THIRD ANNUAL GROUNDWATER MONITORING REPORT
CHESAPEAKE ENERGY CORPORATION
STATE M LEASE (AP-72)
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

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ENVIRO CLEAN CARDINAL

CHESAPEAKE ENERGY CORPORATION
STATE M LEASE (AP-72)
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MAY 25, 2017

1.0 INTRODUCTION

Chesapeake Energy Corporation (Chesapeake) retained Enviro Clean Cardinal, LLC (ECC), to perform impacted groundwater monitoring and light non-aqueous phase liquid (LNAPL) hydrocarbon remediation at Chesapeake's former State M Lease site (Site) located in Lea County, New Mexico. The Site is located approximately 8 miles south-southwest of Lovington, New Mexico in the SE-SW-SE of Section 18, Township 17 South, Range 36 East, Lea County, New Mexico (coordinates 32.828061º latitude, -103.391012º 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 seven 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 (bgl),
- 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 ***Third Annual Groundwater Monitoring Report*** (Report) summarizes the groundwater monitoring activities conducted at the Site during the following quarterly sampling events:

- Ninth Event - June 28 - 29, 2016,
- Tenth Event - September 21 - 22, 2016,
- Eleventh Event - December 7 - 8, 2016, and
- Twelfth Event - March 9 - 10, 2017.

2.0 REMEDIATION

2.1 SVE SYSTEM

As documented in the ***First Annual Groundwater Monitoring Report***, dated May 19, 2015, during the period May 12-14, 2014, ECC installed and made operational a soil vapor extraction (SVE) remediation system (System) at the Site. The System is comprised of 8 SVE wells connected through a manifold system constructed of two and three inch Schedule 80 PVC piping and plumbed to a 10-horsepower 3-phase SVE Regenerative Blower housed within the System Building. The location of the System Building is shown on attached **Figure 2**. Within the System, soil vapor from the SVE wells is drawn through a moisture knock out/separator and a particulate filter prior to reaching the blower. An air-flow meter is installed downstream of the blower in the air-exhaust line and an air sample port is located on the air-exhaust line at a location upstream of its exit from the System Building.

System start-up was conducted on June 6, 2014. Routine checks of the System are conducted to record the blower run times, discharge rate/ACFM and VOC concentration of the discharge-air stream. These field readings are used to calculate the approximate weight of VOCs extracted from the subsurface and discharged from the System. The field PID data are entered into to a spreadsheet to calculate the VOC discharge rate and approximate total pounds removed by the System. The approximate total VOC discharges for each quarter are then summed to provide a cumulative VOC discharge total. These data are summarized in **Table 1**. Through April 5, 2017, the field PID data suggest that approximately 5,373 pounds of VOCs have been removed from the subsurface and discharged from the System.

During the Reporting Period, discharge-air samples were collected quarterly in laboratory-provided Suma canisters, shipped under chain-of-custody control to TestAmerica Laboratories, Inc. (West Sacramento, California) and analyzed for VOC compounds and total VOCs as hexane by Method TO-15. During the ninth quarter, discharge-air sample 20160629 M SVE was collected on June 29, 2016. On this date, the System had been running for a total of 16,447 hours, was operating at 101 ACFM and had a field reading of 156 PPM from the discharge air stream. Laboratory analytical results for this discharge-air sample indicated a total VOC as Hexane concentration of 590,000 PPB volume/volume (590 PPM V/V). During the tenth quarter, discharge-air sample 20160922 M SVE was collected on September 22, 2016. On this date, the System had been running for a total of 18,485 hours, was operating at 220 ACFM and had a field reading of 169 PPM from the discharge air stream. Laboratory analytical results for

this discharge-air sample indicated a total VOC as Hexane concentration of 262,000 PPB V/V (262 PPM V/V). During the eleventh quarter period, discharge-air sample 20161208 M SVE was collected on December 8, 2016. On this date, the System had been running for a total of 20,332 hours, was operating at 220 ACFM and had a field reading of 109 PPM from the discharge air stream. Laboratory analytical results for this discharge-air sample indicated a total VOC as Hexane concentration of 720,000 PPB V/V (720 PPM V/V). During the twelveth quarter, discharge-air sample 20170309 M SVE was collected on March 9, 2017. On this date, the System had been running for a total of 22,035 hours, was operating at 209 ACFM and had a field reading of 321 PPM from the discharge air stream. Laboratory analytical results for this discharge-air sample indicated a total VOC as Hexane concentration of 985,000 PPB V/V (985 PPM V/V). A summary of the laboratory analytical results for the discharge-air samples is presented in **Table 2**, and complete copies of the laboratory analytical reports and chain-of-custody documentation are provided in **Appendix C**. The discharge-air analytical data are used to compute a correlation factor for the field PID readings to more accurately calculate the total VOC discharged.

Field PID instrument readings are typically lower than laboratory analysis for total VOCs. To compensate for the low field PID readings, a correlation factor is calculated based upon the ratio of the laboratory analytical value versus the field PID value. The correlation factor is then used to multiply the field PID readings and calculate the total VOC discharge. To accurately reflect the total VOC discharge from the System during a given period, **Table 1** includes the calculated unique correlation factor for each quarterly air-discharge sampling event. This unique correlation factor is then utilized to calculate the total VOC discharge from the System for the period in which that particular air-discharge sample was collected. Utilizing the noted correlation factors, approximately 10,220 pounds of VOCs have been removed from the subsurface at the Site.

Figure 3 presents a graph of the VOC concentrations observed in the discharge air stream versus time. As can be seen on this figure, the levels of VOC observed in the air discharge stream have decreased dramatically since startup. These data indicate that the System is effective at removing the hydrocarbon vapors from the subsurface. Removal of hydrocarbon vapors coupled with the influx of oxygen drawn into the impacted area by the System enhances biodegradation of the hydrocarbon impacts observed in this area.

2.2 MW-1R LNAPL RECOVERY

As documented in the ***First Annual Groundwater Monitoring Report***, dated May 19, 2015, to enhance LNAPL recovery in the MW-1R area, 2-inch diameter monitoring well MW-1 was plugged and replaced with 4-inch diameter monitoring well MW-1R. On June 5, 2014, a QED Environmental Genie LNAPL recovery pump was placed and made operational in monitoring well MW-1R. The Genie LNAPL recovery pump is an air-actuated bladder pump with a floating intake (skimmer), set at a depth that produces the maximum amount of LNAPL recovery per cycle. Air is provided to the Genie LNAPL recovery pump from a compressor located within the System Building.

During the reporting period, approximately 3 drums (163 gallons) of LNAPL were recovered from monitoring well MW-1R. Since start-up of the Genie LNAPL recovery pump, a total of approximately 11 drums (605 gallons) of LNAPL have been recovered from the Site. During each quarterly monitoring event, the recovery pump and controller is inspected, cleaned and adjusted to maximize LNAPL recovery.

3.0 QUARTERLY GROUNDWATER MONITORING

This Report describes the findings from four quarterly groundwater sampling events conducted at the Site from June 28, 2016 through March 9, 2017.

3.1 GROUNDWATER MONITORING METHODOLOGY

Prior to collecting groundwater samples during each quarterly event, ECC gauged all 8 monitoring wells (MW-1R through MW-8) at the Site using an electronic interface probe to determine the depth-to-water (DTW) and LNAPL thickness within each well. The locations of these monitoring wells are shown on **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 3**. 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 are presented on **Figures 4** through **7**. 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-1R through MW-8. Due to the LNAPL present in monitoring well MW-1R, a disposable polyethylene bailer was used to evacuate the LNAPL from the well casing and a new bailer was then used to collect the groundwater sample. Groundwater samples were collected from monitoring wells MW-2 through MW-8 utilizing EPA approved low-flow purging/sampling methodologies. Field parameters consisting of pH, specific conductivity, temperature, and dissolved oxygen (DO) were measured during field activities utilizing a multi-parameter meter and air-tight flow-through cell. Upon stabilization of the 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 (TestAmerica Inc., Nashville, Tennessee). As per the Plan, groundwater samples collected from monitoring wells MW-1R through MW-8 during each sampling event were analyzed for chloride (EPA Method 300.0). A summary of the laboratory analytical results for chloride analyses is presented in **Table 4**, and complete copies of the laboratory analytical reports and chain-of-custody documentation is proved in **Appendix C**. The laboratory analytical results from these groundwater sampling events have been screened against the New Mexico Administrative Code 20.6.2, Standards for Groundwater of 10,000 mg/L TDS Concentration or Less (Limit) for chloride of 250 mg/L.

As specified in the Plan, chloride is the primary constituent of concern (COC) at the Site until the LNAPL has been adequately eliminated from monitoring well MW-1R. When the LNAPL has been adequately eliminated from monitoring well MW-1R, the groundwater within this well will be monitored for benzene, toluene, ethylbenzene and total xylenes (BTEX) until the levels of BTEX fall below the Limits of 0.01 mg/L, 0.75 mg/L, 0.75 mg/L and 0.62 mg/L, respectively.

3.2 NINTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The ninth groundwater sampling event was conducted at the Site on June 28, 2016. As can be seen in **Table 4**, the groundwater samples collected from monitoring wells MW-4 (527 mg/L) and MW-8 (539 mg/L) during this sampling event exhibited concentrations of chloride that exceed the Limit of 250 mg/L.

During the ninth quarterly groundwater sampling event, LNAPL was observed in monitoring well MW-1R at a thickness of 1.27 feet. The LNAPL skimmer pump within monitoring well MW-1R was adjusted after sampling to maximize the efficiency of LNAPL removal.

3.3 TENTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The tenth quarterly groundwater sampling event was conducted at the Site during the period September 21-22, 2016. As can be seen in **Table 4**, the groundwater samples collected from monitoring wells MW-4 (569 mg/L) and MW-8 (490 mg/L) during this sampling event exhibited concentrations of chloride that exceed the Limit of 250 mg/L.

During the tenth quarterly groundwater sampling event, LNAPL was observed in monitoring well MW-1R at a thickness of 0.28 feet. The measurement from this event indicates a decrease of 0.99 feet in the observed LNAPL thickness from the previous event. The LNAPL skimmer pump within monitoring well MW-1R was adjusted after sampling to maximize the efficiency of LNAPL removal.

3.4 ELEVENTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The eleventh quarterly groundwater sampling event was conducted at the Site on December 7, 2016. As can be seen in **Table 4**, the groundwater samples collected from monitoring wells MW-4 (605 mg/L) and MW-8 (768 mg/L) during this sampling event exhibited concentrations of chloride that exceed the Limit of 250 mg/L.

During the eleventh quarterly groundwater sampling event, LNAPL was observed in monitoring well MW-1R at a thickness of 0.75 feet. The measurement from this event indicates a slight

increase of 0.47 feet in the observed LNAPL thickness from the previous event. The LNAPL skimmer pump within monitoring well MW-1R was adjusted after sampling to maximize the efficiency of LNAPL removal.

3.5 TWELFTH QUARTERLY GROUNDWATER SAMPLING RESULTS

The twelfth quarterly groundwater sampling event was conducted at the Site during the period March 8-9, 2017. As can be seen in **Table 4**, the groundwater samples collected from monitoring wells MW-4 (500 mg/L) and MW-8 (489 mg/L) during this sampling event exhibited concentrations of chloride that exceed the Limit of 250 mg/L. **Figure 8** presents an isopleth of the chloride concentrations observed in the groundwater samples collected during this sampling event. As can be seen on this figure, the highest levels of chloride observed in Site groundwater are observed in monitoring wells MW-4 and MW-8, in the southeast portion of the Site.

Figure 9 presents chloride concentration trend graphs for each of the monitoring wells sampled at the Site. A review of this figure indicates that the trends of chloride concentrations observed in the groundwater samples are increasing in monitoring well MW-8, decreasing in monitoring well MW-6, and stable in monitoring wells MW-1R, MW-2, MW-3, MW-4, MW-5, and MW-7. The soil remediation activities conducted in the first quarter of 2014 have removed the continuing source of chloride impacts to the groundwater at the Site. Source removal has facilitated the physical natural attenuation mechanisms of dispersion and dilution on remnant chloride concentrations present in Site groundwater. The increasing chloride concentration trend observed in monitoring well MW-8 is likely caused by the dispersion of remnant chloride impacts from the source area to this downgradient well.

During the twelfth quarterly groundwater sampling event, LNAPL was observed in monitoring well MW-1R at a thickness of 0.43 feet. The measurement from this event indicates a decrease of 0.32 feet in the observed LNAPL thickness from the previous event. The LNAPL skimmer pump within monitoring well MW-1R was adjusted after sampling to maximize the efficiency of LNAPL removal.

4.0 CONCLUSIONS

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

- Groundwater beneath the Site is encountered at depths ranging from approximately 45 to 48 feet BGL.
- The direction of groundwater flow at the Site is, in general, from the northwest to the southeast.
- During the reporting period, concentrations of chloride greater than the Limit of 250 mg/L were observed in the groundwater samples collected from monitoring wells MW-4 (ranging from 500 mg/L to 605 mg/L) and MW-8 (ranging from 489 mg/L to 768 mg/L).
- The SVE System is operating as designed and has removed approximately 10,220 pounds of VOCs since start-up on June 6, 2014.
- During the reporting period, approximately 3 drums (163 gallons) of LNAPL were recovered from monitoring well MW-1R.

5.0 RECOMMENDATIONS

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

- Operation of the SVE System at the Site should continue until the LNAPL observed on the groundwater in the monitoring well MW-1R area has been adequately eliminated.

- As specified in the Plan, LNAPL recovery within monitoring well MW-1R should be continued until the LNAPL observed within this well has been adequately eliminated. Efforts to optimize LNAPL recovery while minimizing pump down-time should be implemented.

- As specified in the Plan, quarterly monitoring of the groundwater within the eight monitoring wells at the Site should be continued until the levels of chloride observed in the groundwater samples fall below the Limit of 250 mg/L for eight quarters. The next groundwater monitoring event at the Site is scheduled to be conducted in June 2017.

- As specified in the Plan, when the LNAPL has been adequately eliminated from monitoring well MW-1R, the groundwater within this well should be monitored for BTEX until the levels of these constituents fall below the Limits of 0.01 mg/L, 0.75 mg/L, 0.75 mg/L and 0.62 mg/L, respectively, for eight quarters.

TABLES

Table 1 : Summary of SVE System Field Readings
Chesapeake Energy Corporation, State M Lease (AP-72)
Lea County, New Mexico

Date	Time	Run Time Reading	Operating Hours		Discharge Readings		VOC Discharge				Calculated Correlation Factor
			since last reading	Total	PPM	CFM	lbs/Hr	lbs since last Reading	Total lbs	Total Tons	
06/07/14	8:00	4131.73	19.73	19.73	596.4	518.8	2.281	44.99	44.99	0.02	
06/08/14	7:10	4154.69	22.96	42.69	398	482.6	1.416	32.50	77.50	0.04	
06/08/14	9:15	4156.94	2.25	44.94	5000	489	18.021	40.55	118.05	0.06	
06/12/14	12:40	4256.45	99.51	144.45	1817	120	1.607	159.92	277.96	0.14	
06/12/14	12:43	4259.65	3.20	147.65	1561	117	1.346	4.31	282.27	0.14	
06/13/14	7:15	4274.90	18.45	162.90	1804	122	1.622	29.93	307.89	0.15	
06/13/14	7:17	4276.27	1.37	164.27	3390	121	3.023	4.14	312.03	0.16	
06/13/14	7:18	4277.08	0.81	165.08	2301	120	2.035	1.65	313.68	0.16	
06/19/14	12:05	4422.02	144.94	310.02	1153	120	1.020	147.81	461.49	0.23	
06/19/14	13:30	4423.74	1.72	311.74	1117	107	0.881	1.52	463.00	0.23	
06/19/14	16:00	4426.00	2.26	314.00	1448	121	1.291	2.92	465.92	0.23	0.98
06/24/14	12:05	4543.27	117.27	431.27	*1440*	*120*	1.274	149.36	615.28	0.31	
06/26/14	12:40	4591.01	165.01	479.01	1970	127	1.844	304.28	919.56	0.46	
06/26/14	12:42	4593.20	2.19	481.20	1968	120	1.741	3.81	923.37	0.46	
07/03/14	9:35	4755.92	162.72	643.92	1650	126	1.532	249.34	1172.71	0.59	
07/03/14	9:37	4757.95	2.03	645.95	1318	126	1.224	2.48	1175.20	0.59	
07/09/14	11:40	4901.77	143.82	789.77	874.5	126	0.812	116.80	1292.00	0.65	
07/09/14	11:42	4903.69	1.92	791.69	795.1	124	0.727	1.40	1293.39	0.65	
07/17/14	12:33	5094.48	190.79	982.48	*790*	124	0.722	137.75	1431.15	0.72	
07/17/14	12:34	5095.13	0.65	983.13	*790*	127	0.739	0.48	1431.63	0.72	
07/17/14	12:36	5097.75	2.62	985.75	*790*	127	0.739	1.94	1433.56	0.72	
08/01/14	11:00	5452.10	354.35	1,340.10	1078	139	1.104	391.35	1824.91	0.91	
08/01/14	11:42	5454.03	1.93	1,342.03	938	150	1.037	2.00	1826.91	0.91	
08/01/14	11:44	5456.32	2.29	1,344.32	2314	14	0.239	0.55	1827.46	0.91	
10/10/14	13:00	7118.38	1662.06	3,006.38	130	51.3	0.049	81.70	1909.16	0.95	
10/10/14	13:02	7120.15	1.77	3,008.15	216	58.2	0.093	0.16	1909.32	0.95	1.86
10/31/14	13:00	7622.85	502.70	3,510.85	161	48	0.057	28.63	1937.95	0.97	
10/31/14	13:04	7624.49	1.64	3,512.49	78	53.7	0.031	0.05	1938.00	0.97	
12/11/14	13:50	8607.53	983.04	4,495.53	352	***131***	0.340	334.10	2272.11	1.14	
01/15/15	10:11	9441.32	833.79	5,329.32	46.7	131	0.045	37.60	2309.70	1.15	
01/15/15	10:12	9442.31	0.99	5,330.31	173	152	0.194	0.19	2309.89	1.15	
01/15/15	10:15	9445.26	2.95	5,333.26	388	136	0.389	1.15	2311.04	1.16	
01/29/15	11:50	9778.04	332.78	5,666.04	240	53.5	0.095	31.49	2342.53	1.17	0.21
01/29/15	11:52	9780.13	2.09	5,668.13	239	50	0.088	0.18	2342.72	1.17	
02/26/15	11:00	10448.98	668.85	6,336.98	72	137	0.073	48.63	2391.35	1.20	
02/26/15	11:02	10450.10	1.12	6,338.10	178.2	155	0.204	0.23	2391.57	1.20	
03/12/15	10:15	10780.66	330.56	6,668.66	483	***155***	0.552	182.40	2573.97	1.29	
04/28/15	8:30	11901.34	1120.68	7,789.34	125.9	114.3	0.106	118.86	2692.84	1.35	
04/28/15	8:36	11907.42	6.08	7,795.42	132.4	125.7	0.123	0.75	2693.58	1.35	
05/14/15	9:05	12285.12	377.70	8,173.12	95.5	55.2	0.039	14.68	2708.26	1.35	1.10
05/14/15	9:10	12290.05	4.93	8,178.05	105.2	58.2	0.045	0.22	2708.48	1.35	
05/28/15	11:30	12623.70	333.65	8,511.70	5.6	150	0.006	2.07	2710.55	1.36	
06/11/15	10:39	12650.70	27.00	8,538.70	318	172	0.403	10.88	2721.43	1.36	
07/02/15	11:00	13154.04	503.34	9,042.04	85	112	0.070	35.32	2756.75	1.38	0.76
09/03/15	8:00	14662.17	1508.13	10,550.17	249	104	0.191	287.85	3044.60	1.52	
12/10/15	13:00	17015.28	2353.11	12,903.28	162	95	0.113	266.92	3311.52	1.66	0.86
03/10/16	12:00	17899.58	884.30	13,787.58	209	105	0.162	143.03	3454.55	1.73	1.78

