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

Prepared for:

Chesapeake Energy Corporation
6100 North Western Avenue
Oklahoma City, Oklahoma 73118
(405) 935-3938

Prepared by:

Enviro Clean Cardinal, LLC
7060 South Yale Avenue, Suite 603
Tulsa, Oklahoma 74136
(918) 794-7828

May 14, 2018

ENVIRO CLEAN CARDINAL

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

(All Appendices on CD in bound copy)

FOURTH ANNUAL GROUNDWATER MONITORING REPORT
CHESAPEAKE ENERGY CORPORATION
STATE L LEASE (AP-73)
LEA COUNTY, NEW MEXICO
MAY 14, 2018

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 32.825319º latitude, -103.396361º 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 ***Fourth Annual Groundwater Monitoring Report*** (Report) summarizes the groundwater monitoring activities conducted at the Site during the following quarterly sampling events:

- Thirteenth Event - June 6, 2017,
- Fourteenth Event - September 6, 2017,
- Fifteenth Event - December 5, 2017, and
- Sixteenth Event - March 6, 2018.

2.0 QUARTERLY GROUNDWATER MONITORING

This Report describes the findings from four quarterly groundwater sampling events conducted at the Site from June 6, 2017 through March 6, 2018.

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), and 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 samples collected from monitoring well MW-2 during each quarterly sampling event were 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 THIRTEENTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The thirteenth quarterly groundwater sampling event was conducted at the Site on June 6, 2017. As can be seen in **Table 2**, the groundwater samples collected during this sampling event did not contain 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 FOURTEENTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The fourteenth quarterly groundwater sampling event was conducted at the Site on September 6, 2017. As can be seen in **Table 2**, the groundwater samples collected during this sampling event did not contain 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 FIFTEENTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The fifteenth quarterly groundwater sampling event was conducted at the Site on December 5, 2017. As can be seen in **Table 2**, the groundwater samples collected during this sampling event did not contain concentrations of chloride that exceed the Limit of 250 mg/L. Benzene was detected in the groundwater sample collected from MW-4 (112 µg/L) during this monitoring event at a concentration exceeding the Limit of 10 µg/L.

2.5 SIXTEENTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The sixteenth quarterly groundwater sampling event was conducted at the Site on March 6, 2018. As can be seen in **Table 2**, the groundwater samples collected during this sampling event did not contain concentrations of chloride that exceed 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-2 and MW-4 and stable in monitoring wells MW-1, MW-3, MW-5 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. Source removal has facilitated the physical natural attenuation mechanisms of dispersion and dilution on the remnant chloride concentrations present in Site groundwater.

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 been variable since June 2014. Benzene has never been detected in the groundwater samples collected from monitoring well MW-2, located downgradient of monitoring well MW-4.

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 49 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, chloride was not detected at concentrations greater than the Limit of 250 mg/L collected from any monitoring well during the groundwater sampling events.

- The levels of chloride observed in the groundwater samples are decreasing in two monitoring wells (MW-2 and MW-4) and stable in four monitoring wells (MW-1, MW-3, MW-5 and MW-6).

- During the reporting period, a concentration of benzene was observed in the groundwater sample collected from monitoring well MW-4 during the fifteenth quarterly monitoring event at levels greater than the Limit of 10 µg/L. The levels of benzene observed in the groundwater samples collected from monitoring well MW-4 have been variable since June 2014.

- Benzene has never been detected in the groundwater samples collected from monitoring well MW-2, which is located directly downgradient from MW-4.

4.0 RECOMMENDATIONS

Based upon a review of the data presented within this report, the following recommendations have been developed:

- The groundwater analytical data indicates that the concentrations of chloride observed in downgradient monitoring wells MW-2 and MW-4 have been below the Limit of 250 mg/L for the last nine quarterly monitoring events, and that the concentrations of chloride detected in downgradient monitoring wells MW-3, MW-5 and MW-6 have been below the Limit for the last 16 quarterly monitoring events. In addition, concentrations of chloride exceeding the Limit have never been observed in upgradient monitoring well MW-1. The groundwater analytical data suggest that the natural attenuation processes active at the Site have largely mitigated the chloride impacts to groundwater. As per the approved Plan, all monitoring wells have surpassed eight consecutive quarters of chloride concentrations below the Limit, therefore groundwater monitoring for chloride will be discontinued at the Site.

- The groundwater analytical data indicates that the levels of benzene observed in monitoring well MW-4 are variable. The groundwater within this well should be monitored on a quarterly basis for benzene. Monitoring for benzene will be discontinued when eight quarters of sample results indicate the benzene levels observed in this well are below the New Mexico Water Quality Control Commission standards. The next groundwater monitoring event at the Site is scheduled to be conducted in June 2018.

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
	3895.34	03/08/16	--	47.89	--	3847.45
	3895.34	06/27/16	--	48.03	--	3847.31
	3895.34	09/20/16	--	48.11	--	3847.23
	3895.34	12/06/16	--	48.17	--	3847.17
	3895.34	03/07/17	--	48.27	--	3847.07
	3895.34	06/06/17	--	48.29	--	3847.05
	3895.34	09/06/17	--	48.42	--	3846.92
	3895.34	12/05/17	--	48.45	--	3846.89
	3895.34	03/06/18	--	48.55	--	3846.79
MW-2	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
	3893.79	12/08/15	--	48.02	--	3845.77
	3893.79	03/08/16	--	48.04	--	3845.75
	3893.79	06/27/16	--	48.01	--	3845.78
	3893.79	09/20/16	--	48.26	--	3845.53
	3893.79	12/06/16	--	48.31	--	3845.48
	3893.79	03/07/17	--	48.39	--	3845.40
	3893.79	06/06/17	--	48.41	--	3845.38
	3893.79	09/06/17	--	48.57	--	3845.22
	3893.79	12/05/17	--	48.63	--	3845.16
	3893.79	03/06/18	--	48.71	--	3845.08
MW-3	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
	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
	3891.87	06/27/16	--	47.12	--	3844.75
	3891.87	09/20/16	--	47.21	--	3844.66
	3891.87	12/06/16	--	47.05	--	3844.82
	3891.87	03/07/17	--	47.32	--	3844.55
	3891.87	06/06/17	--	47.46	--	3844.41
	3891.87	09/06/17	--	45.50 *	--	3846.37
	3891.87	12/05/17	--	47.54	--	3844.33
	3891.87	03/06/18	--	47.63	--	3844.24

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-4	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
	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
	3894.08	06/27/16	--	48.17	--	3845.91
	3894.08	09/20/16	--	48.41	--	3845.67
	3894.08	12/06/16	--	48.19	--	3845.89
	3894.08	03/07/17	--	48.25	--	3845.83
	3894.08	06/06/17	--	48.24	--	3845.84
	3894.08	09/06/17	--	48.41	--	3845.67
	3894.08	12/05/17	--	48.46	--	3845.62
	3894.08	03/06/18	--	48.54	--	3845.54
MW-5	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
	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
	3892.08	06/27/16	--	46.89	--	3845.19
	3892.08	09/20/16	--	47.02	--	3845.06
	3892.08	12/06/16	--	47.27	--	3844.81
	3892.08	03/07/17	--	47.11	--	3844.97
	3892.08	06/06/17	--	47.44	--	3844.64
	3892.08	09/06/17	--	47.00	--	3845.08
	3892.08	12/05/17	--	47.34	--	3844.74
	3892.08	03/06/18	--	47.41	--	3844.67
MW-6	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
	3892.09	06/27/16	--	46.88	--	3845.21
	3892.09	09/20/16	--	46.96	--	3845.13
	3892.09	12/06/16	--	47.01	--	3845.08
	3892.09	03/07/17	--	47.10	--	3844.99
	3892.09	06/06/17	--	47.13	--	3844.96
	3892.09	09/06/17	--	47.26	--	3844.83
	3892.09	12/05/17	--	47.31	--	3844.78
	3892.09	03/06/18	--	47.37	--	3844.72

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).
5. * Field measurement inconsistant with historical data set.

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

	Benzene (mg/L)																
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016	June 2016	September 2016	October 2016	December 2016	March 2017	June 2017	September 2017	December 2017	March 2018
MW-1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	---	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	---	<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	<0.500	**42.8**	9.74	1.53	**25.6**	<0.500	<0.500	**112**	3.84
MW-5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

	Toluene (mg/L)																
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016	June 2016	September 2016	October 2016	December 2016	March 2017	June 2017	September 2017	December 2017	March 2018
MW-1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	---	---	<0.500	---	---	---	---	---	---	---	---	<0.500	---	---	---	---	<0.500
MW-3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	---	---	<0.500	---	---	---	---	---	---	---	---	<0.500	---	---	---	---	<0.500
MW-5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

	Ethylbenzene (mg/L)																
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016	June 2016	September 2016	October 2016	December 2016	March 2017	June 2017	September 2017	December 2017	March 2018
MW-1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	---	---	<0.500	---	---	---	---	---	---	---	---	<0.500	---	---	---	---	<0.500
MW-3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	---	---	<0.500	---	---	---	---	---	---	---	---	<0.500	---	---	---	---	0.859
MW-5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

	Xylenes (mg/L)																
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016	June 2016	September 2016	October 2016	December 2016	March 2017	June 2017	September 2017	December 2017	March 2018
MW-1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	---	---	<1.50	---	---	---	---	---	---	---	---	<1.00	---	---	---	---	<1.50
MW-3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	---	---	<1.50	---	---	---	---	---	---	---	---	<1.00	---	---	---	---	<1.50
MW-5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

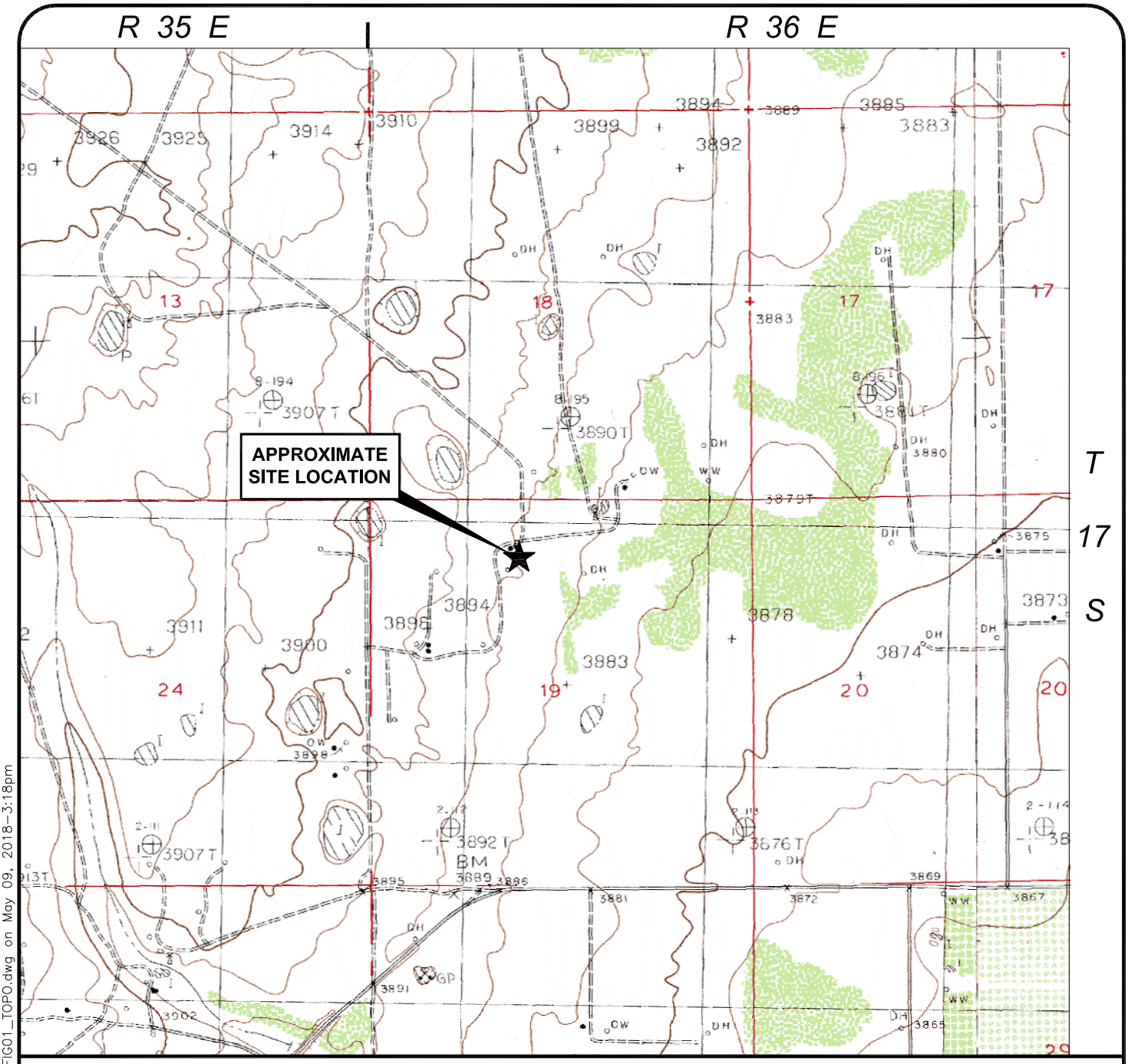
Table 2 : Summary of Laboratory Analytical Results for Groundwater Samples
Chesapeake Energy Corporation, State L Lease (AP-73)
Lea County, New Mexico

	Chloride (mg/L)																
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016	June 2016	September 2016	October 2016	December 2016	March 2017	June 2017	September 2017	December 2017	March 2018
MW-1	26.8	25.4	27.7	23.2	26.5	23.1	25.8	23.3	26.7	27.7	---	26.2	27.8	25.8	26.5	26.8	27.1
MW-2	**357**	**327**	**319**	**263**	**264**	**265**	247	243	229	208	---	210	196	197	220	187	185
MW-3	85.8	86.5	86.0	79.5	79.3	75.7	68.4	61.9	62.3	57.5	---	54.2	57.2	52.8	49.4	50.2	51.2
MW-4	192	239	**300**	238	**318**	**288**	**284**	200	193	181	150	132	118	91.9	113	147	171
MW-5	129	114	129	102	87.5	93.9	106	81.5	79.2	78.4	---	79.2	86.7	91.8	118	110	119
MW-6	133	167	149	160	146	148	147	148	154	164	---	160	162	170	180	154	153

Notes:

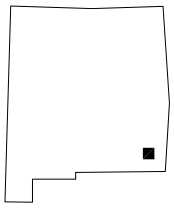
1. mg/L : micrograms per liter.
2. mg/L : milligrams per liter.
3. < : Analyte not detected at the laboratory reporting limit.
4. All analyses performed by TestAmerica Laboratories in Nashville, Tennessee.
5. Cells shaded in blue indicate results that are above the laboratory reporting limit.
6. Cells with text **bolded** indicate results exceed the New Mexico Administrative Code 20.6.2.3103, Standards for Groundwater: chloride (250.0 mg/L), benzene (10 µg/L), toluene (750 mg/L),
7. --- : Analysis not performed.
8. MW-4 resampled October 25, 2016 due to anomalous results from the September 2016 sampling event.

