

**SECOND ANNUAL GROUNDWATER  
MONITORING REPORT  
CHESAPEAKE ENERGY CORPORATION  
STATE L LEASE (AP-73)  
LEA COUNTY, NEW MEXICO**

*Prepared for:*

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**June 1, 2016**



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**CHESAPEAKE ENERGY CORPORATION, INC.**  
**STATE L LEASE (AP-73)**  
**SECOND ANNUAL GROUNDWATER MONITORING REPORT**  
**JUNE 1, 2016**

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## **1.0 INTRODUCTION**

Chesapeake Energy Corporation (Chesapeake) retained Enviro Clean Cardinal, LLC (ECC), to perform chloride and benzene impacted groundwater monitoring at Chesapeake's former State L Lease (Site) located in Lea County, New Mexico. The Site is located approximately 8 miles south-southwest of Lovington, New Mexico in the C-NE-NW of Section 19, Township 17 South, Range 36 East, Lea County, New Mexico (coordinates 32.825319° latitude, -103.396361° longitude). The Site location and topographic features are shown on **Figure 1**. An oil and gas production tank battery was formerly located at the Site. Chesapeake purchased the Site in 2004, but never operated the tank battery. Chesapeake began abandonment and environmental investigation activities at the Site in 2007.

Initial Site investigation activities were conducted in May 2007. These investigation activities consisted of conducting EM-31 and EM-34 ground conductivity surveys, the collection of soil samples from nine boreholes, and the installation and sampling of five groundwater monitoring wells. Following the investigation in August 2007, Chesapeake submitted to the New Mexico Oil Conservation Division (NMOCD) a Stage 1 Abatement Plan for the Site. In May 2010, the NMOCD responded to Chesapeake that the agency was not adequately staffed to review the abatement plan in a timely manner and advised Chesapeake that they could proceed with abatement operations at risk. In July 2010, Chesapeake notified the NMOCD of their intent to proceed with the Stage 1 Abatement activities. On March 20, 2012, following implementation of these activities, Chesapeake submitted the Stage 1 Abatement Report for the Site.

On March 27, 2012, Chesapeake submitted to the NMOCD the **Stage 2 Abatement Plan** (Plan) for the Site. A copy of the Plan is provided in **Appendix A**. In this Plan, Chesapeake proposed the following abatement activities at the Site:

- Excavate and remove the near-surface soils at the Site containing concentrations of chloride exceeding 1,000 milligrams per kilogram (mg/kg),
- Excavate and remove the near-surface soils at the Site containing concentrations of TPH exceeding 1,000 mg/kg,



- Install clay liners in areas where chloride and/or TPH concentrations exceed 1,000 mg/kg at depths greater than five feet below ground level,
- Install one additional groundwater monitoring well downgradient of the Site,
- Monitor the groundwater at the Site until the concentrations of chloride and benzene are below the New Mexico Water Quality Control Commission standards.

On March 7, 2013, NMOCD notified Chesapeake that the Plan was administratively complete and that Chesapeake should proceed with public notice of the Plan. On March 30, 2013, Chesapeake published a notice of the proposed activities in the Albuquerque Journal, the Hobbs-Daily News Sun and the Lovington Leader. In addition, written notification of the Plan submittal was sent to all surface owners of record within a 1-mile radius of the Site. On June 27, 2013 upon completion of the notification activities, the NMOCD approved the Plan for the Site. A copy of the NMOCD correspondence approving the Plan is included in **Appendix B**.

The soil remediation activities outlined in the Plan were conducted at the Site during the period January 15, 2014 through March 27, 2014. The soil remediation activities were summarized in the document titled **Soil Remediation Summary Report**, submitted to the NMOCD on August 6, 2014.

This **Second Annual Groundwater Monitoring Report** (Report) summarizes the groundwater monitoring activities conducted at the Site during the following quarterly sampling events:

- Fifth Event - June 9, 2015,
- Sixth Event - September 1, 2015,
- Seventh Event - December 8, 2015, and
- Eighth Event - March 8, 2016.

## 2.0 QUARTERLY GROUNDWATER MONITORING

This Report describes the findings from four quarterly groundwater sampling events conducted at the Site from June 9, 2015 through March 8, 2016.

### 2.1 GROUNDWATER MONITORING METHODOLOGY

Prior to collecting groundwater samples during each quarterly event, ECC gauged all 6 monitoring wells (MW-1 through MW-6) at the Site using an electronic water level meter to determine the depth-to-water (DTW) within each monitoring well. The locations of these monitoring wells are shown on the attached **Figure 2**. DTWs were measured from the surveyed top-of-casing (TOC) of each well and converted to elevations relative to mean sea level. These data are presented in **Table 1**. Potentiometric surface maps were constructed utilizing these data to illustrate the groundwater flow direction within the shallow groundwater system beneath the Site. These potentiometric surface maps for each of the quarterly events are presented on **Figures 3** through **6**. As can be seen on the figures, groundwater flow at the Site is, in general, from the northwest to the southeast.

Upon completion of DTW measurement activities, ECC field personnel collected groundwater samples from monitoring wells MW-1 through MW-6. Groundwater samples were collected utilizing EPA approved low-flow purging/sampling methodologies. Field parameters consisting of pH, specific conductivity, temperature and dissolved oxygen (DO) were recorded during field activities utilizing an air-tight flow-through cell. Upon the stabilization of field parameters, groundwater samples were collected into laboratory prepared containers, labeled as to source and contents, placed on ice for preservation, placed under chain-of-custody control and shipped via overnight courier to the analytical laboratory (Test America Inc., Nashville, Tennessee). As per the Plan, the groundwater samples collected from monitoring wells MW-1 through MW-6 were analyzed for chloride (EPA Method 300.0). Groundwater samples collected from monitoring well MW-4 were analyzed for benzene (EPA Method 8260B) during each of the four quarterly events. In addition, the groundwater sample collected from monitoring well MW-2 during each quarterly sampling event was also analyzed for benzene. A summary of the laboratory analytical results for chloride and benzene analyses is presented in **Table 2**, and complete copies of the laboratory analytical reports and chain-of-custody documentation is proved in **Appendix C**. Chloride and benzene are the constituents of concern (COC) at the Site.—As per the Plan, the laboratory analytical results from these sampling events were screened against the New Mexico

Administrative Code 20.6.2, Standards for Groundwater of 10,000 mg/L TDS Concentration or Less for chloride of 250 mg/L, and for benzene of 10 µg/L (Limits).

## 2.2 FIFTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The fifth quarterly groundwater sampling event was conducted at the Site on June 9, 2015. As can be seen in **Table 2**, the groundwater samples collected from monitoring wells MW-2 (264 mg/L) and MW-4 (318 mg/L) during this sampling event contained concentrations of chloride that exceed the Limit of 250 mg/L. Benzene was not detected in any of the groundwater samples collected during this monitoring event at concentrations exceeding the Limit of 10 µg/L.

## 2.3 SIXTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The sixth quarterly groundwater sampling event was conducted at the Site on September 1, 2015. As can be seen in **Table 2**, the groundwater samples collected from monitoring wells MW-2 (265 mg/L) and MW-4 (288 mg/L) during this sampling event contained concentrations of chloride that exceed the Limit of 250 mg/L. Benzene was not detected in any of the groundwater samples collected during this monitoring event at concentrations exceeding the Limit of 10 µg/L.

## 2.4 SEVENTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The seventh quarterly groundwater sampling event was conducted at the Site on December 8, 2015. As can be seen in **Table 2**, the groundwater sample collected from monitoring well MW-4 (284 mg/L) contained a concentration of chloride that exceeds the Limit of 250 mg/L. Benzene was not detected in any of the groundwater samples collected during this monitoring event at concentrations exceeding the Limit of 10 µg/L.

## 2.5 EIGHTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The eighth quarterly groundwater sampling event was conducted at the Site on March 8, 2016. As can be seen in **Table 2**, Chloride was not detected in any groundwater sample collected during this sampling event that exceeds the Limit of 250 mg/L. **Figure 7** presents chloride concentration trend graphs for each of the monitoring wells sampled at the Site. A review of this figure indicates that the levels of chloride observed in the groundwater samples are decreasing in monitoring wells MW-1, MW-2, MW-3 and MW-5 and stable in monitoring wells MW-4 and MW-6. The soil remediation activities conducted in the first quarter of 2014 have removed the source of chloride impacts to the groundwater at the Site. Removal of the source will allow the chloride concentrations present in the Site groundwater to naturally attenuate via the physical attenuation mechanisms of dispersion and dilution.

Benzene was not detected in any of the groundwater samples collected during this monitoring event at concentrations exceeding the Limit of 10 µg/L. **Figure 8** presents a benzene concentration trend graph for monitoring well MW-4. A review of this figure indicates that the levels of benzene observed in the groundwater samples collected from this monitoring well have decreased markedly since June 2014. Benzene has not been detected above the Limit of 10 µg/L in the groundwater samples collected from monitoring well MW-4 since December 2014. Benzene has never been detected in the groundwater samples collected from monitoring well MW-2.

### 3.0 CONCLUSIONS

Based upon the data presented herein, the following conclusions are presented:

- Groundwater beneath the Site is encountered at depths ranging from approximately 45 to 48 feet below ground level.
- The direction of groundwater flow at the Site is, in general, from the northwest to the southeast.
- During the reporting period, concentrations of chloride greater than the Limit of 250 mg/L were observed in the groundwater samples collected from monitoring well MW-2 during the June 2015 (264 mg/L) and September 2015 (265 mg/L) groundwater sampling events.
- During the reporting period, concentrations of chloride greater than the Limit of 250 mg/L were observed in the groundwater samples collected from monitoring well MW-4 during the June 2015, September 2015 and December 2015 groundwater sampling events at concentrations ranging from 284 mg/L to 318 mg/L.
- The levels of chloride observed in the groundwater samples are decreasing in four monitoring wells (MW-1, MW-2, MW-3 and MW-5) and stable in two monitoring wells (MW-4 and MW-6).
- During the reporting period, concentrations of benzene were not observed in any of the groundwater samples collected from monitoring well MW-4 at levels greater than the Limit of 10 µg/L. A benzene concentration above the Limit has not been observed in monitoring well MW-4 since December 2014.
- Benzene has never been detected in the groundwater samples collected from monitoring well MW-2.

## TABLES

**Table 1 : Summary of Liquid Level Measurements  
Chesapeake Energy Corporation, State L Lease (AP-73)  
Lea County, New Mexico**

Monitoring Well	Top of Casing Elevation (AMSL-Feet)	Depth to Liquid Measurement Date	Depth to LNAPL (Feet-TOC)	Depth to Groundwater (Feet-TOC)	LNAPL Thickness (Feet)	Groundwater Elevation (AMSL-Feet)
MW-1	3895.34	06/03/14	--	47.58	--	3847.76
	3895.34	09/22/14	--	47.66	--	3847.68
	3895.34	12/09/14	--	46.84	--	3848.50
	3895.34	03/10/15	--	47.27	--	3848.07
	3895.34	06/09/15	--	47.58	--	3847.76
	3895.34	09/01/15	--	47.75	--	3847.59
	3895.34	12/08/15	--	47.85	--	3847.49
MW-2	3893.79	03/08/16	--	47.89	--	3847.45
	3893.79	06/03/14	--	47.71	--	3846.08
	3893.79	09/22/14	--	47.82	--	3845.97
	3893.79	12/09/14	--	47.17	--	3846.62
	3893.79	03/10/15	--	47.42	--	3846.37
	3893.79	06/09/15	--	47.76	--	3846.03
	3893.79	09/01/15	--	47.91	--	3845.88
MW-3	3893.79	12/08/15	--	48.02	--	3845.77
	3893.79	03/08/16	--	48.04	--	3845.75
	3891.87	06/03/14	--	46.67	--	3845.20
	3891.87	09/22/14	--	46.78	--	3845.09
	3891.87	12/09/14	--	46.16	--	3845.71
	3891.87	03/10/15	--	46.44	--	3845.43
	3891.87	06/09/15	--	46.71	--	3845.16
MW-4	3891.87	09/01/15	--	46.84	--	3845.03
	3891.87	12/08/15	--	46.91	--	3844.96
	3891.87	03/08/16	--	46.96	--	3844.91
	3894.08	06/03/14	--	47.56	--	3846.52
	3894.08	09/22/14	--	47.65	--	3846.43
	3894.08	12/09/14	--	46.96	--	3847.12
	3894.08	03/10/15	--	47.32	--	3846.76
MW-5	3894.08	06/09/15	--	47.62	--	3846.46
	3894.08	09/01/15	--	47.74	--	3846.34
	3894.08	12/08/15	--	47.83	--	3846.25
	3894.08	03/08/16	--	47.90	--	3846.18
	3892.08	06/03/14	--	47.45	--	3844.63
	3892.08	09/22/14	--	46.56	--	3845.52
	3892.08	12/09/14	--	45.89	--	3846.19
MW-6	3892.08	03/10/15	--	46.27	--	3845.81
	3892.08	06/09/15	--	46.53	--	3845.55
	3892.08	09/01/15	--	46.62	--	3845.46
	3892.08	12/08/15	--	46.70	--	3845.38
	3892.08	03/08/16	--	46.77	--	3845.31
	3892.09	06/03/14	--	47.43	--	3844.66
	3892.09	09/22/14	--	46.54	--	3845.55
	3892.09	12/09/14	--	45.92	--	3846.17
	3892.09	03/10/15	--	46.24	--	3845.85
	3892.09	06/09/15	--	46.50	--	3845.59
	3892.09	09/01/15	--	46.58	--	3845.51
	3892.09	12/08/15	--	46.69	--	3845.40
	3892.09	03/08/16	--	46.74	--	3845.35

**Notes:**

1. TOC : Measured from top of casing.
2. LNAPL : Light non aqueous phase liquid.
3. -- : Denotes Not Measured.
4. AMSL : Denotes above mean sea level (AMSL)

Table 2 : Summary of Laboratory Analytical Results for Groundwater Samples  
Chesapeake Energy Corporation, State L Lease (AP-73)  
Lea County, New Mexico

	Benzene (µg/L)							
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016
MW-1	---	---	---	---	---	---	---	---
MW-2	---	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-3	---	---	---	---	---	---	---	---
MW-4	34.3	4.76	12.1	<0.500	<0.500	<0.500	1.42	1.20
MW-5	---	---	---	---	---	---	---	---
MW-6	---	---	---	---	---	---	---	---

	Toluene (µg/L)							
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016
MW-1	---	---	---	---	---	---	---	---
MW-2	---	---	<0.500	---	---	---	---	---
MW-3	---	---	---	---	---	---	---	---
MW-4	---	---	<0.500	---	---	---	---	---
MW-5	---	---	---	---	---	---	---	---
MW-6	---	---	---	---	---	---	---	---

	Ethylbenzene (µg/L)							
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016
MW-1	---	---	---	---	---	---	---	---
MW-2	---	---	<0.500	---	---	---	---	---
MW-3	---	---	---	---	---	---	---	---
MW-4	---	---	<0.500	---	---	---	---	---
MW-5	---	---	---	---	---	---	---	---
MW-6	---	---	---	---	---	---	---	---

	Xylenes (µg/L)							
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016
MW-1	---	---	---	---	---	---	---	---
MW-2	---	---	<1.50	---	---	---	---	---
MW-3	---	---	---	---	---	---	---	---
MW-4	---	---	<1.50	---	---	---	---	---
MW-5	---	---	---	---	---	---	---	---
MW-6	---	---	---	---	---	---	---	---