Table 1 : Summary of SVE System Field Readings
Chesapeake Energy Corporation, State M Lease (AP-72)
Lea County, New Mexico

Date	Time	Run Time Reading	Operating Hours		Discharge Readings		VOC Discharge				Calculated Correlation Factor
			since last reading	Total	PPM	CFM	lbs/Hr	lbs since last Reading	Total lbs	Total Tons	
06/29/16	8:00	20558.59	2659.01	16,446.59	156.4	101	0.116	309.58	3764.13	1.88	3.77
07/27/16	12:30	21232.43	673.84	17,120.43	125.5	103	0.095	64.20	3828.33	1.91	1.55
08/25/16	11:00	21927.96	695.53	17,815.96	115.2	270	0.229	159.45	3987.78	1.99	
09/22/16	10:20	22596.81	668.85	18,484.81	168.8	220	0.274	183.07	4170.85	2.09	
12/08/16	9:30	24443.73	1846.92	20,331.73	109.2	220	0.177	327.03	4497.88	2.25	6.59
01/10/17	12:23	24758.20	314.47	20,646.20	172.9	233	0.297	93.37	4591.25	2.30	3.06
01/25/17	10:56	25115.43	357.23	21,003.43	205.7	179	0.271	96.95	4688.20	2.34	
02/22/17	10:35	25786.27	670.84	21,674.27	247.9	214	0.391	262.30	4950.50	2.48	
03/09/17	11:04	26146.82	360.55	22,034.82	321.4	209	0.495	178.51	5129.01	2.56	
04/05/17	11:55	26792.33	645.51	22,680.33	454	113	0.378	244.08	5373.09	2.69	
								Corrected Total:	10,220.28	5.11	

Notes:

1. Color shading indicates air sampling period with a unique correlation factor.
2. During the June 24 & July 17, 2014 site visit the field readings were not recorded. The italicized values presented above for these dates are conservative estimated values based upon last known readings.

Table 2 : Summary of Laboratory Analytical Results for Discharge Air Samples
Chesapeake Energy Corporation, State M Lease (AP-72)
Lea County, New Mexico

Parameters	Sample ID:	SVE	Canister #34000823 Serial C8528 2014-12-11	CANISTER #C8522	Canister #8408 2015-06-11 Air Sample	Canister #5451 Batch #320-14155 9-3-15	CANISTER #34000512 BATCH ID #320-15930	STATE M-1 LEASE	20160629 M SVE	20160922 M SVE	20161208 M SVE	20170309 M SVE
	Sample Date:	**1-Aug-14**	**11-Dec-14**	**12-Mar-15**	**11-Jun-15**	**3-Sep-15**	**10-Dec-15**	**10-Mar-16**	**29-Jun-16**	**22-Sep-16**	**8-Dec-16**	**9-Mar-17**
Volatile Organic Compounds by TO-15												
Acetone	ppb v/v	<2000	<615	<965	<860	<615	<370	<915	<280	<175	<106	<203
Benzene	ppb v/v	**8,820**	**2,960**	**533**	**3,630**	**312**	**194**	**1,070**	**2,600**	**853**	**373**	**550**
Benzyl chloride	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
Bromodichloromethane	ppb v/v	<120	<36.9	<57.9	<51.6	<36.9	<22.2	<54.9	<16.8	103.5	<6.33	<12.2
Bromoform	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
Bromomethane	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
2-Butanone (MEK)	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
Carbon disulfide	ppb v/v	**1,800**	**272**	<154	<138	<98.4	<59.2	<146	**177**	<27.9	<16.9	<32.4
Carbon tetrachloride	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
Chlorobenzene	ppb v/v	<120	<36.9	<57.9	<51.6	<36.9	<22.2	<54.9	<16.8	<10.5	<6.33	<12.2
Dibromochloromethane	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
Chloroethane	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
Chloroform	ppb v/v	<120	<36.9	<57.9	<51.6	<36.9	<22.2	<54.9	<16.8	<10.5	<6.33	<12.2
Chloromethane	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
1,2-Dibromoethane	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
1,2-Dichlorobenzene	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
1,3-Dichlorobenzene	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
1,4-Dichlorobenzene	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
Dichlorodifluoromethane	ppb v/v	**1,980**	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
1,1-Dichloroethane	ppb v/v	<120	<36.9	<57.9	<51.6	<36.9	<22.2	<54.9	<16.8	<10.5	<6.33	<12.2
1,2-Dichloroethane	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
1,1-Dichloroethene	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
cis-1,2-Dichloroethene	ppb v/v	<160	<49.2	**84.5**	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
trans-1,2-Dichloroethene	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
1,2-Dichloropropane	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
cis-1,3-Dichloropropene	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
trans-1,3-Dichloropropene	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
Ethylbenzene	ppb v/v	**13,500**	**3,830**	**799**	**2,890**	**731**	**723**	**446**	**2,530**	**1,390**	**531**	**908**
4-Ethyltoluene	ppb v/v	**974**	**533**	**164**	**299**	**256**	**186**	<73.2	**660**	**497**	**135**	**263**
Hexachlorobutadiene	ppb v/v	<800	<246	<386	<344	<246	<148	<366	<112	<69.8	<42.2	<81.0
2-Hexanone	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
Methylene Chloride	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
4-Methyl-2-pentanone	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2

Table 2 : Summary of Laboratory Analytical Results for Discharge Air Samples
Chesapeake Energy Corporation, State M Lease (AP-72)
Lea County, New Mexico

Parameters	Sample ID: / Sample Date:	SVE 1-Aug-14	Canister #34000823 Serial C8528 2014-12-11 11-Dec-14	CANISTER #C8522 12-Mar-15	Canister #8408 2015-06-11 Air Sample 11-Jun-15	Canister #5451 Batch #320-14155 9-3-15 3-Sep-15	CANISTER #34000512 BATCH ID #320-15930 10-Dec-15	STATE M-1 LEASE 10-Mar-16	20160629 M SVE 29-Jun-16	20160922 M SVE 22-Sep-16	20161208 M SVE 8-Dec-16	20170309 M SVE 9-Mar-17
Styrene	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
1,1,2,2-Tetrachloroethane	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	**41.1**	<14.0	<8.44	<16.2
Tetrachloroethene	ppb v/v	<160	**71.9**	<77.2	<68.8	<49.2	<29.6	**92.9**	<22.4	<14.0	<8.44	<16.2
Toluene	ppb v/v	**4,020**	**1,040**	**228**	**1,480**	<49.2	<29.6	**120**	**975**	**380**	**164**	**193**
1,2,4-Trichlorobenzene	ppb v/v	<800	<246	<386	<344	<246	<148	<366	<112	<69.8	<42.2	<81.0
1,1,1-Trichloroethane	ppb v/v	<120	<36.9	<57.9	<51.6	<36.9	<22.2	<54.9	<16.8	<10.5	<6.33	<12.2
1,1,2-Trichloroethane	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
Trichloroethene	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
Trichlorofluoromethane	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
1,1,2-Trichloro-1,2,2-trifluoroethane	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.4	<14.0	<8.44	<16.2
1,2,4-Trimethylbenzene	ppb v/v	**2,020**	**648**	**299**	**774**	<98.4	**355**	<146	**968**	**740**	**228**	**411**
1,3,5-Trimethylbenzene	ppb v/v	**820**	**385**	**172**	**353**	**73.0**	**247**	<73.2	**737**	**541**	**192**	**397**
Vinyl acetate	ppb v/v	<320	<98.4	<154	<138	<98.4	<59.2	<146	<44.8	<27.9	<16.9	<32.4
Vinyl chloride	ppb v/v	<160	<49.2	<77.2	<68.8	<49.2	<29.6	<73.2	<22.8	<14.0	<8.44	<16.2
m,p-Xylene	ppb v/v	**12,700**	**4,680**	**1,110**	**3,920**	**1,140**	**1,380**	**609**	**5,050**	**2,550**	**870**	**1,510**
o-Xylene	ppb v/v	**4,520**	**1,190**	**286**	**1,120**	**164**	**194**	**107**	**720**	**419**	**177**	**337**
Total VOC as Hexane (C6-C12)	ppb v/v	**1,060,000**	**655,000**	**99,400**	**351,000**	**190,000**	**140,000**	**371,000**	**590,000**	**262,000**	**720,000**	**985,000**

Table 3 : Summary of Liquid Level Measurements
Chesapeake Energy Corporation, State M Lease (AP-72)
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-1R	3888.97	06/03/14	44.57	49.89	5.32	3839.08
	3888.97	09/22/14	44.87	48.91	4.04	3840.06
	3888.97	12/10/14	45.80	46.30	0.50	3842.67
	3888.97	03/11/15	45.12	46.83	1.71	3842.14
	3888.97	06/10/15	45.54	46.31	0.77	3842.66
	3888.97	09/02/15	45.81	47.37	1.56	3841.60
	3888.97	12/09/15	45.22	49.07	3.85	3839.90
	3888.97	03/09/16	45.30	47.18	1.88	3841.79
	3888.97	06/28/16	45.75	47.02	1.27	3841.95
	3888.97	09/21/16	46.10	46.38	0.28	3842.59
	3888.97	12/07/16	46.13	46.88	0.75	3842.09
	3888.97	03/08/17	46.14	46.57	0.43	3842.40
MW-2	3890.51	06/03/14	--	47.23	--	3843.28
	3890.51	09/22/14	--	46.37	--	3844.14
	3890.51	12/10/14	--	45.91	--	3844.60
	3890.51	03/11/15	--	46.03	--	3844.48
	3890.51	06/10/15	--	46.38	--	3844.13
	3890.51	09/02/15	--	46.44	--	3844.07
	3890.51	12/09/15	--	46.51	--	3844.00
	3890.51	03/09/16	--	46.61	--	3843.90
	3890.51	06/28/16	--	46.70	--	3843.81
	3890.51	09/21/16	--	46.80	--	3843.71
	3890.51	12/07/16	--	46.82	--	3843.69
	3890.51	03/08/17	--	46.88	--	3843.63
MW-3	3889.34	06/03/14	--	46.35	--	3842.99
	3889.34	09/22/14	--	46.49	--	3842.85
	3889.34	12/10/14	--	46.08	--	3843.26
	3889.34	03/11/15	--	46.28	--	3843.06
	3889.34	06/10/15	--	46.51	--	3842.83
	3889.34	09/02/15	--	46.60	--	3842.74
	3889.34	12/09/15	--	46.68	--	3842.66
	3889.34	03/09/16	--	46.72	--	3842.62
	3889.34	06/28/16	--	46.85	--	3842.49
	3889.34	09/21/16	--	46.96	--	3842.38
	3889.34	12/07/16	--	47.02	--	3842.32
	3889.34	03/08/17	--	47.11	--	3842.23
MW-4	3888.90	06/03/14	--	46.38	--	3842.52
	3888.90	09/22/14	--	46.50	--	3842.40
	3888.90	12/10/14	--	46.14	--	3842.76
	3888.90	03/11/15	--	46.35	--	3842.55
	3888.90	06/10/15	--	46.49	--	3842.41
	3888.90	09/02/15	--	46.57	--	3842.33
	3888.90	12/09/15	--	46.68	--	3842.22
	3888.90	03/09/16	--	46.75	--	3842.15
	3888.90	06/28/16	--	46.87	--	3842.03
	3888.90	09/21/16	--	46.94	--	3841.96
	3888.90	12/07/16	--	47.03	--	3841.87
	3888.90	03/08/17	--	47.08	--	3841.82

Table 3 : Summary of Liquid Level Measurements
Chesapeake Energy Corporation, State M Lease (AP-72)
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-5	3890.41	06/03/14	--	46.56	--	3843.85
	3890.41	09/22/14	--	46.70	--	3843.71
	3890.41	12/10/14	--	46.29	--	3844.12
	3890.41	03/11/15	--	46.44	--	3843.97
	3890.41	06/10/15	--	46.69	--	3843.72
	3890.41	09/02/15	--	46.79	--	3843.62
	3890.41	12/09/15	--	46.85	--	3843.56
	3890.41	03/09/16	--	46.90	--	3843.51
	3890.41	06/28/16	--	47.08	--	3843.33
	3890.41	09/21/16	--	47.13	--	3843.28
	3890.41	12/07/16	--	47.14	--	3843.27
	3890.41	03/08/17	--	47.23	--	3843.18
MW-6	3888.25	06/03/14	--	46.25	--	3842.00
	3888.25	09/22/14	--	46.39	--	3841.86
	3888.25	12/10/14	--	46.09	--	3842.16
	3888.25	03/11/15	--	46.23	--	3842.02
	3888.25	06/10/15	--	46.32	--	3841.93
	3888.25	09/02/15	--	46.48	--	3841.77
	3888.25	12/09/15	--	46.57	--	3841.68
	3888.25	03/09/16	--	46.62	--	3841.63
	3888.25	06/28/16	--	46.74	--	3841.51
	3888.25	09/21/16	--	46.81	--	3841.44
	3888.25	12/07/16	--	46.90	--	3841.35
	3888.25	03/08/17	--	46.93	--	3841.32
MW-7	3889.23	06/03/14	--	45.94	--	3843.29
	3889.23	09/22/14	--	46.08	--	3843.15
	3889.23	12/10/14	--	45.70	--	3843.53
	3889.23	03/11/15	--	45.36	--	3843.87
	3889.23	06/10/15	--	46.08	--	3843.15
	3889.23	09/02/15	--	46.14	--	3843.09
	3889.23	12/09/15	--	46.24	--	3842.99
	3889.23	03/09/16	--	46.30	--	3842.93
	3889.23	06/28/16	--	46.42	--	3842.81
	3889.23	09/21/16	--	46.52	--	3842.71
	3889.23	12/07/16	--	46.59	--	3842.64
	3889.23	03/08/17	--	46.65	--	3842.58
MW-8	3887.06	06/03/14	--	44.94	--	3842.12
	3887.06	09/22/14	--	45.11	--	3841.95
	3887.06	12/10/14	--	44.79	--	3842.27
	3887.06	03/11/15	--	44.94	--	3842.12
	3887.06	06/10/15	--	45.22	--	3841.84
	3887.06	09/02/15	--	45.21	--	3841.85
	3887.06	12/09/15	--	45.29	--	3841.77
	3887.06	03/09/16	--	45.35	--	3841.71
	3887.06	06/28/16	--	45.56	--	3841.50
	3887.06	09/21/16	--	45.67	--	3841.39
	3887.06	12/07/16	--	45.64	--	3841.42
	3887.06	03/08/17	--	45.68	--	3841.38

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

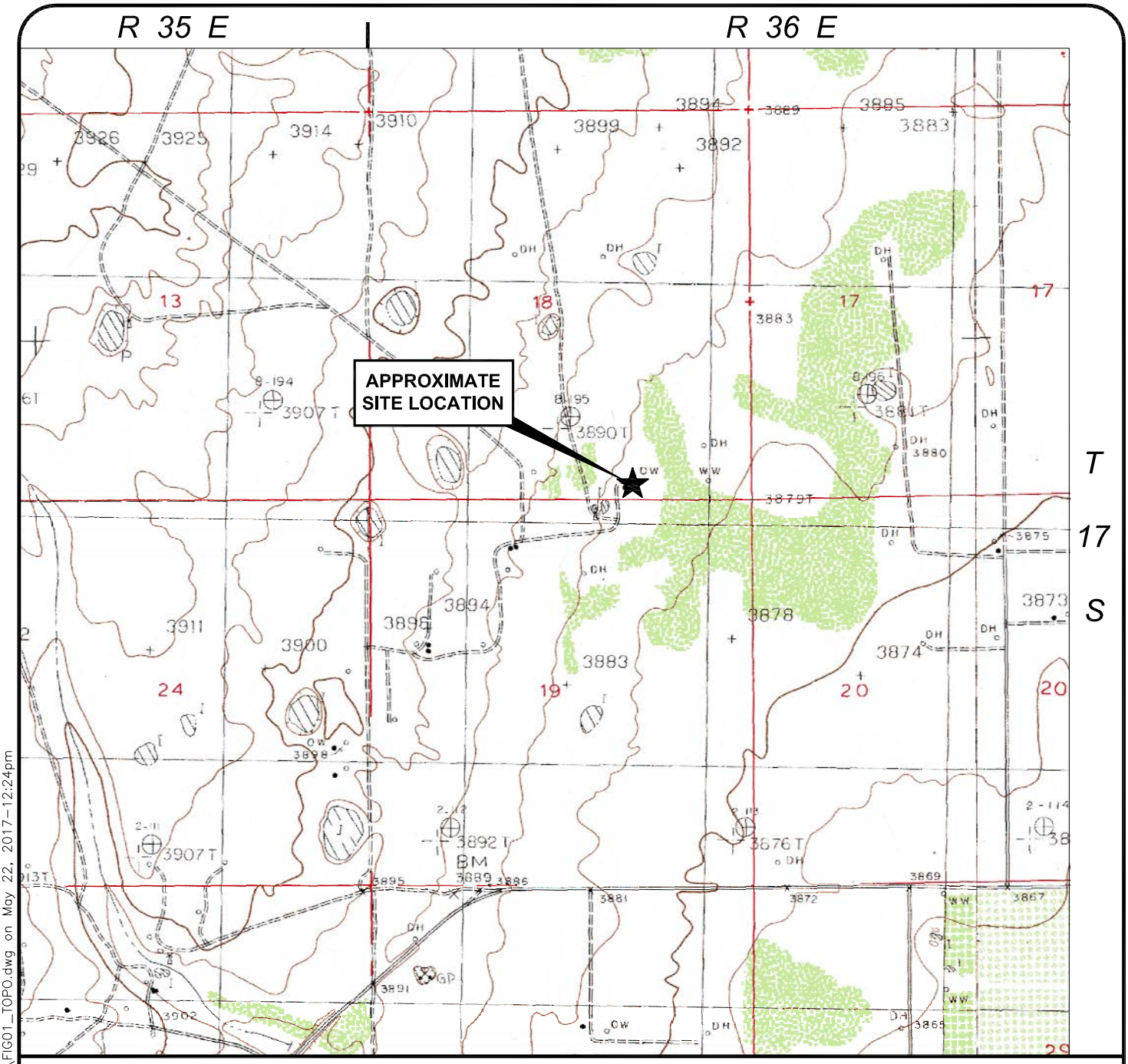
Table 4 : Summary of Laboratory Analytical Results for Groundwater Samples
Chesapeake Energy Corporation, State M Lease (AP-72)
Lea County, New Mexico

