965
Project Code: SW-SP
Agency Number:
Date Collected: 12/7/2010
Time Collected: 1015
Date Received: 12/8/2010
Date Completed: 12/20/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-4; 29.5-29.6FT

ANALYST'S COMMENTS:

*

* ANALYST

Agnes Chen

Sample Number: 496966
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/7/2010
 Time Collected: 1200
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.50		12/09/10	8260BM	
Benzene	<	15.0	UG/KG	12/09/10	8260BM	
Bromoform	<	15.0	UG/KG	12/09/10	8260BM	
Carbon tetrachloride	<	15.0	UG/KG	12/09/10	8260BM	
Chlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
Dibromochloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroethane	<	15.0	UG/KG	12/09/10	8260BM	
Chloroform	<	15.0	UG/KG	12/09/10	8260BM	
Bromodichloromethane	<	15.0	UG/KG	12/09/10	8260BM	
Ethylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
Methyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
Methylene chloride	<	15.0	UG/KG	12/09/10	8260BM	
Tetrachloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Toluene	<	15.0	UG/KG	12/09/10	8260BM	
Trichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Vinyl chloride	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
1,1,1-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2,2-Tetrachloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloroethane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichloropropane	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
trans-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,3-Dichloropropene	<	15.0	UG/KG	12/09/10	8260BM	
Total Xylenes	<	15.0	UG/KG	12/09/10	8260BM	
Acetone	<	15.0	UG/KG	12/09/10	8260BM	
Methylethyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
2-Hexanone	<	15.0	UG/KG	12/09/10	8260BM	
Methylisobutyl ketone	<	15.0	UG/KG	12/09/10	8260BM	
Styrene	<	15.0	UG/KG	12/09/10	8260BM	
Carbon disulfide	<	15.0	UG/KG	12/09/10	8260BM	

Sample Number: 496966
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/7/2010
 Time Collected: 1200
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
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EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		17.0	%	12/09/10	1005 M	
Dichlorodifluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
Trichlorofluoromethane	<	15.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	15.0	UG/KG	12/09/10	8260BM	
Methyl Acetate	<	15.0	UG/KG	12/09/10	8260BM	
Methyl tert-butyl ether (M	<	15.0	UG/KG	12/09/10	8260BM	
cis-1,2-Dichloroethene	<	15.0	UG/KG	12/09/10	8260BM	
Cyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
Methylcyclohexane	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromoethane	<	15.0	UG/KG	12/09/10	8260BM	
Isopropylbenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,3-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,4-Dichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	
1,2-Dibromo-3-chloropropane	<	15.0	UG/KG	12/09/10	8260BM	
1,2,4-Trichlorobenzene	<	15.0	UG/KG	12/09/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		95
TOLUENE-D8		93
4-BROMOFLUOROBENZENE		91

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 496966
Project Code: SW-SP
Agency Number:
Date Collected: 12/7/2010
Time Collected: 1200
Date Received: 12/8/2010
Date Completed: 12/20/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY


SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-5; 24.5-24.6FT

ANALYST'S COMMENTS:

*

* ANALYST



Sample Number: 496967
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/7/2010
 Time Collected: 1200
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		12/09/10	8260BM	
Benzene	<	10.0	UG/KG	12/09/10	8260BM	
Bromoform	<	10.0	UG/KG	12/09/10	8260BM	
Carbon tetrachloride	<	10.0	UG/KG	12/09/10	8260BM	
Chlorobenzene	<	10.0	UG/KG	12/09/10	8260BM	
Dibromochloromethane	<	10.0	UG/KG	12/09/10	8260BM	
Chloroethane	<	10.0	UG/KG	12/09/10	8260BM	
Chloroform	<	10.0	UG/KG	12/09/10	8260BM	
Bromodichloromethane	<	10.0	UG/KG	12/09/10	8260BM	
Ethylbenzene	<	10.0	UG/KG	12/09/10	8260BM	
Methyl chloride	<	10.0	UG/KG	12/09/10	8260BM	
Methylene chloride	<	10.0	UG/KG	12/09/10	8260BM	
Tetrachloroethene	<	10.0	UG/KG	12/09/10	8260BM	
Toluene	<	10.0	UG/KG	12/09/10	8260BM	
Trichloroethene	<	10.0	UG/KG	12/09/10	8260BM	
Vinyl chloride	<	10.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/KG	12/09/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/KG	12/09/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/KG	12/09/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/KG	12/09/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/KG	12/09/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/KG	12/09/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/KG	12/09/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/KG	12/09/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/KG	12/09/10	8260BM	
Total Xylenes	<	10.0	UG/KG	12/09/10	8260BM	
Acetone	<	10.0	UG/KG	12/09/10	8260BM	
Methylethyl ketone	<	10.0	UG/KG	12/09/10	8260BM	
2-Hexanone	<	10.0	UG/KG	12/09/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/KG	12/09/10	8260BM	
Styrene	<	10.0	UG/KG	12/09/10	8260BM	
Carbon disulfide	<	10.0	UG/KG	12/09/10	8260BM	