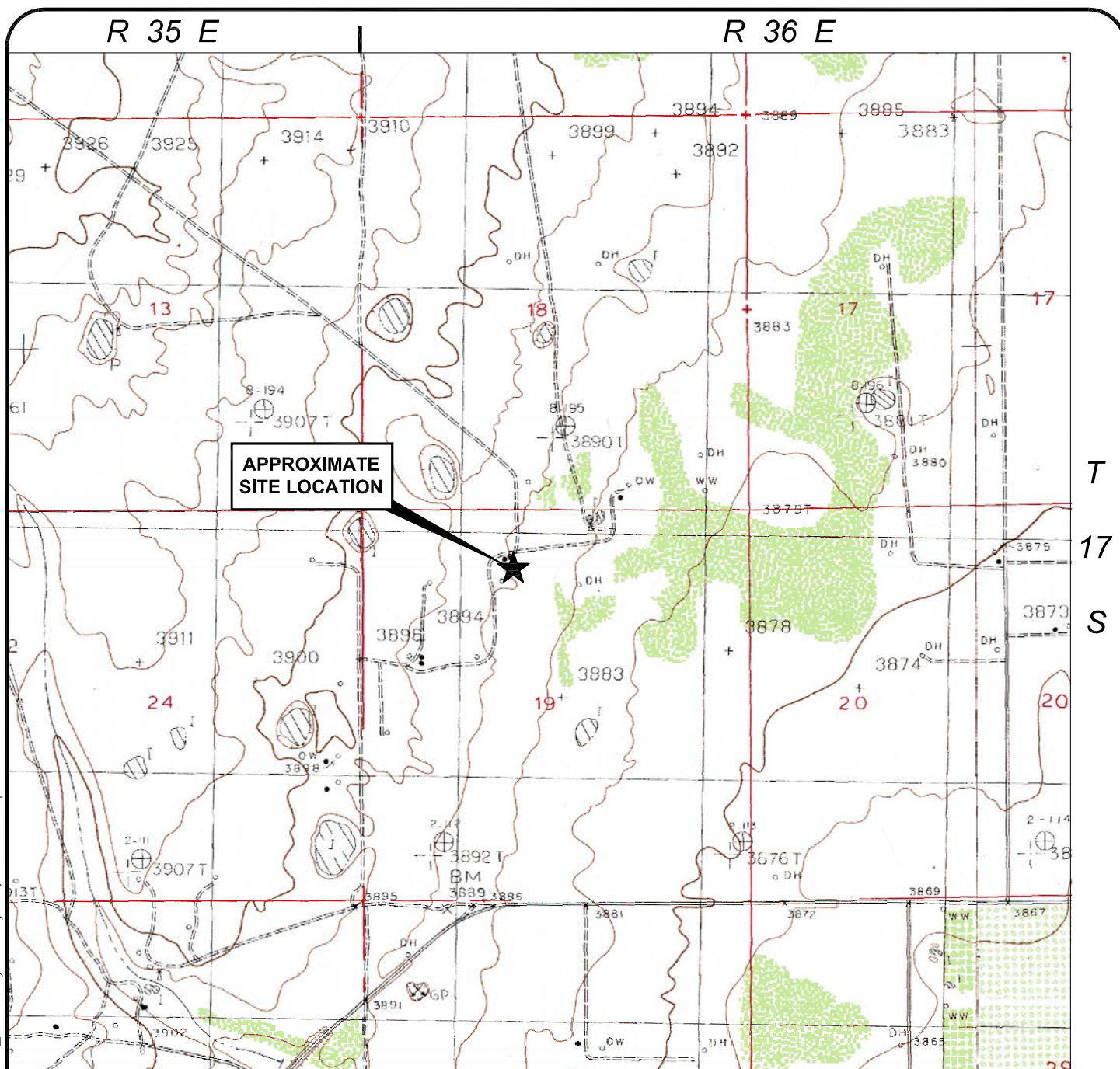
	Chloride (mg/L)							
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016
MW-1	26.8	25.4	27.7	23.2	26.5	23.1	25.8	23.3
MW-2	357	327	319	263	264	265	247	243
MW-3	85.8	86.5	86.0	79.5	79.3	75.7	68.4	61.9
MW-4	192	239	300	238	318	288	284	200
MW-5	129	114	129	102	87.5	93.9	106	81.5
MW-6	133	167	149	160	146	148	147	148

- Notes:
- µg/L : micrograms per liter.
  - mg/L : milligrams per liter.
  - < : Analyte not detected at the laboratory reporting limit.
  - All analyses performed by TestAmerica Laboratories in Nashville, Tennessee.
  - Cells shaded in blue indicate results that are above the laboratory reporting limit.
  - Cells with text **bolded** indicate results exceed the New Mexico Administrative Code 20.6.2, Standards for Groundwater, or chloride (250 mg/L), the MCL for benzene (5 µg/L), the MCL for toluene (1,000 µg/L), the MCL for ethylbenzene (700 µg/L), or the MCL for xylenes (10,000 µg/L).
  - : Analysis not performed.



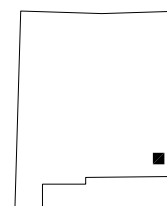
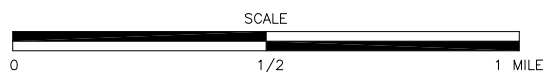
## FIGURES

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LOVINGTON SE, NEW MEXICO - PROVISIONAL EDITION 1985

**NEW MEXICO**



<b>CLIENT</b> CHESAPEAKE ENERGY CORPORATION OKLAHOMA CITY, OKLAHOMA	<b>FIGURE TITLE</b> <b><i>SITE LOCATION AND TOPOGRAPHIC FEATURES</i></b>
<b>LOCATION</b> STATE L LEASE (AP-73) SEC. 19, T17S, R36E, LEA COUNTY, NEW MEXICO	<b>DOCUMENT TITLE</b> SECOND ANNUAL GROUNDWATER MONITORING REPORT



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<b>DATE</b> 5/20/2016	<b>DESIGNED BY</b> BEM
<b>SCALE</b> AS SHOWN	<b>APPROVED BY</b> BEM
<b>PROJECT NUMBER</b> CHKHSTL201	<b>DRAWN BY</b> SKG
	<b>FIGURE NUMBER</b> 1

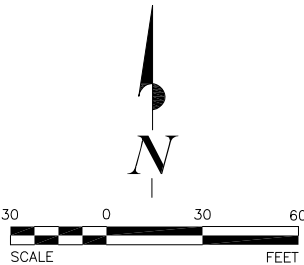


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**LEGEND**

- MW-5** LOCATION OF MONITORING WELL
- GRAVEL ROADWAY
- PIPELINE



**SOURCE:** AERIAL PHOTOGRAPH DATED MARCH 2, 2012,  
GOOGLE EARTH PRO SCREEN CAPTURE

**ENVIRO CLEAN  
CARDINAL**

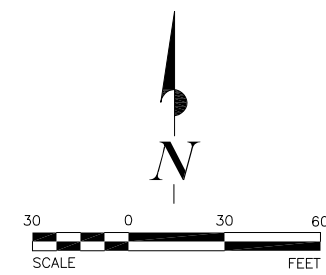
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DOCUMENT TITLE SECOND ANNUAL GROUNDWATER MONITORING REPORT				FIGURE TITLE SITE BASE MAP			
CLIENT	CHESAPEAKE ENERGY CORPORATION OKLAHOMA CITY, OKLAHOMA			PROJECT NUMBER		FIGURE NUMBER	
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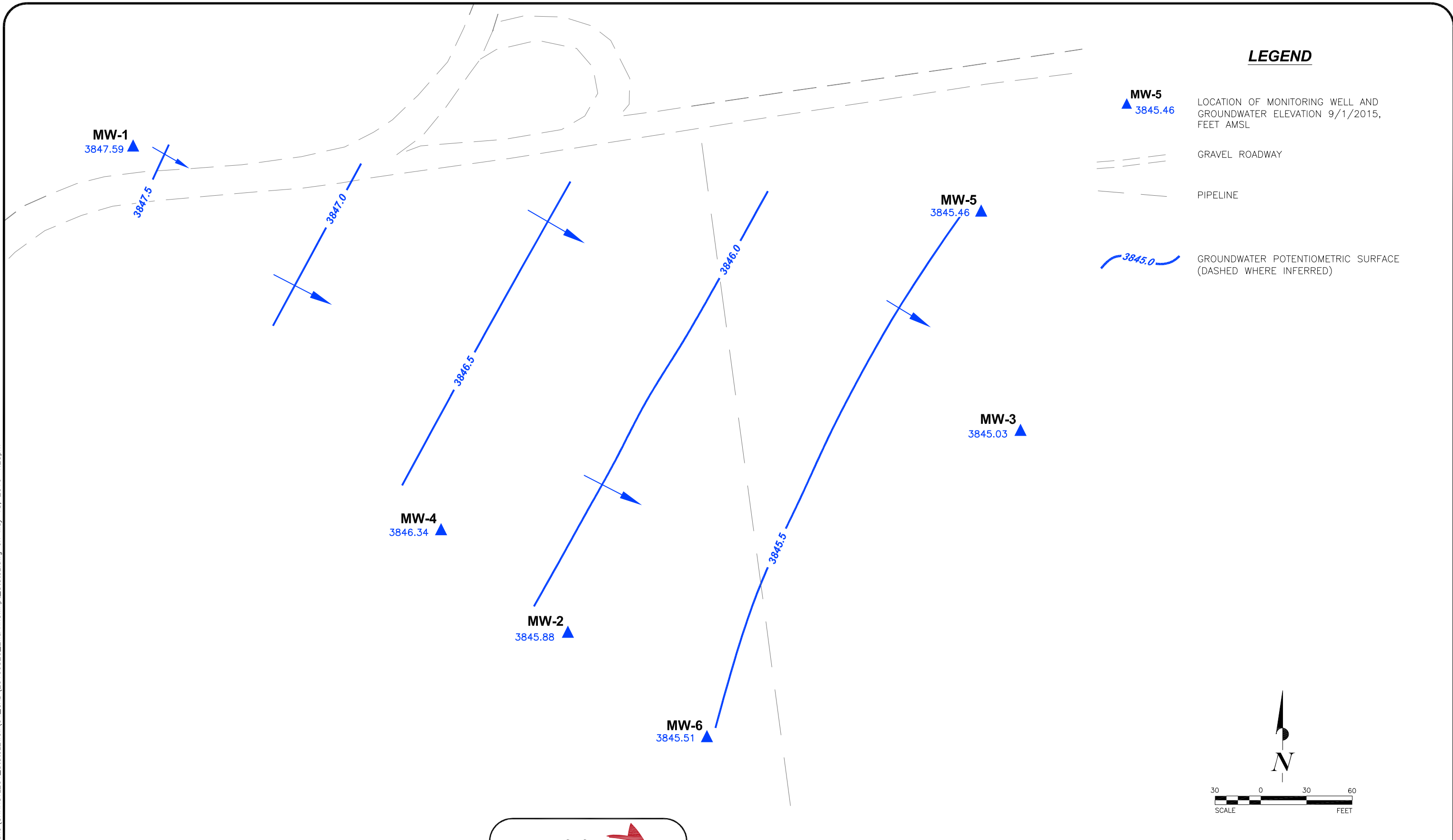
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DOCUMENT TITLE SECOND ANNUAL GROUNDWATER MONITORING REPORT		FIGURE TITLE <b>GROUNDWATER POTENTIOMETRIC SURFACE, JUNE 9, 2015</b>					
CLIENT	CHESAPEAKE ENERGY CORPORATION OKLAHOMA CITY, OKLAHOMA					PROJECT NUMBER  CHKHSTL201	FIGURE NUMBER  <b>3</b>
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		APPROVED BY	BEM	SCALE	1"=60'		
LOCATION	STATE L LEASE (AP-73) SEC. 19, T17S, R36E, LEA COUNTY, NEW MEXICO	DRAWN BY	SKG	DATE	5/20/2016		

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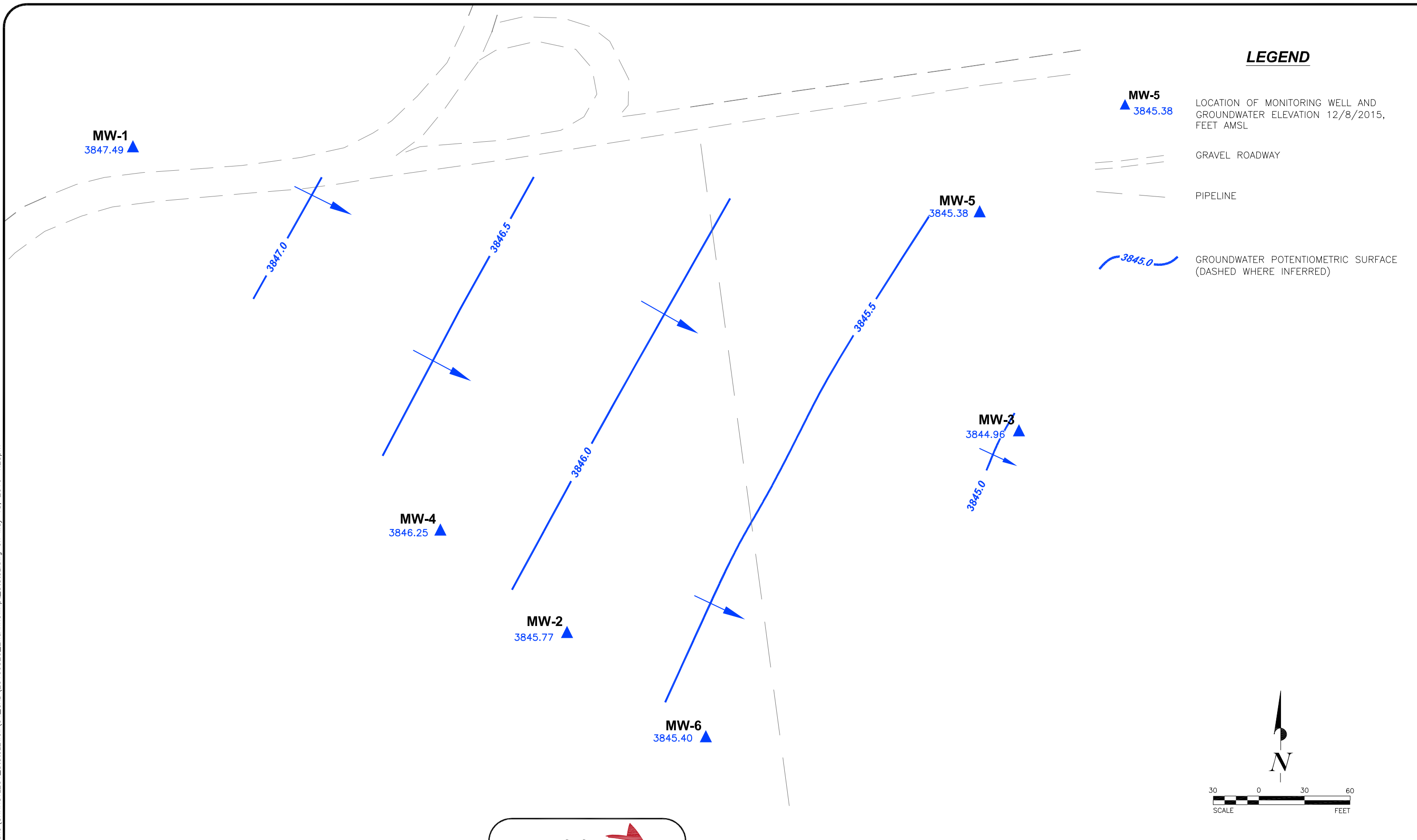
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DOCUMENT TITLE				FIGURE TITLE						
SECOND ANNUAL GROUNDWATER MONITORING REPORT				GROUNDWATER POTENTIOMETRIC SURFACE, SEPTEMBER 1, 2015						
CLIENT	CHESAPEAKE ENERGY CORPORATION OKLAHOMA CITY, OKLAHOMA							PROJECT NUMBER	FIGURE NUMBER	
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LOCATION	STATE L LEASE (AP-73) SEC. 19, T17S, R36E, LEA COUNTY, NEW MEXICO			DRAWN BY		SKG	DATE	5/20/2016	CHKHSTL201	4