	Chloride (mg/L)											
	June 2014	September 2014	December 2014	March 2015	June 2015	September 2015	December 2015	March 2016	June 2016	September 2016	December 2016	March 2017
MW-1R	---	51.4	116	39.0	24.6	21.6	23.5	34.8	24.9	28.5	44.8	32.0
MW-2	17.7	17.4	18.3	16.6	16.8	16.6	15.4 *	13.5	18.9	17.6	18.2	15.0
MW-3	59.7	59.7	58.9	57.0	57.1	56.3	50.5 *	49.3	51.5	52.0	55.1	50.0
MW-4	**586**	**534**	**535**	**543**	**556**	**567**	**546 ***	**525**	**527**	**569**	**605**	**500**
MW-5	28.6	27.3	27.9	26.1	26.2	25.8	22.4 *	22.4	26.1	26.2	27.8	23.1
MW-6	**282**	**263**	**268**	**261**	**253**	**277**	197 *	150	128	128	125	94.4
MW-7	42.7	29.6	36.0	39.7	36.2	35.2	28.8 *	27.7	36.0	38.2	39.6	24.2
MW-8	**409**	**442**	**463**	**485**	**558**	**327**	**499**	**504**	**539**	**490**	**768**	**489**

Notes:

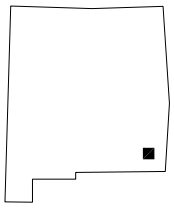
1. mg/L : milligrams per liter.
2. < : Analyte not detected at the laboratory reporting limit.
3. All analyses performed by TestAmerica Laboratories in Nashville, Tennessee.
4. Cells shaded in blue indicate results that are above the laboratory reporting limit.
5. Cells with text **bolded** indicate results that exceed the New Mexico Administrative Code 20.6.2.3103, Standards for Groundwater: chloride (250.0 mg/L).
6. --- : Analysis not performed.
7. * : Analysis performed outside of holding time.
8. December 2016 results for MW-1R and MW-8 were confirmed by laboratory reanalysis.

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



SCALE
0 1/2 1 MILE

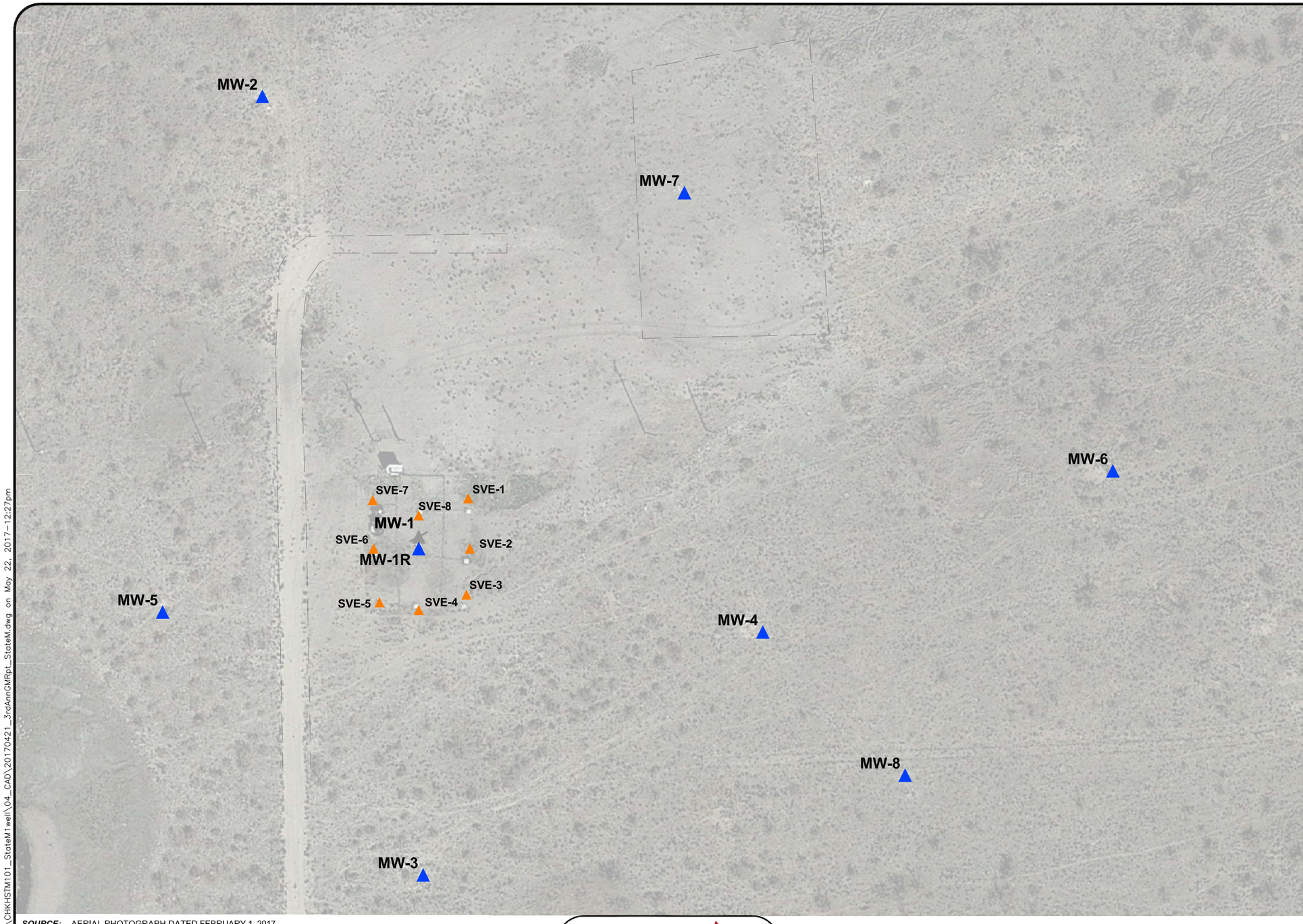
N

CLIENT CHESAPEAKE ENERGY CORPORATION, LLC OKLAHOMA CITY, OKLAHOMA	FIGURE TITLE ***SITE LOCATION AND TOPOGRAPHIC FEATURES***
LOCATION STATE M LEASE (AP-73) SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO	DOCUMENT TITLE THIRD ANNUAL GROUNDWATER MONITORING REPORT

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

		DESIGNED BY	BEM
DATE	5/26/2017	APPROVED BY	BEM
SCALE	AS SHOWN	DRAWN BY	SKG
PROJECT NUMBER		FIGURE NUMBER	
CHKHSTM101		1	

D:\Projects\Chesapeake\CHKHSTM101_StateM1well\04_CAD\FIG01_TOPO.dwg on May 22, 2017 - 12:24pm



LEGEND

- MW-5 — LOCATION OF MONITORING WELL
- MW-1 — LOCATION OF PLUGGED AND ABANDONED MONITORING WELL
- SVE-1 — LOCATION OF SVE SYSTEM WELL

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: THIRD ANNUAL GROUNDWATER MONITORING REPORT

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

CLIENT: CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

LOCATION: STATE M LEASE (AP-72)
SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"= 60'
DRAWN BY	SKG	DATE	5/26/2017

PROJECT NUMBER	FIGURE NUMBER
CHKHSTM101	2

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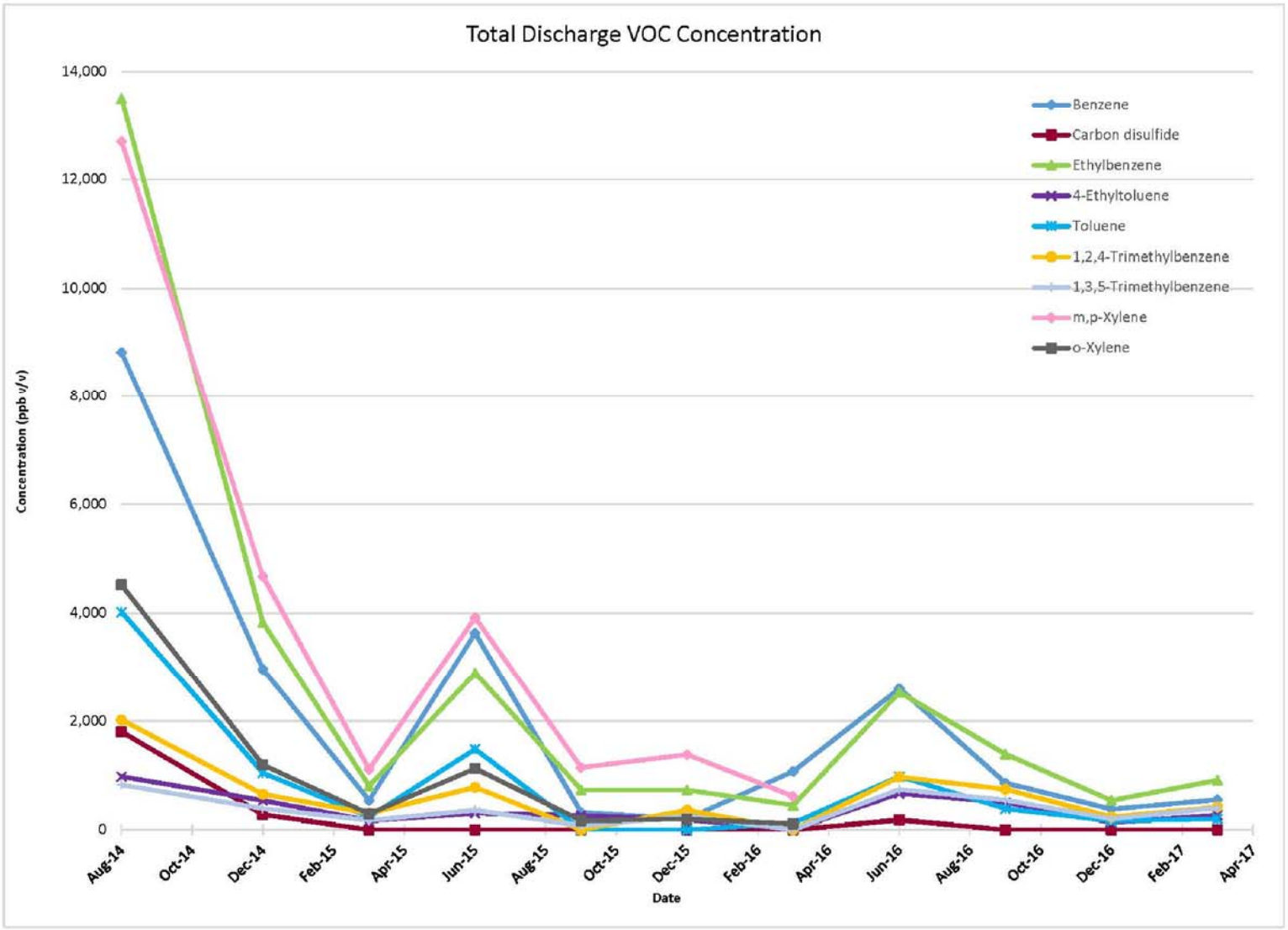


ENVIRO CLEAN CARDINAL
Enviro Clean Cardinal, LLC
7060 South Yale Avenue, Suite 603
Tulsa, Oklahoma 74136
918.794.7828
www.ECCGRP.com

DOCUMENT TITLE
THIRD ANNUAL GROUNDWATER MONITORING REPORT

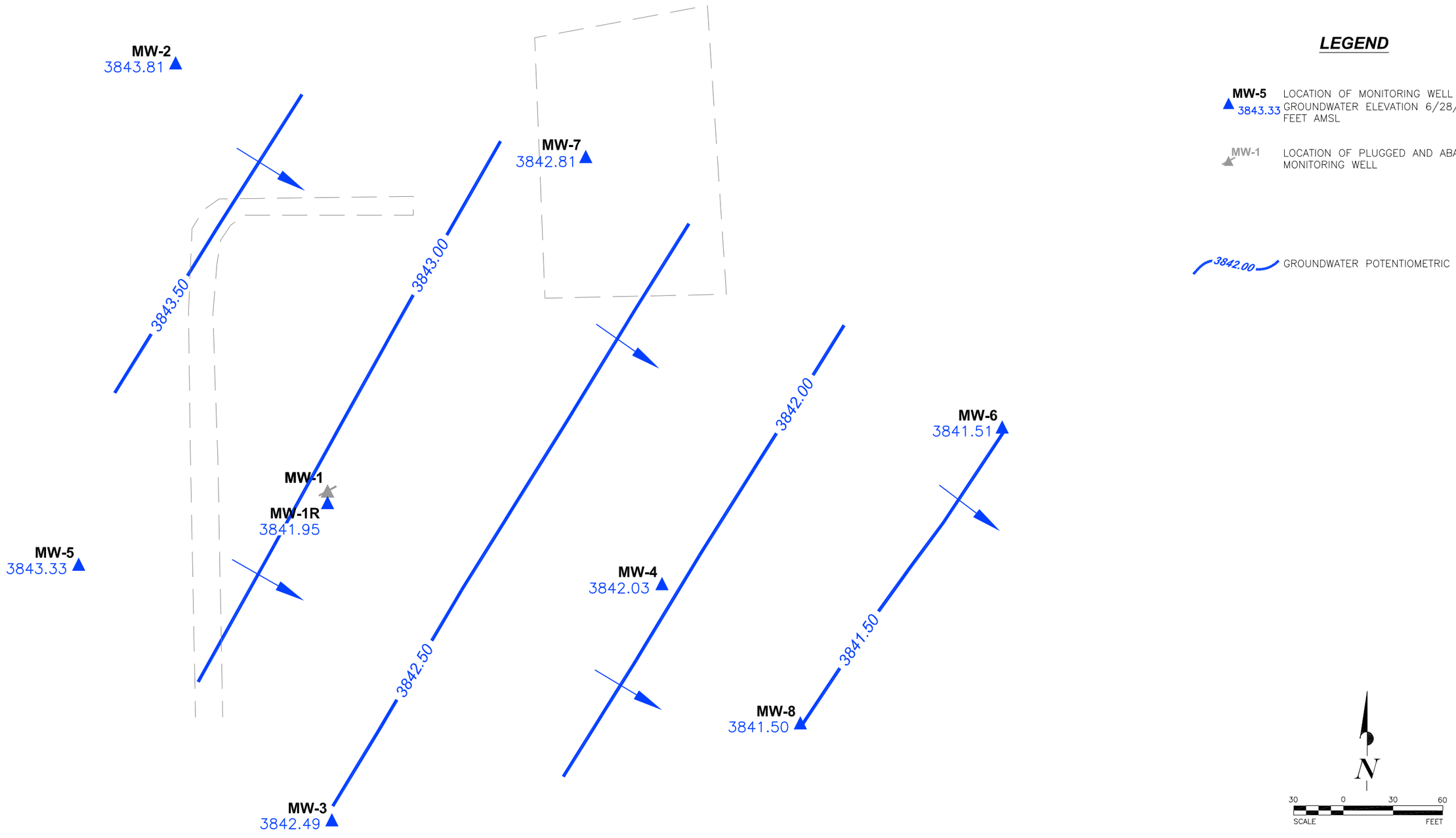
FIGURE TITLE
SVE SYSTEM VOC DISCHARGE CONCENTRATIONS VERSUS TIME

CLIENT CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

LOCATION STATE M LEASE (AP-72)
SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	CNA		
APPROVED BY	BEM	SCALE	NTS
DRAWN BY	SKG	DATE	5/26/2017

PROJECT NUMBER	FIGURE NUMBER
CHKHSTM101	3



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Enviro Clean Cardinal, LLC
7060 South Yale Avenue, Suite 603
Tulsa, Oklahoma 74136
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DOCUMENT TITLE
THIRD ANNUAL GROUNDWATER MONITORING REPORT