Sample Number: 496967
 Project Code: SW-SP
 Agency Number:
 Date Collected: 12/7/2010
 Time Collected: 1200
 Date Received: 12/8/2010
 Date Completed: 12/20/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
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 Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab			%		1005 M	
Dichlorodifluoromethane	<	10.0	UG/KG	12/09/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/KG	12/09/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/KG	12/09/10	8260BM	
Methyl Acetate	<	10.0	UG/KG	12/09/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/KG	12/09/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/KG	12/09/10	8260BM	
Cyclohexane	<	10.0	UG/KG	12/09/10	8260BM	
Methylcyclohexane	<	10.0	UG/KG	12/09/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/KG	12/09/10	8260BM	
Isopropylbenzene	<	10.0	UG/KG	12/09/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/KG	12/09/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/KG	12/09/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/KG	12/09/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/KG	12/09/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/KG	12/09/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		96
1,2-DICHLOROETHANE-D4		100
4-BROMOFLUOROBENZENE		89

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:

GCMS

Sample Number: 496967
Project Code: SW-SP
Agency Number:
Date Collected: 12/7/2010
Time Collected: 1200
Date Received: 12/8/2010
Date Completed: 12/20/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/20/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: TRAVIS ESTES/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
LAB BLANK

ANALYST'S COMMENTS:

*

* ANALYST



CHAIN OF CUSTODY RECORD

RECORD CUSTODY RECORD
SUPERFUND/ SITE REMEDIATION UNIT
OKLAHOMA DEPARTMENT OF

Site Name: Muskogee Port Authority

Site Location: Muskogee, OK	Code: 545
-----------------------------	-----------

Code: 545

Return Results To: Travis Estes

[illegible]

Sample Number: 497471
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1200
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		5.00		12/16/10	8260BM	
Bromodichloromethane	<	50.0	UG/L	12/16/10	8260BM	
Carbon tetrachloride	<	50.0	UG/L	12/16/10	8260BM	
Bromoform	<	50.0	UG/L	12/16/10	8260BM	
Chloroform	<	50.0	UG/L	12/16/10	8260BM	
Toluene	<	50.0	UG/L	12/16/10	8260BM	
Benzene	<	50.0	UG/L	12/16/10	8260BM	
Chlorobenzene	<	50.0	UG/L	12/16/10	8260BM	
Dibromochloromethane	<	50.0	UG/L	12/16/10	8260BM	
Chloroethane	<	50.0	UG/L	12/16/10	8260BM	
Ethylbenzene	<	50.0	UG/L	12/16/10	8260BM	
Bromomethane	<	50.0	UG/L	12/16/10	8260BM	
Methylene chloride	<	50.0	UG/L	12/16/10	8260BM	
• Tetrachloroethene	<	50.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethane	<	50.0	UG/L	12/16/10	8260BM	
• 1,1-Dichloroethene	<	50.0	UG/L	12/16/10	8260BM	
• 1,1,1-Trichloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,1,2,2-Tetrachloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dichloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dichloropropane	<	50.0	UG/L	12/16/10	8260BM	
trans-1,2-Dichloroethene	<	50.0	UG/L	12/16/10	8260BM	
trans-1,3-Dichloropropene	<	50.0	UG/L	12/16/10	8260BM	
cis-1,3-Dichloropropene	<	50.0	UG/L	12/16/10	8260BM	
Vinyl chloride	<	50.0	UG/L	12/16/10	8260BM	
• Trichloroethene		490.0	UG/L	12/16/10	8260BM	
Methylisobutyl ketone	<	50.0	UG/L	12/16/10	8260BM	
Carbon disulfide	<	50.0	UG/L	12/16/10	8260BM	
2-Hexanone	<	50.0	UG/L	12/16/10	8260BM	
Styrene	<	50.0	UG/L	12/16/10	8260BM	
Total Xylenes	<	50.0	UG/L	12/16/10	8260BM	
Acetone	<	50.0	UG/L	12/16/10	8260BM	
Methylethyl Ketone	<	50.0	UG/L	12/16/10	8260BM	