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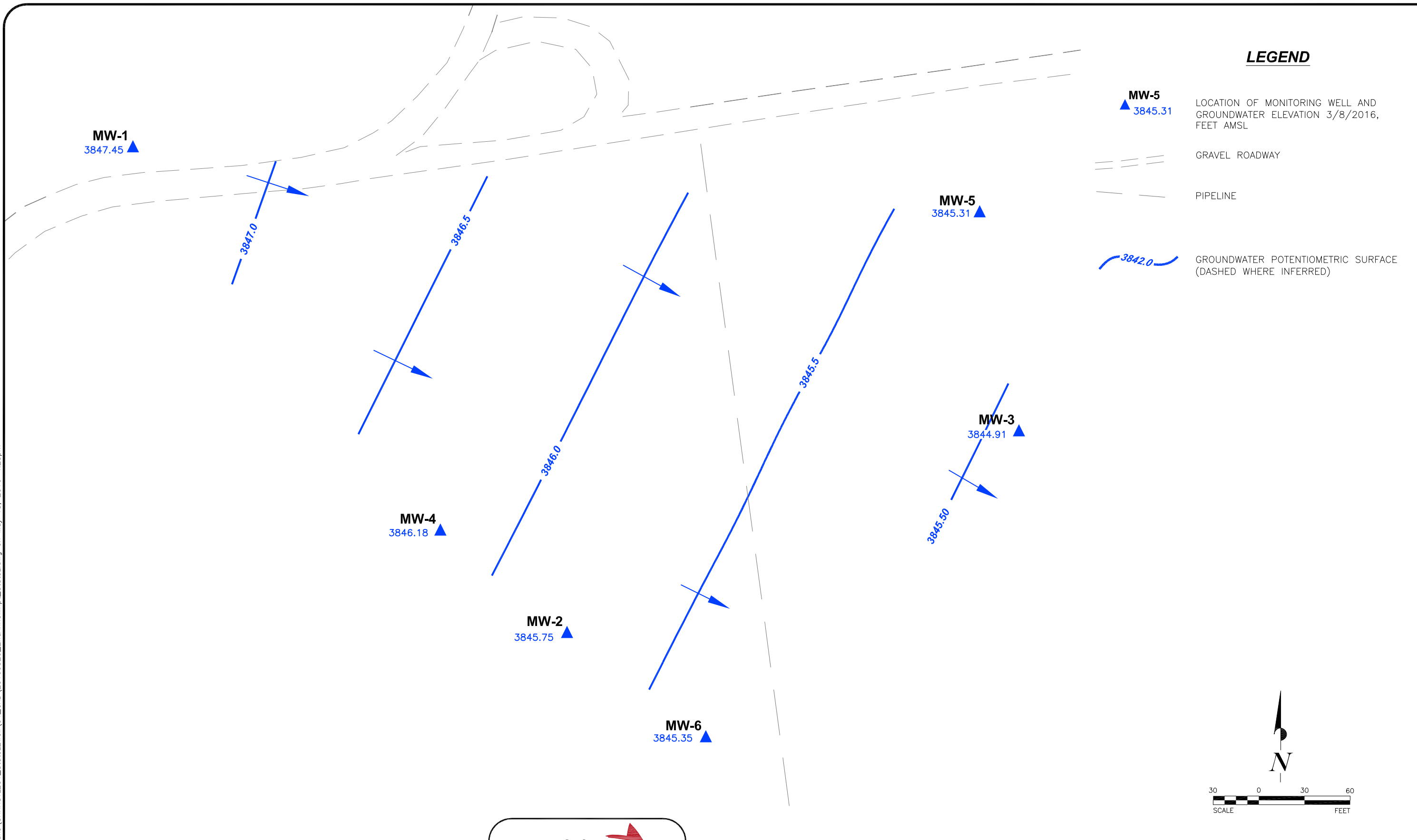
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DOCUMENT TITLE SECOND ANNUAL GROUNDWATER MONITORING REPORT				FIGURE TITLE <i>GROUNDWATER POTENTIOMETRIC SURFACE, DECEMBER 8, 2015</i>					
CLIENT	CHESAPEAKE ENERGY CORPORATION OKLAHOMA CITY, OKLAHOMA			PROJECT NUMBER  CHKHSTL201				FIGURE NUMBER  5	
LOCATION	STATE L LEASE (AP-73) SEC. 19, T17S, R36E, LEA COUNTY, NEW MEXICO			DESIGNED BY	BEM			SCALE 1"=60'	
				APPROVED BY	BEM	SCALE	1"=60'		
				DRAWN BY	SKG	DATE	5/20/2016		

D:\Projects\Chesapeake\CHKHSTL201\_State12well\04\_CAD\20160520\_2ndAnnGMRpt\_State12.dwg on May 18, 2016-4:23pm

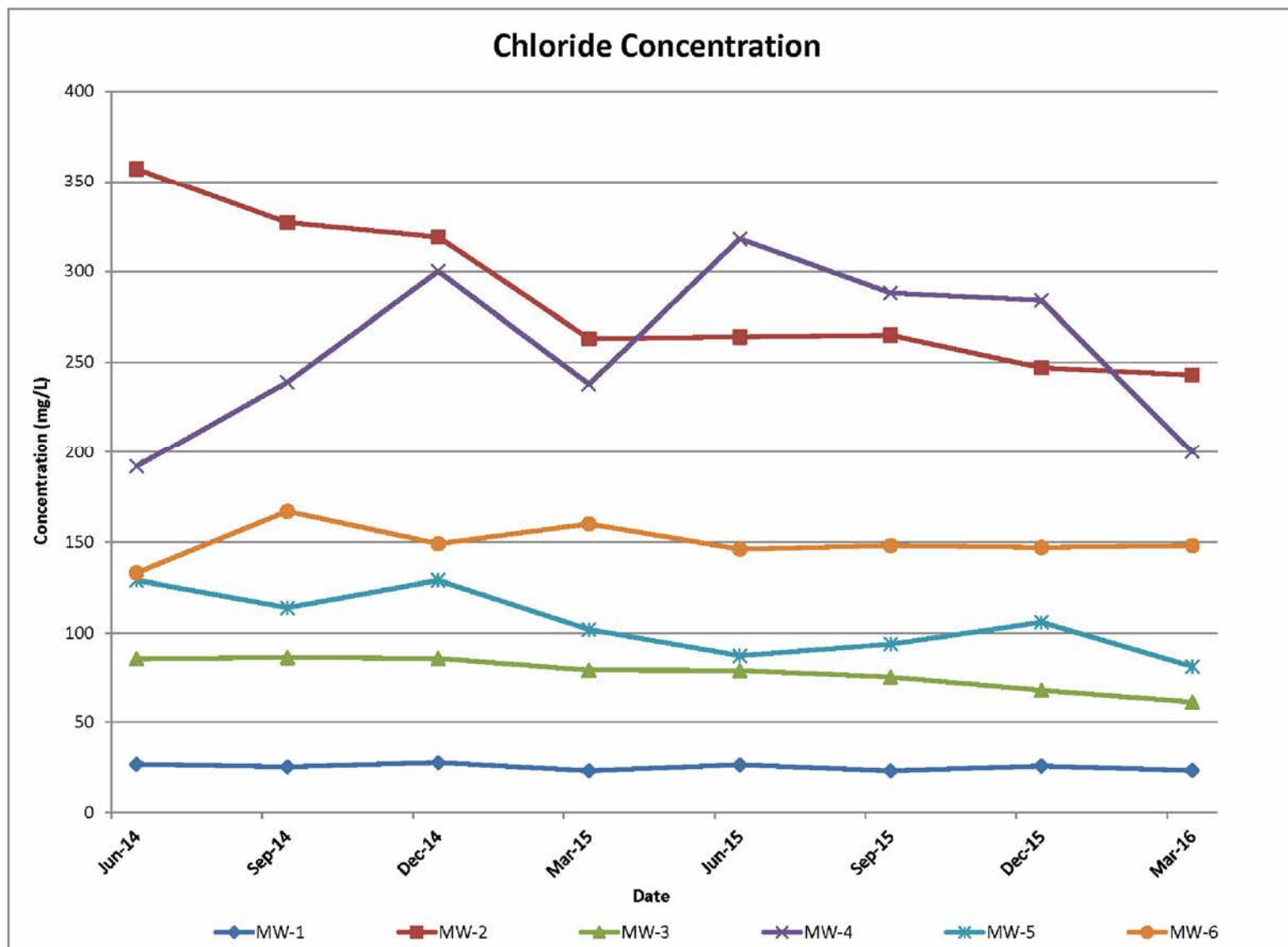


**ENVIRO CLEAN  
CARDINAL**

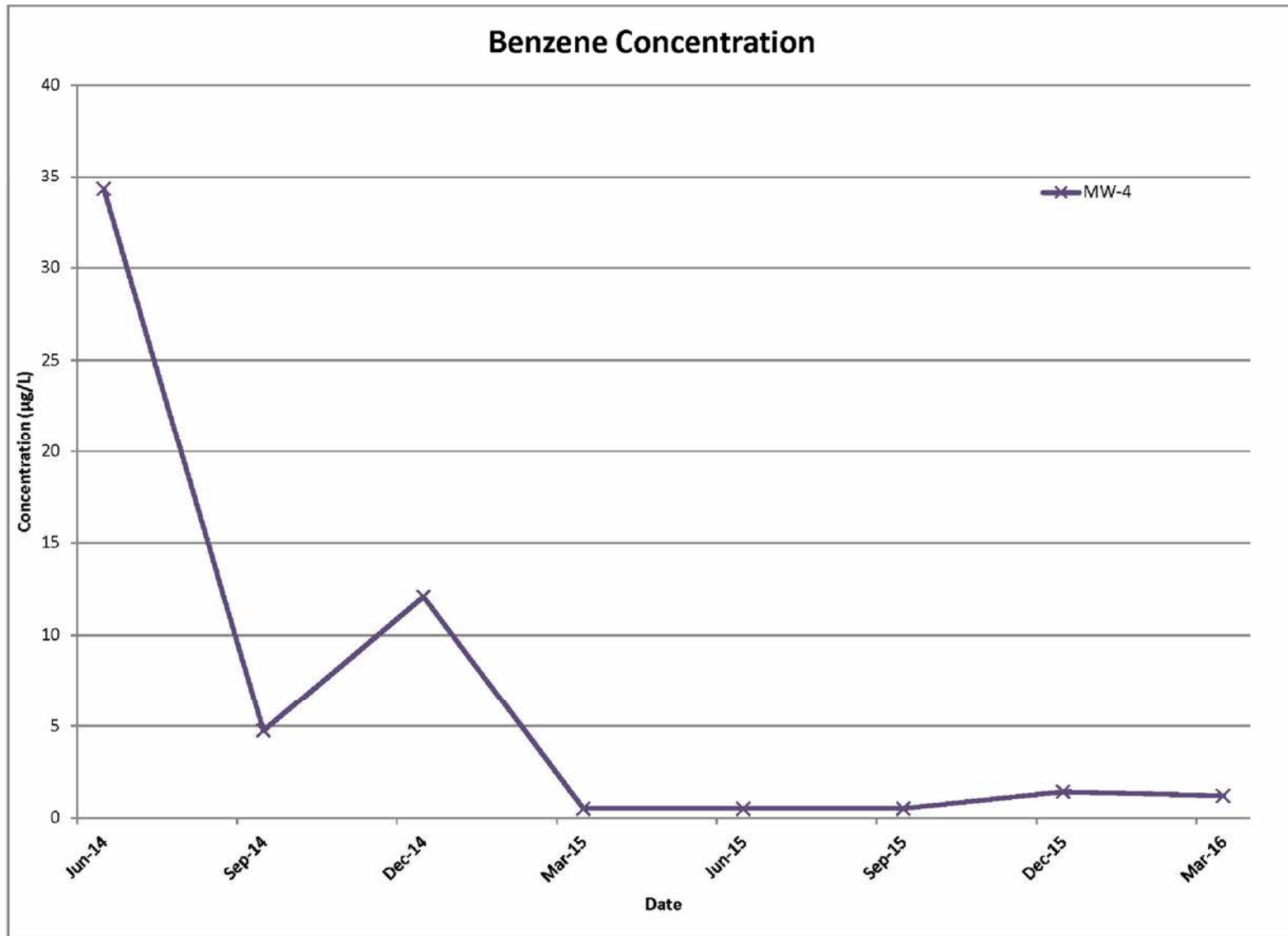
Enviro Clean Cardinal, LLC

7060 South Yale Avenue, Suite 603  
Tulsa, Oklahoma 74136  
918.794.7828  
www.EnviroCleanPS.com

DOCUMENT TITLE SECOND ANNUAL GROUNDWATER MONITORING REPORT				FIGURE TITLE <i>GROUNDWATER POTENTIOMETRIC SURFACE, MARCH 8, 2016</i>						
CLIENT	CHESAPEAKE ENERGY CORPORATION OKLAHOMA CITY, OKLAHOMA							PROJECT NUMBER  CHKHSTL201	FIGURE NUMBER  6	
				DESIGNED BY		BEM				
				APPROVED BY		BEM	SCALE			1"=60'
LOCATION	STATE L LEASE (AP-73) SEC. 19, T17S, R36E, LEA COUNTY, NEW MEXICO			DRAWN BY		SKG	DATE	5/20/2016		







**Enviro Clean Cardinal, LLC**

7060 South Yale Avenue, Suite 603  
Tulsa, Oklahoma 74136  
918.794.7828

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DOCUMENT TITLE  
SECOND ANNUAL GROUNDWATER  
MONITORING REPORT

FIGURE TITLE  
*MW-4 BENZENE CONCENTRATION TREND GRAPH*

CLIENT CHESAPEAKE ENERGY CORPORATION  
OKLAHOMA CITY, OKLAHOMA

LOCATION STATE L LEASE (AP-73)  
SEC. 19, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	CNA		
APPROVED BY	BEM	SCALE	NTS
DRAWN BY	SKG	DATE	5/20/2016

PROJECT NUMBER

CHKHSTL201

FIGURE NUMBER

**8**

## **APPENDICES**

- A      Stage 2 Abatement Plan
- B      NMOCD Approval of Stage 2 Abatement Plan
- C      Laboratory Analytical Reports and Chain-of-Custody Documentation

**APPENDIX A**

**STAGE 2 ABATEMENT PLAN**



Mr. Glenn Von Gonten  
New Mexico Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Subject:  
State L-2 AP-073  
Stage 2 Abatement Plan

Dear Mr. Von Gonten:

On behalf of Chesapeake Energy Corporation, ARCCADIS U.S. Inc. respectfully submits the enclosed Stage 2 Abatement plan for the State L-2 site (AP-073). A Stage 1 Abatement Plan Report was submitted on March 20, 2012. Your review and approval of this Abatement Plan will be appreciated. The landowner, Darr Angell, is anxious for us to complete soil remediation at this site.

If you have any questions please do not hesitate to contact Bradley Blevins at (575) 391-1462 or via e-mail at bblevins@chkenergy or me at (432) 687-5400, e-mail address shall@aracdis-us.com.

Sincerely,

ARCADIS U.S., Inc.

Sharon E. Hall  
Associate Vice President

Copies:  
Bradley Blevins- Chesapeake, Hobbs

ARCADIS U.S., Inc.  
1004 North Big Spring Street  
Suite 300  
Midland  
Texas 79701  
Tel 432 687 5400  
Fax 432 687 5401  
[www.arcadis-us.com](http://www.arcadis-us.com)

ENVIRONMENT

Date:  
March 27, 2012

Contact:  
Sharon Hall

Phone:  
432 687-5400

Email:  
shall@aracdis-us.com

Our ref:  
MT001088

ARCADIS U.S., Inc.  
TX Engineering License # F-533

Imagine the result

**Chesapeake Energy Corporation**

**State L-2 AP-073**

**Stage 2 Abatement  
Plan Proposal**

Hobbs, New Mexico

March 27, 2012



Sharon E. Hall

---

Sharon Hall  
Associate Vice President

**State L-2 AP-073**

**Stage 2 Abatement  
Plan Proposal**

Prepared for:  
Chesapeake Energy  
Corporation  
Hobbs, New Mexico

Prepared by:  
ARCADIS U.S., Inc.  
1004 North Big Spring Street  
Suite 300  
Midland  
Texas 79701  
Tel 432 687 5400  
Fax 432 687 5401

Our Ref.:  
MT001088.0001.00001

Date:  
March 27, 2012

*This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.*

<b>1. INTRODUCTION</b>	<b>1</b>
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**Appendices**

Appendix A Multi-Med Model Inputs and Outputs

Stage 2 Abatement  
Plan Proposal



Chesapeake Energy  
Corporation  
Hobbs, New Mexico

## 1. INTRODUCTION

The subject site is a former tank battery site located east of Buckeye, New Mexico. The site was purchased by Chesapeake Energy Corporation (Chesapeake) in April 2004. Chesapeake did not operate the tank battery or the associated well field and began the process of facility abandonment in 2007.

Five monitor wells and nine soil borings have been drilled at the site. Elevated chloride concentrations and limited hydrocarbon compounds were detected in soil samples collected from soil borings and monitoring wells.

## 2. SUMMARY OF STAGE 1 ABATEMENT ACTIVITIES

Initial site investigation activities were conducted in May of 2007 following abandonment of the tank battery. Stage 1 Abatement activities were conducted during the period of May 2007 through September 2011. Stage 1 Abatement activities included drilling and soil sampling of nine boreholes, drilling and sampling of seven monitor wells, EM 31 and EM 34 surveys, conversion of one monitoring well into a recovery well and recovery of phase-separated hydrocarbons from the recovery well.