FIGURES



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES
LOVINGTON SW, NEW MEXICO - PROVISIONAL EDITION 1985 AND
LOVINGTON SE, NEW MEXICO - PROVISIONAL EDITION 1985

NEW MEXICO



N

SCALE
0 1/2 1 MILE

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

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC
7060 South Yale Avenue, Suite 603
Tulsa, Oklahoma 74136
918.794.7828
www.ECGRP.com

		DESIGNED BY	BEM
DATE	5/14/2018	APPROVED BY	BEM
SCALE	AS SHOWN	DRAWN BY	SKG
PROJECT NUMBER		FIGURE NUMBER	
CHKHSTL201		1	

D:\Projects\Chesapeake\CHKHSTL201_StateL2well\04_CAD\FIG01_TOPO.dwg on May 09, 2018 - 3:18pm

LEGEND

MW-5 — LOCATION OF MONITORING WELL

GRAVEL ROADWAY

PIPELINE

N

30 0 30 60
SCALE FEET

SOURCE: AERIAL PHOTOGRAPH DATED FEBRUARY 1, 2017, GOOGLE EARTH PRO SCREEN CAPTURE

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

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

www.ECCGRP.com

DOCUMENT TITLE: FOURTH ANNUAL GROUNDWATER MONITORING REPORT

FIGURE TITLE: ***SITE BASE MAP***

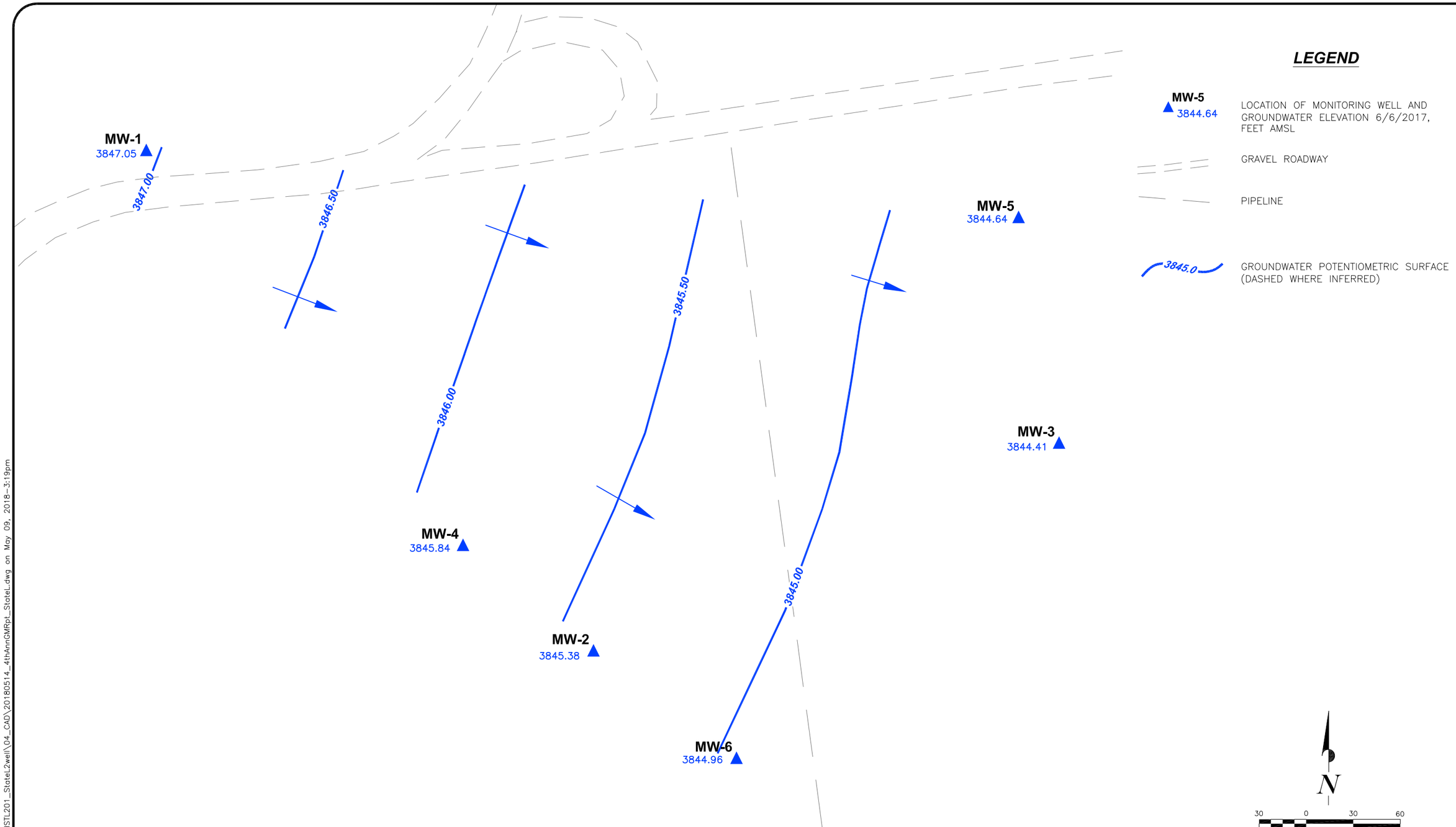
CLIENT: CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

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

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"=60'
DRAWN BY	SKG	DATE	5/14/2018

PROJECT NUMBER	FIGURE NUMBER
CHKHSTL201	2

D:\Projects\Chesapeake\CHKHSTL201_StateL2well\04_CAD\20180514_4thAnnGMRpt_StateL.dwg on May 09, 2018 - 3:20pm



D:\Projects\Chesapeake\CHKHSTL201_StateL2well\04_CAD\20180514_4thAnnGMRpt_StateL.dwg on May 09, 2018–3:19pm

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

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

www.ECCGRP.com

DOCUMENT TITLE: FOURTH ANNUAL GROUNDWATER MONITORING REPORT

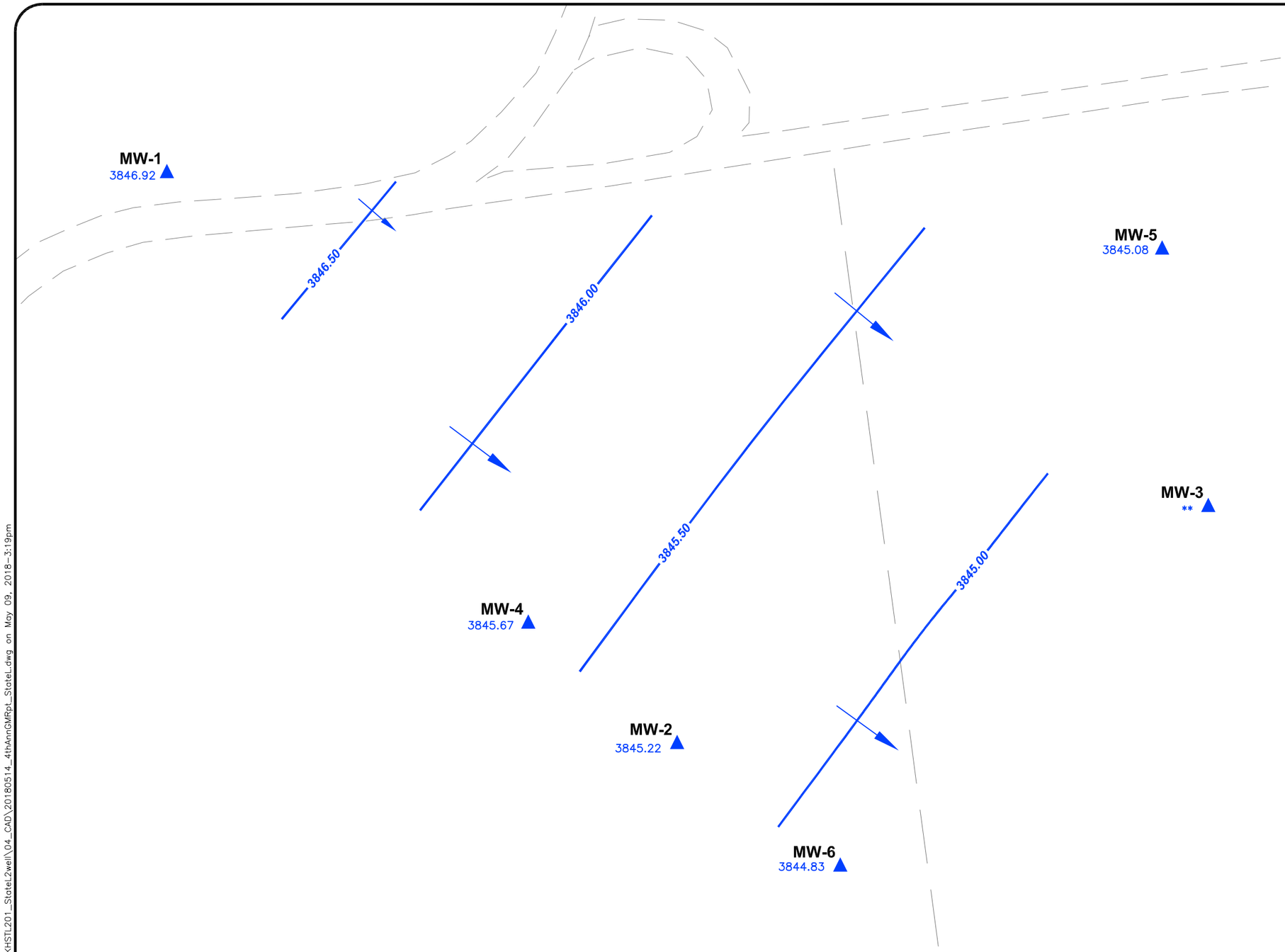
FIGURE TITLE: ***GROUNDWATER POTENTIOMETRIC SURFACE, JUNE 6, 2017***

CLIENT: CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

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

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"=60'
DRAWN BY	SKG	DATE	5/14/2018

PROJECT NUMBER	FIGURE NUMBER
CHKHSTL201	3



LEGEND

MW-5 3845.08 — LOCATION OF MONITORING WELL AND GROUNDWATER ELEVATION 9/6/2017, FEET AMSL

GRAVEL ROADWAY

PIPELINE

3845.0 — GROUNDWATER POTENTIOMETRIC SURFACE (DASHED WHERE INFERRED)

NOTE:

1) ** FIELD MEASUREMENT INCONSISTANT WITH HISTORICAL DATA SET

N

30 0 30 60

SCALE FEET

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

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

DOCUMENT TITLE: FOURTH ANNUAL GROUNDWATER MONITORING REPORT

FIGURE TITLE: ***GROUNDWATER POTENTIOMETRIC SURFACE, SEPTEMBER 6, 2017***

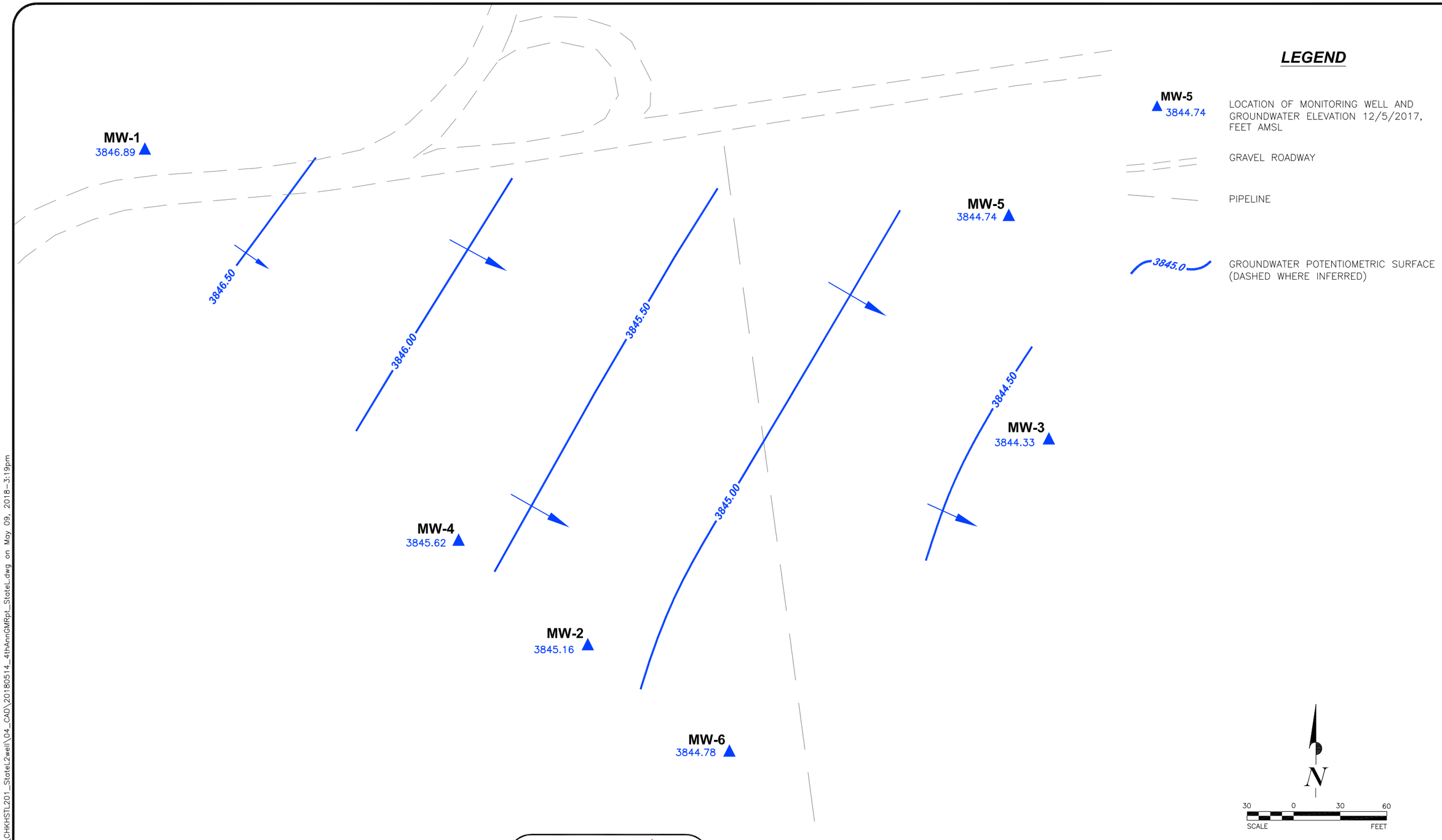
CLIENT: CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

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

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"=60'
DRAWN BY	SKG	DATE	5/14/2018

PROJECT NUMBER	FIGURE NUMBER
CHKHSTL201	4

D:\Projects\Chesapeake\CHKHSTL201_StateL2well\04_CAD\20180514_4thAnnGMRpt_StateL.dwg on May 09, 2018–3:19pm



D:\Projects\Chesapeake\CHKHSTL201_StateL2well\04_CAD\20180514_4thAnnGMRpt_StateL.dwg on May 09, 2018 - 3:19pm