Sample Number: 497471
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1200
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	50.0	UG/L	12/16/10	8260BM	
Trichlorofluoromethane	<	50.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	50.0	UG/L	12/16/10	8260BM	
Methyl Acetate	<	50.0	UG/L	12/16/10	8260BM	
Methyl tert-butyl ether (M	<	50.0	UG/L	12/16/10	8260BM	
cis-1,2-Dichloroethene	<	50.0	UG/L	12/16/10	8260BM	
Cyclohexane	<	50.0	UG/L	12/16/10	8260BM	
Methylcyclohexane	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dibromoethane	<	50.0	UG/L	12/16/10	8260BM	
Isopropylbenzene	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dichlorobenzene	<	50.0	UG/L	12/16/10	8260BM	
1,3-Dichlorobenzene	<	50.0	UG/L	12/16/10	8260BM	
1,4-Dichlorobenzene	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dibromo-3-chloropropan	<	50.0	UG/L	12/16/10	8260BM	
1,2,4-Trichlorobenzene	<	50.0	UG/L	12/16/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		103
TOLUENE-D8		98
4-BROMOFLUOROBENZENE		97

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:

GCMS

Sample Number: 497471
Project Code: SW-WP
Agency Number:
Date Collected: 12/14/2010
Time Collected: 1200
Date Received: 12/15/2010
Date Completed: 12/17/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTH

SAMPLERS COMMENTS:
MW-01(3)

SAMPLE RECEIVING COMMENTS:
ICE; SAMPLE= 2.5

ANALYST'S COMMENTS:

*

* ANALYST

Agnes Chen

Sample Number: 497472
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1135
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		12/16/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	12/16/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	12/16/10	8260BM	
Bromoform	<	10.0	UG/L	12/16/10	8260BM	
Chloroform	<	10.0	UG/L	12/16/10	8260BM	
Toluene	<	10.0	UG/L	12/16/10	8260BM	
Benzene	<	10.0	UG/L	12/16/10	8260BM	
Chlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	12/16/10	8260BM	
Chloroethane	<	10.0	UG/L	12/16/10	8260BM	
Ethylbenzene	<	10.0	UG/L	12/16/10	8260BM	
Bromomethane	<	10.0	UG/L	12/16/10	8260BM	
Methylene chloride	<	10.0	UG/L	12/16/10	8260BM	
• Tetrachloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
• 1,1-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
• 1,1,1-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	12/16/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
Vinyl chloride	<	10.0	UG/L	12/16/10	8260BM	
• Trichloroethene	<	10.0	UG/L	12/16/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	12/16/10	8260BM	
Carbon disulfide	<	10.0	UG/L	12/16/10	8260BM	
2-Hexanone	<	10.0	UG/L	12/16/10	8260BM	
Styrene	<	10.0	UG/L	12/16/10	8260BM	
Total Xylenes	<	10.0	UG/L	12/16/10	8260BM	
Acetone	<	10.0	UG/L	12/16/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	12/16/10	8260BM	

Sample Number: 497472
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1135
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	12/16/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	12/16/10	8260BM	
Methyl Acetate	<	10.0	UG/L	12/16/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	12/16/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
Cyclohexane	<	10.0	UG/L	12/16/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	12/16/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	12/16/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		101
TOLUENE-D8		102
4-BROMOFLUOROBENZENE		101

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 497472
Project Code: SW-WP
Agency Number:
Date Collected: 12/14/2010
Time Collected: 1135
Date Received: 12/15/2010
Date Completed: 12/17/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-02

SAMPLE RECEIVING COMMENTS:
ICE; SAMPLE= 2.5

ANALYST'S COMMENTS:

*

* ANALYST

Agnes Chen

Sample Number: 497473
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1100
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		200		12/16/10	8260BM	
Bromodichloromethane	<	2000.0	UG/L	12/16/10	8260BM	
Carbon tetrachloride	<	2000.0	UG/L	12/16/10	8260BM	
Bromoform	<	2000.0	UG/L	12/16/10	8260BM	
Chloroform	<	2000.0	UG/L	12/16/10	8260BM	
Toluene	<	2000.0	UG/L	12/16/10	8260BM	
Benzene	<	2000.0	UG/L	12/16/10	8260BM	
Chlorobenzene	<	2000.0	UG/L	12/16/10	8260BM	
Dibromochloromethane	<	2000.0	UG/L	12/16/10	8260BM	
Chloroethane	<	2000.0	UG/L	12/16/10	8260BM	
Ethylbenzene	<	2000.0	UG/L	12/16/10	8260BM	
Bromomethane	<	2000.0	UG/L	12/16/10	8260BM	
Methylene chloride	<	2000.0	UG/L	12/16/10	8260BM	
• Tetrachloroethene	<	2000.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethane	<	2000.0	UG/L	12/16/10	8260BM	
• 1,1-Dichloroethene	<	2000.0	UG/L	12/16/10	8260BM	
• 1,1,1-Trichloroethane	<	2000.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloroethane	<	2000.0	UG/L	12/16/10	8260BM	
1,1,2,2-Tetrachloroethane	<	2000.0	UG/L	12/16/10	8260BM	
1,2-Dichloroethane	<	2000.0	UG/L	12/16/10	8260BM	
1,2-Dichloropropane	<	2000.0	UG/L	12/16/10	8260BM	
trans-1,2-Dichloroethene	<	2000.0	UG/L	12/16/10	8260BM	
trans-1,3-Dichloropropene	<	2000.0	UG/L	12/16/10	8260BM	
cis-1,3-Dichloropropene	<	2000.0	UG/L	12/16/10	8260BM	
Vinyl chloride	<	2000.0	UG/L	12/16/10	8260BM	
• Trichloroethene		25000.0	UG/L	12/16/10	8260BM	
Methylisobutyl ketone	<	2000.0	UG/L	12/16/10	8260BM	
Carbon disulfide	<	2000.0	UG/L	12/16/10	8260BM	
2-Hexanone	<	2000.0	UG/L	12/16/10	8260BM	
Styrene	<	2000.0	UG/L	12/16/10	8260BM	
Total Xylenes	<	2000.0	UG/L	12/16/10	8260BM	
Acetone	<	2000.0	UG/L	12/16/10	8260BM	
Methylethyl Ketone	<	2000.0	UG/L	12/16/10	8260BM	

Sample Number: 497473
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1100
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
 707 N. ROBINSON
 OKLAHOMA CITY
 OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
 EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	2000.0	UG/L	12/16/10	8260BM	
Trichlorofluoromethane	<	2000.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl.	<	2000.0	UG/L	12/16/10	8260BM	
Methyl Acetate	<	2000.0	UG/L	12/16/10	8260BM	
Methyl tert-butyl ether (M	<	2000.0	UG/L	12/16/10	8260BM	
cis-1,2-Dichloroethene	<	2000.0	UG/L	12/16/10	8260BM	
Cyclohexane	<	2000.0	UG/L	12/16/10	8260BM	
Methylcyclohexane	<	2000.0	UG/L	12/16/10	8260BM	
1,2-Dibromoethane	<	2000.0	UG/L	12/16/10	8260BM	
Isopropylbenzene	<	2000.0	UG/L	12/16/10	8260BM	
1,2-Dichlorobenzene	<	2000.0	UG/L	12/16/10	8260BM	
1,3-Dichlorobenzene	<	2000.0	UG/L	12/16/10	8260BM	
1,4-Dichlorobenzene	<	2000.0	UG/L	12/16/10	8260BM	
1,2-Dibromo-3-chloropropan	<	2000.0	UG/L	12/16/10	8260BM	
1,2,4-Trichlorobenzene	<	2000.0	UG/L	12/16/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		101
1,2-DICHLOROETHANE-D4		96
4-BROMOFLUOROBENZENE		98

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:

GCMS

Sample Number: 497473
Project Code: SW-WP
Agency Number:
Date Collected: 12/14/2010
Time Collected: 1100
Date Received: 12/15/2010
Date Completed: 12/17/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
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OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-03; 6 VIALS

SAMPLE RECEIVING COMMENTS:
ICE; SAMPLE= 2.5

ANALYST'S COMMENTS:

*

* ANALYST

Agnes Chen

Sample Number: 497474
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1245
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		12/16/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	12/16/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	12/16/10	8260BM	
Bromoform	<	10.0	UG/L	12/16/10	8260BM	
Chloroform	<	10.0	UG/L	12/16/10	8260BM	
Toluene	<	10.0	UG/L	12/16/10	8260BM	
Benzene	<	10.0	UG/L	12/16/10	8260BM	
Chlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	12/16/10	8260BM	
Chloroethane	<	10.0	UG/L	12/16/10	8260BM	
Ethylbenzene	<	10.0	UG/L	12/16/10	8260BM	
Bromomethane	<	10.0	UG/L	12/16/10	8260BM	
Methylene chloride	<	10.0	UG/L	12/16/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	12/16/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
Vinyl chloride	<	10.0	UG/L	12/16/10	8260BM	
Trichloroethene	<	10.0	UG/L	12/16/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	12/16/10	8260BM	
Carbon disulfide	<	10.0	UG/L	12/16/10	8260BM	
2-Hexanone	<	10.0	UG/L	12/16/10	8260BM	
Styrene	<	10.0	UG/L	12/16/10	8260BM	
Total Xylenes	<	10.0	UG/L	12/16/10	8260BM	
Acetone	B	12.0	UG/L	12/16/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	12/16/10	8260BM	

Sample Number: 497474
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1245
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

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 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	12/16/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloro-1,2,2-trifluoroethane	<	10.0	UG/L	12/16/10	8260BM	
Methyl Acetate	<	10.0	UG/L	12/16/10	8260BM	
Methyl tert-butyl ether (MTBE)	<	10.0	UG/L	12/16/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
Cyclohexane	<	10.0	UG/L	12/16/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	12/16/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	12/16/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		102
4-BROMOFLUOROBENZENE		93
1,2-DICHLOROETHANE-D4		96

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 497474
Project Code: SW-WP
Agency Number:
Date Collected: 12/14/2010
Time Collected: 1245
Date Received: 12/15/2010
Date Completed: 12/17/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-04

SAMPLE RECEIVING COMMENTS:
ICE; SAMPLE= 2.5

ANALYST'S COMMENTS:

(B) The analyte was detected in the associated method blank and in the sample.

*

* ANALYST

Agnes Chen

Sample Number: 497475
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1230
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		5.00		12/16/10	8260BM	
Bromodichloromethane	<	50.0	UG/L	12/16/10	8260BM	
Carbon tetrachloride	<	50.0	UG/L	12/16/10	8260BM	
Bromoform	<	50.0	UG/L	12/16/10	8260BM	
Chloroform	<	50.0	UG/L	12/16/10	8260BM	
Toluene	<	50.0	UG/L	12/16/10	8260BM	
Benzene	<	50.0	UG/L	12/16/10	8260BM	
Chlorobenzene	<	50.0	UG/L	12/16/10	8260BM	
Dibromochloromethane	<	50.0	UG/L	12/16/10	8260BM	
Chloroethane	<	50.0	UG/L	12/16/10	8260BM	
Ethylbenzene	<	50.0	UG/L	12/16/10	8260BM	
Bromomethane	<	50.0	UG/L	12/16/10	8260BM	
Methylene chloride	<	50.0	UG/L	12/16/10	8260BM	
Tetrachloroethene	<	50.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethene	<	50.0	UG/L	12/16/10	8260BM	
1,1,1-Trichloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,1,2,2-Tetrachloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dichloroethane	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dichloropropane	<	50.0	UG/L	12/16/10	8260BM	
trans-1,2-Dichloroethene	<	50.0	UG/L	12/16/10	8260BM	
trans-1,3-Dichloropropene	<	50.0	UG/L	12/16/10	8260BM	
cis-1,3-Dichloropropene	<	50.0	UG/L	12/16/10	8260BM	
Vinyl chloride	<	50.0	UG/L	12/16/10	8260BM	
Trichloroethene		420.0	UG/L	12/16/10	8260BM	
Methylisobutyl ketone	<	50.0	UG/L	12/16/10	8260BM	
Carbon disulfide	<	50.0	UG/L	12/16/10	8260BM	
2-Hexanone	<	50.0	UG/L	12/16/10	8260BM	
Styrene	<	50.0	UG/L	12/16/10	8260BM	
Total Xylenes	<	50.0	UG/L	12/16/10	8260BM	
Acetone	<	50.0	UG/L	12/16/10	8260BM	
Methylethyl Ketone	<	50.0	UG/L	12/16/10	8260BM	