New Mexico Oil Conservation Division (NMOCD) was notified of impacts to groundwater at the site via e-mail on May 30, 2007. NMOCD notified Chesapeake in a letter dated June 19, 2007 that a Stage 1 Abatement Plan was required for the site in accordance with Rule 19.

The Stage 1 Abatement Plan was submitted to NMOCD on August 22, 2007. The plan summarized site activities taken to date. The plan proposed the drilling and sampling of a minimum of three additional soil borings and installation and sampling of nine groundwater monitoring wells.

BBC contacted NMOCD via email on April 24, 2010 to inquire about the status of the Stage 1 Abatement Plan approval and Chesapeake's desire to conduct the proposed Stage 1 Abatement Plan activities. On May 27, 2010, NMOCD responded via email that the State was not staffed to review the Abatement Plans (APs) in a timely manner. On June 23, 2010, BBC contacted NMOCD via email to request a waiver of the Public Notice requirement and inform NMOCD that Chesapeake and the landowner were anxious to move forward with the proposed AP activities. NMOCD replied via email on June 23, 2010 stating they were still understaffed to review the AP and could not waive the Public Notice requirement. They advised BBC that Chesapeake could proceed "at





risk." On July 12, 2010 BBC informed NMOCD by registered letter that Chesapeake was planning to start the Stage 1 Assessment on or about August 23, 2010. They further informed NMOCD they would be submitting the required Public Notices, a copy of which was attached to the letter. NMOCD did not respond to the registered letter.

The public notices were published in the Hobbs News-Sun and Lovington Leader on July 22, 2010 and the Albuquerque Journal on July 24, 2010. No comments were received from the public or NMOCD during the 30-day comment period and Chesapeake proceeded with the proposed Stage 1 Abatement Plan activities on August 26, 2010. Copies of correspondence and Public Notice are included in Appendix A.

A detailed description of site activities and results can be found in the report submitted to NMOCD dated March 20, 2012 entitled State L-2 AP-073, Stage 1 Abatement Report (Site Assessment Investigation). Analytical results for soil and groundwater sampling are summarized on Figure 1.

### **3. STAGE 2 ABATEMENT PLAN PROPOSAL**

After review of various remedial options, we propose the following Stage 2 Abatement Plan. The plan addresses soil and groundwater remediation.

#### **3.1 Soil Remediation**

The selected remedial option will be the excavation of near-surface soils and installation of clay liners. The anticipated extent and depth of excavation is based on assessment activities (laboratory analysis and visual observation) and is shown in Figure 2. Near surface soils (to a depth of 5 feet below ground surface) with chloride concentrations in excess of 1,000 milligrams per kilogram (mg/kg) and a Total Petroleum Hydrocarbons (TPH) concentration in excess of 1,000 mg/kg will be excavated and disposed. Excavated soils will be disposed at Lea Land Landfill.

Areas where chloride or TPH concentrations are expected to exceed 1,000 mg/kg at depths greater than 5 feet below ground surface soils will be excavated to a depth of 5 feet below ground surface. The area surrounding SB-1 will be excavated to a depth of 2 feet below ground surface. Subsurface chloride impacted soils are not evidenced in this area and elevated TPH concentrations at depth are not likely to inhibit growth of

**Chesapeake Energy  
Corporation  
Hobbs, New Mexico**

vegetation. Soils will be screened in the field for chlorides using chloride field test kits and for TPH using a photoionization. Critical samples (samples used to delineate the excavations) will be submitted for laboratory analysis of chlorides and/or TPH. Following excavation, a 12-inch compacted clay layer that meets or exceeds a permeability of equal to or less than  $1 \times 10^{-8}$  centimeters per second will be installed in the excavations. The lined excavations will be backfilled with four feet of locally obtained native soil. All of the excavated areas will be re-seeded with native vegetation. Areas that are supporting vegetation will not be disturbed.

Use of the USEPA Multi-Med model demonstrates that the clay liners will mitigate the leaching of chlorides to groundwater. The model predicts that after 7000 years of infiltration through the liner the maximum concentration of chlorides in groundwater will be 150 milligrams per liter (mg/L). The Multi-Med inputs and outputs are included in Appendix A.

### **3.2 Groundwater Monitoring**

One additional groundwater monitoring well will be installed downgradient of the site. The monitoring well will be designated MW-6.

Groundwater samples will be collected from all of the monitoring wells and analyzed for chlorides using USEPA method 9056 for each of four quarters. Groundwater samples from MW-4 will also be analyzed for benzene. Based on sample results for one year (four quarters), sampling frequency will be reviewed and may be revised.

Sampling will be discontinued when eight quarters of sample results indicate chloride and benzene concentrations are below New Mexico Water Quality Control Commission, Title 20, Chapter 6, Part 2 standards. Sample results will be submitted to the NMOCD annually on June 15.

Proposed groundwater remediation is presented in Sections 3.3.

### **3.3 Groundwater Remediation**

Chloride concentrations in groundwater exceed New Mexico Water Quality Control Commission standards in three wells (MW-2, 580 mg/L; MW-4, 548 mg/L and MW-5, 280 mg/L). Benzene concentrations exceed New Mexico Water Quality Control Commission standards in monitoring well MW-4 at a concentration of 0.224 mg/L.

**Stage 2 Abatement  
Plan Proposal****Chesapeake Energy  
Corporation  
Hobbs, New Mexico**

Removal of near-surface soils that are a potential source of chlorides and hydrocarbons in groundwater and lining of excavations with chloride and TPH concentrations in excess of 1,000 mg/kg will mitigate leaching of chlorides to groundwater. Considering the relatively low concentrations of chlorides in groundwater and the fact that soil removal and clay liner infiltration barrier installation will be conducted at this site, we propose monitoring the site for a period of two years before considering pumping of groundwater at this site. With the proposed source removal and mitigation and the severe drought conditions being experienced in this area, we believe it prudent to evaluate if chloride mass removal by pumping is warranted at this site.

**4. PUBLIC NOTIFICATION**

Written notification of submittal of the Stage 2 Abatement Plan Proposal and site activities will be sent to all surface owners of record within a one-mile radius of the site. NMOCD will be supplied with a list of parties to be notified. Publication of notice of activities will be published in a state-wide circulated newspaper, the Albuquerque Journal, and two county newspapers, the Hobbs-Daily News Sun and the Lovington Leader.

**5. REMEDIATION WORK SCHEDULE**

Soil remediation activities are expected to be completed in 15 working days (Monday through Friday). Groundwater remediation activities will be ongoing. An estimated completion date for groundwater remediation is not available.





## 6. REFERENCES

Groundwater Handbook; United States Environmental Protection Agency, Office of Research and Development, Center for Environmental Research Information; 1992

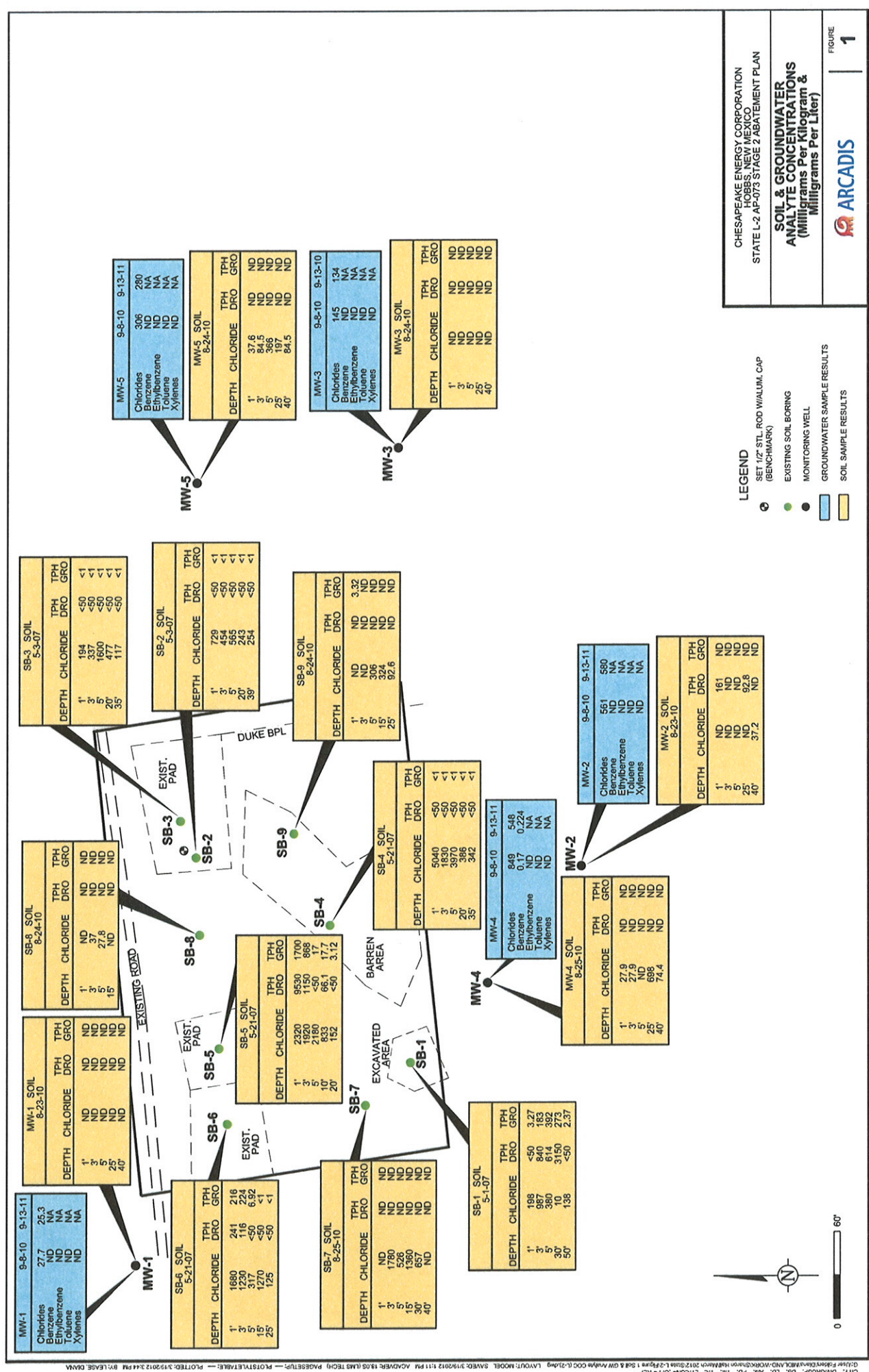
New Mexico Water Quality Control Commission, Title 20 Chapter 6, Part 2, Subpart I

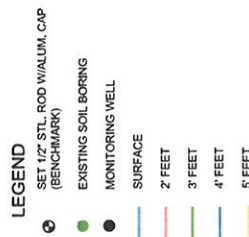
State L-2 AP-073 Stage 1 Abatement Report (Site Assessment Investigation);  
ARCADIS; March 2012

State L-2 Salt Water Disposal Tank Battery, Stage 1 Abatement Plan (Ap-072), BBC International; August 2007

New Mexico Water Quality Control Commission, Title 20 Chapter 6, Part 2, Subpart I

**Chesapeake Energy  
Corporation  
Hobbs, New Mexico**





**PROPOSED  
EXCAVATION MAP**

## **Appendix A**

Multi-Med Model Inputs and  
Outputs

**Chesapeake State L-2**  
**Chesapeake Energy Corporation**  
**Buckeye, Lea County, New Mexico**  
**Multimed Model Input and Output (With Liner)**

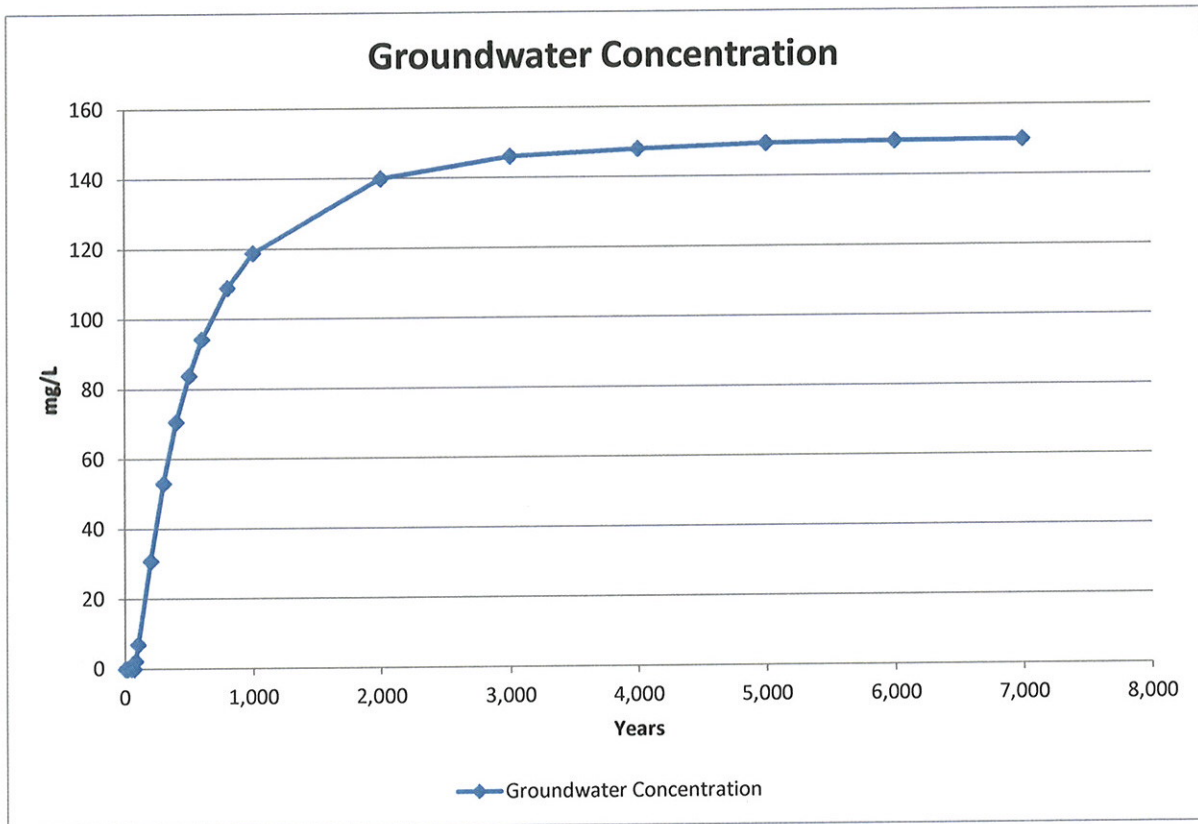
MODEL INPUT AND OUTPUT						MODEL RANGE	
INPUT PARAMETERS						Minimum	Maximum
<b>Unsaturated Zone Flow Parameters</b>							
Depth of Unsaturated Zone	m	46	feet	14.0	m	0.000000001	None
Hydraulic Conductivity	cm/hr	2	ft/day	2.54	cm/hr	0.00000000001	10,000
Unsaturated Zone Porosity	fraction	0.05	fraction	0.05	fraction	0.000000001	0.99
Residual Water Content	fraction	0.01	fraction	0.010	fraction	0.000000001	1
<b>Unsaturated Zone Transport Parameters</b>							
Thickness of Layer	m	46	feet	14.0	m	0.000000001	None
Percent of Organic Matter	%	2.6	%	2.6	%	0	100
Bulk Density	g/cm <sup>3</sup>	1.35	g/cm <sup>3</sup>	1.35	g/cm <sup>3</sup>	0.01	5
Biological Decay Coefficient	1/yr	0	1/yr	0	1/yr	0	None
<b>Aquifer Parameters</b>							
Aquifer Porosity	fraction	0.25	fraction	0.25	fraction	0.000000001	0.99
Bulk Density	g/cm <sup>3</sup>	1.35	g/cm <sup>3</sup>	1.35	g/cm <sup>3</sup>	0.01	5
Aquifer Thickness	m	15	ft	4.6	m	0.000000001	100,000
Hydraulic Conductivity	m/yr	2	ft/day	223	m/yr	0.0000001	100,000,000
Hydraulic Gradient	m/m	0.004	m/m	0.004	m/m	0.00000001	None
Organic Carbon Content	fraction	0.00315	fraction	0.00315	fraction	0.000001	1
Temperature of Aquifer	°C	14.4	°C	14.4	°C	0.00000001	None
pH		6.2		6.2		0.3	14
x-distance Radial Distance from Site to Receptor	m	1	m	1	m	1	None
<b>Source Parameters</b>							
Infiltration Rate from the Facility	m/yr	0.05	in/yr	0.0013	m/yr	0.0000000001	10,000,000,000
Area of Waste Disposal Unit	m <sup>2</sup>	52,650	ft <sup>2</sup>	4891	m <sup>2</sup>	0.01	None
Length Scale of Facility	m	270	feet	82.3	m	0.000000001	10,000,000,000
Width Scale of Facility	m	195	feet	59.4	m	0.000000001	10,000,000,000
Recharge Rate into the Plume	m/yr	0	in/yr	0	m/yr	0	10,000,000,000
Duration of Pulse	yr	7,000	yr	7000	yr	0.000000001	None
Initial Concentration at Landfill	mg/L	5,040	mg/L	5,040	mg/L	0	None
<b>Additional Parameters</b>							
Method	Gaussian				Gaussian	Patch	
Name of Chemical Specified	Chloride						