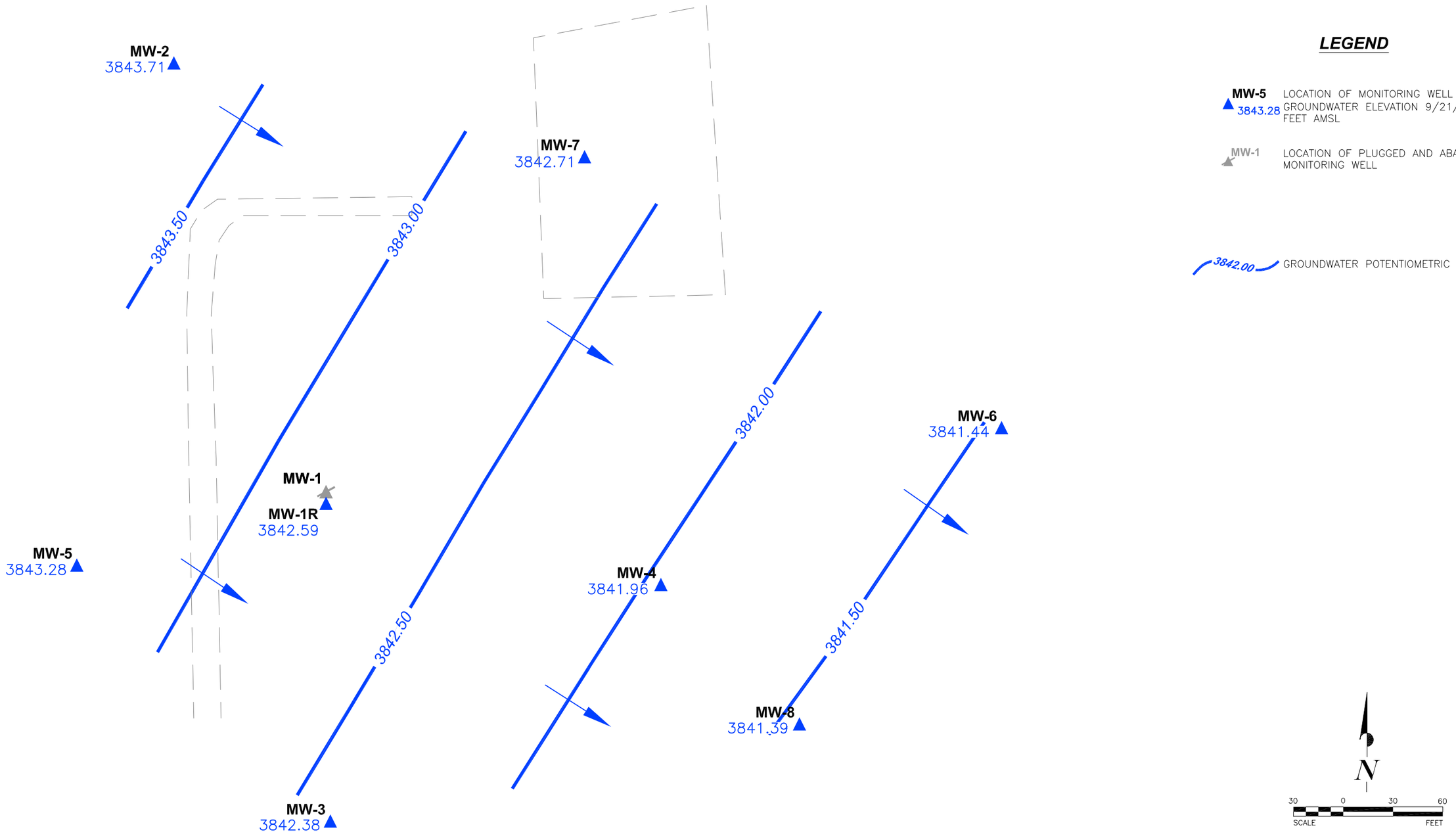
FIGURE TITLE
GROUNDWATER POTENTIOMETRIC SURFACE, JUNE 28, 2016

CLIENT
CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

LOCATION
STATE M LEASE (AP-72)
SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"= 60'
DRAWN BY	SKG	DATE	5/26/2017

PROJECT NUMBER	FIGURE NUMBER
CHKHSTM101	4



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Enviro Clean Cardinal, LLC
7060 South Yale Avenue, Suite 603
Tulsa, Oklahoma 74136
918.794.7828
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DOCUMENT TITLE
THIRD ANNUAL GROUNDWATER MONITORING REPORT

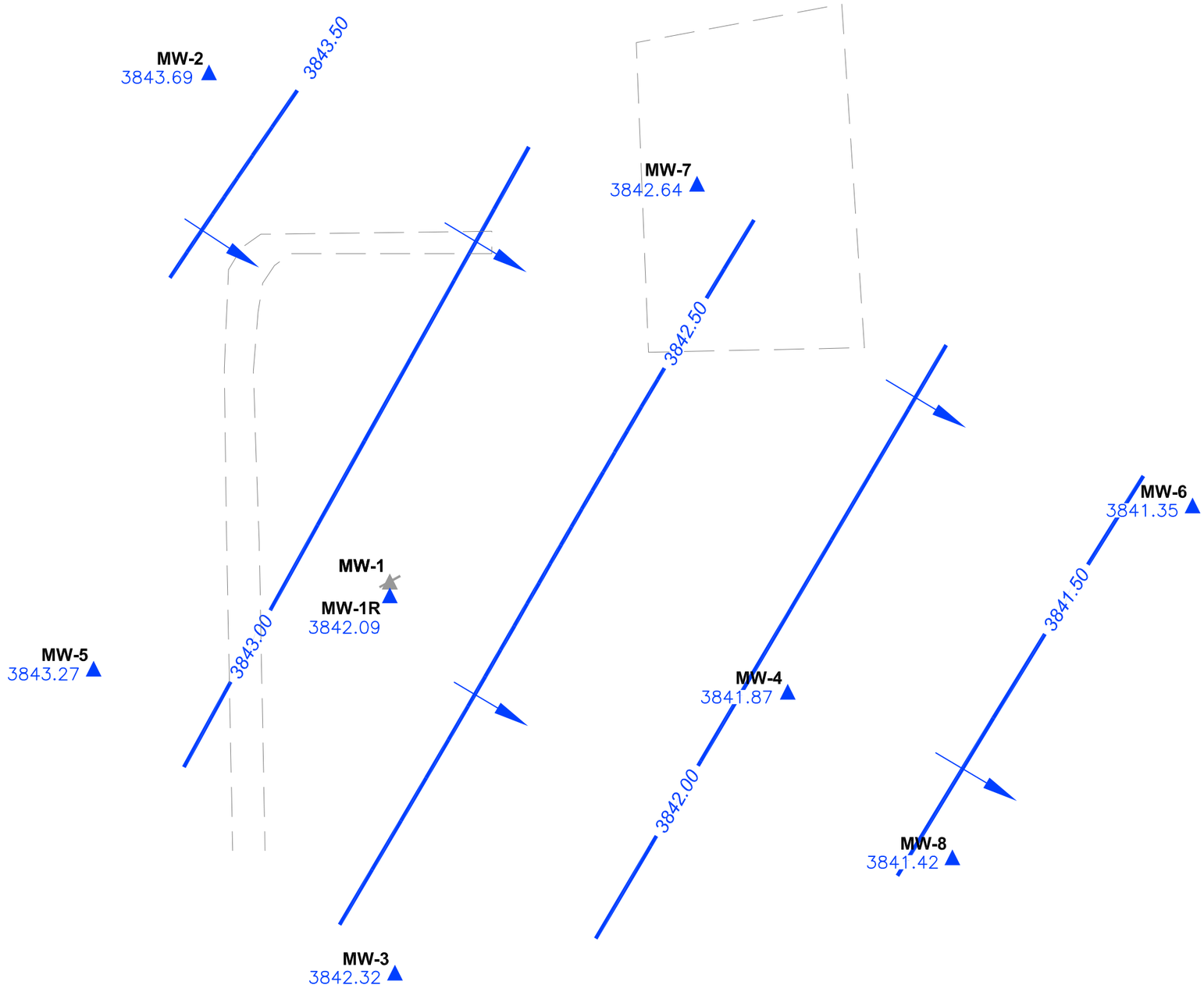
FIGURE TITLE
GROUNDWATER POTENTIOMETRIC SURFACE, SEPTEMBER 21, 2016

CLIENT
CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

LOCATION
STATE M LEASE (AP-72)
SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"= 60'
DRAWN BY	SKG	DATE	5/26/2017

PROJECT NUMBER	FIGURE NUMBER
CHKHSTM101	5



LEGEND

- **MW-5** 3843.27 — LOCATION OF MONITORING WELL AND GROUNDWATER ELEVATION 12/7/2016, FEET AMSL
- MW-1 — LOCATION OF PLUGGED AND ABANDONED MONITORING WELL
- 3842.00 — GROUNDWATER POTENTIOMETRIC SURFACE

N

30 0 30 60
SCALE FEET

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

DOCUMENT TITLE: THIRD ANNUAL GROUNDWATER MONITORING REPORT

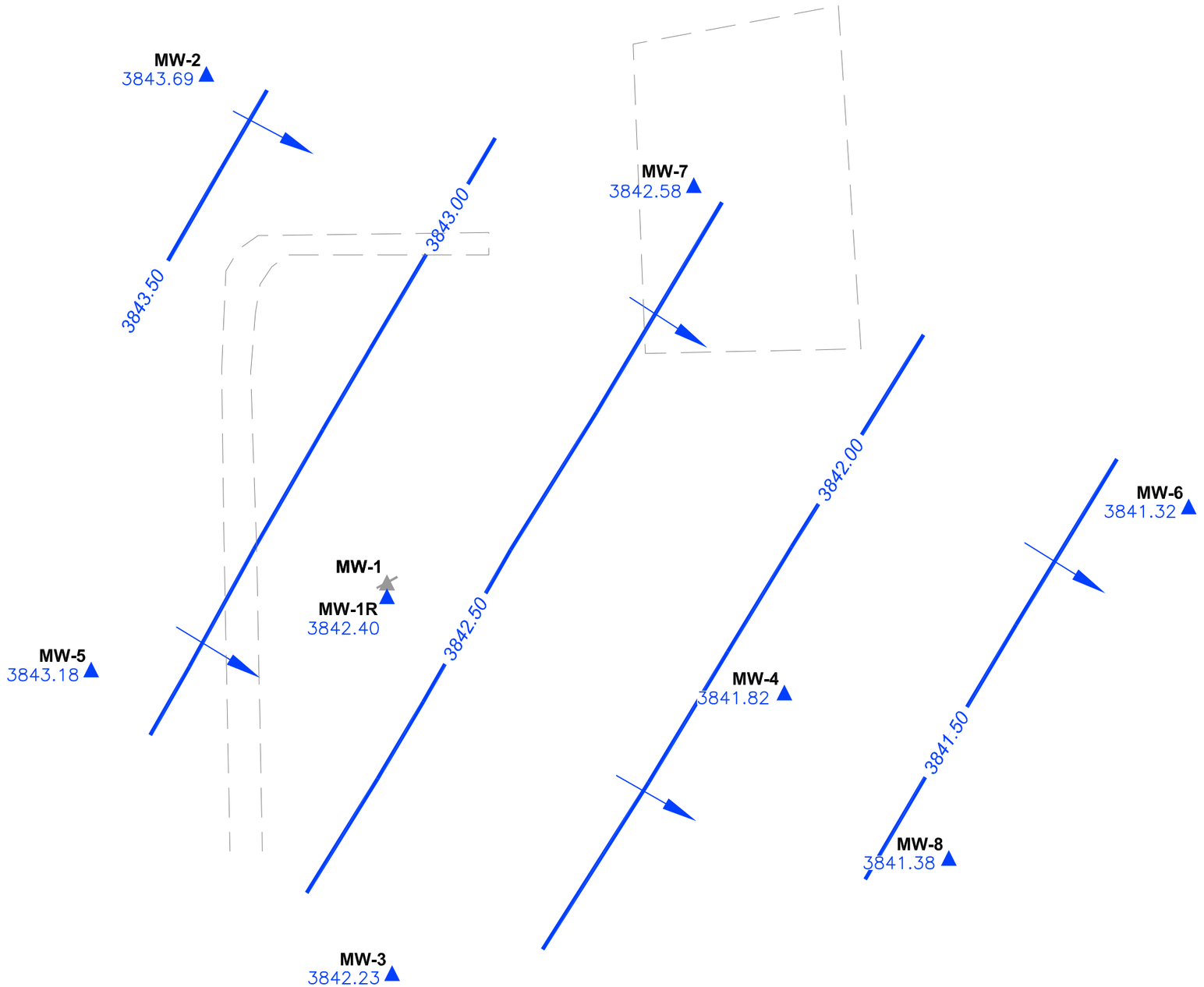
FIGURE TITLE: ***GROUNDWATER POTENTIOMETRIC SURFACE, DECEMBER 7, 2016***

CLIENT: CHESAPEAKE ENERGY CORPORATION, OKLAHOMA CITY, OKLAHOMA

LOCATION: STATE M LEASE (AP-72), SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"= 60'
DRAWN BY	SKG	DATE	5/26/2017

PROJECT NUMBER	FIGURE NUMBER
CHKHSTM101	6



LEGEND

MW-5 3843.18 — LOCATION OF MONITORING WELL AND GROUNDWATER ELEVATION 3/8/2017, FEET AMSL

MW-1 — LOCATION OF PLUGGED AND ABANDONED MONITORING WELL

3842.00 — GROUNDWATER POTENTIOMETRIC SURFACE

N

30 0 30 60
SCALE FEET

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Tulsa, Oklahoma 74136
918.794.7828
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DOCUMENT TITLE: THIRD ANNUAL GROUNDWATER MONITORING REPORT

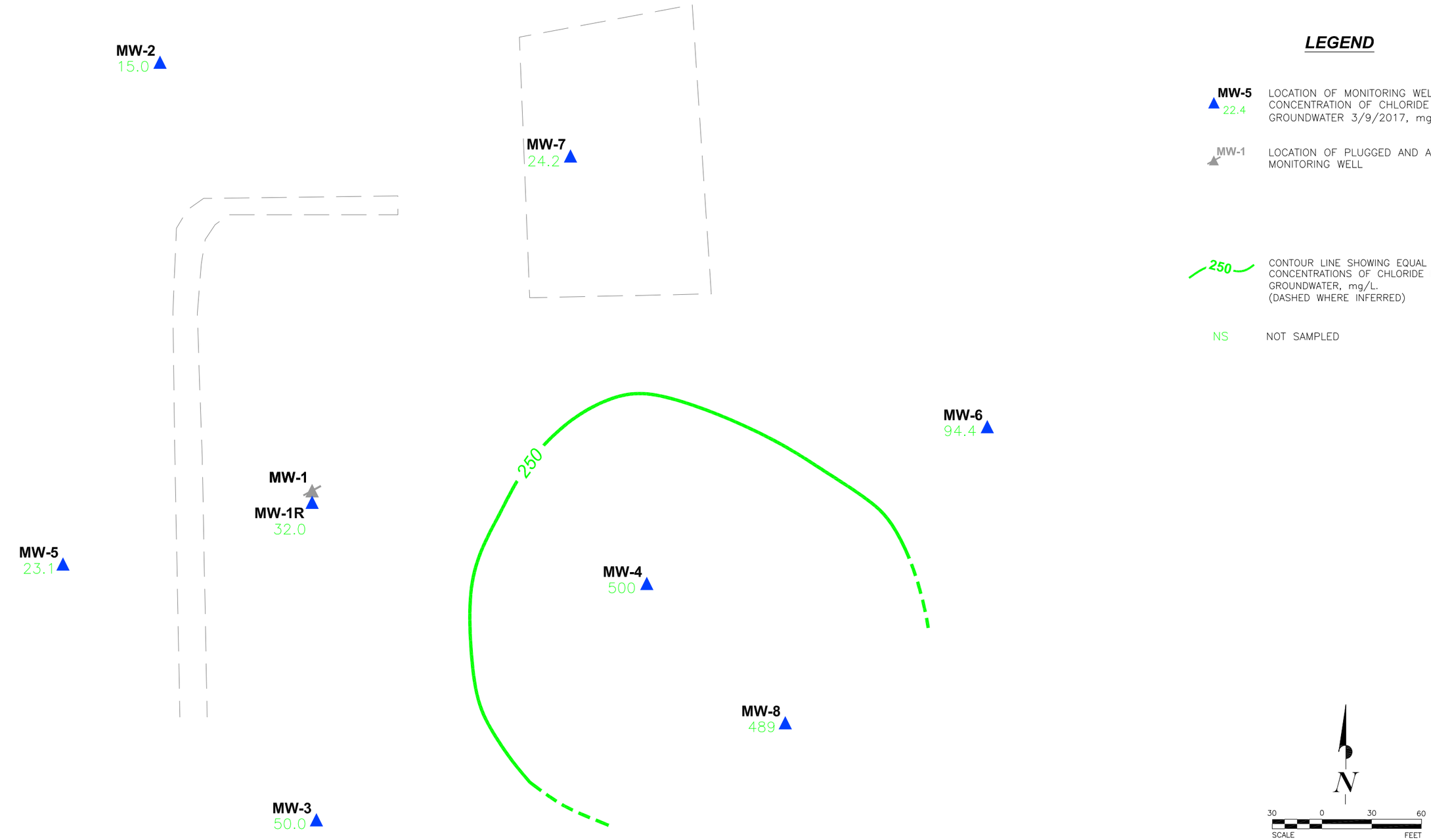
FIGURE TITLE: ***GROUNDWATER POTENTIOMETRIC SURFACE, MARCH 8, 2017***

CLIENT: CHESAPEAKE ENERGY CORPORATION, OKLAHOMA CITY, OKLAHOMA

LOCATION: STATE M LEASE (AP-72), SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"= 60'
DRAWN BY	SKG	DATE	5/26/2017

PROJECT NUMBER	FIGURE NUMBER
CHKHSTM101	7



LEGEND

- **MW-5** 22.4 — LOCATION OF MONITORING WELL AND CONCENTRATION OF CHLORIDE IN GROUNDWATER 3/9/2017, mg/L
- MW-1 — LOCATION OF PLUGGED AND ABANDONED MONITORING WELL
- 250 — CONTOUR LINE SHOWING EQUAL CONCENTRATIONS OF CHLORIDE IN GROUNDWATER, mg/L. (DASHED WHERE INFERRED)
- NS — NOT SAMPLED

ENVIRO CLEAN CARDINAL
Enviro Clean Cardinal, LLC
7060 South Yale Avenue, Suite 603
Tulsa, Oklahoma 74136
918.794.7828
www.ECCGRP.com

DOCUMENT TITLE: THIRD ANNUAL GROUNDWATER MONITORING REPORT

FIGURE TITLE: *ISOPLETH OF CHLORIDE CONCENTRATIONS IN GROUNDWATER, MARCH 9, 2017*

CLIENT: CHESAPEAKE ENERGY CORPORATION, OKLAHOMA CITY, OKLAHOMA

LOCATION: STATE M LEASE (AP-72), SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	BEM		
APPROVED BY	BEM	SCALE	1"= 60'
DRAWN BY	SKG	DATE	5/26/2017