Sample Number: 497475
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1230
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	50.0	UG/L	12/16/10	8260BM	
Trichlorofluoromethane	<	50.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	50.0	UG/L	12/16/10	8260BM	
Methyl Acetate	<	50.0	UG/L	12/16/10	8260BM	
Methyl tert-butyl ether (M	<	50.0	UG/L	12/16/10	8260BM	
cis-1,2-Dichloroethene		59.0	UG/L	12/16/10	8260BM	
Cyclohexane	<	50.0	UG/L	12/16/10	8260BM	
Methylcyclohexane	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dibromoethane	<	50.0	UG/L	12/16/10	8260BM	
Isopropylbenzene	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dichlorobenzene	<	50.0	UG/L	12/16/10	8260BM	
1,3-Dichlorobenzene	<	50.0	UG/L	12/16/10	8260BM	
1,4-Dichlorobenzene	<	50.0	UG/L	12/16/10	8260BM	
1,2-Dibromo-3-chloropropane	<	50.0	UG/L	12/16/10	8260BM	
1,2,4-Trichlorobenzene	<	50.0	UG/L	12/16/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		102
4-BROMOFLUOROBENZENE		96
TOLUENE-D8		101

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 497475
Project Code: SW-WP
Agency Number:
Date Collected: 12/14/2010
Time Collected: 1230
Date Received: 12/15/2010
Date Completed: 12/17/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/17/2010

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General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
MW-05

SAMPLE RECEIVING COMMENTS:
ICE; SAMPLE= 2.5

ANALYST'S COMMENTS:

*

* ANALYST



Sample Number: 497476
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1300
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
 General Inquiries: 1-800-869-1400
 Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		12/16/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	12/16/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	12/16/10	8260BM	
Bromoform	<	10.0	UG/L	12/16/10	8260BM	
Chloroform	<	10.0	UG/L	12/16/10	8260BM	
Toluene	<	10.0	UG/L	12/16/10	8260BM	
Benzene	<	10.0	UG/L	12/16/10	8260BM	
Chlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	12/16/10	8260BM	
Chloroethane	<	10.0	UG/L	12/16/10	8260BM	
Ethylbenzene	<	10.0	UG/L	12/16/10	8260BM	
Bromomethane	<	10.0	UG/L	12/16/10	8260BM	
Methylene chloride	<	10.0	UG/L	12/16/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	12/16/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
Vinyl chloride	<	10.0	UG/L	12/16/10	8260BM	
Trichloroethene		24.0	UG/L	12/16/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	12/16/10	8260BM	
Carbon disulfide	<	10.0	UG/L	12/16/10	8260BM	
2-Hexanone	<	10.0	UG/L	12/16/10	8260BM	
Styrene	<	10.0	UG/L	12/16/10	8260BM	
Total Xylenes	<	10.0	UG/L	12/16/10	8260BM	
Acetone		20.0	UG/L	12/16/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	12/16/10	8260BM	

Sample Number: 497476
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected: 1300
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

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Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	12/16/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	12/16/10	8260BM	
Methyl Acetate	<	10.0	UG/L	12/16/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	12/16/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
Cyclohexane	<	10.0	UG/L	12/16/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	12/16/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	12/16/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		99
1,2-DICHLOROETHANE-D4		99
TOLUENE-D8		100

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample: :
 GCMS

Sample Number: 497476
Project Code: SW-WP
Agency Number:
Date Collected: 12/14/2010
Time Collected: 1300
Date Received: 12/15/2010
Date Completed: 12/17/2010
Collected By: TE
PWS Id:
Location Code:
Station:
Facility:
Report Date: 12/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
FIELD BLANK

SAMPLE RECEIVING COMMENTS:
ICE; SAMPLE= 2.5

ANALYST'S COMMENTS:

*

* ANALYST

Agnes Chen

Sample Number: 497477
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected:
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
 Station:
 Facility:
 Report Date: 12/17/2010