MODEL OUTPUT			
Final Concentration at Landfill	mg/L	150.0	mg/L

MODEL OUTPUT			
Concentration at Landfill	0.0	mg/L	Time
	0.0	mg/L	1 yr
	0.0	mg/L	10 yr
	0.0	mg/L	20 yr
	0.0	mg/L	50 yr
	0.0	mg/L	70 yr
	2.2	mg/L	80 yr
	6.9	mg/L	100 yr
	30.8	mg/L	200 yr
	53.0	mg/L	300 yr
	70.6	mg/L	400 yr
	83.8	mg/L	500 yr
	94.3	mg/L	600 yr
	108.9	mg/L	800 yr
	118.8	mg/L	1,000 yr
	139.9	mg/L	2,000 yr
	146.1	mg/L	3,000 yr
	148.0	mg/L	4,000 yr
	149.3	mg/L	5,000 yr
	149.8	mg/L	6,000 yr
	150.0	mg/L	7,000 yr



Chesapeake State L-2  
Chesapeake Energy Corporation  
Buckeye, Lea County, New Mexico



**Chesapeake State L-2**  
**Chesapeake Energy Corporation**  
**Buckeye, Lea County, New Mexico**  
**Multimed Model Input and Output (Without Liner)**

MODEL INPUT AND OUTPUT						MODEL RANGE	
INPUT PARAMETERS						Minimum	Maximum
Unsaturated Zone Flow Parameters							
Depth of Unsaturated Zone	m	46	feet	14.0	m	0.000000001	None
Hydraulic Conductivity	cm/hr	2	ft/day	2.54	cm/hr	0.00000000001	10,000
Unsaturated Zone Porosity	fraction	0.05	fraction	0.05	fraction	0.000000001	0.99
Residual Water Content	fraction	0.01	fraction	0.010	fraction	0.000000001	1
Unsaturated Zone Transport Parameters							
Thickness of Layer	m	45	feet	13.7	m	0.000000001	None
Percent of Organic Matter	%	2.6	%	2.6	%	0	100
Bulk Density	g/cm <sup>3</sup>	1.35	g/cm <sup>3</sup>	1.35	g/cm <sup>3</sup>	0.01	5
Biological Decay Coefficient	1/yr	0	1/yr	0	1/yr	0	None
Aquifer Parameters							
Aquifer Porosity	fraction	0.25	fraction	0.25	fraction	0.000000001	0.99
Bulk Density	g/cm <sup>3</sup>	1.35	g/cm <sup>3</sup>	1.35	g/cm <sup>3</sup>	0.01	5
Aquifer Thickness	m	15	ft	4.6	m	0.000000001	100,000
Hydraulic Conductivity	m/yr	2	ft/day	223	m/yr	0.0000001	100,000,000
Hydraulic Gradient	m/m	0.006	m/m	0.006	m/m	0.00000001	None
Organic Carbon Content	fraction	0.00315	fraction	0.00315	fraction	0.000001	1
Temperature of Aquifer	°C	14.4	°C	14.4	°C	0.00000001	None
pH		6.2		6.2		0.3	14
x-distance Radial Distance from Site to Receptor	m	1	m	1	m	1	None
Source Parameters							
Infiltration Rate from the Facility	m/yr	1.50	in/yr	0.0381	m/yr	0.0000000001	10,000,000,000
Area of Waste Disposal Unit	m <sup>2</sup>	52,650	ft <sup>2</sup>	4891	m <sup>2</sup>	0.01	None
Length Scale of Facility	m	270	feet	82.3	m	0.000000001	10,000,000,000
Width Scale of Facility	m	195	feet	59.4	m	0.000000001	10,000,000,000
Recharge Rate into the Plume	m/yr	0	in/yr	0	m/yr	0	10,000,000,000
Duration of Pulse	yr	2,000	yr	2000	yr	0.000000001	None
Initial Concentration at Landfill	mg/L	5,040	mg/L	5,040	mg/L	0	None
Additional Parameters							
Method				Gaussian	Gaussian		
Name of Chemical Specified				Chloride			

MODEL OUTPUT				
Concentration at Landfill	mg/L	4,404	mg/L	1000.0 yr

MODEL OUTPUT						
Concentration at Landfill		0	mg/L	Time	1.0	yr
		0	mg/L		1.5	yr
		0	mg/L		2.0	yr
		0	mg/L		2.5	yr
		13	mg/L		3.0	yr
		522	mg/L		5.0	yr
		1,507	mg/L		10.0	yr
		2,700	mg/L		20.0	yr
		3,098	mg/L		30.0	yr
		3,229	mg/L		40.0	yr
		3,360	mg/L		50.0	yr
		4,016	mg/L		100.0	yr
		4,349	mg/L		150.0	yr
		4,380	mg/L		200.0	yr
		4,397	mg/L		250.0	yr
		4,401	mg/L		300.0	yr
		4,403	mg/L		400.0	yr
		4,404	mg/L		500.0	yr
		4,404	mg/L		800.0	yr
		4,404	mg/L		1,000.0	yr

Chesapeake State L-2  
Chesapeake Energy Corporation  
Buckeye, Lea County, New Mexico

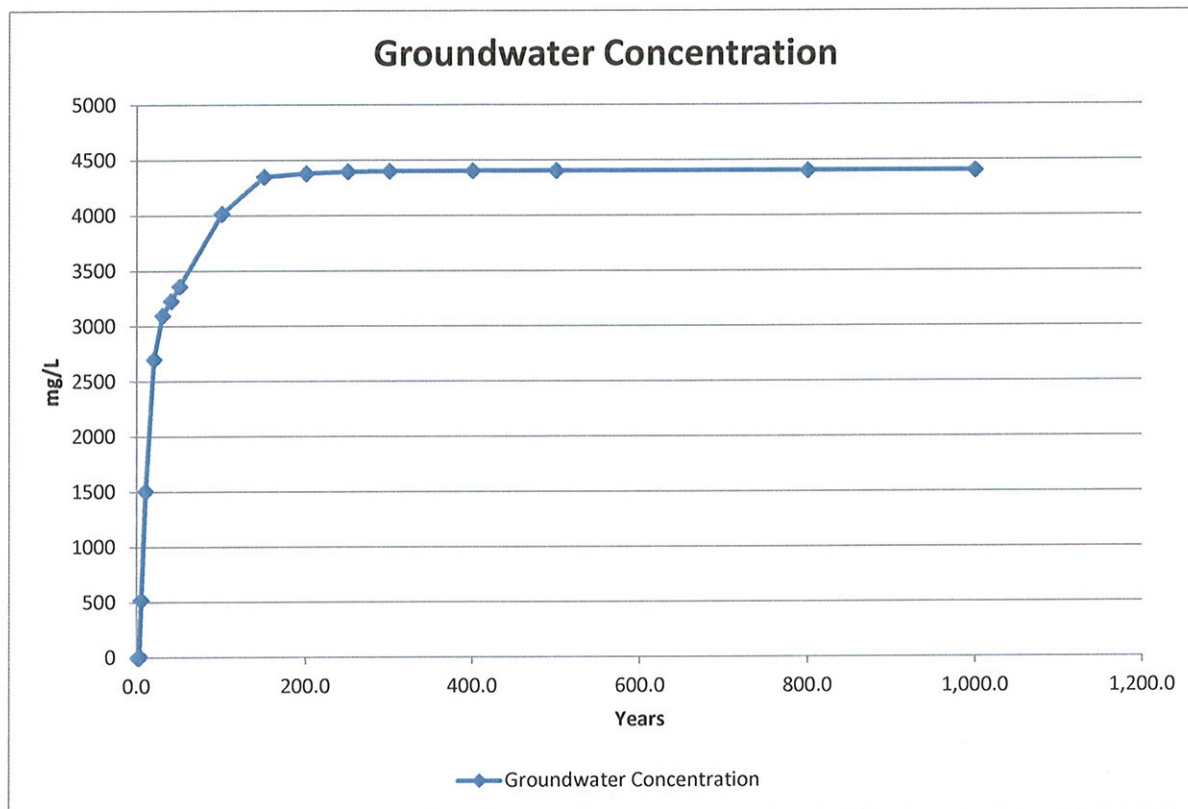


TABLE 6-2. DESCRIPTIVE STATISTICS FOR SATURATED HYDRAULIC CONDUCTIVITY  
(cm hr<sup>-1</sup>)

Soil Type	Hydraulic Conductivity (Ks)*			n
	x	s	CV	
Clay**	0.2	0.42	210.3	114
Clay Loam	0.26	0.7	267.2	345
Loam	1.04	1.82	174.6	735
Loamy Sand	14.59	11.36	77.9	315
Silt	0.25	0.33	129.9	88
Silt Loam	0.45	1.23	275.1	1093
Silty Clay	0.02	0.11	453.3	126
Silty Clay Loam	0.07	0.19	288.7	592
Sand	29.7	15.6	52.4	246
Sandy Clay	0.12	0.28	234.1	46
Sandy Clay Loam	1.31	2.74	208.6	214
Sandy Loam	4.42	5.63	127	1183

\* n = Sample size,  $\bar{x}$  = Mean, s = Standard deviation, CV = Coefficient of variation (percent)

\*\* Agricultural soil, less than 60 percent clay

Sources: From Dean et al. (1989),  
Original reference Carsel and Parrish (1988).

TABLE 6-3. TOTAL POROSITY OF VARIOUS MATERIALS

Material	No. of Analyses	Range	Arithmetic Mean
Igneous Rocks			
Weathered granite	8	0.34-0.57	0.45
Weathered gabbro	4	0.42-0.45	0.43
Basalt	94	0.03-0.35	0.17
Sedimentary Materials			
Sandstone	65	0.14-0.49	0.34
Siltstone	7	0.21-0.41	0.35
Sand (fine)	243	0.26-0.53	0.43
Sand (coarse)	26	0.31-0.46	0.39
Gravel (fine)	38	0.25-0.38	0.34
Gravel (coarse)	15	0.24-0.36	0.28
Silt	281	0.34-0.61	0.46
Clay	74	0.34-0.57	0.42
Limestone	74	0.07-0.56	0.3
Metamorphic Rocks			
Schist	18	0.04-0.49	0.38

Sources: From Mercer et al. (1982),  
 McWhorter and Sunada (1977),  
 Original reference Morris and Johnson, (1967).

## **APPENDIX B**

### **NMOCD APPROVAL OF STAGE 2 ABATEMENT PLAN**

**From:** [Chase Acker](#)  
**To:** [Bruce McKenzie](#)  
**Subject:** FW: Stage 2 Abatement Plan Approval: AP-73 Former State L-2 Tank Battery located in Unit Letter C of Section 19 in Township 17 South, Range 36 East, NMPM in Lea County, NM  
**Date:** Monday, April 14, 2014 1:56:03 PM

---

---

**From:** Griswold, Jim, EMNRD [mailto:Jim.Griswold@state.nm.us]  
**Sent:** Thursday, June 27, 2013 5:17 PM  
**To:** Larry Wooten  
**Cc:** sharon.hall@arcadis-us.com; Chase Acker  
**Subject:** Stage 2 Abatement Plan Approval: AP-73 Former State L-2 Tank Battery located in Unit Letter C of Section 19 in Township 17 South, Range 36 East, NMPM in Lea County, NM

Mr. Wooten,

The Oil Conservation Division (OCD) has reviewed the Stage 2 Abatement Plan for the above-referenced site submitted on your behalf by Arcadis and dated 3/27/12. That plan has substantially met the requirements of 19.15.30 NMAC and is hereby approved. Please proceed with field activities.

Be advised this approval does not relieve Chesapeake of responsibility should the situation continue to pose a threat to groundwater, surface water, human health, or the environment. Furthermore, this approval does not relieve your responsibility for compliance with any federal, state, or local laws and/or regulations. Please retain a copy of this email for your files, as no hardcopy will be sent. If you have any questions, please feel free to contact me at any time.

**Jim Griswold**

*Senior Hydrologist*

EMNRD/Oil Conservation Division

1220 South St. Francis Drive

Santa Fe, New Mexico 87505

505.476.3465

email: [jim.griswold@state.nm.us](mailto:jim.griswold@state.nm.us)

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## **APPENDIX C**

### **LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION**



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville

2960 Foster Creighton Drive

Nashville, TN 37204

Tel: (615)726-0177

TestAmerica Job ID: 490-80497-1

TestAmerica Sample Delivery Group: Property ID 890293

Client Project/Site: CHK STATE L-2

For:

Enviro Clean Services LLC

7060 S. Yale Avenue, Suite 603

Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech



Authorized for release by:

6/24/2015 8:14:50 AM

Cathy Gartner, Project Manager I

(615)301-5041

[cathy.gartner@testamericainc.com](mailto:cathy.gartner@testamericainc.com)

### LINKS

Review your project  
results through

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Have a Question?



Visit us at:

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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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## Sample Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-80497-1	MW-1	Water	06/09/15 09:00	06/13/15 09:00
490-80497-2	MW-4	Water	06/09/15 10:45	06/13/15 09:00
490-80497-3	MW-2	Water	06/09/15 12:00	06/13/15 09:00
490-80497-4	MW-6	Water	06/09/15 13:05	06/13/15 09:00
490-80497-5	MW-3	Water	06/09/15 14:35	06/13/15 09:00
490-80497-6	MW-5	Water	06/09/15 16:10	06/13/15 09:00
490-80497-7	EQ Blank	Water	06/09/15 11:00	06/13/15 09:00
490-80497-8	Dup	Water	06/09/15 00:01	06/13/15 09:00
490-80497-9	Trip Blank	Water	06/09/15 00:01	06/13/15 09:00

## Case Narrative

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Job ID: 490-80497-1**

**Laboratory: TestAmerica Nashville**

### Narrative

#### Job Narrative 490-80497-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/13/2015 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5° C.