PROJECT NUMBER	FIGURE NUMBER
CHKHSTM101	8

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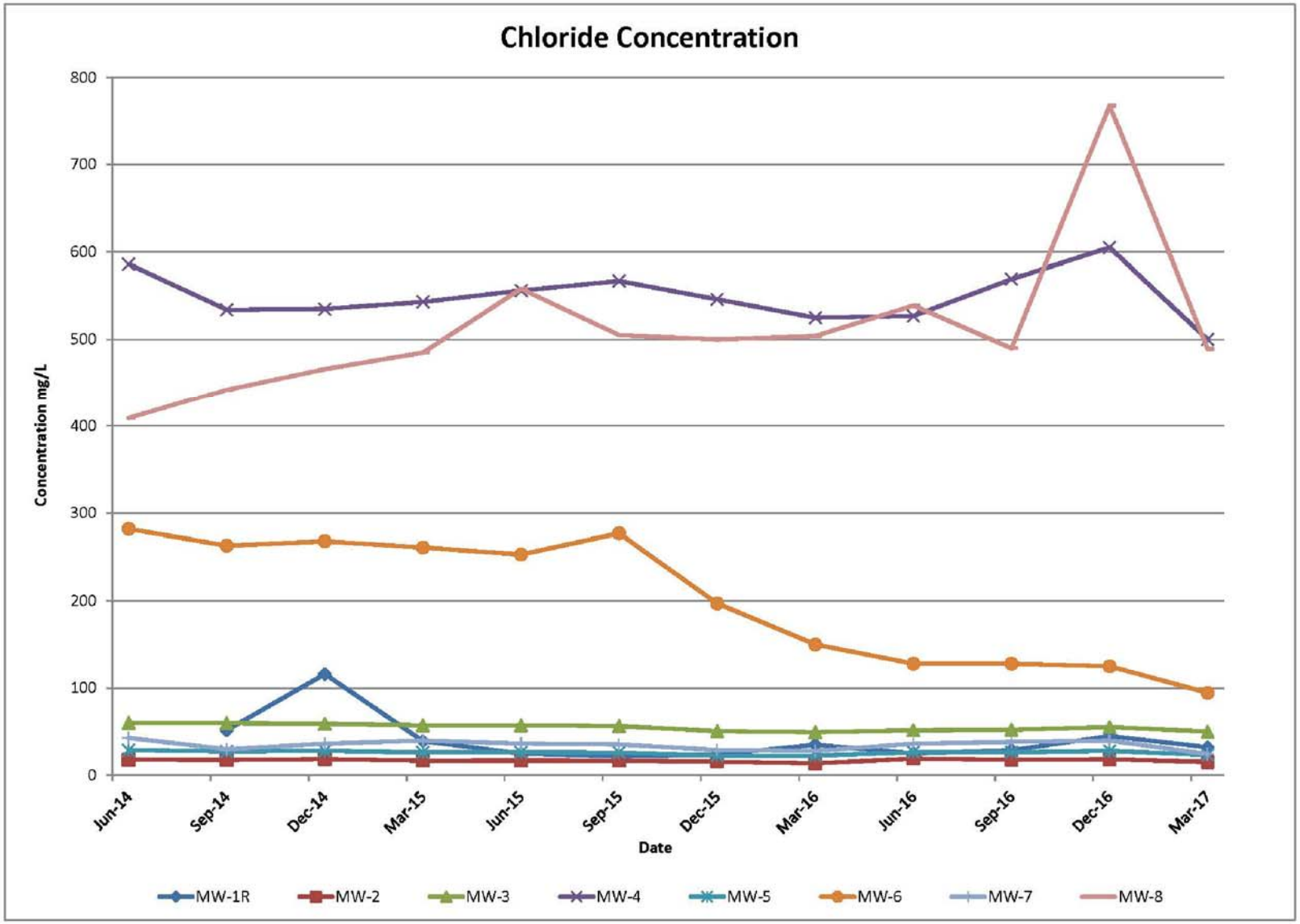

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Enviro Clean Cardinal, LLC
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Tulsa, Oklahoma 74136
918.794.7828
www.ECCGRP.com

DOCUMENT TITLE
THIRD ANNUAL GROUNDWATER MONITORING REPORT

FIGURE TITLE
CHLORIDE CONCENTRATION TREND GRAPHS

CLIENT
CHESAPEAKE ENERGY CORPORATION
OKLAHOMA CITY, OKLAHOMA

LOCATION
STATE M LEASE (AP-72)
SEC. 18, T17S, R36E, LEA COUNTY, NEW MEXICO

DESIGNED BY	CNA		
APPROVED BY	BEM	SCALE	NTS
DRAWN BY	SKG	DATE	5/26/2017

PROJECT NUMBER	FIGURE NUMBER
CHKHSTM101	9

APPENDICES

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

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

ENVIRONMENT

Subject:
State M-1 AP-072
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 M-1 site (AP-072). 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

Imagine the result

g:\aproject\chesapeake\m-1 stage 2 plan\transmitall letter.doc

ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

Chesapeake Energy Corporation

State M-1 AP-072
Stage 2 Abatement
Plan Proposal

Hobbs, New Mexico

March 27, 2012

ARCADIS

Sharon Hall
Associate Vice President

State M-1 AP-072

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

Table of Contents

Figures

Appendices

ARCADIS

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.

Seven 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. Elevated chlorides were detected in the down gradient monitor wells and light non-aqueous phase liquid (LNAPL) occurs in monitoring well MW-1. LNAPL recovery activities have been piloted at the site and will commence again upon completion of surface reclamation activities.

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 M-1 AP-072, 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. 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 1×10^{-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 221.8 milligrams per liter (mg/L). The Multi-Med inputs and outputs are included in Appendix A.

3.2 Groundwater Remediation and Monitoring

One additional groundwater monitoring well will be installed downgradient of the site. The monitoring well will be designated MW-8.

Groundwater samples will be collected from all of the monitoring wells and analyzed for chlorides using USEPA method 9056 for each of four quarters. 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 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.

Following removal of LNAPL from MW-1, groundwater samples will be collected from MW-1 and analyzed for benzene, toluene ethylbenzene and xylenes (BTEX) using USEPA method 8260B for each of four quarters. Based on sample results for one year (four quarters), sampling frequency will be reviewed and may be revised.

Sampling of MW-1 for BTEX will be discontinued when eight quarters of sample results indicate BTEX 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 3.2.1 and 3.2.2.

3.2.1 Chlorides

Chloride concentrations in groundwater exceed New Mexico Water Quality Control Commission standards in two wells (MW-1 411mg/L and MW-4 472mg/L).

Removal of near-surface soils that are a potential source of chlorides and BTEX 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.

3.2.2 Hydrocarbons

A pilot LNAPL recovery test will take place over a three week period and will be used to develop long-term recovery procedures. LNAPL will be recovered from MW-1 and disposed in a NMOCD approved facility. Additionally, two soil vent borings equipped with wind turbines will be installed in the area near MW-1.

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

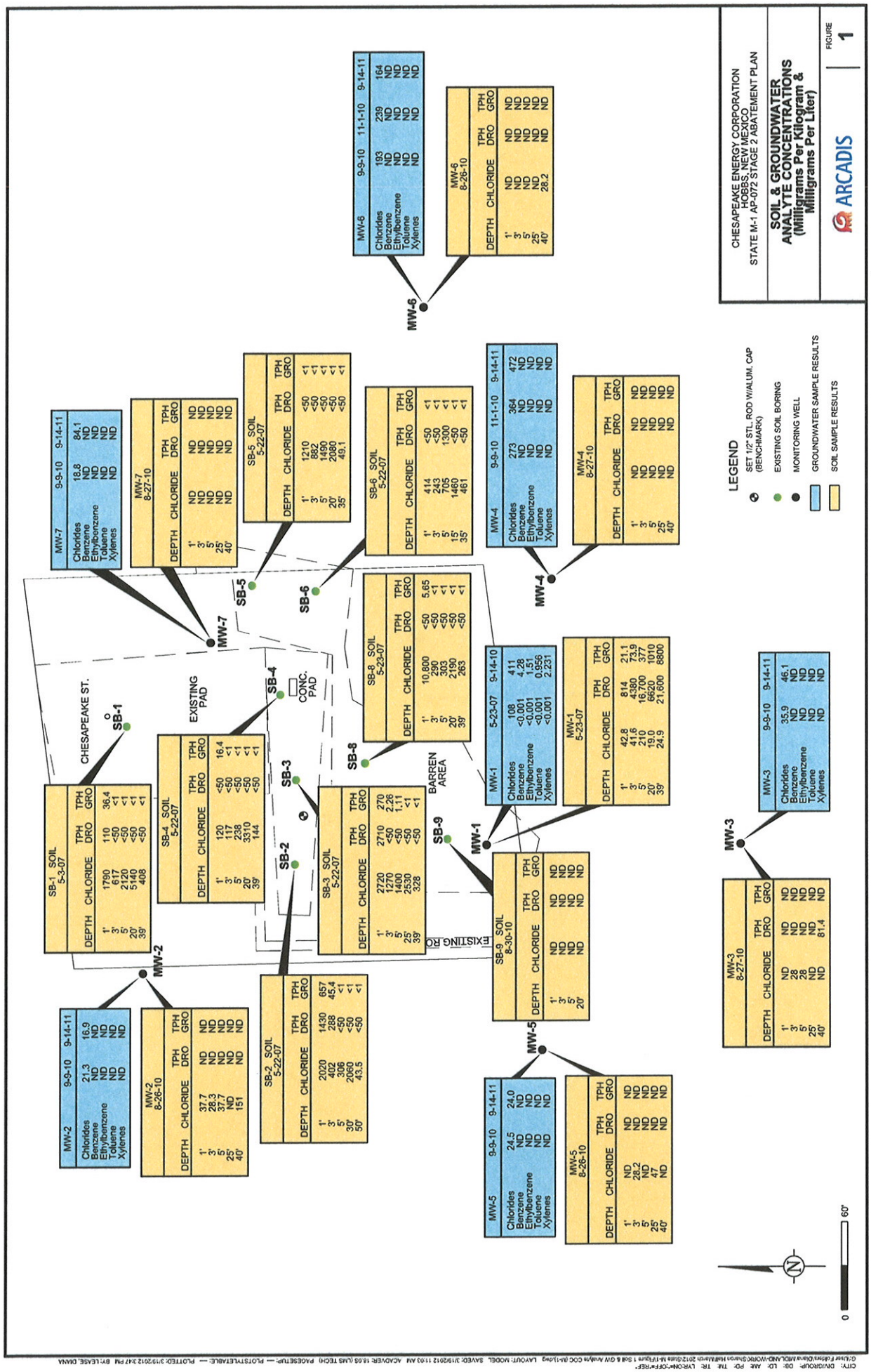
Groundwater Handbook; United States Environmental Protection Agency, Office of Research and Development, Center for Environmental Research Information; 1992

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

State M-1 AP-072 Stage 1 Abatement Report (Site Assessment Investigation); ARCADIS; March 2012

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

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


CHESAPEAKE ENERGY CORPORATION
HOBBS, NEW MEXICO
STATE M-1 AP-072 STAGE 2 ABATEMENT PLAN
SOIL & GROUNDWATER ANALYTE CONCENTRATIONS (Milligrams Per Kilogram & Milligrams Per Liter)
FIGURE 1
ARCADIS
LEGEND
SET 1/2" STL. ROD W/ALUM. CAP (BENCHMARK)
EXISTING SOIL BORING
MONITORING WELL
GROUNDWATER SAMPLE RESULTS
SOIL SAMPLE RESULTS
CHESAPEAKE ST.
EXISTING PAD
CONC. PAD
BARREN AREA
EXISTING ROAD
SB-1
SB-2
SB-3
SB-4
SB-5
SB-6
SB-8
SB-9
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
SB-1 SOIL 5-3-07
SB-2 SOIL 5-22-07
SB-3 SOIL 5-22-07
SB-4 SOIL 5-22-07
SB-5 SOIL 5-22-07
SB-6 SOIL 5-22-07
SB-8 SOIL 5-23-07
SB-9 SOIL 8-30-10
MW-1 5-23-07
MW-2 8-26-10
MW-3 8-27-10
MW-4 8-27-10
MW-5 8-26-10
MW-6 8-26-10
MW-7 8-27-10
MW-2 9-9-10 9-14-11
MW-3 9-9-10 9-14-11
MW-4 9-9-10 11-1-10 9-14-11
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MW-6 9-9-10 11-1-10 9-14-11
MW-7 9-9-10 9-14-11
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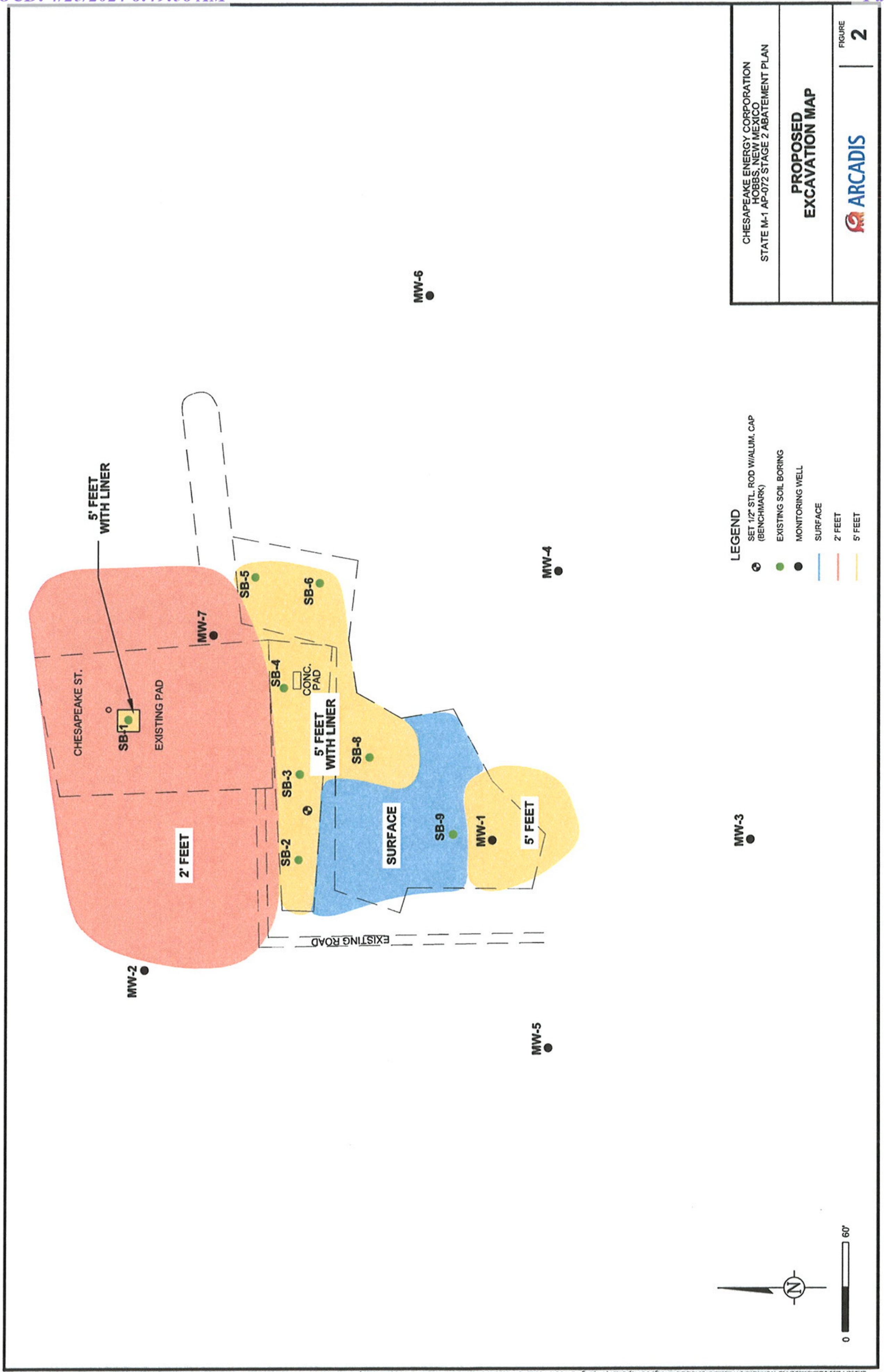

CHESAPEAKE ENERGY CORPORATION
HOBBS, NEW MEXICO
STATE M-1 AP-072 STAGE 2 ABATEMENT PLAN
PROPOSED EXCAVATION MAP
ARCADIS
FIGURE
2
LEGEND
SET 1/2" STL. ROD W/ALUM. CAP (BENCHMARK)
EXISTING SOIL BORING
MONITORING WELL
SURFACE
2' FEET
5' FEET
5' FEET WITH LINER
CHESAPEAKE ST.
EXISTING PAD
CONC. PAD
2' FEET
SURFACE
5' FEET
EXISTING ROAD
SB-1
SB-2
SB-3
SB-4
SB-5
SB-6
SB-8
SB-9
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
N
0
60'

ARCADIS

Appendix A

Multi-Med Model Inputs and Outputs

Chesapeake State M-1
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	45	feet	13.7	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	50	ft	15.24	m	0.000000001	100,000
Hydraulic Conductivity	m/yr	2	ft/day	223	m/yr	0.0000001	100,000,000
Hydraulic Gradient	m/m	0.007	m/m	0.007	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	0.124	in/yr	0.00315	m/yr	0.0000000001	10,000,000,000
Area of Waste Disposal Unit	m^2	46,800	ft^2	4348	m^2	0.01	None
Length Scale of Facility	m	240	feet	73.2	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	16.71	in/yr	0.4244	m/yr	0	10,000,000,000
Duration of Pulse	yr	8,000	yr	8000	yr	0.000000001	None
Initial Concentration at Landfill	mg/L	6,000	mg/L	6,000	mg/L	0	None
Additional Parameters							
Method				Gaussian		Gaussian	Patch
Name of Chemical Specified				Chloride			