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Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		12/16/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	12/16/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	12/16/10	8260BM	
Bromoform	<	10.0	UG/L	12/16/10	8260BM	
Chloroform	<	10.0	UG/L	12/16/10	8260BM	
Toluene	<	10.0	UG/L	12/16/10	8260BM	
Benzene	<	10.0	UG/L	12/16/10	8260BM	
Chlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	12/16/10	8260BM	
Chloroethane	<	10.0	UG/L	12/16/10	8260BM	
Ethylbenzene	<	10.0	UG/L	12/16/10	8260BM	
Bromomethane	<	10.0	UG/L	12/16/10	8260BM	
Methylene chloride	<	10.0	UG/L	12/16/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	12/16/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
Vinyl chloride	<	10.0	UG/L	12/16/10	8260BM	
Trichloroethene		11.0	UG/L	12/16/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	12/16/10	8260BM	
Carbon disulfide	<	10.0	UG/L	12/16/10	8260BM	
2-Hexanone	<	10.0	UG/L	12/16/10	8260BM	
Styrene	<	10.0	UG/L	12/16/10	8260BM	
Total Xylenes	<	10.0	UG/L	12/16/10	8260BM	
Acetone		14.0	UG/L	12/16/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	12/16/10	8260BM	

Sample Number: 497477
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected:
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EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	12/16/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	12/16/10	8260BM	
Methyl Acetate	<	10.0	UG/L	12/16/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	12/16/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
Cyclohexane	<	10.0	UG/L	12/16/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	12/16/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	12/16/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		100
4-BROMOFLUOROBENZENE		99
TOLUENE-D8		99

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:

GCMS

Sample Number: 497477
Project Code: SW-WP
Agency Number:
Date Collected: 12/14/2010
Time Collected:
Date Received: 12/15/2010
Date Completed: 12/17/2010
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General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
TRIP BLANK

SAMPLE RECEIVING COMMENTS:
ICE; SAMPLE= 2.5

ANALYST'S COMMENTS:

*

* ANALYST

Agnes Chen

Sample Number: 497478
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
 Time Collected:
 Date Received: 12/15/2010
 Date Completed: 12/17/2010
 Collected By: TE
 PWS Id:
 Location Code:
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 Facility:
 Report Date: 12/17/2010

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EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		12/16/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	12/16/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	12/16/10	8260BM	
Bromoform	<	10.0	UG/L	12/16/10	8260BM	
Chloroform	<	10.0	UG/L	12/16/10	8260BM	
Toluene	<	10.0	UG/L	12/16/10	8260BM	
Benzene	<	10.0	UG/L	12/16/10	8260BM	
Chlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	12/16/10	8260BM	
Chloroethane	<	10.0	UG/L	12/16/10	8260BM	
Ethylbenzene	<	10.0	UG/L	12/16/10	8260BM	
Bromomethane	<	10.0	UG/L	12/16/10	8260BM	
Methylene chloride	<	10.0	UG/L	12/16/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	12/16/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	12/16/10	8260BM	
Vinyl chloride	<	10.0	UG/L	12/16/10	8260BM	
Trichloroethene	<	10.0	UG/L	12/16/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	12/16/10	8260BM	
Carbon disulfide	<	10.0	UG/L	12/16/10	8260BM	
2-Hexanone	<	10.0	UG/L	12/16/10	8260BM	
Styrene	<	10.0	UG/L	12/16/10	8260BM	
Total Xylenes	<	10.0	UG/L	12/16/10	8260BM	
Acetone	J	3.4	UG/L	12/16/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	12/16/10	8260BM	

Sample Number: 497478
 Project Code: SW-WP
 Agency Number:
 Date Collected: 12/14/2010
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EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	12/16/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	12/16/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	12/16/10	8260BM	
Methyl Acetate	<	10.0	UG/L	12/16/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	12/16/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	12/16/10	8260BM	
Cyclohexane	<	10.0	UG/L	12/16/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	12/16/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	12/16/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	12/16/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		96
4-BROMOFLUOROBENZENE		103
TOLUENE-D8		98

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary

Labs performing analysis on this Sample:
 GCMS

Sample Number: 497478
Project Code: SW-WP
Agency Number:
Date Collected: 12/14/2010
Time Collected:
Date Received: 12/15/2010
Date Completed: 12/17/2010
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STATE ENVIRONMENTAL LABORATORY
707 N. ROBINSON
OKLAHOMA CITY
OKLAHOMA, 73102-6010
General Inquiries: 1-800-869-1400
Sample Receiving: (405) 702-1113
Report of Analysis by GCMS
EPA Drinking Water Certification #OK00013

To: RITA KOTTKE/LPD

CC: FILE COPY

SOURCE: MUSKOGEE PORT AUTHOR

SAMPLERS COMMENTS:
LAB BLANK

SAMPLE RECEIVING COMMENTS:
ICE; SAMPLE= 2.5

ANALYST'S COMMENTS:
(J) The associated value is an estimated quantity

*

* ANALYST

Agnes Chen