#### GC/MS VOA

Method(s) 8260B: Surrogate recovery for the following samples was outside the upper control limit: (490-80322-E-1) and (490-80322-B-1 MS).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### HPLC/IC

Method(s) 300.0: The following samples were diluted due to the nature of the sample matrix: MW-4 (490-80497-2), MW-2 (490-80497-3), MW-6 (490-80497-4) and Dup (490-80497-8). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

## Definitions/Glossary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: MW-1**

**Date Collected: 06/09/15 09:00**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-1**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.5		1.00		mg/L			06/19/15 22:07	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: MW-4**  
**Date Collected: 06/09/15 10:45**  
**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-2**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			06/18/15 14:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		70 - 130					06/18/15 14:39	1
4-Bromofluorobenzene (Surr)	96		70 - 130					06/18/15 14:39	1
Dibromofluoromethane (Surr)	109		70 - 130					06/18/15 14:39	1
Toluene-d8 (Surr)	102		70 - 130					06/18/15 14:39	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	318		5.00		mg/L			06/19/15 22:47	5

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: MW-2**  
**Date Collected: 06/09/15 12:00**  
**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-3**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			06/18/15 15:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	123		70 - 130					06/18/15 15:05	1
4-Bromofluorobenzene (Surr)	98		70 - 130					06/18/15 15:05	1
Dibromofluoromethane (Surr)	115		70 - 130					06/18/15 15:05	1
Toluene-d8 (Surr)	72		70 - 130					06/18/15 15:05	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	264		5.00		mg/L			06/19/15 23:07	5



## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: MW-6**  
**Date Collected: 06/09/15 13:05**  
**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-4**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	146		5.00		mg/L			06/19/15 23:27	5

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: MW-3**  
**Date Collected: 06/09/15 14:35**  
**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-5**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	79.3		1.00		mg/L			06/19/15 23:47	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: MW-5**  
**Date Collected: 06/09/15 16:10**  
**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-6**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	87.5		1.00		mg/L			06/20/15 00:07	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: EQ Blank**

**Date Collected: 06/09/15 11:00**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-7**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			06/18/15 13:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		70 - 130					06/18/15 13:19	1
4-Bromofluorobenzene (Surr)	98		70 - 130					06/18/15 13:19	1
Dibromofluoromethane (Surr)	107		70 - 130					06/18/15 13:19	1
Toluene-d8 (Surr)	103		70 - 130					06/18/15 13:19	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			06/22/15 12:36	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: Dup**  
**Date Collected: 06/09/15 00:01**  
**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-8**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			06/18/15 15:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		70 - 130					06/18/15 15:31	1
4-Bromofluorobenzene (Surr)	99		70 - 130					06/18/15 15:31	1
Dibromofluoromethane (Surr)	111		70 - 130					06/18/15 15:31	1
Toluene-d8 (Surr)	101		70 - 130					06/18/15 15:31	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	267		5.00		mg/L			06/20/15 00:47	5

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: Trip Blank**

**Date Collected: 06/09/15 00:01**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-9**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			06/18/15 12:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		70 - 130					06/18/15 12:53	1
4-Bromofluorobenzene (Surr)	98		70 - 130					06/18/15 12:53	1
Dibromofluoromethane (Surr)	109		70 - 130					06/18/15 12:53	1
Toluene-d8 (Surr)	103		70 - 130					06/18/15 12:53	1

# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 490-257213/6

Matrix: Water

Analysis Batch: 257213

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			06/18/15 12:26	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 130					06/18/15 12:26	1
4-Bromofluorobenzene (Surr)	101		70 - 130					06/18/15 12:26	1
Dibromofluoromethane (Surr)	109		70 - 130					06/18/15 12:26	1
Toluene-d8 (Surr)	102		70 - 130					06/18/15 12:26	1

Lab Sample ID: LCS 490-257213/3

Matrix: Water

Analysis Batch: 257213

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	53.33		ug/L		107	80 - 121
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	105		70 - 130				
4-Bromofluorobenzene (Surr)	100		70 - 130				
Dibromofluoromethane (Surr)	107		70 - 130				
Toluene-d8 (Surr)	102		70 - 130				

Lab Sample ID: LCSD 490-257213/4

Matrix: Water

Analysis Batch: 257213

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	53.19		ug/L		106	80 - 121	0	17
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	105		70 - 130						
4-Bromofluorobenzene (Surr)	100		70 - 130						
Dibromofluoromethane (Surr)	105		70 - 130						
Toluene-d8 (Surr)	102		70 - 130						

Lab Sample ID: 490-80322-B-1 MS

Matrix: Water

Analysis Batch: 257213

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		50.0	52.68		ug/L		105	75 - 133
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	138	X	70 - 130						
4-Bromofluorobenzene (Surr)	101		70 - 130						
Dibromofluoromethane (Surr)	108		70 - 130						
Toluene-d8 (Surr)	102		70 - 130						

TestAmerica Nashville

# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 490-80322-C-1 MSD

Matrix: Water

Analysis Batch: 257213

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		50.0	53.57		ug/L	-	107	75 - 133	2	17
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	115		70 - 130								
4-Bromofluorobenzene (Surr)	102		70 - 130								
Dibromofluoromethane (Surr)	110		70 - 130								
Toluene-d8 (Surr)	101		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-257870/3

Matrix: Water

Analysis Batch: 257870

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L	-		06/19/15 21:06	1

Lab Sample ID: LCS 490-257870/4

Matrix: Water

Analysis Batch: 257870

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits			
Chloride	100	99.11		mg/L	-	99	90 - 110			

Lab Sample ID: LCSD 490-257870/5

Matrix: Water

Analysis Batch: 257870

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	99.17		mg/L	-	99	90 - 110	0	20

Lab Sample ID: 490-80497-1 MS

Matrix: Water

Analysis Batch: 257870

Client Sample ID: MW-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	26.5		100	115.3		mg/L	-	89	80 - 120		

Lab Sample ID: MB 490-258543/6

Matrix: Water

Analysis Batch: 258543

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L	-		06/22/15 11:39	1

TestAmerica Nashville



# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-258543/7

Matrix: Water

Analysis Batch: 258543

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	96.06		mg/L		96	90 - 110

Lab Sample ID: LCSD 490-258543/8

Matrix: Water

Analysis Batch: 258543

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	95.30		mg/L		95	90 - 110	1	20

Lab Sample ID: 490-80497-7 MS

Matrix: Water

Analysis Batch: 258543

Client Sample ID: EQ Blank

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		100	92.53		mg/L		93	80 - 120

## QC Association Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

### GC/MS VOA

#### Analysis Batch: 257213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-80322-B-1 MS	Matrix Spike	Total/NA	Water	8260B	
490-80322-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
490-80497-2	MW-4	Total/NA	Water	8260B	
490-80497-3	MW-2	Total/NA	Water	8260B	
490-80497-7	EQ Blank	Total/NA	Water	8260B	
490-80497-8	Dup	Total/NA	Water	8260B	
490-80497-9	Trip Blank	Total/NA	Water	8260B	
LCS 490-257213/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-257213/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-257213/6	Method Blank	Total/NA	Water	8260B	

### HPLC/IC

#### Analysis Batch: 257870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-80497-1	MW-1	Total/NA	Water	300.0	
490-80497-1 MS	MW-1	Total/NA	Water	300.0	
490-80497-2	MW-4	Total/NA	Water	300.0	
490-80497-3	MW-2	Total/NA	Water	300.0	
490-80497-4	MW-6	Total/NA	Water	300.0	
490-80497-5	MW-3	Total/NA	Water	300.0	
490-80497-6	MW-5	Total/NA	Water	300.0	
490-80497-8	Dup	Total/NA	Water	300.0	
LCS 490-257870/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-257870/5	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-257870/3	Method Blank	Total/NA	Water	300.0	

#### Analysis Batch: 258543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-80497-7	EQ Blank	Total/NA	Water	300.0	
490-80497-7 MS	EQ Blank	Total/NA	Water	300.0	
LCS 490-258543/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-258543/8	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-258543/6	Method Blank	Total/NA	Water	300.0	

# Lab Chronicle

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: MW-1**

**Date Collected: 06/09/15 09:00**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		257870	06/19/15 22:07	JHS	TAL NSH

**Client Sample ID: MW-4**

**Date Collected: 06/09/15 10:45**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	257213	06/18/15 14:39	SLM	TAL NSH
Total/NA	Analysis	300.0		5	10 mL		257870	06/19/15 22:47	JHS	TAL NSH

**Client Sample ID: MW-2**

**Date Collected: 06/09/15 12:00**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	257213	06/18/15 15:05	SLM	TAL NSH
Total/NA	Analysis	300.0		5	10 mL		257870	06/19/15 23:07	JHS	TAL NSH

**Client Sample ID: MW-6**

**Date Collected: 06/09/15 13:05**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	10 mL		257870	06/19/15 23:27	JHS	TAL NSH

**Client Sample ID: MW-3**

**Date Collected: 06/09/15 14:35**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		257870	06/19/15 23:47	JHS	TAL NSH

**Client Sample ID: MW-5**

**Date Collected: 06/09/15 16:10**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		257870	06/20/15 00:07	JHS	TAL NSH

TestAmerica Nashville

# Lab Chronicle

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

**Client Sample ID: EQ Blank**

**Date Collected: 06/09/15 11:00**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	257213	06/18/15 13:19	SLM	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		258543	06/22/15 12:36	JHS	TAL NSH

**Client Sample ID: Dup**

**Date Collected: 06/09/15 00:01**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	257213	06/18/15 15:31	SLM	TAL NSH
Total/NA	Analysis	300.0		5	10 mL		257870	06/20/15 00:47	JHS	TAL NSH

**Client Sample ID: Trip Blank**

**Date Collected: 06/09/15 00:01**

**Date Received: 06/13/15 09:00**

**Lab Sample ID: 490-80497-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	257213	06/18/15 12:53	SLM	TAL NSH

## Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Method Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
300.0	Anions, Ion Chromatography	MCAWW	TAL NSH

### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.  
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Certification Summary

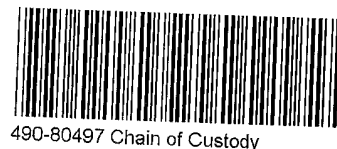
Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-80497-1  
SDG: Property ID 890293

### Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-15



## COOLER RECEIPT FORM

Cooler Received/Opened On: 6/12/2015 @0900

1. Tracking # 2900 (last 4 digits, FedEx)

Courier: Fed-Ex IR Gun ID: 14740456

2. Temperature of rep. sample or temp blank when opened: 2.5 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front/Back

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) MDM

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # \_\_\_\_\_

I certify that I unloaded the cooler and answered questions 7-14 (initial) MDM

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) MDM

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) MDM

I certify that I attached a label with the unique LIMS number to each container (initial) MDM

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO # \_\_\_\_\_

6/24/2015



## Login Sample Receipt Checklist

Client: Enviro Clean Services LLC

Job Number: 490-80497-1

SDG Number: Property ID 890293

**Login Number: 80497**

**List Number: 1**

**Creator: McBride, Mike**

**List Source: TestAmerica Nashville**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Analyses listed on COC; individual samples not designated for specific analyses
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville

2960 Foster Creighton Drive

Nashville, TN 37204

Tel: (615)726-0177

TestAmerica Job ID: 490-86780-1

Client Project/Site: CHK STATE L-2

For:

Enviro Clean Services LLC

7060 S. Yale Avenue, Suite 603

Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech

*Cathy Gartner*

Authorized for release by:

9/18/2015 5:44:20 PM

Cathy Gartner, Project Manager I

(615)301-5041

[cathy.gartner@testamericainc.com](mailto:cathy.gartner@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Sample Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-86780-1	EQ Blank	Water	09/01/15 08:15	09/04/15 11:10
490-86780-2	MW-1	Water	09/01/15 09:05	09/04/15 11:10
490-86780-3	MW-4	Water	09/01/15 10:25	09/04/15 11:10
490-86780-4	MW-2	Water	09/01/15 11:30	09/04/15 11:10
490-86780-5	MW-6	Water	09/01/15 13:00	09/04/15 11:10
490-86780-6	MW-3	Water	09/01/15 14:05	09/04/15 11:10
490-86780-7	MW-5	Water	09/01/15 15:35	09/04/15 11:10
490-86780-8	DUP	Water	09/01/15 00:01	09/04/15 11:10
490-86780-9	TRIP	Water	09/01/15 00:01	09/04/15 11:10

# Case Narrative

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Job ID: 490-86780-1**

**Laboratory: TestAmerica Nashville**

## Narrative

### Job Narrative 490-86780-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 9/4/2015 11:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

## Definitions/Glossary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: EQ Blank**

**Date Collected: 09/01/15 08:15**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-1**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			09/11/15 14:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 130					09/11/15 14:14	1
4-Bromofluorobenzene (Surr)	95		70 - 130					09/11/15 14:14	1
Dibromofluoromethane (Surr)	103		70 - 130					09/11/15 14:14	1
Toluene-d8 (Surr)	100		70 - 130					09/11/15 14:14	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			09/12/15 09:55	1



## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: MW-1**

**Date Collected: 09/01/15 09:05**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-2**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23.1		1.00		mg/L			09/12/15 10:19	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: MW-4**  
**Date Collected: 09/01/15 10:25**  
**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-3**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			09/11/15 14:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 130					09/11/15 14:42	1
4-Bromofluorobenzene (Surr)	95		70 - 130					09/11/15 14:42	1
Dibromofluoromethane (Surr)	103		70 - 130					09/11/15 14:42	1
Toluene-d8 (Surr)	100		70 - 130					09/11/15 14:42	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	288		1.00		mg/L			09/12/15 10:43	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: MW-2**  
**Date Collected: 09/01/15 11:30**  
**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-4**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			09/11/15 15:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 130					09/11/15 15:09	1
4-Bromofluorobenzene (Surr)	94		70 - 130					09/11/15 15:09	1
Dibromofluoromethane (Surr)	101		70 - 130					09/11/15 15:09	1
Toluene-d8 (Surr)	101		70 - 130					09/11/15 15:09	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	265		1.00		mg/L			09/12/15 11:31	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: MW-6**

**Date Collected: 09/01/15 13:00**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-5**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	148		1.00		mg/L			09/12/15 12:19	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: MW-3**

**Date Collected: 09/01/15 14:05**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-6**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	75.7		1.00		mg/L			09/14/15 19:13	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: MW-5**

**Date Collected: 09/01/15 15:35**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-7**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	93.9		1.00		mg/L			09/14/15 19:53	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: DUP**

**Date Collected: 09/01/15 00:01**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-8**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			09/11/15 15:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 130					09/11/15 15:36	1
4-Bromofluorobenzene (Surr)	95		70 - 130					09/11/15 15:36	1
Dibromofluoromethane (Surr)	101		70 - 130					09/11/15 15:36	1
Toluene-d8 (Surr)	100		70 - 130					09/11/15 15:36	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	270		1.00		mg/L			09/14/15 20:13	1



# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: TRIP**

**Date Collected: 09/01/15 00:01**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-9**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			09/11/15 13:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 130					09/11/15 13:47	1
4-Bromofluorobenzene (Surr)	91		70 - 130					09/11/15 13:47	1
Dibromofluoromethane (Surr)	101		70 - 130					09/11/15 13:47	1
Toluene-d8 (Surr)	99		70 - 130					09/11/15 13:47	1

# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 490-280820/6

Matrix: Water

Analysis Batch: 280820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			09/11/15 12:26	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 130					09/11/15 12:26	1
4-Bromofluorobenzene (Surr)	95		70 - 130					09/11/15 12:26	1
Dibromofluoromethane (Surr)	100		70 - 130					09/11/15 12:26	1
Toluene-d8 (Surr)	101		70 - 130					09/11/15 12:26	1

Lab Sample ID: LCS 490-280820/3

Matrix: Water

Analysis Batch: 280820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	47.75		ug/L		96	80 - 121
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	99		70 - 130				
4-Bromofluorobenzene (Surr)	94		70 - 130				
Dibromofluoromethane (Surr)	99		70 - 130				
Toluene-d8 (Surr)	99		70 - 130				

Lab Sample ID: LCSD 490-280820/4

Matrix: Water

Analysis Batch: 280820

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	46.61		ug/L		93	80 - 121	2	17
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	98		70 - 130						
4-Bromofluorobenzene (Surr)	93		70 - 130						
Dibromofluoromethane (Surr)	100		70 - 130						
Toluene-d8 (Surr)	100		70 - 130						

Lab Sample ID: 490-86780-3 MS

Matrix: Water

Analysis Batch: 280820

Client Sample ID: MW-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		50.0	49.62		ug/L		99	75 - 133
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	99		70 - 130						
4-Bromofluorobenzene (Surr)	97		70 - 130						
Dibromofluoromethane (Surr)	105		70 - 130						
Toluene-d8 (Surr)	98		70 - 130						

TestAmerica Nashville

# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 490-86780-3 MSD

Matrix: Water

Analysis Batch: 280820

Client Sample ID: MW-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		50.0	51.03		ug/L		102	75 - 133	3	17
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	101		70 - 130								
4-Bromofluorobenzene (Surr)	96		70 - 130								
Dibromofluoromethane (Surr)	105		70 - 130								
Toluene-d8 (Surr)	99		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-281077/3

Matrix: Water

Analysis Batch: 281077

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			09/12/15 07:31	1

Lab Sample ID: LCS 490-281077/4

Matrix: Water

Analysis Batch: 281077

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits			
Chloride	100	99.39		mg/L		99	90 - 110			

Lab Sample ID: MB 490-281570/6

Matrix: Water

Analysis Batch: 281570

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			09/14/15 18:12	1

Lab Sample ID: LCS 490-281570/7

Matrix: Water

Analysis Batch: 281570

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits			
Chloride	100	99.26		mg/L		99	90 - 110			

Lab Sample ID: LCSD 490-281570/8

Matrix: Water

Analysis Batch: 281570

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	99.17		mg/L		99	90 - 110	0	20