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

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

www.ECCGRP.com

DOCUMENT TITLE
FOURTH ANNUAL GROUNDWATER MONITORING REPORT

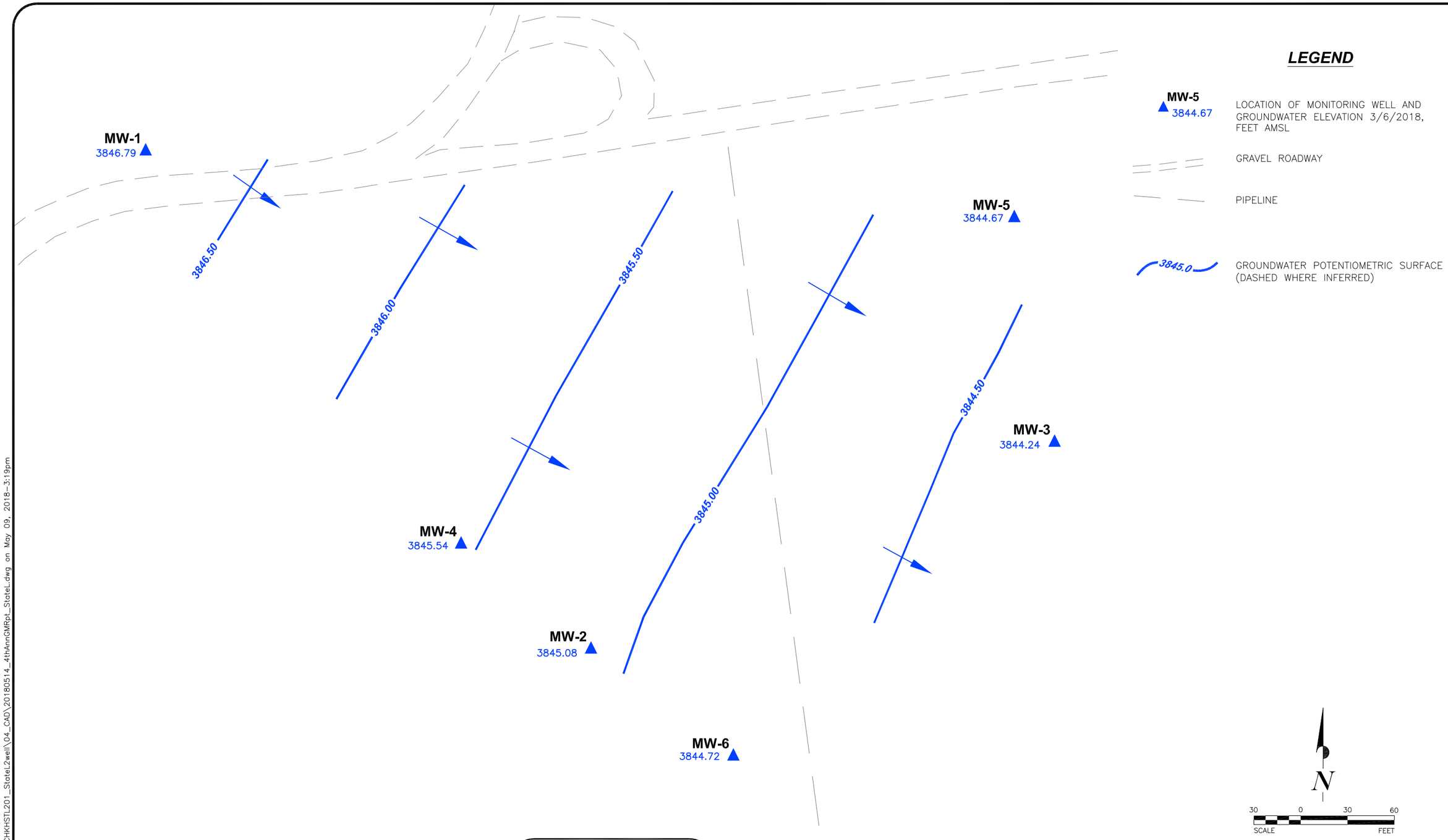
FIGURE TITLE
GROUNDWATER POTENTIOMETRIC SURFACE, DECEMBER 5, 2017

CLIENT
CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

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

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"=60'
DRAWN BY	SKG	DATE	5/14/2018

PROJECT NUMBER	FIGURE NUMBER
CHKHSTL201	**5**



ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

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

www.ECCGRP.com

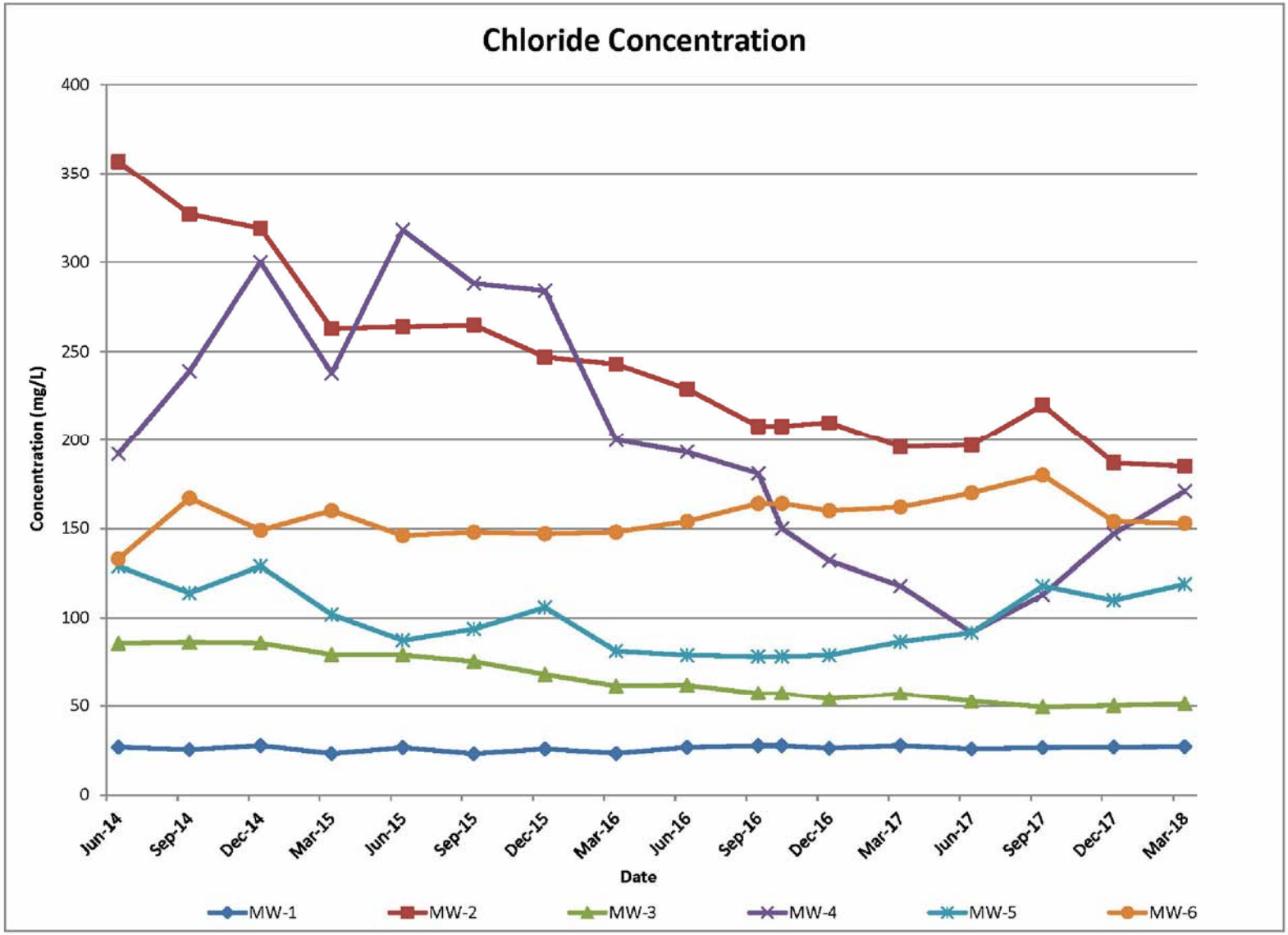
DOCUMENT TITLE	FOURTH ANNUAL GROUNDWATER MONITORING REPORT
FIGURE TITLE	***GROUNDWATER POTENTIOMETRIC SURFACE, MARCH 6, 2018***
CLIENT	CHESAPEAKE ENERGY CORPORATION OKLAHOMA CITY, OKLAHOMA
LOCATION	STATE L LEASE (AP-73) SEC. 19, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"=60'
DRAWN BY	SKG	DATE	5/14/2018

PROJECT NUMBER	FIGURE NUMBER
CHKHSTL201	**6**

D:_Projects_Chesapeake_CHKHSTL201_StateL2well\04_CAD_20180514_4thAnnGMRpt_StateL.dwg on May 09, 2018–3:19pm

D:\Projects\Chesapeake\CHKHSTL201_StateL2well\04_CAD\20180514_4thAnnGMRpt_StateL.dwg on May 09, 2018–3:18pm



ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

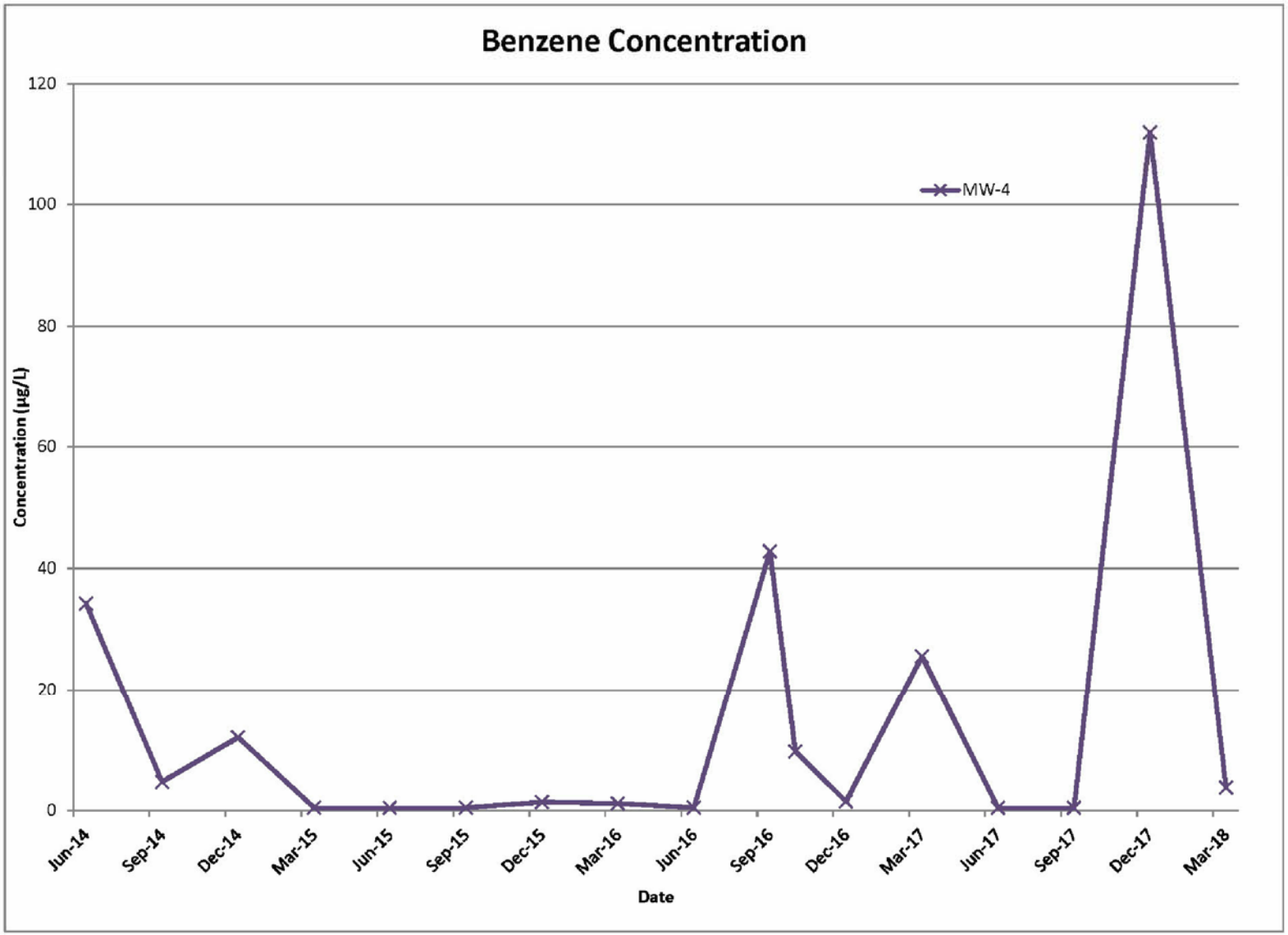
7060 South Yale Avenue, Suite 603
Tulsa, Oklahoma 74136
918.794.7828

www.ECCGRP.com

DOCUMENT TITLE: FOURTH ANNUAL GROUNDWATER MONITORING REPORT	FIGURE TITLE: *CHLORIDE CONCENTRATION TREND GRAPHS*
CLIENT: CHESAPEAKE ENERGY CORPORATION OKLAHOMA CITY, OKLAHOMA	
LOCATION: STATE L LEASE (AP-73) SEC. 19, T17S, R36E, LEA COUNTY, NEW MEXICO	

				PROJECT NUMBER	FIGURE NUMBER
DESIGNED BY	CNA			CHKHSTL201	7
APPROVED BY	BEM	SCALE	NTS		
DRAWN BY	SKG	DATE	5/14/2018		

D:\Projects\Chesapeake\CHKHSTL201_StateL2well\04_CAD\20180514_4thAnnGMRpt_StateL.dwg on May 09, 2018–3:10pm



ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

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

www.ECCGRP.com

DOCUMENT TITLE
FOURTH 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	5/14/2018

PROJECT NUMBER	FIGURE NUMBER
CHKHSTL201	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

ARCADIS
Infrastructure · Water · Environment · Buildings

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

ENVIRONMENT

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

Date:
March 27, 2012

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.

Contact:
Sharon Hall

Phone:
432 687-5400

Email:
shall@aracdis-us.com

Our ref:
MT001088

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

Sincerely,

ARCADIS U.S., Inc.

Sharon E. Hall

Sharon E. Hall
Associate Vice President

Copies:
Bradley Blevins- Chesapeake, Hobbs

g:\aproject\chesapeake\l-2 stage 2 report\transmitall letter.doc

ARCADIS

Infrastructure · Water · Environment · Buildings

Imagine the result

Chesapeake Energy Corporation

State L-2 AP-073

Stage 2 Abatement Plan Proposal

Hobbs, New Mexico

March 27, 2012

ARCADIS

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.

Figures

Appendices

ARCADIS

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

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 x 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.