MODEL OUTPUT			
Final Concentration at Landfill	mg/L	221.8	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
	18.9 mg/L		50 yr
	36.6 mg/L		70 yr
	45.4 mg/L		80 yr
	61.8 mg/L		100 yr
	123.4 mg/L		200 yr
	154.1 mg/L		300 yr
	166.3 mg/L		400 yr
	178.5 mg/L		500 yr
	190.7 mg/L		600 yr
	204.8 mg/L		800 yr
	211.1 mg/L		1,000 yr
	220.4 mg/L		2,000 yr
	221.6 mg/L		3,000 yr
	221.8 mg/L		4,000 yr
	221.8 mg/L		5,000 yr
	221.8 mg/L		6,000 yr
	221.8 mg/L		7,000 yr

Chesapeake State M-1
Chesapeake Energy Corporation
Buckeye, Lea County, New Mexico

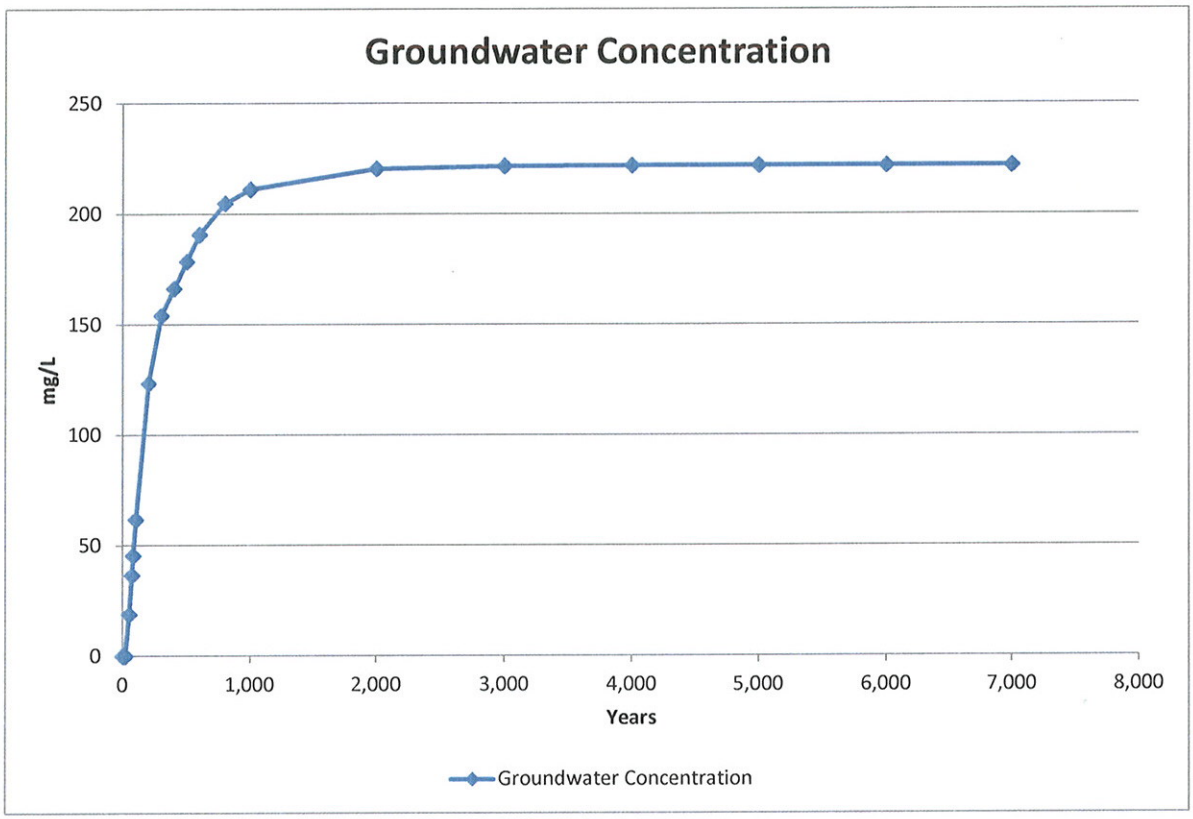


TABLE 6-3. TOTAL POROSITY OF VARIOUS MATERIALS

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).

Texture	Bulk Density g/cm^3	Average Wilting Point	Plant Available Water Inches/Ft
Sandy loam	1.6	0.057	1.66
Silt Loam	1.45	0.119	2
Loam	1.5	0.097	2.4
Sandy clay loam	1.45	0.137	1.66
Clay loam	1.45	0.157	1.9

TABLE 6-8. MEAN BULK DENSITY (g/cm3) FOR FIVE SOIL TEXTURAL CLASSIFICATIONSa,b

Soil Texture	Mean Value	Range Reported
Silt Loams	1.32	0.86 - 1.67
Clay and Clay Loams	1.3	0.94 - 1.54
Sandy Loams	1.49	1.25 - 1.76
Gravelly Silt Loams	1.22	1.02 - 1.58
Loams	1.42	1.16 - 1.58
All Soils	1.35	0.86 - 1.76

a Baes, C.F., III and R.D. Sharp. 1983. A Proposal for Estimation of Soil Leaching Constants for Use in Assessment Models. J. Environ. Qual. 12(1):17-28 (Original reference).

b From Dean et al. (1989)

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	cm/hr	17.52
Clay Loam	0.26	0.7	267.2	345	cm/hr	22.776
Loam	1.04	1.82	174.6	735	cm/hr	91.104
Loamy Sand	14.59	11.36	77.9	315	cm/hr	1278.084
Silt	0.25	0.33	129.9	88	cm/hr	21.9
Silt Loam	0.45	1.23	275.1	1093	cm/hr	39.42
Silty Clay	0.02	0.11	453.3	126	cm/hr	1.752
Silty Clay Loam	0.07	0.19	288.7	592	cm/hr	6.132
Sand	29.7	15.6	52.4	246	cm/hr	2601.72
Sandy Clay	0.12	0.28	234.1	46	cm/hr	10.512
Sandy Clay Loam	1.31	2.74	208.6	214	cm/hr	114.756
Sandy Loam	4.42	5.63	127	1183	cm/hr	387.192

* 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).

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-72 Former State M-1 Tank Battery located in Unit Letter O of Section 18 in Township 17 South, Range 36 East, NMPM in Lea County, NM
Date:	Monday, April 14, 2014 1:56:01 PM

From: Griswold, Jim, EMNRD [mailto:Jim.Griswold@state.nm.us]
Sent: Thursday, June 27, 2013 5:14 PM
To: Larry Wooten
Cc: Hall, Sharon; Chase Acker
Subject: Stage 2 Abatement Plan Approval: AP-72 Former State M-1 Tank Battery located in Unit Letter O of Section 18 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

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: 490-106833-1
TestAmerica Sample Delivery Group: Property ID 891077
Client Project/Site: CHK State M-1
Sampling Event: CHK State M-1

For:
Enviro Clean Services LLC
7060 S. Yale Avenue, Suite 603
Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech

Cathy Gartner

Authorized for release by:
7/15/2016 11:25:17 AM

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

Table of Contents

Sample Summary

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-106833-1	MW-2	Water	06/28/16 08:15	06/30/16 15:59
490-106833-2	MW-5	Water	06/28/16 09:15	06/30/16 15:59
490-106833-3	EQ Blank	Water	06/28/16 09:55	06/30/16 15:59
490-106833-4	MW-3	Water	06/28/16 10:50	06/30/16 15:59
490-106833-5	MW-4	Water	06/28/16 12:25	06/30/16 15:59
490-106833-6	MW-8	Water	06/28/16 13:40	06/30/16 15:59
490-106833-7	MW-6	Water	06/28/16 15:00	06/30/16 15:59
490-106833-8	MW-7	Water	06/28/16 16:10	06/30/16 15:59
490-106833-9	Dup	Water	06/28/16 00:01	06/30/16 15:59
490-106833-10	MW-R1	Water	06/29/16 10:50	06/30/16 15:59

Case Narrative

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Job ID: 490-106833-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-106833-1

Comments
No additional comments.

Receipt
The samples were received on 6/30/2016 3:59 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2º C.

HPLC/IC
Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 490-354709 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within acceptance limits.

Method(s) 300.0: The following samples were diluted due to the nature of the sample matrix: MW-2 (490-106833-1), MW-5 (490-106833-2). MW-3 (490-106833-4), MW-4 (490-106833-5), MW-8 (490-106833-6), MW-6 (490-106833-7), MW-7 (490-106833-8) and Dup (490-106833-9). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: Due to the high concentration of Chloride and Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-354708 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

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

Definitions/Glossary

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-2
Date Collected: 06/28/16 08:15
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18.9		5.00		mg/L			07/13/16 00:36	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-5
Date Collected: 06/28/16 09:15
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-2
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.1		5.00		mg/L			07/13/16 00:53	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: EQ Blank
Date Collected: 06/28/16 09:55
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			07/14/16 06:12	1

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-3
Date Collected: 06/28/16 10:50
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-4
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	51.5		5.00		mg/L			07/14/16 06:52	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-4
Date Collected: 06/28/16 12:25
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	527		50.0		mg/L			07/14/16 07:12	50

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-8
Date Collected: 06/28/16 13:40
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	539		50.0		mg/L			07/14/16 07:32	50

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-6
Date Collected: 06/28/16 15:00
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-7
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	128		10.0		mg/L			07/14/16 07:52	10

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-7
Date Collected: 06/28/16 16:10
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-8
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	36.0		5.00		mg/L			07/14/16 08:12	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: Dup
Date Collected: 06/28/16 00:01
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-9
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	511		50.0		mg/L			07/14/16 08:32	50

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-R1
Date Collected: 06/29/16 10:50
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-10
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.9		5.00		mg/L			07/12/16 22:47	5

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-354708/6
Matrix: Water
Analysis Batch: 354708

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			07/12/16 21:06	1

Lab Sample ID: LCS 490-354708/7
Matrix: Water
Analysis Batch: 354708

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	10.15		mg/L		101	90 - 110

Lab Sample ID: LCSD 490-354708/8
Matrix: Water
Analysis Batch: 354708

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	9.975		mg/L		100	90 - 110	2	20

Lab Sample ID: 490-106833-10 MS
Matrix: Water
Analysis Batch: 354708

Client Sample ID: MW-R1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	29.1	E	2.00	25.10	E 4	mg/L		-200	80 - 120

Lab Sample ID: MB 490-354709/6
Matrix: Water
Analysis Batch: 354709

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			07/12/16 21:11	1

Lab Sample ID: LCS 490-354709/7
Matrix: Water
Analysis Batch: 354709

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	10.64		mg/L		106	90 - 110

Lab Sample ID: LCSD 490-354709/8
Matrix: Water
Analysis Batch: 354709

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	10.64		mg/L		106	90 - 110	0	20

Lab Sample ID: 490-106782-E-9 MS
Matrix: Water
Analysis Batch: 354709

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	278	E	2.00	223.9	E 4	mg/L		-2721	80 - 120

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Lab Sample ID: MB 490-354974/3
Matrix: Water
Analysis Batch: 354974

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			07/14/16 04:31	1

Lab Sample ID: LCS 490-354974/4
Matrix: Water
Analysis Batch: 354974

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	10.04		mg/L		100	90 - 110		

Lab Sample ID: LCSD 490-354974/5
Matrix: Water
Analysis Batch: 354974

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	10.19		mg/L		102	90 - 110	2	20

Lab Sample ID: 490-106833-3 MS
Matrix: Water
Analysis Batch: 354974

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	2.578		mg/L		83	80 - 120		

QC Association Summary

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

HPLC/IC

Analysis Batch: 354708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-106833-10	MW-R1	Total/NA	Water	300.0	
490-106833-10 MS	MW-R1	Total/NA	Water	300.0	
LCS 490-354708/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-354708/8	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-354708/6	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 354709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-106782-E-9 MS	Matrix Spike	Total/NA	Water	300.0	
490-106833-1	MW-2	Total/NA	Water	300.0	
490-106833-2	MW-5	Total/NA	Water	300.0	
LCS 490-354709/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-354709/8	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-354709/6	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 354974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-106833-3	EQ Blank	Total/NA	Water	300.0	
490-106833-3 MS	EQ Blank	Total/NA	Water	300.0	
490-106833-4	MW-3	Total/NA	Water	300.0	
490-106833-5	MW-4	Total/NA	Water	300.0	
490-106833-6	MW-8	Total/NA	Water	300.0	
490-106833-7	MW-6	Total/NA	Water	300.0	
490-106833-8	MW-7	Total/NA	Water	300.0	
490-106833-9	Dup	Total/NA	Water	300.0	
LCS 490-354974/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-354974/5	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 490-354974/3	Method Blank	Total/NA	Water	300.0	

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-2
Date Collected: 06/28/16 08:15
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-1
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	10 mL		354709	07/13/16 00:36	JHS	TAL NSH

Client Sample ID: MW-5
Date Collected: 06/28/16 09:15
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-2
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		5	10 mL		354709	07/13/16 00:53	JHS	TAL NSH

Client Sample ID: EQ Blank
Date Collected: 06/28/16 09:55
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	10 mL		354974	07/14/16 06:12	JHS	TAL NSH

Client Sample ID: MW-3
Date Collected: 06/28/16 10:50
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	10 mL		354974	07/14/16 06:52	JHS	TAL NSH

Client Sample ID: MW-4
Date Collected: 06/28/16 12:25
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-5
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		50	10 mL		354974	07/14/16 07:12	JHS	TAL NSH

Client Sample ID: MW-8
Date Collected: 06/28/16 13:40
Date Received: 06/30/16 15:59

Lab Sample ID: 490-106833-6
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		50	10 mL		354974	07/14/16 07:32	JHS	TAL NSH

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Client Sample ID: MW-6

Lab Sample ID: 490-106833-7

Date Collected: 06/28/16 15:00
Matrix: Water
Date Received: 06/30/16 15:59

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	10 mL		354974	07/14/16 07:52	JHS	TAL NSH

Client Sample ID: MW-7

Lab Sample ID: 490-106833-8

Date Collected: 06/28/16 16:10
Matrix: Water
Date Received: 06/30/16 15:59

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	10 mL		354974	07/14/16 08:12	JHS	TAL NSH

Client Sample ID: Dup

Lab Sample ID: 490-106833-9

Date Collected: 06/28/16 00:01
Matrix: Water
Date Received: 06/30/16 15:59

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		50	10 mL		354974	07/14/16 08:32	JHS	TAL NSH

Client Sample ID: MW-R1

Lab Sample ID: 490-106833-10

Date Collected: 06/29/16 10:50
Matrix: Water
Date Received: 06/30/16 15:59

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	10 mL		354708	07/12/16 22:47	JHS	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 M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Method	Method Description	Protocol	Laboratory
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.

Laboratory References:

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

Certification Summary

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-106833-1
SDG: Property ID 891077

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-106833 Chain of Custody

Cooler Received/Opened On 6/30/2016 @ 1030

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

1. Tracking # 3574 (last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID 17610176 pH Strip Lot HC564992 Chlorine Strip Lot 012516A

2. Temperature of rep. sample or temp blank when opened: 3.2 *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 on Front, 1 on Back

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

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

I certify that I opened the cooler and answered questions 1-6 (intial) JAB

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7/15/2016

CHAIN OF CUSTODY RECORD

No. 00916

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTM101	PROJECT NAME: CHK STATE M-1	COC ____ of ____	
SHIPPED TO: TA Nashville	PROJECT MANAGER: Bruce McKenzie	TAT: STANDARD	

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

ASOW: GEN/SUB: 750-521
PROP ID: 891077

	Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE (300)	Temp.°	REMARKS
1	6-28-16	815	MW-2	W	1	X		Note: Free product in MW-R1 Very HOT
2	6-28-16	915	MW-5	W	1	X		
3	6-28-16	955	EQ Blank	W	1	X		
4	6-28-16	1050	MW-3	W	1	X		
5	6-28-16	1225	MW-4	W	1	X		
6	6-28-16	1340	MW-8	W	1	X		
7	6-28-16	1500	MW-6	W	1	X		
8	6-28-16	1610	MW-7	W	1	X		
9	6-28-16	—	Dup	W	1	X		
	—	—	Temp	W	1		X	
10	6-29-16	1050	MW-R1	W	1	X		

Loc: 490
106833

TOTAL NUMBER OF CONTAINERS → 11

RELINQUISHED BY: Terry Fisher	DATE 6-29-16	RECEIVED BY: TAN	DATE 6-30-16
	TIME 1600		TIME 1030
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
	TIME		TIME

Temp. 3.2

METHOD OF SHIPMENT: FED-EX

AIRBILL NUMBER:

RECEIVED IN LABORATORY BY: DATE / TIME

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

LABORATORY CONTACT:
(615) 726-0177

LABORATORY ADDRESS:
2960 Foster Creighton Dr., 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: 490-106833-1
SDG Number: Property ID 891077

Login Number: 106833
List Number: 1
Creator: Armstrong, Daniel

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	3.2C
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").	N/A	
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: 490-112467-1
TestAmerica Sample Delivery Group: Property ID 891077
Client Project/Site: CHK STATE M-1
Sampling Event: CHK State M-1

For:
Enviro Clean Services LLC
7060 S. Yale Avenue, Suite 603
Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech

Cathy Gartner

Authorized for release by:
10/7/2016 3:24:00 PM

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

Table of Contents

Sample Summary

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-112467-1	MW-2	Water	09/21/16 08:31	09/23/16 18:24
490-112467-2	MW-5	Water	09/21/16 10:00	09/23/16 18:24
490-112467-3	MW-3	Water	09/21/16 11:14	09/23/16 18:24
490-112467-4	MW-4	Water	09/21/16 12:39	09/23/16 18:24
490-112467-5	MW-8	Water	09/21/16 13:50	09/23/16 18:24
490-112467-6	MW-6	Water	09/21/16 14:55	09/23/16 18:24
490-112467-7	MW-7	Water	09/21/16 16:10	09/23/16 18:24
490-112467-8	EQ Blank	Water	09/21/16 07:40	09/23/16 18:24
490-112467-9	Dup	Water	09/21/16 00:01	09/23/16 18:24
490-112467-10	MW-1R	Water	09/22/16 08:30	09/23/16 18:24

Case Narrative

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Job ID: 490-112467-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-112467-1

Comments
No additional comments.

Receipt
The samples were received on 9/23/2016 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.5º C.