TestAmerica Nashville

## QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

### Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 490-86780-6 MS

Matrix: Water

Analysis Batch: 281570

Client Sample ID: MW-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	75.7		100	165.4		mg/L		90	80 - 120

## QC Association Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

### GC/MS VOA

#### Analysis Batch: 280820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-86780-1	EQ Blank	Total/NA	Water	8260B	
490-86780-3	MW-4	Total/NA	Water	8260B	
490-86780-3 MS	MW-4	Total/NA	Water	8260B	
490-86780-3 MSD	MW-4	Total/NA	Water	8260B	
490-86780-4	MW-2	Total/NA	Water	8260B	
490-86780-8	DUP	Total/NA	Water	8260B	
490-86780-9	TRIP	Total/NA	Water	8260B	
LCS 490-280820/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-280820/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-280820/6	Method Blank	Total/NA	Water	8260B	

### HPLC/IC

#### Analysis Batch: 281077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-86780-1	EQ Blank	Total/NA	Water	300.0	
490-86780-2	MW-1	Total/NA	Water	300.0	
490-86780-3	MW-4	Total/NA	Water	300.0	
490-86780-4	MW-2	Total/NA	Water	300.0	
490-86780-5	MW-6	Total/NA	Water	300.0	
LCS 490-281077/4	Lab Control Sample	Total/NA	Water	300.0	
MB 490-281077/3	Method Blank	Total/NA	Water	300.0	

#### Analysis Batch: 281570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-86780-6	MW-3	Total/NA	Water	300.0	
490-86780-6 MS	MW-3	Total/NA	Water	300.0	
490-86780-7	MW-5	Total/NA	Water	300.0	
490-86780-8	DUP	Total/NA	Water	300.0	
LCS 490-281570/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-281570/8	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-281570/6	Method Blank	Total/NA	Water	300.0	

# Lab Chronicle

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: EQ Blank**

**Date Collected: 09/01/15 08:15**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	280820	09/11/15 14:14	SLM	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		281077	09/12/15 09:55	JHS	TAL NSH

**Client Sample ID: MW-1**

**Date Collected: 09/01/15 09:05**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		281077	09/12/15 10:19	JHS	TAL NSH

**Client Sample ID: MW-4**

**Date Collected: 09/01/15 10:25**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	280820	09/11/15 14:42	SLM	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		281077	09/12/15 10:43	JHS	TAL NSH

**Client Sample ID: MW-2**

**Date Collected: 09/01/15 11:30**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	280820	09/11/15 15:09	SLM	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		281077	09/12/15 11:31	JHS	TAL NSH

**Client Sample ID: MW-6**

**Date Collected: 09/01/15 13:00**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		281077	09/12/15 12:19	JHS	TAL NSH

**Client Sample ID: MW-3**

**Date Collected: 09/01/15 14:05**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		281570	09/14/15 19:13	JHS	TAL NSH

TestAmerica Nashville

# Lab Chronicle

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

**Client Sample ID: MW-5**

**Date Collected: 09/01/15 15:35**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		281570	09/14/15 19:53	JHS	TAL NSH

**Client Sample ID: DUP**

**Date Collected: 09/01/15 00:01**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	280820	09/11/15 15:36	SLM	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		281570	09/14/15 20:13	JHS	TAL NSH

**Client Sample ID: TRIP**

**Date Collected: 09/01/15 00:01**

**Date Received: 09/04/15 11:10**

**Lab Sample ID: 490-86780-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	280820	09/11/15 13:47	SLM	TAL NSH

## Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Method Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
300.0	Anions, Ion Chromatography	MCAWW	TAL NSH

### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.  
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177



# Certification Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-86780-1

## Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-16

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## COOLER RECEIPT FORM



490-86780 Chain of Custody

Cooler Received/Opened On 9/4/2015 @ 1110

1. Tracking # 0024 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 17610176

2. Temperature of rep. sample or temp blank when opened: 1.4 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) ADH

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # DA

I certify that I unloaded the cooler and answered questions 7-14 (initial) DA

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? \*YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) DA

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) DA

I certify that I attached a label with the unique LIMS number to each container (initial) DA

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO..#

CHAIN OF CUSTODY RECORD

Loc: 490  
86780

No. 00221



(918) 794-7828

SAMPLER'S PRINTED NAME:

TERRY FISHER

SAMPLER'S SIGNATURE:

*Terry Fisher*

PROJECT NUMBER:

CHKHST1201

PROJECT NAME:

CHK STAGE L-2

SHIPPED TO:

TA NASHVILLE

PROJECT MANAGER:

BRUCE WICKENZ

ASOW:

GENSUB: 750-521  
PROP ID: 890293

TAT:

STANDARD

COC 1 of 1

Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE (300)	BENZENE (8260C)	REMARKS
------	------	-----------	---------------	------------------------	----------------	-----------------	---------

1 9-1-15 815 EQ Blank water 4 X X

2 9-1-15 905 MW-1 water 1 X

3 9-1-15 1025 MW-4 water 4 X X

4 9-1-15 1130 MW-2 water 4 X X

5 9-1-15 1300 MW-6 water 1 X

6 9-1-15 1405 MW-3 water 1 X

7 9-1-15 1535 MW-5 water 1 X

8 9-1-15 Dup water 4 X X

9 Temp water 2 X

TOTAL NUMBER OF CONTAINERS 23

RELINQUISHED BY:

Terry Fisher

DATE 9-3-15

TIME 1600

RECEIVED BY:

*Julie Czech*

DATE 9-5-15

TIME 1100

RELINQUISHED BY:

DATE

TIME

AIRBILL NUMBER:

RECEIVED IN LABORATORY BY:

DATE

TIME

LABORATORY CONTACT:

(615) 726-0177

LABORATORY ADDRESS:

2960 FOSTER CREIGHTON DR., NASHVILLE, TN 37204

Send PDF, EDD, and INVOICE (if applicable) to:  
JULIE CZECH at jczech@envirocleans.com

POINT OF ORIGIN:

☐ OKLAHOMA CITY

☒ TULSA

☐ NORMAN

☐ WOODWARD

☐ ARLINGTON

☐ MIDLAND

☐ OTHER:

## Login Sample Receipt Checklist

Client: Enviro Clean Services LLC

Job Number: 490-86780-1

Login Number: 86780

List Number: 1

Creator: Armstrong, Daniel

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville

2960 Foster Creighton Drive

Nashville, TN 37204

Tel: (615)726-0177

TestAmerica Job ID: 490-93969-1

TestAmerica Sample Delivery Group: Property ID 890293

Client Project/Site: CHK STATE L-2

Revision: 1

For:

Enviro Clean Services LLC

7060 S. Yale Avenue, Suite 603

Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech

*Cathy Gartner*

Authorized for release by:

4/14/2016 11:06:49 AM

Cathy Gartner, Project Manager I

(615)301-5041

[cathy.gartner@testamericainc.com](mailto:cathy.gartner@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Sample Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-93969-1	MW-1	Water	12/08/15 09:15	12/11/15 10:00
490-93969-2	MW-2	Water	12/08/15 11:55	12/11/15 10:00
490-93969-3	MW-3	Water	12/08/15 14:05	12/11/15 10:00
490-93969-4	MW-4	Water	12/08/15 10:40	12/11/15 10:00
490-93969-5	MW-5	Water	12/08/15 15:10	12/11/15 10:00
490-93969-6	MW-6	Water	12/08/15 12:55	12/11/15 10:00
490-93969-7	Dup	Water	12/08/15 00:01	12/11/15 10:00
490-93969-8	EQ Blank	Water	12/08/15 07:50	12/11/15 10:00
490-93969-9	Trip Blank	Water	12/08/15 01:00	12/11/15 10:00

## Case Narrative

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Job ID: 490-93969-1**

**Laboratory: TestAmerica Nashville**

### Narrative

#### Job Narrative 490-93969-1

#### **\*\*Revised**

Extra analytes were removed per the Chain of Custody. This replaces the report generated on 4/4/16.

#### **Receipt**

The samples were received on 12/11/2015 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.5° C.

Chloride was analyzed on MW-5 per client request.

#### **GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### **HPLC/IC**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



## Definitions/Glossary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: MW-1**

**Date Collected: 12/08/15 09:15**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-1**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.8		1.00		mg/L			12/29/15 22:32	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: MW-2**  
**Date Collected: 12/08/15 11:55**  
**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-2**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			12/16/15 09:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 130					12/16/15 09:20	1
4-Bromofluorobenzene (Surr)	105		70 - 130					12/16/15 09:20	1
Dibromofluoromethane (Surr)	102		70 - 130					12/16/15 09:20	1
Toluene-d8 (Surr)	110		70 - 130					12/16/15 09:20	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	247		1.00		mg/L			12/29/15 22:53	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: MW-3**  
**Date Collected: 12/08/15 14:05**  
**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-3**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	68.4		1.00		mg/L			12/29/15 23:56	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: MW-4**  
**Date Collected: 12/08/15 10:40**  
**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-4**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.42		0.500		ug/L			12/16/15 09:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		70 - 130					12/16/15 09:46	1
4-Bromofluorobenzene (Surr)	103		70 - 130					12/16/15 09:46	1
Dibromofluoromethane (Surr)	105		70 - 130					12/16/15 09:46	1
Toluene-d8 (Surr)	111		70 - 130					12/16/15 09:46	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	284		1.00		mg/L			12/30/15 00:38	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: MW-5**  
**Date Collected: 12/08/15 15:10**  
**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-5**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	106		1.00		mg/L			12/30/15 00:59	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: MW-6**  
**Date Collected: 12/08/15 12:55**  
**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-6**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	147		1.00		mg/L			12/30/15 01:20	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: Dup**  
**Date Collected: 12/08/15 00:01**  
**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-7**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			12/16/15 10:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		70 - 130					12/16/15 10:12	1
4-Bromofluorobenzene (Surr)	103		70 - 130					12/16/15 10:12	1
Dibromofluoromethane (Surr)	114		70 - 130					12/16/15 10:12	1
Toluene-d8 (Surr)	109		70 - 130					12/16/15 10:12	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	248		1.00		mg/L			12/30/15 01:41	1



# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: EQ Blank**

**Date Collected: 12/08/15 07:50**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-8**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			12/16/15 04:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 130					12/16/15 04:58	1
4-Bromofluorobenzene (Surr)	106		70 - 130					12/16/15 04:58	1
Dibromofluoromethane (Surr)	113		70 - 130					12/16/15 04:58	1
Toluene-d8 (Surr)	107		70 - 130					12/16/15 04:58	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			12/30/15 02:02	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: Trip Blank**

**Date Collected: 12/08/15 01:00**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-9**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			12/16/15 02:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 130					12/16/15 02:47	1
4-Bromofluorobenzene (Surr)	104		70 - 130					12/16/15 02:47	1
Dibromofluoromethane (Surr)	105		70 - 130					12/16/15 02:47	1
Toluene-d8 (Surr)	110		70 - 130					12/16/15 02:47	1

# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 490-306511/6

Matrix: Water

Analysis Batch: 306511

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			12/16/15 02:21	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		70 - 130					12/16/15 02:21	1
4-Bromofluorobenzene (Surr)	107		70 - 130					12/16/15 02:21	1
Dibromofluoromethane (Surr)	101		70 - 130					12/16/15 02:21	1
Toluene-d8 (Surr)	109		70 - 130					12/16/15 02:21	1

Lab Sample ID: LCS 490-306511/3

Matrix: Water

Analysis Batch: 306511

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	55.57		ug/L		111	80 - 121
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	104		70 - 130				
4-Bromofluorobenzene (Surr)	99		70 - 130				
Dibromofluoromethane (Surr)	104		70 - 130				
Toluene-d8 (Surr)	113		70 - 130				

Lab Sample ID: LCSD 490-306511/4

Matrix: Water

Analysis Batch: 306511

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	52.07		ug/L		104	80 - 121	6	17
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	96		70 - 130						
4-Bromofluorobenzene (Surr)	100		70 - 130						
Dibromofluoromethane (Surr)	93		70 - 130						
Toluene-d8 (Surr)	107		70 - 130						

Lab Sample ID: 490-93763-B-12 MS

Matrix: Water

Analysis Batch: 306511

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND	F1	50.0	68.35	F1	ug/L		137	75 - 133
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	109		70 - 130						
4-Bromofluorobenzene (Surr)	96		70 - 130						
Dibromofluoromethane (Surr)	110		70 - 130						
Toluene-d8 (Surr)	106		70 - 130						

TestAmerica Nashville

# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 490-93763-C-12 MSD

Matrix: Water

Analysis Batch: 306511

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND	F1	50.0	58.26		ug/L	-	117	75 - 133	16	17
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	103		70 - 130								
4-Bromofluorobenzene (Surr)	98		70 - 130								
Dibromofluoromethane (Surr)	106		70 - 130								
Toluene-d8 (Surr)	96		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-309989/3

Matrix: Water

Analysis Batch: 309989

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L	-		12/29/15 18:19	1

Lab Sample ID: LCS 490-309989/4

Matrix: Water

Analysis Batch: 309989

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	98.96		mg/L	-	99	90 - 110

Lab Sample ID: LCSD 490-309989/5

Matrix: Water

Analysis Batch: 309989

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	99.67		mg/L	-	100	90 - 110	1	20

Lab Sample ID: 490-93969-3 MS

Matrix: Water

Analysis Batch: 309989

Client Sample ID: MW-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	68.4		100	149.3		mg/L	-	81	80 - 120

## QC Association Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

### GC/MS VOA

#### Analysis Batch: 306511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-93763-B-12 MS	Matrix Spike	Total/NA	Water	8260B	
490-93763-C-12 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
490-93969-2	MW-2	Total/NA	Water	8260B	
490-93969-4	MW-4	Total/NA	Water	8260B	
490-93969-7	Dup	Total/NA	Water	8260B	
490-93969-8	EQ Blank	Total/NA	Water	8260B	
490-93969-9	Trip Blank	Total/NA	Water	8260B	
LCS 490-306511/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-306511/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-306511/6	Method Blank	Total/NA	Water	8260B	

### HPLC/IC

#### Analysis Batch: 309989

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-93969-1	MW-1	Total/NA	Water	300.0	
490-93969-2	MW-2	Total/NA	Water	300.0	
490-93969-3	MW-3	Total/NA	Water	300.0	
490-93969-3 MS	MW-3	Total/NA	Water	300.0	
490-93969-4	MW-4	Total/NA	Water	300.0	
490-93969-5	MW-5	Total/NA	Water	300.0	
490-93969-6	MW-6	Total/NA	Water	300.0	
490-93969-7	Dup	Total/NA	Water	300.0	
490-93969-8	EQ Blank	Total/NA	Water	300.0	
LCS 490-309989/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-309989/5	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-309989/3	Method Blank	Total/NA	Water	300.0	

# Lab Chronicle

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

**Client Sample ID: MW-1**

**Date Collected: 12/08/15 09:15**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		309989	12/29/15 22:32	JHS	TAL NSH

**Client Sample ID: MW-2**

**Date Collected: 12/08/15 11:55**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	306511	12/16/15 09:20	AK1	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		309989	12/29/15 22:53	JHS	TAL NSH

**Client Sample ID: MW-3**

**Date Collected: 12/08/15 14:05**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		309989	12/29/15 23:56	JHS	TAL NSH

**Client Sample ID: MW-4**

**Date Collected: 12/08/15 10:40**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	306511	12/16/15 09:46	AK1	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		309989	12/30/15 00:38	JHS	TAL NSH

**Client Sample ID: MW-5**

**Date Collected: 12/08/15 15:10**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		309989	12/30/15 00:59	JHS	TAL NSH

**Client Sample ID: MW-6**

**Date Collected: 12/08/15 12:55**

**Date Received: 12/11/15 10:00**

**Lab Sample ID: 490-93969-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		309989	12/30/15 01:20	JHS	TAL NSH

TestAmerica Nashville

# Lab Chronicle

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

## Client Sample ID: Dup

Date Collected: 12/08/15 00:01

Date Received: 12/11/15 10:00

## Lab Sample ID: 490-93969-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	306511	12/16/15 10:12	AK1	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		309989	12/30/15 01:41	JHS	TAL NSH

## Client Sample ID: EQ Blank

Date Collected: 12/08/15 07:50

Date Received: 12/11/15 10:00

## Lab Sample ID: 490-93969-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	306511	12/16/15 04:58	AK1	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		309989	12/30/15 02:02	JHS	TAL NSH

## Client Sample ID: Trip Blank

Date Collected: 12/08/15 01:00

Date Received: 12/11/15 10:00

## Lab Sample ID: 490-93969-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	306511	12/16/15 02:47	AK1	TAL NSH

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Method Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
300.0	Anions, Ion Chromatography	MCAWW	TAL NSH

### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177



## Certification Summary

Client: Enviro Clean Services LLC  
Project/Site: CHK STATE L-2

TestAmerica Job ID: 490-93969-1  
SDG: Property ID 890293

### Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-16

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## COOLER RECEIPT FORM

Cooler Received/Opened On 12/11/2015 @ 1000

1. Tracking # 8391 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 97310166

2. Temperature of rep. sample or temp blank when opened: 0.5 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2: 1 front, 1 back

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) ACS

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # \_\_\_\_\_

I certify that I unloaded the cooler and answered questions 7-14 (initial) mbm

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) mbm

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) mbm

I certify that I attached a label with the unique LIMS number to each container (initial) mbm

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...