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

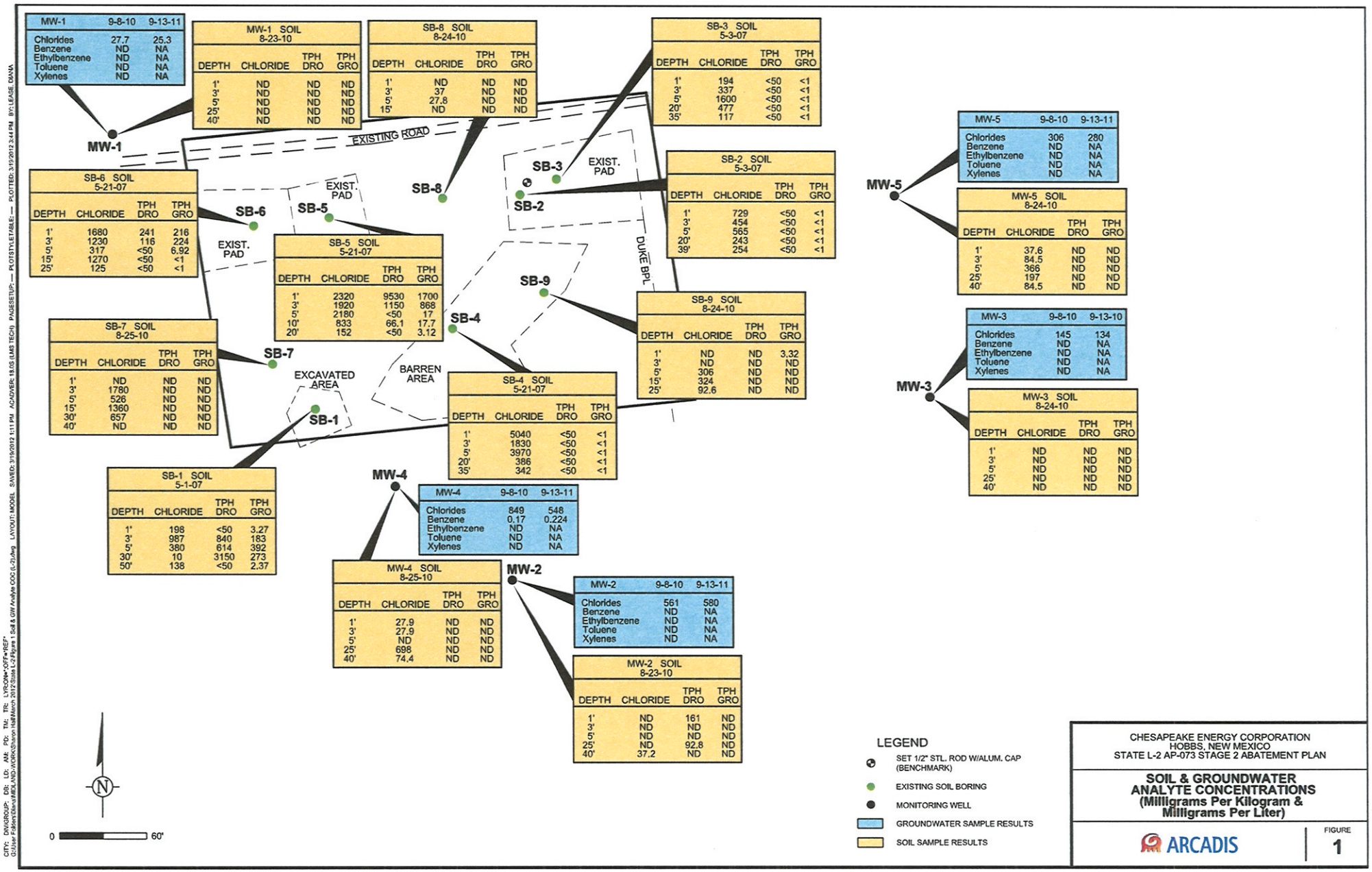
Groundwater Handbook; United States Environmental Protection Agency, Office of Research and Development, Center for Environmental Research Information; 1992

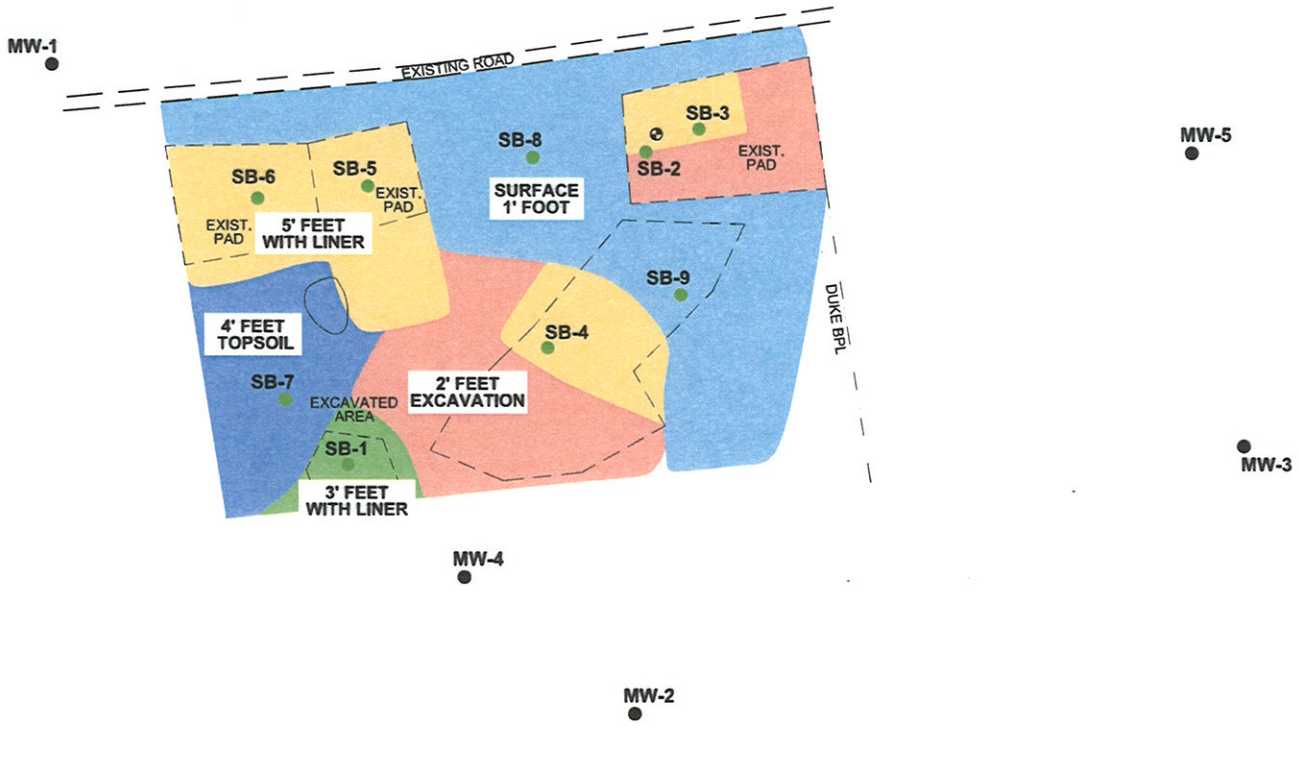
New Mexico Water Quality Control Commission, Title 20 Chapter 6, Part 2, Subpart I

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


MW-1
9-8-10 9-13-11
Chlorides 27.7 25.3
Benzene ND NA
Ethylbenzene ND NA
Toluene ND NA
Xylenes ND NA
MW-1 SOIL 8-23-10
DEPTH CHLORIDE TPH DRO TPH GRO
1' ND ND ND
3' ND ND ND
5' ND ND ND
25' ND ND ND
40' ND ND ND
SB-8 SOIL 8-24-10
DEPTH CHLORIDE TPH DRO TPH GRO
1' ND ND ND
3' 37 ND ND
5' 27.8 ND ND
15' ND ND ND
SB-3 SOIL 5-3-07
DEPTH CHLORIDE TPH DRO TPH GRO
1' 194 <50 <1
3' 337 <50 <1
5' 1600 <50 <1
20' 477 <50 <1
35' 117 <50 <1
SB-2 SOIL 5-3-07
DEPTH CHLORIDE TPH DRO TPH GRO
1' 729 <50 <1
3' 454 <50 <1
5' 565 <50 <1
20' 243 <50 <1
39' 254 <50 <1
SB-6 SOIL 5-21-07
DEPTH CHLORIDE TPH DRO TPH GRO
1' 1680 241 216
3' 1230 116 224
5' 317 <50 6.92
15' 1270 <50 <1
25' 125 <50 <1
SB-5 SOIL 5-21-07
DEPTH CHLORIDE TPH DRO TPH GRO
1' 2320 9530 1700
3' 1920 1150 868
5' 2180 <50 17
10' 833 66.1 17.7
20' 152 <50 3.12
SB-9 SOIL 8-24-10
DEPTH CHLORIDE TPH DRO TPH GRO
1' ND ND 3.32
3' ND ND ND
5' 306 ND ND
15' 324 ND ND
25' 92.6 ND ND
SB-7 SOIL 8-25-10
DEPTH CHLORIDE TPH DRO TPH GRO
1' ND ND ND
3' 1780 ND ND
5' 526 ND ND
15' 1360 ND ND
30' 657 ND ND
40' ND ND ND
SB-4 SOIL 5-21-07
DEPTH CHLORIDE TPH DRO TPH GRO
1' 5040 <50 <1
3' 1830 <50 <1
5' 3970 <50 <1
20' 386 <50 <1
35' 342 <50 <1
SB-1 SOIL 5-1-07
DEPTH CHLORIDE TPH DRO TPH GRO
1' 198 <50 3.27
3' 987 840 183
5' 380 614 392
30' 10 3150 273
50' 138 <50 2.37
MW-4
9-8-10 9-13-11
Chlorides 849 548
Benzene 0.17 0.224
Ethylbenzene ND NA
Toluene ND NA
Xylenes ND NA
MW-4 SOIL 8-25-10
DEPTH CHLORIDE TPH DRO TPH GRO
1' 27.9 ND ND
3' 27.9 ND ND
5' ND ND ND
25' 698 ND ND
40' 74.4 ND ND
MW-2
9-8-10 9-13-11
Chlorides 561 580
Benzene ND NA
Ethylbenzene ND NA
Toluene ND NA
Xylenes ND NA
MW-2 SOIL 8-23-10
DEPTH CHLORIDE TPH DRO TPH GRO
1' ND 161 ND
3' ND ND ND
5' ND ND ND
25' ND 92.8 ND
40' 37.2 ND ND
MW-5
9-8-10 9-13-11
Chlorides 306 280
Benzene ND NA
Ethylbenzene ND NA
Toluene ND NA
Xylenes ND NA
MW-5 SOIL 8-24-10
DEPTH CHLORIDE TPH DRO TPH GRO
1' 37.6 ND ND
3' 84.5 ND ND
5' 366 ND ND
25' 197 ND ND
40' 84.5 ND ND
MW-3
9-8-10 9-13-10
Chlorides 145 134
Benzene ND NA
Ethylbenzene ND NA
Toluene ND NA
Xylenes ND NA
MW-3 SOIL 8-24-10
DEPTH CHLORIDE TPH DRO TPH GRO
1' ND ND ND
3' ND ND ND
5' ND ND ND
25' ND ND ND
40' ND ND ND
EXISTING ROAD
EXIST. PAD
EXIST. PAD
EXIST. PAD
DUKE BPL
EXCAVATED AREA
BARREN AREA
MW-1
MW-2
MW-3
MW-4
MW-5
SB-1
SB-2
SB-3
SB-4
SB-5
SB-6
SB-7
SB-8
SB-9
N
0
60'
LEGEND
SET 1/2" STL. ROD W/ALUM. CAP (BENCHMARK)
EXISTING SOIL BORING
MONITORING WELL
GROUNDWATER SAMPLE RESULTS
SOIL SAMPLE RESULTS
CHESAPEAKE ENERGY CORPORATION
HOBBS, NEW MEXICO
STATE L-2 AP-073 STAGE 2 ABATEMENT PLAN
SOIL & GROUNDWATER ANALYTE CONCENTRATIONS (Milligrams Per Kilogram & Milligrams Per Liter)
ARCADIS
FIGURE 1



LEGEND

- SET 1/2" STL. ROD W/ALUM. CAP (BENCHMARK)
- EXISTING SOIL BORING
- MONITORING WELL
- SURFACE
- 2' FEET
- 3' FEET
- 4' FEET
- 5' FEET

N

0 60'

CHESAPEAKE ENERGY CORPORATION
HOBBS, NEW MEXICO
STATE L-2 AP-073 STAGE 2 ABATEMENT PLAN

PROPOSED EXCAVATION MAP

ARCADIS

FIGURE 2

CITY: DIVISION: DEPT: USER: PW: TM: LYRON=*OFF*=REF*
G:\User Folders\Dana\MIDLAND-WORK\Chesapeake\Hobbs\March 2012\State L-2\Figure 2 Prop Excav (L-2).dwg LAYOUT: MODEL SAVED: 3/19/2012 2:29 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: — PLOTTED: 3/19/2012 3:45 PM BY: LEASE, DIANA

ARCADIS

Appendix A

Multi-Med Model Inputs and Outputs

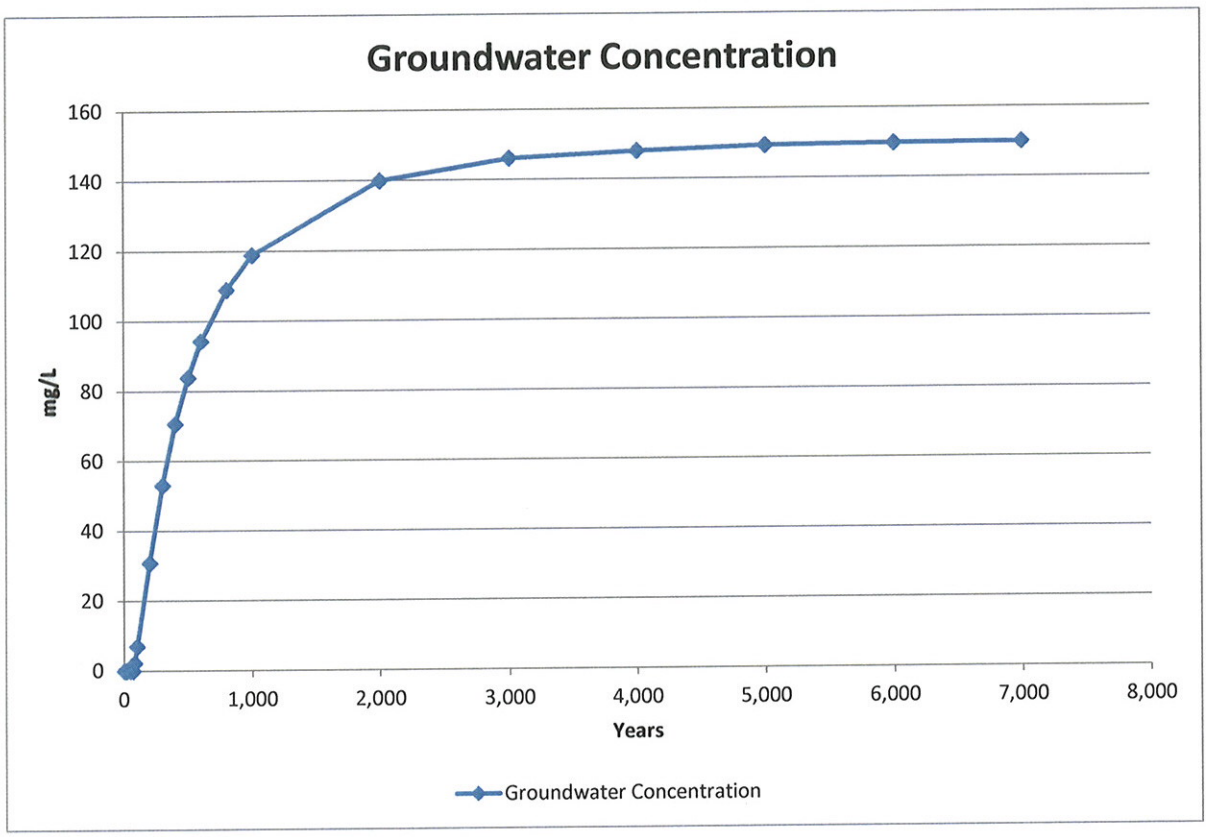
Chesapeake State L-2
Chesapeake Energy Corporation
Buckeye, Lea County, New Mexico
Multimed Model Input and Output (With Liner)