HPLC/IC
Method(s) 300.0: The matrix spike (MS) recoveries for analytical batch 490-375625 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits.

Method(s) 300.0: The following samples was diluted due to the nature of the sample matrix: MW-5 (490-112467-2), MW-3 (490-112467-3), MW-4 (490-112467-4), MW-8 (490-112467-5), MW-6 (490-112467-6), MW-7 (490-112467-7), Dup (490-112467-9) and MW-1R (490-112467-10). 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.

Definitions/Glossary

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-2
Date Collected: 09/21/16 08:31
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.6		1.00		mg/L			10/05/16 16:21	1

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-5
Date Collected: 09/21/16 10:00
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-2
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.2		2.00		mg/L			10/07/16 04:30	2

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-3
Date Collected: 09/21/16 11:14
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52.0		5.00		mg/L			10/07/16 05:04	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-4
Date Collected: 09/21/16 12:39
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-4
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	569		50.0		mg/L			10/07/16 05:38	50

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-8
Date Collected: 09/21/16 13:50
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	490		50.0		mg/L			10/07/16 07:38	50

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-6
Date Collected: 09/21/16 14:55
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	128		10.0		mg/L			10/07/16 08:12	10

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-7
Date Collected: 09/21/16 16:10
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-7
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	38.2		5.00		mg/L			10/07/16 08:46	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: EQ Blank
Date Collected: 09/21/16 07:40
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-8
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			10/05/16 19:12	1

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: Dup
Date Collected: 09/21/16 00:01
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-9
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	504		50.0		mg/L			10/07/16 09:20	50

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-1R
Date Collected: 09/22/16 08:30
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-10
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28.5		2.00		mg/L			10/07/16 09:54	2

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-375625/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 375625

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			10/05/16 12:56	1

Lab Sample ID: LCS 490-375625/7 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 375625

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.817		mg/L		98	90 - 110

Lab Sample ID: LCSD 490-375625/8 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 375625

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.982		mg/L		100	90 - 110	2	20

Lab Sample ID: 490-112467-A-3 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 375625

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	61.3	E	2.00	50.90	E 4	mg/L		-522	80 - 120

Lab Sample ID: MB 490-376306/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 376306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			10/06/16 23:05	1

Lab Sample ID: MB 490-376306/30 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 376306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			10/07/16 06:47	1

Lab Sample ID: LCS 490-376306/31 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 376306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.875		mg/L		99	90 - 110

Lab Sample ID: LCS 490-376306/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 376306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.811		mg/L		98	90 - 110

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Lab Sample ID: LCSD 490-376306/32
Matrix: Water
Analysis Batch: 376306

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	10.08		mg/L		101	90 - 110	2	20

Lab Sample ID: LCSD 490-376306/5
Matrix: Water
Analysis Batch: 376306

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	9.716		mg/L		97	90 - 110	1	20

QC Association Summary

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

HPLC/IC

Analysis Batch: 375625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-112467-1	MW-2	Total/NA	Water	300.0	
490-112467-8	EQ Blank	Total/NA	Water	300.0	
MB 490-375625/6	Method Blank	Total/NA	Water	300.0	
LCS 490-375625/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-375625/8	Lab Control Sample Dup	Total/NA	Water	300.0	
490-112467-A-3 MS	Matrix Spike	Total/NA	Water	300.0	

Analysis Batch: 376306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-112467-2	MW-5	Total/NA	Water	300.0	
490-112467-3	MW-3	Total/NA	Water	300.0	
490-112467-4	MW-4	Total/NA	Water	300.0	
490-112467-5	MW-8	Total/NA	Water	300.0	
490-112467-6	MW-6	Total/NA	Water	300.0	
490-112467-7	MW-7	Total/NA	Water	300.0	
490-112467-9	Dup	Total/NA	Water	300.0	
490-112467-10	MW-1R	Total/NA	Water	300.0	
MB 490-376306/3	Method Blank	Total/NA	Water	300.0	
MB 490-376306/30	Method Blank	Total/NA	Water	300.0	
LCS 490-376306/31	Lab Control Sample	Total/NA	Water	300.0	
LCS 490-376306/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-376306/32	Lab Control Sample Dup	Total/NA	Water	300.0	
LCSD 490-376306/5	Lab Control Sample Dup	Total/NA	Water	300.0	

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-2
Date Collected: 09/21/16 08:31
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-1
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			375625	10/05/16 16:21	KS	TAL NSH

Client Sample ID: MW-5
Date Collected: 09/21/16 10:00
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-2
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		2			376306	10/07/16 04:30	JHS	TAL NSH

Client Sample ID: MW-3
Date Collected: 09/21/16 11:14
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-3
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			376306	10/07/16 05:04	JHS	TAL NSH

Client Sample ID: MW-4
Date Collected: 09/21/16 12:39
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-4
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		50			376306	10/07/16 05:38	JHS	TAL NSH

Client Sample ID: MW-8
Date Collected: 09/21/16 13:50
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-5
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		50			376306	10/07/16 07:38	JHS	TAL NSH

Client Sample ID: MW-6
Date Collected: 09/21/16 14:55
Date Received: 09/23/16 18:24

Lab Sample ID: 490-112467-6
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			376306	10/07/16 08:12	JHS	TAL NSH

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Client Sample ID: MW-7

Lab Sample ID: 490-112467-7

Date Collected: 09/21/16 16:10
Matrix: Water
Date Received: 09/23/16 18:24

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			376306	10/07/16 08:46	JHS	TAL NSH

Client Sample ID: EQ Blank

Lab Sample ID: 490-112467-8

Date Collected: 09/21/16 07:40
Matrix: Water
Date Received: 09/23/16 18:24

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			375625	10/05/16 19:12	KS	TAL NSH

Client Sample ID: Dup

Lab Sample ID: 490-112467-9

Date Collected: 09/21/16 00:01
Matrix: Water
Date Received: 09/23/16 18:24

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		50			376306	10/07/16 09:20	JHS	TAL NSH

Client Sample ID: MW-1R

Lab Sample ID: 490-112467-10

Date Collected: 09/22/16 08:30
Matrix: Water
Date Received: 09/23/16 18:24

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			376306	10/07/16 09:54	JHS	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 M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Method	Method Description	Protocol	Laboratory
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.

Laboratory References:

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

Certification Summary

Client: Enviro Clean Services LLC
Project/Site: CHK STATE M-1

TestAmerica Job ID: 490-112467-1
SDG: Property ID 891077

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-17

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-112467 Chain of Custody

Cooler Received/Opened On 9/23/2016 @ 0925

Time Samples Removed From Cooler_____ Time Samples Placed In Storage_____ (2 Hour Window)

1. Tracking #_3095_____(last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID 17610176 pH Strip Lot HC58117 Chlorine Strip Lot 71130

2. Temperature of rep. sample or temp blank when opened: 1.5 *Degrees Celsius*

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

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

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

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

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

I certify that I opened the cooler and answered questions 1-6 (intial) AEG

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

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

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

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

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

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

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

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

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

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

I certify that I unloaded the cooler and answered questions 7-14 (intial) AJT

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) PM

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) PM

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

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

10/7/2016

CHAIN OF CUSTODY RECORD

No. 00935

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTM101	PROJECT NAME: CHK STATE M-1	COC 1 of 1
SHIPPED TO: TA Nashville	PROJECT MANAGER: Bruce McKenzie	TAT: STANDARD

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

ASOW: GENSUB: 750-521
PROP ID: 891077

Loc: 490
112467

Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE (300)	REMARKS
9-21-16	0831	MW-2	W	1	X	
9-21-16	1000	MW-5	W	1	X	NOTE:
9-21-16	1114	MW-3	W	1	X	Free Phase
9-21-16	1239	MW-4	W	1	X	IN MW-1R
9-21-16	1350	MW-8	W	1	X	
9-21-16	1455	MW-6	W	1	X	
9-21-16	1610	MW-7	W	1	X	
9-21-16	0740	EQ Blank	W	1	X	
9-21-16	—	Dup	W	1	X	
9-22-16	830	MW-1R	W	1	X	

TOTAL NUMBER OF CONTAINERS → 10

RELINQUISHED BY:	DATE 9-22-16 TIME 1600	RECEIVED BY: 1.5	DATE 9/23/16 TIME 925
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	DATE TIME
METHOD OF SHIPMENT: FED-EX		AIRBILL NUMBER:	
RECEIVED IN LABORATORY BY:	DATE TIME	Send PDF, EDD, and INVOICE (if applicable) to: JULIE CZECH at jczech@envirocleanps.com	
LABORATORY CONTACT: (615) 726-0177		LABORATORY ADDRESS: 2960 Foster Creighton Dr., 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: 490-112467-1
SDG Number: Property ID 891077

Login Number: 112467
List Number: 1
Creator: Ngo, Phiet

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.	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: 490-117951-1
TestAmerica Sample Delivery Group: Property ID 891077
Client Project/Site: CHK State M-1
Sampling Event: CHK State M-1

For:
Enviro Clean Services LLC
7060 S. Yale Avenue, Suite 603
Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech

Cathy Gartner

Authorized for release by:
12/28/2016 12:35:03 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

Table of Contents

Sample Summary

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-117951-1	MW-2	Water	12/07/16 08:40	12/09/16 19:35
490-117951-2	MW-5	Water	12/07/16 09:48	12/09/16 19:35
490-117951-3	MW-3	Water	12/07/16 10:46	12/09/16 19:35
490-117951-4	MW-4	Water	12/07/16 11:58	12/09/16 19:35
490-117951-5	MW-8	Water	12/07/16 13:09	12/09/16 19:35
490-117951-6	MW-6	Water	12/07/16 14:39	12/09/16 19:35
490-117951-7	MW-7	Water	12/07/16 15:56	12/09/16 19:35
490-117951-8	MW-1R	Water	12/07/16 16:45	12/09/16 19:35
490-117951-9	EQ Blank	Water	12/07/16 10:52	12/09/16 19:35
490-117951-10	Dup	Water	12/07/16 00:01	12/09/16 19:35

Case Narrative

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Job ID: 490-117951-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-117951-1

Comments
No additional comments.

Receipt
The samples were received on 12/9/2016 10:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

HPLC/IC
Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 490-395658 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) recovery was within acceptance limits.

Method(s) 300.0: The following samples was diluted due to the nature of the sample matrix: MW-3 (490-117951-3) and MW-6 (490-117951-6). MW-4 (490-117951-4), MW-8 (490-117951-5), MW-1R (490-117951-8) and Dup (490-117951-10). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: Due to sample, matrix spike/ matrix spike duplicate (MS/MSD) was not analyzed in 490-397072. However, the laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) recoveries were within acceptance limits.

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

Definitions/Glossary

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-2
Date Collected: 12/07/16 08:40
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18.2		1.00		mg/L			12/20/16 00:18	1

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-5
Date Collected: 12/07/16 09:48
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-2
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.8		1.00		mg/L			12/20/16 01:03	1

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-3
Date Collected: 12/07/16 10:46
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	55.1		10.0		mg/L			12/23/16 16:51	10

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-4
Date Collected: 12/07/16 11:58
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-4
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	605		20.0		mg/L			12/24/16 22:08	20

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-8
Date Collected: 12/07/16 13:09
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	768		20.0		mg/L			12/24/16 22:30	20

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-6
Date Collected: 12/07/16 14:39
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	125		10.0		mg/L			12/23/16 17:24	10

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-7
Date Collected: 12/07/16 15:56
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-7
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.6		1.00		mg/L			12/20/16 03:16	1

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-1R
Date Collected: 12/07/16 16:45
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-8
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	44.8		10.0		mg/L			12/24/16 22:41	10

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: EQ Blank

Date Collected: 12/07/16 10:52
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-9

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			12/20/16 04:00	1

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: Dup
Date Collected: 12/07/16 00:01
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-10
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	606		20.0		mg/L			12/24/16 23:14	20

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-395658/3
Matrix: Water
Analysis Batch: 395658

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			12/19/16 23:45	1

Lab Sample ID: LCS 490-395658/4
Matrix: Water
Analysis Batch: 395658

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	10.81		mg/L		108	90 - 110

Lab Sample ID: LCSD 490-395658/5
Matrix: Water
Analysis Batch: 395658

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	10.95		mg/L		109	90 - 110	1	20

Lab Sample ID: 490-117951-A-1 MS
Matrix: Water
Analysis Batch: 395658

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	18.2		2.00	16.62		mg/L			

Lab Sample ID: 490-117951-A-1 MSD
Matrix: Water
Analysis Batch: 395658

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	18.2		2.00	16.71		mg/L				1	20

Lab Sample ID: MB 490-396870/11
Matrix: Water
Analysis Batch: 396870

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			12/23/16 14:26	1

Lab Sample ID: LCS 490-396870/12
Matrix: Water
Analysis Batch: 396870

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	10.90		mg/L		109	90 - 110

Lab Sample ID: LCSD 490-396870/13
Matrix: Water
Analysis Batch: 396870

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	10.86		mg/L		109	90 - 110	0	20

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Lab Sample ID: MB 490-397072/3
Matrix: Water
Analysis Batch: 397072

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			12/24/16 21:23	1

Lab Sample ID: LCS 490-397072/4
Matrix: Water
Analysis Batch: 397072

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	10.92		mg/L		109	90 - 110		

Lab Sample ID: LCSD 490-397072/5
Matrix: Water
Analysis Batch: 397072

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	10.90		mg/L		109	90 - 110	0	20

QC Association Summary

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

HPLC/IC

Analysis Batch: 395658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-117951-1	MW-2	Total/NA	Water	300.0	
490-117951-2	MW-5	Total/NA	Water	300.0	
490-117951-7	MW-7	Total/NA	Water	300.0	
490-117951-9	EQ Blank	Total/NA	Water	300.0	
MB 490-395658/3	Method Blank	Total/NA	Water	300.0	
LCS 490-395658/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-395658/5	Lab Control Sample Dup	Total/NA	Water	300.0	
490-117951-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
490-117951-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 396870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-117951-3	MW-3	Total/NA	Water	300.0	
490-117951-6	MW-6	Total/NA	Water	300.0	
MB 490-396870/11	Method Blank	Total/NA	Water	300.0	
LCS 490-396870/12	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-396870/13	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 397072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-117951-4	MW-4	Total/NA	Water	300.0	
490-117951-5	MW-8	Total/NA	Water	300.0	
490-117951-8	MW-1R	Total/NA	Water	300.0	
490-117951-10	Dup	Total/NA	Water	300.0	
MB 490-397072/3	Method Blank	Total/NA	Water	300.0	
LCS 490-397072/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-397072/5	Lab Control Sample Dup	Total/NA	Water	300.0	

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-2
Date Collected: 12/07/16 08:40
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-1
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			395658	12/20/16 00:18	LDC	TAL NSH

Client Sample ID: MW-5
Date Collected: 12/07/16 09:48
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-2
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			395658	12/20/16 01:03	LDC	TAL NSH

Client Sample ID: MW-3
Date Collected: 12/07/16 10:46
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-3
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		10			396870	12/23/16 16:51	LDC	TAL NSH

Client Sample ID: MW-4
Date Collected: 12/07/16 11:58
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-4
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		20			397072	12/24/16 22:08	LDC	TAL NSH

Client Sample ID: MW-8
Date Collected: 12/07/16 13:09
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-5
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		20			397072	12/24/16 22:30	LDC	TAL NSH

Client Sample ID: MW-6
Date Collected: 12/07/16 14:39
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-6
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			396870	12/23/16 17:24	LDC	TAL NSH

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Client Sample ID: MW-7
Date Collected: 12/07/16 15:56
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			395658	12/20/16 03:16	LDC	TAL NSH

Client Sample ID: MW-1R
Date Collected: 12/07/16 16:45
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-8
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			397072	12/24/16 22:41	LDC	TAL NSH

Client Sample ID: EQ Blank
Date Collected: 12/07/16 10:52
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-9
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	300.0		1			395658	12/20/16 04:00	LDC	TAL NSH

Client Sample ID: Dup
Date Collected: 12/07/16 00:01
Date Received: 12/09/16 19:35

Lab Sample ID: 490-117951-10
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			397072	12/24/16 23:14	LDC	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 M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Method	Method Description	Protocol	Laboratory
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.

Laboratory References:

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

Certification Summary

Client: Enviro Clean Services LLC
Project/Site: CHK State M-1

TestAmerica Job ID: 490-117951-1
SDG: Property ID 891077

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-17

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-117951 Chain of Custody

Cooler Received/Opened On 12/9/2016 @ 10:25

Time Samples Removed From Cooler 1815 Time Samples Placed In Storage 1947 (2 Hour Window)

1. Tracking # 7872 (last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID 17610176 pH Strip Lot HC68979 Chlorine Strip Lot 08116

2. Temperature of rep. sample or temp blank when opened: 2.6 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) PM

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

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

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

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

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

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

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

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

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

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

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

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) PM

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) PM

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

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

CHAIN OF CUSTODY RECORD

No. 00200

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTM101	PROJECT NAME: CHK STATE M-1	COC 1 of 1	
SHIPPED TO: TA Nashville	PROJECT MANAGER: Bruce McKenzie	TAT: STANDARD	

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

ASOW: GEN/SUB: 750-521 PROP ID: 891077

Loc: 490 117951

	Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE (300)	REMARKS
1	12-7-16	840	MW-2	W	1	X	
2	12-7-16	948	MW-5	W	1	X	
3	12-7-16	1046	MW-3	W	1	X	
4	12-7-16	1158	MW-4	W	1	X	
5	12-7-16	1309	MW-8	W	1	X	
6	12-7-16	1439	MW-6	W	1	X	
7	12-7-16	1556	MW-7	W	1	X	
8	12-7-16	1645	MW-1R	W	1	X	
9	12-7-16	1052	EQ Blank	W	1	X	
10	12-7-16	—	Dup	W	1	X	
	—	—	Temp Blank	W	1		

TOTAL NUMBER OF CONTAINERS → 11

RELINQUISHED BY: Terry Fisher	DATE 12-8-16 TIME 1500	RECEIVED BY: 2.6	DATE 12/9/16 TIME 1025
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	DATE TIME

METHOD OF SHIPMENT: FED-EX
AIRBILL NUMBER: 7122 0847 0441

RECEIVED IN LABORATORY BY: DATE TIME

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

LABORATORY CONTACT: (615) 726-0177

LABORATORY ADDRESS: 2960 Foster Creighton Dr., Nashville, TN 37204

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

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

Login Sample Receipt Checklist

Client: Enviro Clean Services LLC

Job Number: 490-117951-1
SDG Number: Property ID 891077

Login Number: 117951
List Number: 1
Creator: Ngo, Phiet

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.	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: 490-123503-1
TestAmerica Sample Delivery Group: Property ID 891077
Client Project/Site: STATE M-1
Sampling Event: CHK State M-1

For:
Enviro Clean Services LLC
7060 S. Yale Avenue, Suite 603
Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech

Cathy Gartner

Authorized for release by:
3/28/2017 9:57:07 AM

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

Table of Contents

Sample Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-123503-1	MW-2	Water	03/08/17 08:35	03/10/17 10:05
490-123503-2	MW-3	Water	03/08/17 10:55	03/10/17 10:05
490-123503-3	MW-5	Water	03/08/17 09:45	03/10/17 10:05
490-123503-4	MW-4	Water	03/08/17 12:35	03/10/17 10:05
490-123503-5	MW-8	Water	03/08/17 14:20	03/10/17 10:05
490-123503-6	MW-6	Water	03/08/17 15:55	03/10/17 10:05
490-123503-7	MW-7	Water	03/08/17 16:45	03/10/17 10:05
490-123503-8	EQ Blank	Water	03/08/17 10:35	03/10/17 10:05
490-123503-9	Dup	Water	03/08/17 00:01	03/10/17 10:05
490-123503-10	MW-1R	Water	03/09/17 09:30	03/10/17 10:05

Case Narrative

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Job ID: 490-123503-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-123503-1

Comments
No additional comments.