CHAIN OF CUSTODY RECORD

No. 00907



(918) 794-7828

SAMPLER'S PRINTED NAME: TERRY FISHER

SAMPLER'S SIGNATURE: [Signature]

PROJECT NUMBER: CHKST1201

PROJECT NAME: CHK STATE L-2

coc 1 of 1

SHIPPED TO: T.A. NASHVILLE

PROJECT MANAGER: BRUCE MCKENZIE

TAT:

STANDARD

ASOW:

GENSUB: 750-521  
PROP ID: 890293

Loc: 490

93969

Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE (300)	BENZENE (8260C)	REMARKS
------	------	-----------	---------------	------------------------	----------------	-----------------	---------

12-8-15	915	MW-1	water	1	X		-1
12-8-15	1155	MW-2	water	24	X	X	2
12-8-15	1405	MW-3	water	1	X		3
12-8-15	1040	MW-4	water	4	X	X	4
12-8-15	1510	MW-5	water	1			5
12-8-15	1255	MW-6	water	1	X		6
12-8-15	---	Dog	water	4	X	X	7
12-8-15	750	EQ Blank	water	4	X	X	8
---	---	TRP Blank	water	2	X		9

TOTAL NUMBER OF CONTAINERS 22

RELINQUISHED BY: [Signature]

DATE: 12-10-15  
TIME: 1600

RECEIVED BY: [Signature]

05

DATE: 12-11-15  
TIME: 1000

METHOD OF SHIPMENT: FED-EX

AIRBILL NUMBER:

RECEIVED IN LABORATORY BY:

DATE: [Blank]  
TIME: [Blank]

Send PDF, EDD, and INVOICE (if applicable) to:

JULIE CZECH at jczech@envirocleanps.com

LABORATORY CONTACT:

LABORATORY ADDRESS:

(815) 728-0177

2860 FOSTER CREIGHTON DR., NASHVILLE, TN 37204

POINT OF ORIGIN:

☐ OKLAHOMA CITY

☒ TULSA

☐ NORMAN

☐ WOODWARD

☐ ARLINGTON

☐ MIDLAND

☐ OTHER:

## Login Sample Receipt Checklist

Client: Enviro Clean Services LLC

Job Number: 490-93969-1

SDG Number: Property ID 890293

Login Number: 93969

List Number: 1

Creator: McBride, Mike

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville

2960 Foster Creighton Drive

Nashville, TN 37204

Tel: (615)726-0177

TestAmerica Job ID: 490-99296-1

TestAmerica Sample Delivery Group: Property ID 890293

Client Project/Site: State L-2

For:

Enviro Clean Services LLC

7060 S. Yale Avenue, Suite 603

Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech



Authorized for release by:

3/29/2016 2:35:31 PM

Cathy Gartner, Project Manager I

(615)301-5041

[cathy.gartner@testamericainc.com](mailto:cathy.gartner@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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## Sample Summary

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-99296-1	EQ Blank	Water	03/08/16 07:20	03/11/16 10:30
490-99296-2	MW-1	Water	03/08/16 08:35	03/11/16 10:30
490-99296-3	MW-4	Water	03/08/16 09:40	03/11/16 10:30
490-99296-4	MW-2	Water	03/08/16 11:10	03/11/16 10:30
490-99296-5	Dup	Water	03/08/16 00:01	03/11/16 10:30
490-99296-6	MW-6	Water	03/08/16 12:55	03/11/16 10:30
490-99296-7	MW-3	Water	03/08/16 14:00	03/11/16 10:30
490-99296-8	MW-5	Water	03/08/16 15:08	03/11/16 10:30
490-99296-9	Trip Blank	Water	03/08/16 00:01	03/11/16 10:30

## Case Narrative

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Job ID: 490-99296-1**

**Laboratory: TestAmerica Nashville**

### Narrative

#### Job Narrative 490-99296-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 3/11/2016 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### HPLC/IC

Method(s) 300.0: The following samples were diluted due to the nature of the sample matrix: MW-4 (490-99296-3), MW-2 (490-99296-4) and Dup (490-99296-5). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



## Definitions/Glossary

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: EQ Blank**

**Date Collected: 03/08/16 07:20**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-1**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			03/14/16 15:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		70 - 130					03/14/16 15:54	1
4-Bromofluorobenzene (Surr)	100		70 - 130					03/14/16 15:54	1
Dibromofluoromethane (Surr)	100		70 - 130					03/14/16 15:54	1
Toluene-d8 (Surr)	98		70 - 130					03/14/16 15:54	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			03/26/16 16:31	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: MW-1**

**Date Collected: 03/08/16 08:35**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-2**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23.3		1.00		mg/L			03/26/16 17:10	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: MW-4**  
**Date Collected: 03/08/16 09:40**  
**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-3**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.20		0.500		ug/L			03/14/16 16:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		70 - 130					03/14/16 16:20	1
4-Bromofluorobenzene (Surr)	103		70 - 130					03/14/16 16:20	1
Dibromofluoromethane (Surr)	101		70 - 130					03/14/16 16:20	1
Toluene-d8 (Surr)	98		70 - 130					03/14/16 16:20	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200		2.00		mg/L			03/26/16 18:09	2

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: MW-2**  
**Date Collected: 03/08/16 11:10**  
**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-4**  
**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			03/14/16 16:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 130					03/14/16 16:46	1
4-Bromofluorobenzene (Surr)	101		70 - 130					03/14/16 16:46	1
Dibromofluoromethane (Surr)	101		70 - 130					03/14/16 16:46	1
Toluene-d8 (Surr)	97		70 - 130					03/14/16 16:46	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	243		2.00		mg/L			03/26/16 18:29	2

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: Dup**

**Date Collected: 03/08/16 00:01**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-5**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			03/14/16 17:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 130					03/14/16 17:12	1
4-Bromofluorobenzene (Surr)	101		70 - 130					03/14/16 17:12	1
Dibromofluoromethane (Surr)	101		70 - 130					03/14/16 17:12	1
Toluene-d8 (Surr)	97		70 - 130					03/14/16 17:12	1

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	237		2.00		mg/L			03/26/16 18:48	2

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: MW-6**

**Date Collected: 03/08/16 12:55**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-6**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	148		1.00		mg/L			03/26/16 19:08	1

## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: MW-3**

**Date Collected: 03/08/16 14:00**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-7**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	61.9		1.00		mg/L			03/26/16 19:27	1



## Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: MW-5**

**Date Collected: 03/08/16 15:08**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-8**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	81.5		1.00		mg/L			03/26/16 19:47	1

# Client Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: Trip Blank**

**Date Collected: 03/08/16 00:01**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-9**

**Matrix: Water**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			03/14/16 15:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		70 - 130					03/14/16 15:28	1
4-Bromofluorobenzene (Surr)	100		70 - 130					03/14/16 15:28	1
Dibromofluoromethane (Surr)	101		70 - 130					03/14/16 15:28	1
Toluene-d8 (Surr)	98		70 - 130					03/14/16 15:28	1

# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 490-323761/6

Matrix: Water

Analysis Batch: 323761

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.500		ug/L			03/14/16 12:25	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		70 - 130					03/14/16 12:25	1
4-Bromofluorobenzene (Surr)	101		70 - 130					03/14/16 12:25	1
Dibromofluoromethane (Surr)	100		70 - 130					03/14/16 12:25	1
Toluene-d8 (Surr)	98		70 - 130					03/14/16 12:25	1

Lab Sample ID: LCS 490-323761/3

Matrix: Water

Analysis Batch: 323761

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	44.34		ug/L		89	80 - 121
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	99		70 - 130				
4-Bromofluorobenzene (Surr)	100		70 - 130				
Dibromofluoromethane (Surr)	96		70 - 130				
Toluene-d8 (Surr)	97		70 - 130				

Lab Sample ID: LCSD 490-323761/4

Matrix: Water

Analysis Batch: 323761

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	48.65		ug/L		97	80 - 121	9	17
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		70 - 130						
4-Bromofluorobenzene (Surr)	98		70 - 130						
Dibromofluoromethane (Surr)	98		70 - 130						
Toluene-d8 (Surr)	97		70 - 130						

Lab Sample ID: 490-99090-E-3 MS

Matrix: Water

Analysis Batch: 323761

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	114	F1	50.0	141.0	F1	ug/L		54	75 - 133
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	112		70 - 130						
4-Bromofluorobenzene (Surr)	119		70 - 130						
Dibromofluoromethane (Surr)	103		70 - 130						
Toluene-d8 (Surr)	98		70 - 130						

TestAmerica Nashville

# QC Sample Results

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 490-99090-F-3 MSD

Matrix: Water

Analysis Batch: 323761

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	114	F1	50.0	141.3	F1	ug/L	-	55	75 - 133	0	17
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	117		70 - 130								
4-Bromofluorobenzene (Surr)	118		70 - 130								
Dibromofluoromethane (Surr)	99		70 - 130								
Toluene-d8 (Surr)	97		70 - 130								

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-326952/3

Matrix: Water

Analysis Batch: 326952

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L	-		03/26/16 05:35	1

Lab Sample ID: LCS 490-326952/4

Matrix: Water

Analysis Batch: 326952

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	97.94		mg/L	-	98	90 - 110

Lab Sample ID: LCSD 490-326952/5

Matrix: Water

Analysis Batch: 326952

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	97.66		mg/L	-	98	90 - 110	0	20

Lab Sample ID: 490-99296-1 MS

Matrix: Water

Analysis Batch: 326952

Client Sample ID: EQ Blank

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		100	87.39		mg/L	-	87	80 - 120

Lab Sample ID: 490-99296-8 MS

Matrix: Water

Analysis Batch: 326952

Client Sample ID: MW-5

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	81.5		100	165.7		mg/L	-	84	80 - 120

TestAmerica Nashville

## QC Association Summary

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

### GC/MS VOA

#### Analysis Batch: 323761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-99090-E-3 MS	Matrix Spike	Total/NA	Water	8260B	
490-99090-F-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
490-99296-1	EQ Blank	Total/NA	Water	8260B	
490-99296-3	MW-4	Total/NA	Water	8260B	
490-99296-4	MW-2	Total/NA	Water	8260B	
490-99296-5	Dup	Total/NA	Water	8260B	
490-99296-9	Trip Blank	Total/NA	Water	8260B	
LCS 490-323761/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-323761/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 490-323761/6	Method Blank	Total/NA	Water	8260B	

### HPLC/IC

#### Analysis Batch: 326952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-99296-1	EQ Blank	Total/NA	Water	300.0	
490-99296-1 MS	EQ Blank	Total/NA	Water	300.0	
490-99296-2	MW-1	Total/NA	Water	300.0	
490-99296-3	MW-4	Total/NA	Water	300.0	
490-99296-4	MW-2	Total/NA	Water	300.0	
490-99296-5	Dup	Total/NA	Water	300.0	
490-99296-6	MW-6	Total/NA	Water	300.0	
490-99296-7	MW-3	Total/NA	Water	300.0	
490-99296-8	MW-5	Total/NA	Water	300.0	
490-99296-8 MS	MW-5	Total/NA	Water	300.0	
LCS 490-326952/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-326952/5	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-326952/3	Method Blank	Total/NA	Water	300.0	

# Lab Chronicle

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: EQ Blank**

**Date Collected: 03/08/16 07:20**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	323761	03/14/16 15:54	SLM	TAL NSH
Total/NA	Analysis	300.0		1	10 mL		326952	03/26/16 16:31	JHS	TAL NSH

**Client Sample ID: MW-1**

**Date Collected: 03/08/16 08:35**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		326952	03/26/16 17:10	JHS	TAL NSH

**Client Sample ID: MW-4**

**Date Collected: 03/08/16 09:40**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	323761	03/14/16 16:20	SLM	TAL NSH
Total/NA	Analysis	300.0		2	10 mL		326952	03/26/16 18:09	JHS	TAL NSH

**Client Sample ID: MW-2**

**Date Collected: 03/08/16 11:10**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	323761	03/14/16 16:46	SLM	TAL NSH
Total/NA	Analysis	300.0		2	10 mL		326952	03/26/16 18:29	JHS	TAL NSH

**Client Sample ID: Dup**

**Date Collected: 03/08/16 00:01**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	323761	03/14/16 17:12	SLM	TAL NSH
Total/NA	Analysis	300.0		2	10 mL		326952	03/26/16 18:48	JHS	TAL NSH

**Client Sample ID: MW-6**

**Date Collected: 03/08/16 12:55**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		326952	03/26/16 19:08	JHS	TAL NSH

TestAmerica Nashville

# Lab Chronicle

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

**Client Sample ID: MW-3**

**Date Collected: 03/08/16 14:00**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		326952	03/26/16 19:27	JHS	TAL NSH

**Client Sample ID: MW-5**

**Date Collected: 03/08/16 15:08**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		326952	03/26/16 19:47	JHS	TAL NSH

**Client Sample ID: Trip Blank**

**Date Collected: 03/08/16 00:01**

**Date Received: 03/11/16 10:30**

**Lab Sample ID: 490-99296-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	323761	03/14/16 15:28	SLM	TAL NSH

## Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Method Summary

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
300.0	Anions, Ion Chromatography	MCAWW	TAL NSH

### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177



## Certification Summary

Client: Enviro Clean Services LLC  
Project/Site: State L-2

TestAmerica Job ID: 490-99296-1  
SDG: Property ID 890293

### Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-16

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## COOLER RECEIPT FORM



490-99296 Chain of Custody

Cooler Received/Opened On 3/11/2016 @ 1030

Time Samples Removed From Cooler \_\_\_\_\_ Time Samples Placed In Storage \_\_\_\_\_ (2 Hour Window)

1. Tracking # 6681 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 12080142 pH Strip Lot HC564992 Chlorine Strip Lot 072815A

2. Temperature of rep. sample or temp blank when opened: 1.4 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) SR

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # 14

I certify that I unloaded the cooler and answered questions 7-14 (initial) EA

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) EA

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) EA

I certify that I attached a label with the unique LIMS number to each container (initial) EA

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#

## CHAIN OF CUSTODY RECORD

No. 00919



(918) 794-7828

SAMPLER'S PRINTED NAME:

TERRY FISHER

SAMPLER'S SIGNATURE:

Date

Time

Sample ID

Sample Matrix

# of Sample Containers

CHLORIDE (300)

BENZENE (8260C)

Loc: 490

99296

REMARKS

PROJECT NUMBER:  
CHKHSTL201PROJECT NAME:  
CHK STATE L-2PROJECT MANAGER:  
BRUCE MCKENZIECOC \_\_\_\_\_ of \_\_\_\_\_  
STANDARD

GEN/SUB: 750-521

PROP ID: 880293

ASOW:

TAT:

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY:

RELINQUISHED BY:

METHOD OF SHIPMENT:

FED-EX

RECEIVED IN LABORATORY BY:

LABORATORY CONTACT:

(815) 766-0177

DATE 3/10/16  
TIME 1600

RECEIVED BY:

AIRBILL NUMBER:  
6681 4407 8664Send PDF, EDD, and INVOICE (if applicable) to:  
JULIE CZECH at jczech@envirocleans.com

LABORATORY ADDRESS:

2960 FOSTER CREIGHTON DR., NASHVILLE, TN 37204

POINT OF ORIGIN:

☐ OKLAHOMA CITY☒ TULSA☐ NORMAN☐ WOODWARD☐ ARLINGTON☐ MIDLAND☐ OTHER:

## Login Sample Receipt Checklist

Client: Enviro Clean Services LLC

Job Number: 490-99296-1

SDG Number: Property ID 890293

Login Number: 99296

List Number: 1

Creator: Abernathy, Eric

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	