MODEL INPUT AND OUTPUT						MODEL RANGE	
INPUT PARAMETERS						Minimum	Maximum
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	46	feet	14.0	m	0.000000001	None
Percent of Organic Matter	%	2.6	%	2.6	%	0	100
Bulk Density	g/cm^3	1.35	g/cm^3	1.35	g/cm^3	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^3	1.35	g/cm^3	1.35	g/cm^3	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
Source Parameters							
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^2	52,650	ft^2	4891	m^2	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
Additional Parameters							
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	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^3	1.35	g/cm^3	1.35	g/cm^3	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^3	1.35	g/cm^3	1.35	g/cm^3	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^2	52,650	ft^2	4891	m^2	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	Patch
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

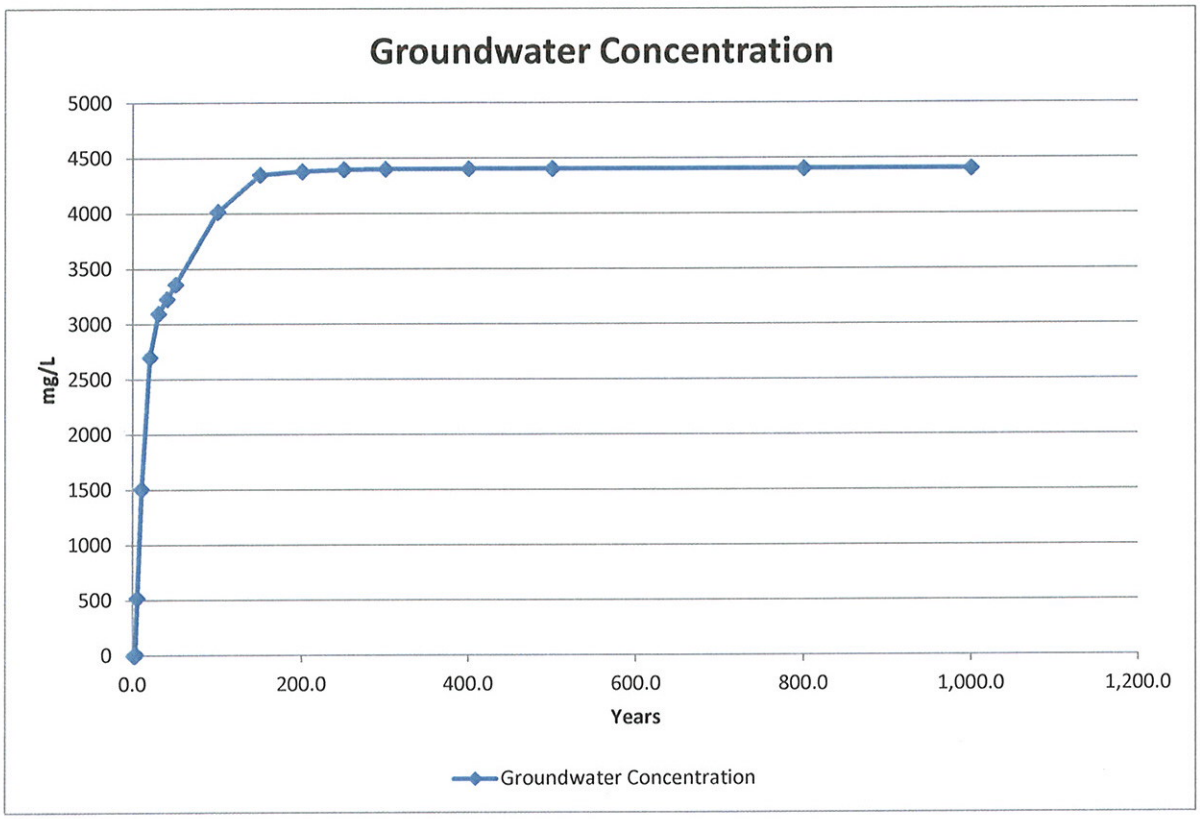


TABLE 6-2. DESCRIPTIVE STATISTICS FOR SATURATED HYDRAULIC CONDUCTIVITY (cm hr-1)

Soil Type	Hydraulic Conductivity (Ks)* x	s	CV	n
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, = 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).

Saturated water content is the maximum volumetric amount of water in the soil when all pores are filled with water. Very often it is assumed that saturated water content equals the porosity n . However, in many cases qS is smaller than n due to the fact that small amounts of air will be trapped in very small pores. Residual water content can be defined as the asymptote of the pF-curve when h gets very high negative values. Usually qR is very small - on the order of 0.001--0.02 for coarse soils but gets as high values as 0.15..0.25 for heavy clay soils. Air entry point ha is

Soil texture. Fine-textured soils can hold much more organic matter than sandy soils for two reasons. First, clay particles form electrochemical bonds that hold organic compounds. Second, decomposition occurs faster in well-aerated sandy soils. A sandy loam rarely holds more than 2% organic matter.

The recharge rate in this model is the net amount of water that percolates directly into the aquifer system outside of the land disposal facility. The recharge is assumed to have no contamination and hence dilutes the groundwater contaminant plume. The recharge rate into the plume can be calculated in a variety of ways. One possibility is to use a model, such as HELP (Hydrologic Evaluation of Landfill Performance) (Schroeder et al., 1984), without any engineering controls (leachate collection system or a liner) to simulate the water balance for natural conditions.

The infiltration rate is the net amount of leachate that percolates into the aquifer system from a land disposal facility. Because of the use of engineering controls and the presence of non-native porous materials in the landfill facility, the infiltration rate will typically be different than the recharge rate. However, it can be estimated by similar

Most soils contain 2-10 percent organic matter. *The Importance of Soil Organic Matter: Key to Drought-Resistant Soil and Sustained Food Production. http://www.fao.org*

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

This email (and attachments if any) is intended only for the use of the individual or entity to which it is addressed, and may contain information that is confidential or privileged and exempt from disclosure under applicable law. If the reader of this email is not the intended recipient, or the employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately by return email and destroy all copies of the email (and attachments if any).

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: 490-130284-1
TestAmerica Sample Delivery Group: Property ID 890293
Client Project/Site: CHK STATE L-2
Sampling Event: 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:
6/21/2017 3:13:43 PM
Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

Designee for

Cathy Gartner, Project Manager I
(615)301-5041
cathy.gartner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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.

Table of Contents

Sample Summary

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-130284-1	MW-1	Water	06/06/17 11:05	06/08/17 09:45
490-130284-2	MW-4	Water	06/06/17 12:37	06/08/17 09:45
490-130284-3	MW-2	Water	06/06/17 14:20	06/08/17 09:45
490-130284-4	MW-6	Water	06/06/17 16:10	06/08/17 09:45
490-130284-5	MW-3	Water	06/06/17 17:15	06/08/17 09:45
490-130284-6	MW-5	Water	06/06/17 18:10	06/08/17 09:45
490-130284-7	EQ Blank	Water	06/06/17 11:30	06/08/17 09:45
490-130284-8	Dup	Water	06/06/17 00:01	06/08/17 09:45
490-130284-9	Trip Blank	Water	06/06/17 00:01	06/08/17 09:45

Job ID: 490-130284-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-130284-1

Comments
No additional comments.

Receipt
The samples were received on 6/8/2017 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.1° 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 was diluted due to the nature of the sample matrix: MW-1 (490-130284-1) and MW-4 (490-130284-2). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following samples was diluted due to the nature of the sample matrix: MW-2 (490-130284-3), MW-6 (490-130284-4), MW-3 (490-130284-5), MW-5 (490-130284-6) and Dup (490-130284-8). 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.

Qualifiers

HPLC/IC

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.
¤	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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: 490-130284-1
SDG: Property ID 890293

Client Sample ID: MW-1
Date Collected: 06/06/17 11:05
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.8		5.00		mg/L			06/16/17 15:27	5

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: MW-4

Date Collected: 06/06/17 12:37
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-2

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			06/12/17 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*06/12/17 17:45*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*06/12/17 17:45*	*1*
Dibromofluoromethane (Surr)	*107*		*70 - 130*		*06/12/17 17:45*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*06/12/17 17:45*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**91.9**		10.0		mg/L			06/16/17 15:41	10

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: MW-2

Date Collected: 06/06/17 14:20
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-3

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			06/12/17 19:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 130*		*06/12/17 19:49*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*06/12/17 19:49*	*1*
Dibromofluoromethane (Surr)	*88*		*70 - 130*		*06/12/17 19:49*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*06/12/17 19:49*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**197**		20.0		mg/L			06/16/17 17:57	20

Client Sample Results

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: MW-6
Date Collected: 06/06/17 16:10
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-4
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	170		10.0		mg/L			06/16/17 18:10	10

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: MW-3
Date Collected: 06/06/17 17:15
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52.8		10.0		mg/L			06/16/17 18:24	10

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: MW-5
Date Collected: 06/06/17 18:10
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	91.8		10.0		mg/L			06/16/17 18:37	10

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: EQ Blank

Date Collected: 06/06/17 11:30
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-7

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			06/12/17 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 130*		*06/12/17 14:39*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*06/12/17 14:39*	*1*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*06/12/17 14:39*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*06/12/17 14:39*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			06/16/17 18:51	1

Client Sample ID: Dup

Date Collected: 06/06/17 00:01
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-8

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			06/12/17 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*06/12/17 18:12*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*06/12/17 18:12*	*1*
Dibromofluoromethane (Surr)	*107*		*70 - 130*		*06/12/17 18:12*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*06/12/17 18:12*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**92.5**		10.0		mg/L			06/16/17 19:32	10

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: Trip Blank
Date Collected: 06/06/17 00:01
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-9
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			06/12/17 14:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*70 - 130*		*06/12/17 14:10*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*06/12/17 14:10*	*1*
Dibromofluoromethane (Surr)	*86*		*70 - 130*		*06/12/17 14:10*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*06/12/17 14:10*	*1*

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

Lab Sample ID: MB 490-436584/6
Matrix: Water
Analysis Batch: 436584

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			06/12/17 11:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*06/12/17 11:34*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*06/12/17 11:34*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*06/12/17 11:34*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*06/12/17 11:34*	*1*

Lab Sample ID: LCS 490-436584/3
Matrix: Water
Analysis Batch: 436584

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	53.53		ug/L		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
Toluene-d8 (Surr)	*95*		*70 - 130*

Lab Sample ID: LCSD 490-436584/4
Matrix: Water
Analysis Batch: 436584

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	53.21		ug/L		106	70 - 130	1	12

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
Toluene-d8 (Surr)	*95*		*70 - 130*

Lab Sample ID: 490-130222-E-6 MS
Matrix: Water
Analysis Batch: 436584

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	63.34		ug/L		127	55 - 147		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
Toluene-d8 (Surr)	*95*		*70 - 130*

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

Lab Sample ID: 490-130222-F-6 MSD
Matrix: Water
Analysis Batch: 436584

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	61.49		ug/L		123	55 - 147	3	22

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
Toluene-d8 (Surr)	*96*		*70 - 130*

Lab Sample ID: MB 490-436604/9
Matrix: Water
Analysis Batch: 436604

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			06/12/17 13:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 130*		*06/12/17 13:14*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*06/12/17 13:14*	*1*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*06/12/17 13:14*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*06/12/17 13:14*	*1*

Lab Sample ID: LCS 490-436604/3
Matrix: Water
Analysis Batch: 436604

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			20.0	20.11		ug/L		101	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*80*		*70 - 130*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*
Dibromofluoromethane (Surr)	*86*		*70 - 130*
Toluene-d8 (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 490-436604/4
Matrix: Water
Analysis Batch: 436604

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			20.0	21.46		ug/L		107	70 - 130	6	12

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*82*		*70 - 130*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
Dibromofluoromethane (Surr)	*86*		*70 - 130*
Toluene-d8 (Surr)	*100*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-438421/3
Matrix: Water
Analysis Batch: 438421

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			06/16/17 16:49	1

Lab Sample ID: LCS 490-438421/4
Matrix: Water
Analysis Batch: 438421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.889		mg/L		99	90 - 110

Lab Sample ID: LCSD 490-438421/5
Matrix: Water
Analysis Batch: 438421

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	10.0	10.06		mg/L		101	90 - 110	2	20

Lab Sample ID: 490-130284-7 MS
Matrix: Water
Analysis Batch: 438421

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		2.00	1.969		mg/L		98	80 - 120

Lab Sample ID: 490-130284-7 MSD
Matrix: Water
Analysis Batch: 438421

Client Sample ID: EQ Blank
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		2.00	1.972		mg/L		99	80 - 120	0	20

Lab Sample ID: MB 490-438425/3
Matrix: Water
Analysis Batch: 438425

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			06/16/17 12:30	1

Lab Sample ID: LCS 490-438425/4
Matrix: Water
Analysis Batch: 438425

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.06		mg/L		101	90 - 110

Lab Sample ID: LCSD 490-438425/5
Matrix: Water
Analysis Batch: 438425

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	10.0	10.14		mg/L		101	90 - 110	1	20

QC Sample Results

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Lab Sample ID: 490-130218-A-9 MS
Matrix: Water
Analysis Batch: 438425

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		
Chloride	3.57	F1	2.00	4.785	F1	mg/L		61	80 - 120		

Lab Sample ID: 490-130218-A-9 MSD
Matrix: Water
Analysis Batch: 438425

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
Chloride	3.57	F1	2.00	4.764	F1	mg/L		59	80 - 120	0	20

GC/MS VOA

Analysis Batch: 436584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-130284-2	MW-4	Total/NA	Water	8260B	
490-130284-8	Dup	Total/NA	Water	8260B	
MB 490-436584/6	Method Blank	Total/NA	Water	8260B	
LCS 490-436584/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-436584/4	Lab Control Sample Dup	Total/NA	Water	8260B	
490-130222-E-6 MS	Matrix Spike	Total/NA	Water	8260B	
490-130222-F-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 436604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-130284-3	MW-2	Total/NA	Water	8260B	
490-130284-7	EQ Blank	Total/NA	Water	8260B	
490-130284-9	Trip Blank	Total/NA	Water	8260B	
MB 490-436604/9	Method Blank	Total/NA	Water	8260B	
LCS 490-436604/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-436604/4	Lab Control Sample Dup	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 438421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-130284-3	MW-2	Total/NA	Water	300.0	
490-130284-4	MW-6	Total/NA	Water	300.0	
490-130284-5	MW-3	Total/NA	Water	300.0	
490-130284-6	MW-5	Total/NA	Water	300.0	
490-130284-7	EQ Blank	Total/NA	Water	300.0	
490-130284-8	Dup	Total/NA	Water	300.0	
MB 490-438421/3	Method Blank	Total/NA	Water	300.0	
LCS 490-438421/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-438421/5	Lab Control Sample Dup	Total/NA	Water	300.0	
490-130284-7 MS	EQ Blank	Total/NA	Water	300.0	
490-130284-7 MSD	EQ Blank	Total/NA	Water	300.0	

Analysis Batch: 438425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-130284-1	MW-1	Total/NA	Water	300.0	
490-130284-2	MW-4	Total/NA	Water	300.0	
MB 490-438425/3	Method Blank	Total/NA	Water	300.0	
LCS 490-438425/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-438425/5	Lab Control Sample Dup	Total/NA	Water	300.0	
490-130218-A-9 MS	Matrix Spike	Total/NA	Water	300.0	
490-130218-A-9 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Lab Chronicle

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: MW-1
Date Collected: 06/06/17 11:05
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-1
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		5			438425	06/16/17 15:27	T1C	TAL NSH

Client Sample ID: MW-4
Date Collected: 06/06/17 12:37
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-2
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	436584	06/12/17 17:45	AK1	TAL NSH
Total/NA	Analysis	300.0		10			438425	06/16/17 15:41	T1C	TAL NSH

Client Sample ID: MW-2
Date Collected: 06/06/17 14:20
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-3
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	436604	06/12/17 19:49	S1S	TAL NSH
Total/NA	Analysis	300.0		20			438421	06/16/17 17:57	T1C	TAL NSH

Client Sample ID: MW-6
Date Collected: 06/06/17 16:10
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-4
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		10			438421	06/16/17 18:10	T1C	TAL NSH

Client Sample ID: MW-3
Date Collected: 06/06/17 17:15
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-5
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		10			438421	06/16/17 18:24	T1C	TAL NSH

Client Sample ID: MW-5
Date Collected: 06/06/17 18:10
Date Received: 06/08/17 09:45

Lab Sample ID: 490-130284-6
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		10			438421	06/16/17 18:37	T1C	TAL NSH

Lab Chronicle

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Client Sample ID: EQ Blank

Lab Sample ID: 490-130284-7

Date Collected: 06/06/17 11:30
Matrix: Water
Date Received: 06/08/17 09:45

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	436604	06/12/17 14:39	S1S	TAL NSH
Total/NA	Analysis	300.0		1			438421	06/16/17 18:51	T1C	TAL NSH

Client Sample ID: Dup

Lab Sample ID: 490-130284-8

Date Collected: 06/06/17 00:01
Matrix: Water
Date Received: 06/08/17 09:45

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	436584	06/12/17 18:12	AK1	TAL NSH
Total/NA	Analysis	300.0		10			438421	06/16/17 19:32	T1C	TAL NSH

Client Sample ID: Trip Blank

Lab Sample ID: 490-130284-9

Date Collected: 06/06/17 00:01
Matrix: Water
Date Received: 06/08/17 09:45

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	436604	06/12/17 14:10	S1S	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: 490-130284-1
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

Accreditation/Certification Summary

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

TestAmerica Job ID: 490-130284-1
SDG: Property ID 890293

Laboratory: TestAmerica Nashville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oklahoma	State Program	6	9412	08-31-17

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-130284 Chain of Custody

Cooler Received/Opened On 06-08-2017 @ 09:45

Time Samples Removed From Cooler 15:51 Time Samples Placed In Storage_____ (2 Hour Window)

1. Tracking # 7490 (last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID 17610176 pH Strip Lot_____ Chlorine Strip Lot_____

2. Temperature of rep. sample or temp blank when opened: 4.1 *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: 1 (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) KD 06-08-2017

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 # N/A

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

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) GA

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) GA

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

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

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 12/15/15

6/21/2017

CHAIN OF CUSTODY RECORD

No. 02786

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTL201	PROJECT NAME: CHK STATE L-2	COC 1 of 1	
SHIPPED TO: TA-NASH	PROJECT MANAGER: BRUCE McKENZIE	TAT: STANDARD	

SAMPLER'S PRINTED NAME: TERRY FISHER
SAMPLER'S SIGNATURE: [signature]

ASOW: N/A.
Gensnb: 750-521
Prop ID: 090293

Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE	BENZENE	REMARKS
6-6-17	1105	MW-1	water	1	X		Loc: 490 130284
6-6-17	1237	MW-4	water	4	X	X	
6-6-17	1420	MW-2	water	4	X	X	
6-6-17	1610	MW-6	water	1	X		
6-6-17	1715	MW-3	water	1	X		
6-6-17	1810	MW-5	water	1	X		
6-6-17	1130	EQ Blank	water	4	X	X	
6-6-17	—	Dup	water	4	X	X	
—	—	Trip	water	2		X	

TOTAL NUMBER OF CONTAINERS → 22

RELINQUISHED BY: [signature]	DATE 6-7-17 TIME 1300	RECEIVED BY:	DATE TIME
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	DATE TIME

METHOD OF SHIPMENT: FEDEX
AIRBILL NUMBER: 7370 7423 7490

RECEIVED IN LABORATORY BY: DATE TIME

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

LABORATORY CONTACT: Cathy Gartner

LABORATORY ADDRESS: 2960 Foster Creighton Drive Nashville, TN 37204

POINT OF ORIGIN: ☐ OKLAHOMA CITY ☒ TULSA ☐ NORMAN ☐ WOODWARD ☐ ARLINGTON ☐ MIDLAND ☐ OTHER:

PAGE #1 - RECEIVING LAB | PAGE #2 - ENVIRO CLEAN PROJECT FILE | PAGE #3 - ENVIRO CLEAN QA/QC DEPT

6/21/2017

Login Sample Receipt Checklist

Client: Enviro Clean Services LLC

Job Number: 490-130284-1
SDG Number: Property ID 890293

Login Number: 130284
List Number: 1
Creator: Abernathy, Eric

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= 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 <6mm (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: 490-136298-1
TestAmerica Sample Delivery Group: Property ID: 890293
Client Project/Site: State L-2
Sampling Event: 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:
9/19/2017 8:16:21 AM
Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

Designee for

Cathy Gartner, Project Manager I
(615)301-5041
cathy.gartner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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.

Table of Contents

Sample Summary

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-136298-1	MW-1	Water	09/06/17 09:05	09/09/17 10:15
490-136298-2	MW-2	Water	09/06/17 12:20	09/09/17 10:15
490-136298-3	MW-3	Water	09/06/17 14:55	09/09/17 10:15
490-136298-4	MW-4	Water	09/06/17 10:57	09/09/17 10:15
490-136298-5	MW-5	Water	09/06/17 16:00	09/09/17 10:15
490-136298-6	MW-6	Water	09/06/17 13:35	09/09/17 10:15
490-136298-7	Dup	Water	09/06/17 00:01	09/09/17 10:15
490-136298-8	EQ Blank	Water	09/06/17 07:10	09/09/17 10:15
490-136298-9	Trip Blank	Water	09/06/17 00:01	09/08/17 10:00

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Job ID: 490-136298-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-136298-1

Comments
No additional comments.

Receipt
The samples were received on 9/8/2017 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º 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 was diluted due to the nature of the sample matrix: MW-1 (490-136298-1), MW-2 (490-136298-2), MW-3 (490-136298-3), MW-4 (490-136298-4), MW-5 (490-136298-5), MW-6 (490-136298-6) and Dup (490-136298-7). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: Due to the nature of the sample matrix, a matrix spike / matrix spike duplicate (MS/MSD) was not analyzed for 490-459027 . However, the laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits
(LCS 490-459027/4) and (LCSD 490-459027/5)

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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: MW-1
Date Collected: 09/06/17 09:05
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.5		2.00		mg/L			09/11/17 12:25	2

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: MW-2

Date Collected: 09/06/17 12:20
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-2

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			09/10/17 06:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 130*		*09/10/17 06:57*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*09/10/17 06:57*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*09/10/17 06:57*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*09/10/17 06:57*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**220**		20.0		mg/L			09/11/17 12:35	20

Client Sample Results

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: MW-3
Date Collected: 09/06/17 14:55
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	49.4		5.00		mg/L			09/11/17 12:46	5

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: MW-4

Date Collected: 09/06/17 10:57
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-4

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			09/10/17 09:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*		*09/10/17 09:37*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*09/10/17 09:37*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*09/10/17 09:37*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*09/10/17 09:37*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**113**		10.0		mg/L			09/11/17 12:57	10

Client Sample Results

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: MW-5
Date Collected: 09/06/17 16:00
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	118		10.0		mg/L			09/11/17 13:08	10

Client Sample Results

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: MW-6
Date Collected: 09/06/17 13:35
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	180		20.0		mg/L			09/11/17 13:18	20

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: Dup
Date Collected: 09/06/17 00:01
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-7
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			09/10/17 10:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*		*09/10/17 10:04*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*09/10/17 10:04*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*09/10/17 10:04*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*09/10/17 10:04*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**226**		20.0		mg/L			09/11/17 13:29	20

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: EQ Blank

Date Collected: 09/06/17 07:10
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-8

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			09/10/17 04:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*		*09/10/17 04:44*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*09/10/17 04:44*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*09/10/17 04:44*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*09/10/17 04:44*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			09/10/17 16:14	1

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: Trip Blank

Date Collected: 09/06/17 00:01
Date Received: 09/08/17 10:00

Lab Sample ID: 490-136298-9

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			09/10/17 05:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 130*		*09/10/17 05:11*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*09/10/17 05:11*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*09/10/17 05:11*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*09/10/17 05:11*	*1*

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

Lab Sample ID: MB 490-458854/6
Matrix: Water
Analysis Batch: 458854

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			09/10/17 03:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*09/10/17 03:24*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*09/10/17 03:24*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*09/10/17 03:24*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*09/10/17 03:24*	*1*

Lab Sample ID: LCS 490-458854/3
Matrix: Water
Analysis Batch: 458854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			20.0	19.19		ug/L		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

Lab Sample ID: LCSD 490-458854/4
Matrix: Water
Analysis Batch: 458854

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			20.0	18.88		ug/L		94	70 - 130	2	12

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*
Dibromofluoromethane (Surr)	*108*		*70 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

Lab Sample ID: 490-136298-2 MS
Matrix: Water
Analysis Batch: 458854

Client Sample ID: MW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	ND		20.0	17.07		ug/L		85	55 - 147		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

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

Lab Sample ID: 490-136298-2 MSD
Matrix: Water
Analysis Batch: 458854

Client Sample ID: MW-2
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		20.0	18.19		ug/L		91	55 - 147	6	22

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-458908/3
Matrix: Water
Analysis Batch: 458908

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			09/10/17 12:28	1

Lab Sample ID: LCS 490-458908/4
Matrix: Water
Analysis Batch: 458908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.714		mg/L		97	90 - 110

Lab Sample ID: LCSD 490-458908/5
Matrix: Water
Analysis Batch: 458908

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	10.0	9.695		mg/L		97	90 - 110	0	20

Lab Sample ID: MB 490-459027/3
Matrix: Water
Analysis Batch: 459027

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			09/11/17 09:22	1

Lab Sample ID: LCS 490-459027/4
Matrix: Water
Analysis Batch: 459027

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.665		mg/L		97	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-459027/5
Matrix: Water
Analysis Batch: 459027

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			10.0	9.957		mg/L		99	90 - 110	3	20

QC Association Summary

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

GC/MS VOA

Analysis Batch: 458854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-136298-2	MW-2	Total/NA	Water	8260B	
490-136298-4	MW-4	Total/NA	Water	8260B	
490-136298-7	Dup	Total/NA	Water	8260B	
490-136298-8	EQ Blank	Total/NA	Water	8260B	
490-136298-9	Trip Blank	Total/NA	Water	8260B	
MB 490-458854/6	Method Blank	Total/NA	Water	8260B	
LCS 490-458854/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-458854/4	Lab Control Sample Dup	Total/NA	Water	8260B	
490-136298-2 MS	MW-2	Total/NA	Water	8260B	
490-136298-2 MSD	MW-2	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 458908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-136298-8	EQ Blank	Total/NA	Water	300.0	
MB 490-458908/3	Method Blank	Total/NA	Water	300.0	
LCS 490-458908/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-458908/5	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 459027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-136298-1	MW-1	Total/NA	Water	300.0	
490-136298-2	MW-2	Total/NA	Water	300.0	
490-136298-3	MW-3	Total/NA	Water	300.0	
490-136298-4	MW-4	Total/NA	Water	300.0	
490-136298-5	MW-5	Total/NA	Water	300.0	
490-136298-6	MW-6	Total/NA	Water	300.0	
490-136298-7	Dup	Total/NA	Water	300.0	
MB 490-459027/3	Method Blank	Total/NA	Water	300.0	
LCS 490-459027/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-459027/5	Lab Control Sample Dup	Total/NA	Water	300.0	

Lab Chronicle

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: MW-1
Date Collected: 09/06/17 09:05
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-1
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		2			459027	09/11/17 12:25	JHS	TAL NSH

Client Sample ID: MW-2
Date Collected: 09/06/17 12:20
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-2
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	5 mL	5 mL	458854	09/10/17 06:57	C1A	TAL NSH
Total/NA	Analysis	300.0		20			459027	09/11/17 12:35	JHS	TAL NSH

Client Sample ID: MW-3
Date Collected: 09/06/17 14:55
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-3
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		5			459027	09/11/17 12:46	JHS	TAL NSH

Client Sample ID: MW-4
Date Collected: 09/06/17 10:57
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-4
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	458854	09/10/17 09:37	C1A	TAL NSH
Total/NA	Analysis	300.0		10			459027	09/11/17 12:57	JHS	TAL NSH

Client Sample ID: MW-5
Date Collected: 09/06/17 16:00
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-5
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		10			459027	09/11/17 13:08	JHS	TAL NSH

Client Sample ID: MW-6
Date Collected: 09/06/17 13:35
Date Received: 09/09/17 10:15

Lab Sample ID: 490-136298-6
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		20			459027	09/11/17 13:18	JHS	TAL NSH

Lab Chronicle

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Client Sample ID: Dup

Lab Sample ID: 490-136298-7

Date Collected: 09/06/17 00:01
Matrix: Water
Date Received: 09/09/17 10:15

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	458854	09/10/17 10:04	C1A	TAL NSH
Total/NA	Analysis	300.0		20			459027	09/11/17 13:29	JHS	TAL NSH

Client Sample ID: EQ Blank

Lab Sample ID: 490-136298-8

Date Collected: 09/06/17 07:10
Matrix: Water
Date Received: 09/09/17 10:15

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	458854	09/10/17 04:44	C1A	TAL NSH
Total/NA	Analysis	300.0		1			458908	09/10/17 16:14	T1C	TAL NSH

Client Sample ID: Trip Blank

Lab Sample ID: 490-136298-9

Date Collected: 09/06/17 00:01
Matrix: Water
Date Received: 09/08/17 10:00

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	458854	09/10/17 05:11	C1A	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: 490-136298-1
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

Accreditation/Certification Summary

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

TestAmerica Job ID: 490-136298-1
SDG: Property ID: 890293

Laboratory: TestAmerica Nashville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oklahoma	State Program	6	9412	08-31-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-136298 Chain of Custody

Cooler Received/Opened On 9/8/2017 @1000

Time Samples Removed From Cooler 10:13 Time Samples Placed In Storage 10:38 (2 Hour Window)

1. Tracking # 8196 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 14740456 pH Strip Lot N/A Chlorine Strip Lot N/A

2. Temperature of rep. sample or temp blank when opened: 3.9 *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: 1 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 (intial) JW

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

● ⬅ Larger than this.

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 (intial) J F

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 (intial) KJ

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 (intial) KJ

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

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

BIS = Broken in shipment

CHAIN OF CUSTODY RECORD

No. 02956

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTL2Ø1	PROJECT NAME: CHK STATE L2
SHIPPED TO: TA-NASH	PROJECT MANAGER: BRUCE McKENZIE
COC 1 of 1	TAT: STANDARD

SAMPLER'S PRINTED NAME: TERRY Fisher
SAMPLER'S SIGNATURE: Terry Fisher

ASOW: N/A.
Genlab: 750-521
Prop ID: 890293

Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE	BENZENE	REMARKS
9-6-17	0905	MW-1	1	W	X		
9-6-17	1220	MW-2	4	W	X	X	
9-6-17	1455	MW-3	1	W	X		
9-6-17	1057	MW-4	4	W	X	X	
9-6-17	1600	MW-5	1	W	X		
9-6-17	~~1600~~ 1335	MW-6 1335	1	W	X		
9-6-17	—	Dup	4	W	X	X	
9-6-17	0710	Eq Blank	4	W	X	X	
—	—	TRIP Blank	2	W		X	

Loc: 490
136298

0.9

TOTAL NUMBER OF CONTAINERS → 22

RELINQUISHED BY: Terry Fisher	DATE 9-7-17	RECEIVED BY:	DATE
	TIME 1600		TIME
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
	TIME		TIME

METHOD OF SHIPMENT: FEDEX
AIRBILL NUMBER: 7122 0851 8196

RECEIVED IN LABORATORY BY: KEITH Dawson TAN
DATE 9-08-2017
TIME 10:00

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

LABORATORY CONTACT: CATHY GARTNER

LABORATORY ADDRESS: 2960 Foster Creighton Drive Nashville, TN 37204

POINT OF ORIGIN: ☐ OKLAHOMA CITY ☒ TULSA ☐ NORMAN ☐ WOODWARD ☐ ARLINGTON ☐ MIDLAND ☐ OTHER:

PAGE #1 - RECEIVING LAB
PAGE #2 - ENVIRO CLEAN PROJECT FILE
PAGE #3 - ENVIRO CLEAN QA/QC DEPT

Login Sample Receipt Checklist

Client: Enviro Clean Services LLC

Job Number: 490-136298-1
SDG Number: Property ID: 890293

Login Number: 136298
List Number: 1
Creator: Dawson, Keith M

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= 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	
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 <6mm (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: 490-142468-1
TestAmerica Sample Delivery Group: Property ID: 890293
Client Project/Site: State L-2
Sampling Event: 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:
12/14/2017 4:58:07 PM

Cathy Gartner, Project Manager I
(615)301-5041
cathy.gartner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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.

Table of Contents

Sample Summary

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-142468-1	EQ Blank	Water	12/05/17 07:35	12/07/17 09:50
490-142468-2	MW-1	Water	12/05/17 08:45	12/07/17 09:50
490-142468-3	MW-4	Water	12/05/17 09:45	12/07/17 09:50
490-142468-4	MW-2	Water	12/05/17 11:43	12/07/17 09:50
490-142468-5	Dup	Water	12/05/17 00:01	12/07/17 09:50
490-142468-6	MW-3	Water	12/05/17 14:05	12/07/17 09:50
490-142468-7	MW-6	Water	12/05/17 13:18	12/07/17 09:50
490-142468-8	MW-5	Water	12/05/17 15:20	12/07/17 09:50
490-142468-9	Trip Blank	Water	12/05/17 00:01	12/07/17 09:50

Job ID: 490-142468-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-142468-1

Comments
No additional comments.

Receipt
The samples were received on 12/7/2017 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7º 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 was diluted due to the nature of the sample matrix: MW-4 (490-142468-3), MW-2 (490-142468-4), Dup (490-142468-5), MW-3 (490-142468-6), MW-6 (490-142468-7) and MW-5 (490-142468-8). 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.

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.
¤	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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: Enviro Clean Services LLC
Project/Site: State L-2

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: EQ Blank

Date Collected: 12/05/17 07:35
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-1

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			12/12/17 02:44	1
Ethylbenzene	ND		0.500		ug/L			12/12/17 02:44	1
Toluene	ND		0.500		ug/L			12/12/17 02:44	1
Xylenes, Total	ND		1.50		ug/L			12/12/17 02:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*		*12/12/17 02:44*	*1*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*		*12/12/17 02:44*	*1*
Dibromofluoromethane (Surr)	*108*		*70 - 130*		*12/12/17 02:44*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*12/12/17 02:44*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			12/12/17 13:57	1

Client Sample Results

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: MW-1
Date Collected: 12/05/17 08:45
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-2
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.8		1.00		mg/L			12/12/17 14:12	1

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: MW-4

Date Collected: 12/05/17 09:45
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**112**		0.500		ug/L			12/12/17 04:25	1
Ethylbenzene	ND		0.500		ug/L			12/12/17 04:25	1
Toluene	ND		0.500		ug/L			12/12/17 04:25	1
Xylenes, Total	ND		1.50		ug/L			12/12/17 04:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*		*12/12/17 04:25*	*1*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*		*12/12/17 04:25*	*1*
Dibromofluoromethane (Surr)	*113*		*70 - 130*		*12/12/17 04:25*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*12/12/17 04:25*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**147**		10.0		mg/L			12/12/17 15:11	10

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: MW-2

Date Collected: 12/05/17 11:43
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-4

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			12/12/17 04:51	1
Ethylbenzene	ND		0.500		ug/L			12/12/17 04:51	1
Toluene	ND		0.500		ug/L			12/12/17 04:51	1
Xylenes, Total	ND		1.50		ug/L			12/12/17 04:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*		*12/12/17 04:51*	*1*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*12/12/17 04:51*	*1*
Dibromofluoromethane (Surr)	*113*		*70 - 130*		*12/12/17 04:51*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*12/12/17 04:51*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**187**		20.0		mg/L			12/12/17 15:41	20

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: Dup

Date Collected: 12/05/17 00:01
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-5

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			12/12/17 05:16	1
Ethylbenzene	ND		0.500		ug/L			12/12/17 05:16	1
Toluene	ND		0.500		ug/L			12/12/17 05:16	1
Xylenes, Total	ND		1.50		ug/L			12/12/17 05:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*		*12/12/17 05:16*	*1*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*12/12/17 05:16*	*1*
Dibromofluoromethane (Surr)	*111*		*70 - 130*		*12/12/17 05:16*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*12/12/17 05:16*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**186**		20.0		mg/L			12/12/17 16:11	20

Client Sample Results

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: MW-3
Date Collected: 12/05/17 14:05
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50.2		5.00		mg/L			12/12/17 17:24	5

Client Sample Results

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: MW-6
Date Collected: 12/05/17 13:18
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-7
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	154		10.0		mg/L			12/12/17 17:54	10

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: MW-5
Date Collected: 12/05/17 15:20
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-8
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110		10.0		mg/L			12/12/17 18:23	10

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: Trip Blank

Date Collected: 12/05/17 00:01
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-9

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			12/12/17 01:53	1
Ethylbenzene	ND		0.500		ug/L			12/12/17 01:53	1
Toluene	ND		0.500		ug/L			12/12/17 01:53	1
Xylenes, Total	ND		1.50		ug/L			12/12/17 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*		*12/12/17 01:53*	*1*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*12/12/17 01:53*	*1*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*12/12/17 01:53*	*1*
Toluene-d8 (Surr)	*103*		*70 - 130*		*12/12/17 01:53*	*1*

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

Lab Sample ID: MB 490-482428/6
Matrix: Water
Analysis Batch: 482428

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			12/12/17 01:02	1
Ethylbenzene	ND		0.500		ug/L			12/12/17 01:02	1
Toluene	ND		0.500		ug/L			12/12/17 01:02	1
Xylenes, Total	ND		1.50		ug/L			12/12/17 01:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*		*12/12/17 01:02*	*1*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*		*12/12/17 01:02*	*1*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*12/12/17 01:02*	*1*
Toluene-d8 (Surr)	*103*		*70 - 130*		*12/12/17 01:02*	*1*

Lab Sample ID: LCS 490-482428/3
Matrix: Water
Analysis Batch: 482428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			20.0	19.35		ug/L		97	70 - 130		
Ethylbenzene			20.0	19.34		ug/L		97	70 - 130		
Toluene			20.0	20.29		ug/L		101	70 - 130		
Xylenes, Total			40.0	37.80		ug/L		95	70 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

Lab Sample ID: LCSD 490-482428/4
Matrix: Water
Analysis Batch: 482428

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			20.0	18.42		ug/L		92	70 - 130	5	12
Ethylbenzene			20.0	18.08		ug/L		90	70 - 130	7	12
Toluene			20.0	18.98		ug/L		95	70 - 130	7	13
Xylenes, Total			40.0	35.34		ug/L		88	70 - 132	7	11

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 130*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
Dibromofluoromethane (Surr)	*107*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

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

Lab Sample ID: 490-142532-H-1 MS
Matrix: Water
Analysis Batch: 482428

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		1000	1010		ug/L		101	55 - 147
Ethylbenzene	845		1000	1687		ug/L		84	65 - 139
Toluene	25.9		1000	1058		ug/L		103	64 - 136
Xylenes, Total	5220	F1	2000	6199	F1	ug/L		49	69 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 130*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
Dibromofluoromethane (Surr)	*107*		*70 - 130*
Toluene-d8 (Surr)	*103*		*70 - 130*

Lab Sample ID: 490-142532-H-1 MSD
Matrix: Water
Analysis Batch: 482428

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		1000	1013		ug/L		101	55 - 147	0	22
Ethylbenzene	845		1000	1701		ug/L		86	65 - 139	1	18
Toluene	25.9		1000	1063		ug/L		104	64 - 136	0	18
Xylenes, Total	5220	F1	2000	6306	F1	ug/L		54	69 - 132	2	17

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
Toluene-d8 (Surr)	*103*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-482647/3
Matrix: Water
Analysis Batch: 482647

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			12/12/17 13:13	1

Lab Sample ID: LCS 490-482647/4
Matrix: Water
Analysis Batch: 482647

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.911		mg/L		99	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 490-482647/5
Matrix: Water
Analysis Batch: 482647

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			10.0	9.953		mg/L		99	90 - 110	0	20

Lab Sample ID: 490-142468-2 MS
Matrix: Water
Analysis Batch: 482647

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	26.8		10.0	36.13		mg/L		93	80 - 120		

QC Association Summary

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

GC/MS VOA

Analysis Batch: 482428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-142468-1	EQ Blank	Total/NA	Water	8260B	
490-142468-3	MW-4	Total/NA	Water	8260B	
490-142468-4	MW-2	Total/NA	Water	8260B	
490-142468-5	Dup	Total/NA	Water	8260B	
490-142468-9	Trip Blank	Total/NA	Water	8260B	
MB 490-482428/6	Method Blank	Total/NA	Water	8260B	
LCS 490-482428/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-482428/4	Lab Control Sample Dup	Total/NA	Water	8260B	
490-142532-H-1 MS	Matrix Spike	Total/NA	Water	8260B	
490-142532-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 482647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-142468-1	EQ Blank	Total/NA	Water	300.0	
490-142468-2	MW-1	Total/NA	Water	300.0	
490-142468-3	MW-4	Total/NA	Water	300.0	
490-142468-4	MW-2	Total/NA	Water	300.0	
490-142468-5	Dup	Total/NA	Water	300.0	
490-142468-6	MW-3	Total/NA	Water	300.0	
490-142468-7	MW-6	Total/NA	Water	300.0	
490-142468-8	MW-5	Total/NA	Water	300.0	
MB 490-482647/3	Method Blank	Total/NA	Water	300.0	
LCS 490-482647/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-482647/5	Lab Control Sample Dup	Total/NA	Water	300.0	
490-142468-2 MS	MW-1	Total/NA	Water	300.0	

Lab Chronicle

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: EQ Blank
Date Collected: 12/05/17 07:35
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-1
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	482428	12/12/17 02:44	BBR	TAL NSH
Total/NA	Analysis	300.0		1			482647	12/12/17 13:57	SW1	TAL NSH

Client Sample ID: MW-1
Date Collected: 12/05/17 08:45
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-2
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			482647	12/12/17 14:12	SW1	TAL NSH

Client Sample ID: MW-4
Date Collected: 12/05/17 09:45
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-3
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	482428	12/12/17 04:25	BBR	TAL NSH
Total/NA	Analysis	300.0		10			482647	12/12/17 15:11	SW1	TAL NSH

Client Sample ID: MW-2
Date Collected: 12/05/17 11:43
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-4
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	482428	12/12/17 04:51	BBR	TAL NSH
Total/NA	Analysis	300.0		20			482647	12/12/17 15:41	SW1	TAL NSH

Client Sample ID: Dup
Date Collected: 12/05/17 00:01
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-5
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	482428	12/12/17 05:16	BBR	TAL NSH
Total/NA	Analysis	300.0		20			482647	12/12/17 16:11	SW1	TAL NSH

Client Sample ID: MW-3
Date Collected: 12/05/17 14:05
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-6
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		5			482647	12/12/17 17:24	SW1	TAL NSH

Lab Chronicle

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Client Sample ID: MW-6

Date Collected: 12/05/17 13:18
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-7

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		10			482647	12/12/17 17:54	SW1	TAL NSH

Client Sample ID: MW-5

Date Collected: 12/05/17 15:20
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-8

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		10			482647	12/12/17 18:23	SW1	TAL NSH

Client Sample ID: Trip Blank

Date Collected: 12/05/17 00:01
Date Received: 12/07/17 09:50

Lab Sample ID: 490-142468-9

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	482428	12/12/17 01:53	BBR	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: 490-142468-1
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

Accreditation/Certification Summary

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

TestAmerica Job ID: 490-142468-1
SDG: Property ID: 890293

Laboratory: TestAmerica Nashville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oklahoma	State Program	6	9412	08-31-18

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-142468 Chain of Custody

Cooler Received/Opened On 12/7/17 0950

Time Samples Removed From Cooler 1736 Time Samples Placed In Storage 1748 (2 Hour Window)

1. Tracking # 9459 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 31470368 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.7 *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: 1 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 (intial) HG

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 — TB headspace

● ← Larger than this.

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 (intial) HG

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 (intial) HG

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 (intial) HG

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

21. Were there Non-Conformance issues at login? YES (NO) Was a NCM generated? YES (NO) #352491

12/7/17
HG

BIS = Broken in shipment

CHAIN OF CUSTODY RECORD

No. 03406

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTL201	PROJECT NAME: CHK STATE L	COC 1 of 1	
SHIPPED TO: TA - NASH	PROJECT MANAGER: BRUCE McKENZIE	TAT: STANDARD	

SAMPLER'S PRINTED NAME: Terry Fisher
SAMPLER'S SIGNATURE:

Loc: 490
142468

	Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE	BENZENE	REMARKS
1	12/5/17	735	EQ Blank	WATER	4	X	X	
2	12/5/17	845	MW-1.	water	1	X		
3	12/5/17	945	MW-4.	water	4	X	X	
4	12/5/17	1143	MW-2.	water	4	X	X	
5	12/5/17	—	Dup	water	4	X	X	
	~~12/5/17~~	~~1318~~	~~MW-6 TF~~	~~water~~	~~4~~	~~X~~	~~X~~	
6	12/5/17	1405	MW-3.	water	1	X		
7	12/5/17	1318	MW-6.	water	1	X		
8	12/5/17	1520	MW-5.	water	1	X		

TOTAL NUMBER OF CONTAINERS → 20

RELINQUISHED BY:	DATE 12/6/17	RECEIVED BY:	DATE
	TIME 1600		TIME
RELINQUISHED BY:	DATE	RECEIVED BY: 0.7 TAN	DATE 12/7/17
	TIME		TIME 0950
METHOD OF SHIPMENT: FEDEX		AIRBILL NUMBER: 4150 9258 9459	
RECEIVED IN LABORATORY BY:	DATE	Send PDF, EDD, and INVOICE (if applicable) to: JULIE CZECH at julie.czech@eccgrp.com	
	TIME		
LABORATORY CONTACT: CATHY GARTNER		LABORATORY ADDRESS: 2960 FOSTER CREIGHTON DRIVE NASHVILLE, TN 37204	

POINT OF ORIGIN: ☐ OKLAHOMA CITY ☒ TULSA ☐ NORMAN ☐ WOODWARD ☐ ARLINGTON ☐ MIDLAND ☐ OTHER:

PAGE #1 - RECEIVING LAB | PAGE #2 - ENVIRO CLEAN PROJECT FILE | PAGE #3 - ENVIRO CLEAN QA/QC DEPT

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: 490-147782-1
TestAmerica Sample Delivery Group: Property ID: 890293
Client Project/Site: CHK STATE L-2
Sampling Event: 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:
3/15/2018 11:35:26 AM

Cathy Gartner, Project Manager II
(615)301-5041
cathy.gartner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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.

Table of Contents

Sample Summary

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-147782-1	MW-1	Water	03/06/18 08:50	03/08/18 10:05
490-147782-2	MW-2	Water	03/06/18 12:10	03/08/18 10:05
490-147782-3	MW-3	Water	03/06/18 15:00	03/08/18 10:05
490-147782-4	MW-4	Water	03/06/18 11:03	03/08/18 10:05
490-147782-5	MW-5	Water	03/06/18 16:30	03/08/18 10:05
490-147782-6	MW-6	Water	03/06/18 13:45	03/08/18 10:05
490-147782-7	EQ Blank	Water	03/06/18 07:49	03/08/18 10:05
490-147782-8	Dup	Water	03/06/18 00:01	03/08/18 10:05
490-147782-9	Trip Blank	Water	03/06/18 00:01	03/08/18 10:05

Job ID: 490-147782-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-147782-1

Comments
No additional comments.

Receipt
The samples were received on 3/8/2018 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.1º C.

GC/MS VOA
Method(s) 8260B: The following volatile sample was analyzed with significant headspace in the sample container(s): Trip Blank (490-147782-9). Significant headspace is defined as a bubble greater than 6 mm in diameter.

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-2 (490-147782-2), MW-3 (490-147782-3), MW-4 (490-147782-4), MW-5 (490-147782-5), MW-6 (490-147782-6) and Dup (490-147782-8). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: Due to the nature of the sample matrix, a matrix spike / matrix spike duplicate (MS/MSD) was not analyzed with 490-500936. However, the laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits.

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: MW-1
Date Collected: 03/06/18 08:50
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.1		1.00		mg/L			03/09/18 15:09	1

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: MW-2
Date Collected: 03/06/18 12:10
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-2
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			03/10/18 03:11	1
Ethylbenzene	ND		0.500		ug/L			03/10/18 03:11	1
Toluene	ND		0.500		ug/L			03/10/18 03:11	1
Xylenes, Total	ND		1.50		ug/L			03/10/18 03:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*		*03/10/18 03:11*	*1*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*		*03/10/18 03:11*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*03/10/18 03:11*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*03/10/18 03:11*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**185**		10.0		mg/L			03/13/18 02:06	10

Client Sample Results

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: MW-3
Date Collected: 03/06/18 15:00
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	51.2		2.00		mg/L			03/13/18 02:53	2

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: MW-4

Date Collected: 03/06/18 11:03
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.84**		0.500		ug/L			03/10/18 03:36	1
Ethylbenzene	**0.859**		0.500		ug/L			03/10/18 03:36	1
Toluene	ND		0.500		ug/L			03/10/18 03:36	1
Xylenes, Total	ND		1.50		ug/L			03/10/18 03:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*03/10/18 03:36*	*1*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*		*03/10/18 03:36*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*03/10/18 03:36*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*03/10/18 03:36*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**171**		5.00		mg/L			03/13/18 17:47	5

Client Sample Results

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: MW-5
Date Collected: 03/06/18 16:30
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	119		5.00		mg/L			03/13/18 03:04	5

Client Sample Results

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: MW-6
Date Collected: 03/06/18 13:45
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	153		5.00		mg/L			03/13/18 03:27	5

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: EQ Blank

Date Collected: 03/06/18 07:49
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-7

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			03/10/18 02:45	1
Ethylbenzene	ND		0.500		ug/L			03/10/18 02:45	1
Toluene	ND		0.500		ug/L			03/10/18 02:45	1
Xylenes, Total	ND		1.50		ug/L			03/10/18 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*03/10/18 02:45*	*1*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*		*03/10/18 02:45*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*03/10/18 02:45*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*03/10/18 02:45*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			03/09/18 16:30	1

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: Dup
Date Collected: 03/06/18 00:01
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-8
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			03/10/18 04:01	1
Ethylbenzene	ND		0.500		ug/L			03/10/18 04:01	1
Toluene	ND		0.500		ug/L			03/10/18 04:01	1
Xylenes, Total	ND		1.50		ug/L			03/10/18 04:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*03/10/18 04:01*	*1*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*		*03/10/18 04:01*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*03/10/18 04:01*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*03/10/18 04:01*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**186**		10.0		mg/L			03/13/18 04:14	10

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: Trip Blank

Date Collected: 03/06/18 00:01
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-9

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			03/10/18 02:20	1
Ethylbenzene	ND		0.500		ug/L			03/10/18 02:20	1
Toluene	ND		0.500		ug/L			03/10/18 02:20	1
Xylenes, Total	ND		1.50		ug/L			03/10/18 02:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*03/10/18 02:20*	*1*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*03/10/18 02:20*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*03/10/18 02:20*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*03/10/18 02:20*	*1*

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

Lab Sample ID: MB 490-500566/6
Matrix: Water
Analysis Batch: 500566

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			03/10/18 01:55	1
Ethylbenzene	ND		0.500		ug/L			03/10/18 01:55	1
Toluene	ND		0.500		ug/L			03/10/18 01:55	1
Xylenes, Total	ND		1.50		ug/L			03/10/18 01:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*		*03/10/18 01:55*	*1*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*03/10/18 01:55*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*03/10/18 01:55*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*03/10/18 01:55*	*1*

Lab Sample ID: LCS 490-500566/4
Matrix: Water
Analysis Batch: 500566

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	17.56		ug/L		88	70 - 130
Ethylbenzene	20.0	18.51		ug/L		93	70 - 130
Toluene	20.0	18.72		ug/L		94	70 - 130
Xylenes, Total	40.0	35.63		ug/L		89	70 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Lab Sample ID: 490-147779-J-6 MS
Matrix: Water
Analysis Batch: 500566

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		20.0	19.96		ug/L		100	55 - 147
Ethylbenzene	ND		20.0	20.43		ug/L		102	65 - 139
Toluene	ND		20.0	20.55		ug/L		103	64 - 136
Xylenes, Total	ND		40.0	38.88		ug/L		97	69 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

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

Lab Sample ID: 490-147779-L-6 MSD
Matrix: Water
Analysis Batch: 500566

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		20.0	20.00		ug/L		100	55 - 147	0	22
Ethylbenzene	ND		20.0	20.05		ug/L		100	65 - 139	2	18
Toluene	ND		20.0	20.27		ug/L		101	64 - 136	1	18
Xylenes, Total	ND		40.0	37.96		ug/L		95	69 - 132	2	17

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
Dibromofluoromethane (Surr)	*101*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-500428/3
Matrix: Water
Analysis Batch: 500428

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			03/09/18 11:40	1

Lab Sample ID: LCS 490-500428/4
Matrix: Water
Analysis Batch: 500428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.00		mg/L		100	90 - 110

Lab Sample ID: LCSD 490-500428/5
Matrix: Water
Analysis Batch: 500428

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	10.0	9.948		mg/L		99	90 - 110	1	20

Lab Sample ID: 490-147782-1 MS
Matrix: Water
Analysis Batch: 500428

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	27.1		10.0	37.92		mg/L		108	80 - 120

Lab Sample ID: MB 490-500936/3
Matrix: Water
Analysis Batch: 500936

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			03/12/18 23:59	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 490-500936/4
Matrix: Water
Analysis Batch: 500936

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.30		mg/L		103	90 - 110

Lab Sample ID: LCSD 490-500936/5
Matrix: Water
Analysis Batch: 500936

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	10.0	10.32		mg/L		103	90 - 110	0	20

Lab Sample ID: MB 490-501218/3
Matrix: Water
Analysis Batch: 501218

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			03/13/18 17:12	1

Lab Sample ID: LCS 490-501218/4
Matrix: Water
Analysis Batch: 501218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.925		mg/L		99	90 - 110

Lab Sample ID: LCSD 490-501218/5
Matrix: Water
Analysis Batch: 501218

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	10.0	9.990		mg/L		100	90 - 110	1	20

QC Association Summary

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

GC/MS VOA

Analysis Batch: 500566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-147782-2	MW-2	Total/NA	Water	8260B	
490-147782-4	MW-4	Total/NA	Water	8260B	
490-147782-7	EQ Blank	Total/NA	Water	8260B	
490-147782-8	Dup	Total/NA	Water	8260B	
490-147782-9	Trip Blank	Total/NA	Water	8260B	
MB 490-500566/6	Method Blank	Total/NA	Water	8260B	
LCS 490-500566/4	Lab Control Sample	Total/NA	Water	8260B	
490-147779-J-6 MS	Matrix Spike	Total/NA	Water	8260B	
490-147779-L-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 500428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-147782-1	MW-1	Total/NA	Water	300.0	
490-147782-7	EQ Blank	Total/NA	Water	300.0	
MB 490-500428/3	Method Blank	Total/NA	Water	300.0	
LCS 490-500428/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-500428/5	Lab Control Sample Dup	Total/NA	Water	300.0	
490-147782-1 MS	MW-1	Total/NA	Water	300.0	

Analysis Batch: 500936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-147782-2	MW-2	Total/NA	Water	300.0	
490-147782-3	MW-3	Total/NA	Water	300.0	
490-147782-5	MW-5	Total/NA	Water	300.0	
490-147782-6	MW-6	Total/NA	Water	300.0	
490-147782-8	Dup	Total/NA	Water	300.0	
MB 490-500936/3	Method Blank	Total/NA	Water	300.0	
LCS 490-500936/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-500936/5	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 501218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-147782-4	MW-4	Total/NA	Water	300.0	
MB 490-501218/3	Method Blank	Total/NA	Water	300.0	
LCS 490-501218/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-501218/5	Lab Control Sample Dup	Total/NA	Water	300.0	

Lab Chronicle

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: MW-1
Date Collected: 03/06/18 08:50
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-1
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			500428	03/09/18 15:09	T1C	TAL NSH

Client Sample ID: MW-2
Date Collected: 03/06/18 12:10
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-2
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	500566	03/10/18 03:11	AK1	TAL NSH
Total/NA	Analysis	300.0		10			500936	03/13/18 02:06	T1C	TAL NSH

Client Sample ID: MW-3
Date Collected: 03/06/18 15:00
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-3
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		2			500936	03/13/18 02:53	T1C	TAL NSH

Client Sample ID: MW-4
Date Collected: 03/06/18 11:03
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-4
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	500566	03/10/18 03:36	AK1	TAL NSH
Total/NA	Analysis	300.0		5			501218	03/13/18 17:47	SW1	TAL NSH

Client Sample ID: MW-5
Date Collected: 03/06/18 16:30
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-5
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		5			500936	03/13/18 03:04	T1C	TAL NSH

Client Sample ID: MW-6
Date Collected: 03/06/18 13:45
Date Received: 03/08/18 10:05

Lab Sample ID: 490-147782-6
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		5			500936	03/13/18 03:27	T1C	TAL NSH

Lab Chronicle

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Client Sample ID: EQ Blank

Lab Sample ID: 490-147782-7

Date Collected: 03/06/18 07:49
Date Received: 03/08/18 10:05

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	500566	03/10/18 02:45	AK1	TAL NSH
Total/NA	Analysis	300.0		1			500428	03/09/18 16:30	T1C	TAL NSH

Client Sample ID: Dup

Lab Sample ID: 490-147782-8

Date Collected: 03/06/18 00:01
Date Received: 03/08/18 10:05

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	500566	03/10/18 04:01	AK1	TAL NSH
Total/NA	Analysis	300.0		10			500936	03/13/18 04:14	T1C	TAL NSH

Client Sample ID: Trip Blank

Lab Sample ID: 490-147782-9

Date Collected: 03/06/18 00:01
Date Received: 03/08/18 10:05

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	500566	03/10/18 02:20	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: 490-147782-1
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

Accreditation/Certification Summary

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

TestAmerica Job ID: 490-147782-1
SDG: Property ID: 890293

Laboratory: TestAmerica Nashville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oklahoma	State Program	6	9412	08-31-18

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-147782 Chain of Custody

Cooler Received/Opened On 3/8/2018 @1005

Time Samples Removed From Cooler 0840 Time Samples Placed In Storage 0857 (2 Hour Window)

1. Tracking # 2144 (last 4 digits, FedEx) Courier: FedEx

   IR Gun ID 17960358 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.1 *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: 1 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 (intial) _____

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

Larger than this.

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 (intial) _____

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 (intial) _____

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 (intial) _____

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

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

BIS = Broken in shipment

CHAIN OF CUSTODY RECORD

No. 03694

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTL201	PROJECT NAME: CHK STATE L	COC 1 of 1	
SHIPPED TO: TA-NASH	PROJECT MANAGER: BRUCE McKENZIE	TAT: STANDARD	

SAMPLER'S PRINTED NAME: TERRY Fisher
SAMPLER'S SIGNATURE: [signature]

Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE	BENZENE	REMARKS
3-6-18	850	MW-1	1	W	X		
3-6-18	1210	MW-2	4	W	X	X	
3-6-18	1500	MW-3	1	W	X		
3-6-18	1103	MW-4	4	W	X	X	
3-6-18	1630	MW-5	1	W	X		
3-6-18	1345	MW-6	1	W	X		
3-6-18	0749	EQ Blank	4	W	X	X	
3-6-18	—	Dup	4	W	X	X	
—	—	Trip	2	W			
—	—	Temp	1	W			

Loc: 490
147782

TOTAL NUMBER OF CONTAINERS → 23

RELINQUISHED BY: Terry Fisher	DATE 3-7-18 TIME 1500	RECEIVED BY:	DATE TIME
RELINQUISHED BY:	DATE TIME	RECEIVED BY: TA NAS	DATE 3-8-18 TIME 1605
METHOD OF SHIPMENT: FedEx		AIRBILL NUMBER: 4150 9264 2144	0 1
RECEIVED IN LABORATORY BY:	DATE TIME	Send PDF, EDD, and INVOICE (if applicable) to: JULIE CZECH at julie.czech@eccgrp.com	
LABORATORY CONTACT: CATHY 615-301-5041		LABORATORY ADDRESS: 2960 Foster Creighton Drive Nashville, TN 37204	

POINT OF ORIGIN: ☐ OKLAHOMA CITY ☒ TULSA ☐ NORMAN ☐ WOODWARD ☐ ARLINGTON ☐ MIDLAND ☐ OTHER:

PAGE #1 - RECEIVING LAB | PAGE #2 - ENVIRO CLEAN PROJECT FILE | PAGE #3 - ENVIRO CLEAN QA/QC DEPT