Receipt
The samples were received on 3/10/2017 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

HPLC/IC
Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 490-416275 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 490-416955 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within the acceptance limits.

Method(s) 300.0: Due to the high concentration of Chloride, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-416955 could not be evaluated for accuracy and precision. More than a 5 times dilution was needed for the sample therefore the data is not reportable. The associated laboratory control sample (LCS) met acceptance criteria.

Method(s) 300.0: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-416275 could not be evaluated for accuracy and precision. More than a 5 times dilution was needed for the sample therefore the data is not reportable. The associated laboratory control sample (LCS) met acceptance criteria.

Method(s) 300.0: The following samples was diluted due to the nature of the sample matrix: MW-2 (490-123503-1), MW-3 (490-123503-2), MW-5 (490-123503-3), MW-4 (490-123503-4), MW-8 (490-123503-5), MW-6 (490-123503-6), MW-7 (490-123503-7) and Dup (490-123503-9). 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.

Definitions/Glossary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-2
Date Collected: 03/08/17 08:35
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.0		5.00		mg/L			03/23/17 18:42	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-3
Date Collected: 03/08/17 10:55
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-2
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50.0		5.00		mg/L			03/23/17 19:00	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-5
Date Collected: 03/08/17 09:45
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23.1		5.00		mg/L			03/23/17 19:18	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-4
Date Collected: 03/08/17 12:35
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-4
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	500		50.0		mg/L			03/23/17 19:36	50

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-8
Date Collected: 03/08/17 14:20
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	489		50.0		mg/L			03/23/17 19:54	50

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-6
Date Collected: 03/08/17 15:55
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	94.4		10.0		mg/L			03/23/17 20:12	10

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-7
Date Collected: 03/08/17 16:45
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-7
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.2		5.00		mg/L			03/23/17 21:05	5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: EQ Blank
Date Collected: 03/08/17 10:35
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-8
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00		mg/L			03/23/17 21:23	1

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: Dup
Date Collected: 03/08/17 00:01
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-9
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	516		20.0		mg/L			03/23/17 21:41	20

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-1R
Date Collected: 03/09/17 09:30
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-10
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	32.0		1.00		mg/L			03/22/17 03:18	1

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 490-416275/3
Matrix: Water
Analysis Batch: 416275

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			03/22/17 02:01	1

Lab Sample ID: LCS 490-416275/4
Matrix: Water
Analysis Batch: 416275

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	9.765		mg/L		98	90 - 110

Lab Sample ID: LCSD 490-416275/5
Matrix: Water
Analysis Batch: 416275

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	10.05		mg/L		100	90 - 110	3	20

Lab Sample ID: 580-66491-H-1 MS
Matrix: Water
Analysis Batch: 416275

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	11.0		2.00	10.57	4	mg/L		-22	80 - 120

Lab Sample ID: 580-66491-H-1 MSD
Matrix: Water
Analysis Batch: 416275

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	11.0		2.00	10.53	4	mg/L		-24	80 - 120	0	20

Lab Sample ID: MB 490-416955/3
Matrix: Water
Analysis Batch: 416955

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			03/23/17 16:02	1

Lab Sample ID: LCS 490-416955/4
Matrix: Water
Analysis Batch: 416955

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	10.61		mg/L		106	90 - 110

Lab Sample ID: LCSD 490-416955/5
Matrix: Water
Analysis Batch: 416955

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	10.67		mg/L		107	90 - 110	1	20

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

QC Association Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

HPLC/IC

Analysis Batch: 416275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-123503-10	MW-1R	Total/NA	Water	300.0	
MB 490-416275/3	Method Blank	Total/NA	Water	300.0	
LCS 490-416275/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-416275/5	Lab Control Sample Dup	Total/NA	Water	300.0	
580-66491-H-1 MS	Matrix Spike	Total/NA	Water	300.0	
580-66491-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 416955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-123503-1	MW-2	Total/NA	Water	300.0	
490-123503-2	MW-3	Total/NA	Water	300.0	
490-123503-3	MW-5	Total/NA	Water	300.0	
490-123503-4	MW-4	Total/NA	Water	300.0	
490-123503-5	MW-8	Total/NA	Water	300.0	
490-123503-6	MW-6	Total/NA	Water	300.0	
490-123503-7	MW-7	Total/NA	Water	300.0	
490-123503-8	EQ Blank	Total/NA	Water	300.0	
490-123503-9	Dup	Total/NA	Water	300.0	
MB 490-416955/3	Method Blank	Total/NA	Water	300.0	
LCS 490-416955/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 490-416955/5	Lab Control Sample Dup	Total/NA	Water	300.0	

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-2
Date Collected: 03/08/17 08:35
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-1
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			416955	03/23/17 18:42	JHS	TAL NSH

Client Sample ID: MW-3
Date Collected: 03/08/17 10:55
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-2
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		5			416955	03/23/17 19:00	JHS	TAL NSH

Client Sample ID: MW-5
Date Collected: 03/08/17 09:45
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-3
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			416955	03/23/17 19:18	JHS	TAL NSH

Client Sample ID: MW-4
Date Collected: 03/08/17 12:35
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-4
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		50			416955	03/23/17 19:36	JHS	TAL NSH

Client Sample ID: MW-8
Date Collected: 03/08/17 14:20
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-5
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		50			416955	03/23/17 19:54	JHS	TAL NSH

Client Sample ID: MW-6
Date Collected: 03/08/17 15:55
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-6
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			416955	03/23/17 20:12	JHS	TAL NSH

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Client Sample ID: MW-7
Date Collected: 03/08/17 16:45
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-7
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		5			416955	03/23/17 21:05	JHS	TAL NSH

Client Sample ID: EQ Blank
Date Collected: 03/08/17 10:35
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			416955	03/23/17 21:23	JHS	TAL NSH

Client Sample ID: Dup
Date Collected: 03/08/17 00:01
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-9
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	300.0		20			416955	03/23/17 21:41	JHS	TAL NSH

Client Sample ID: MW-1R
Date Collected: 03/09/17 09:30
Date Received: 03/10/17 10:05

Lab Sample ID: 490-123503-10
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			416275	03/22/17 03:18	T1C	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 M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Method	Method Description	Protocol	Laboratory
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.

Laboratory References:

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

Certification Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 490-123503-1
SDG: Property ID 891077

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-17

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-123503 Chain of Custody

Cooler Received/Opened On 3/10/2017 @ 1005

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

1. Tracking # 3203 1007 7 9348 (last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID_160406069_ pH Strip Lot N/A Chlorine Strip Lot N/A

2. Temperature of rep. sample or temp blank when opened: 2.6 Degrees Celsius

3. If Item #2 temperatures 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 & Back

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

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

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

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 # NA

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

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) EVA

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) EVA

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

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

CHAIN OF CUSTODY RECORD

No. 00934

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTM101	PROJECT NAME: CHK STATE M-1	COC 1 of 1	
SHIPPED TO: TA Nashville	PROJECT MANAGER: Bruce McKenzie	TAT: STANDARD	

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

ASOW: GEN/SUB: 750-521
PROP ID: 891077

Loc: 490
123503

Date	Time	Sample ID	Sample Matrix	# of Sample Containers	CHLORIDE (300)	REMARKS
3-8-17	835	MW-2	W	1	X	MW-1R Has free phase could be Moti
3-8-17	1055	MW-3	W	1	X	
3-8-17	945	MW-5	W	1	X	
3-8-17	1235	MW-4	W	1	X	
3-8-17	1420	MW-8	W	1	X	
3-8-17	1555	MW-6	W	1	X	
3-8-17	1645	MW-7	W	1	X	
3-8-17	1035	EQ Blank	W	1	X	
3-8-17	—	Dup	W	1	X	
3-9-17	930	MW-1R	W	1	X	
—	—	Temp	W	1		

TOTAL NUMBER OF CONTAINERS → 11

RELINQUISHED BY:	DATE 3-9-17	RECEIVED BY:	DATE 3-10-17
	TIME 1600		TIME 1005
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
	TIME		TIME

METHOD OF SHIPMENT: FED-EX

AIRBILL NUMBER: 7122 0849 9348

RECEIVED IN LABORATORY BY: DATE / TIME

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

LABORATORY CONTACT: (615) 726-0177

LABORATORY ADDRESS: 2960 Foster Creighton Dr., Nashville, TN 37204

Q.D

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: 490-123503-1
SDG Number: Property ID 891077

Login Number: 123503
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	

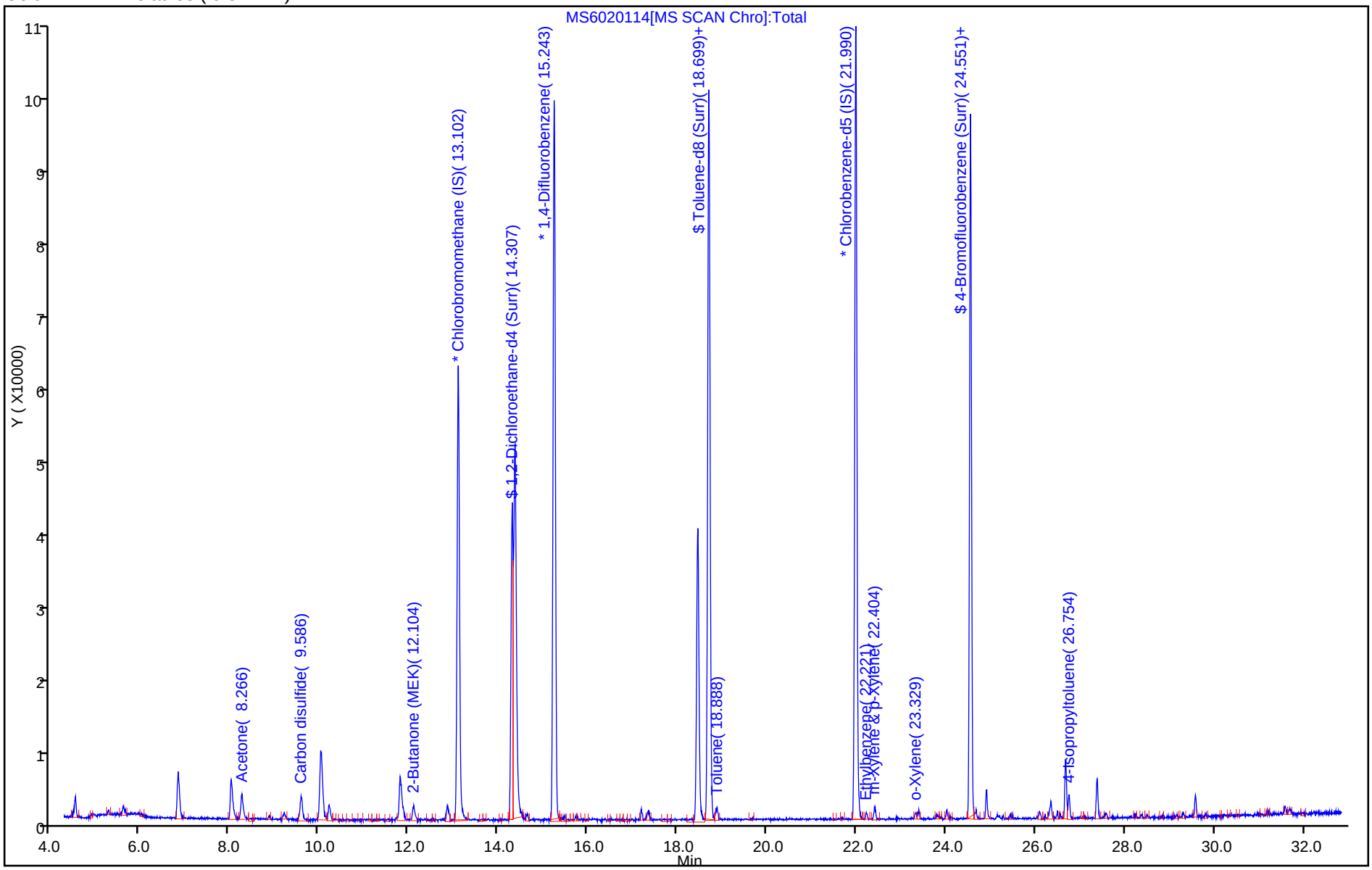
Report Date: 02-Feb-2017 16:05:20 Chrom Revision: 2.2 10-Jan-2017 11:26:10

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20170201-39400.b\MS6020114.D

Injection Date:	02-Feb-2017 00:22:30	Instrument ID:	ATMS6	Operator ID:	LHS
Lims ID:	320-25393-A-1	Lab Sample ID:	320-25393-1	Worklist Smp#:	14
Client ID:	34001452				
Purge Vol:	25.000 mL	Dil. Factor:	1.0000	ALS Bottle#:	9
Method:	TO15_ATMS6	Limit Group:	MSA - TO15 - ICAL		

Column: RTX Volatiles (0.32 mm)



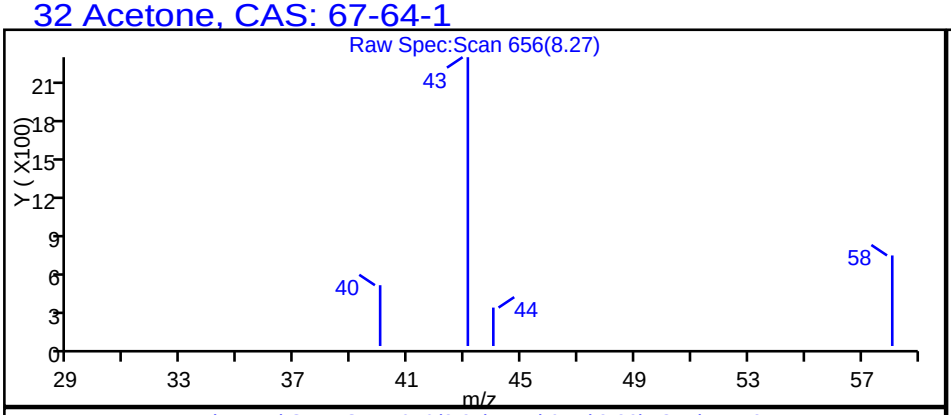
Report Date: 02-Feb-2017 16:05:20 Chrom Revision: 2.2 10-Jan-2017 11:26:10

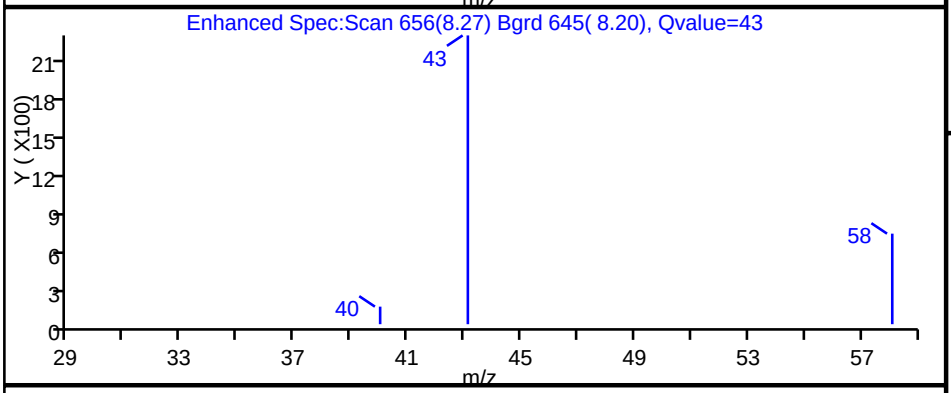
TestAmerica Sacramento

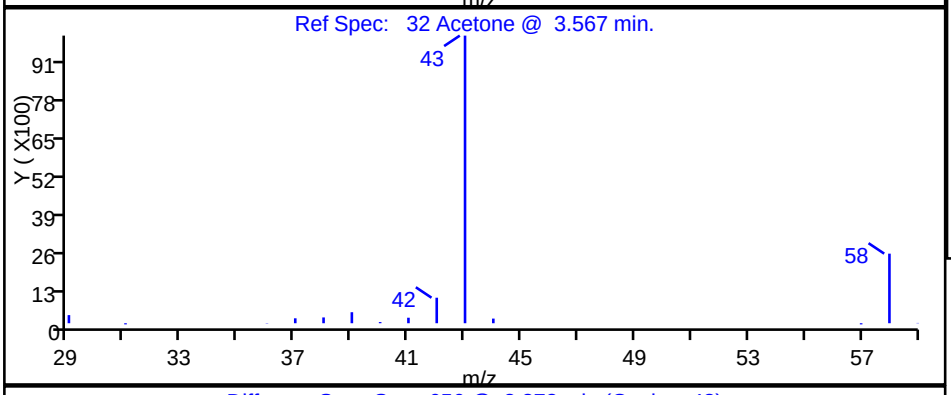
Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20170201-39400.b\MS6020114.D

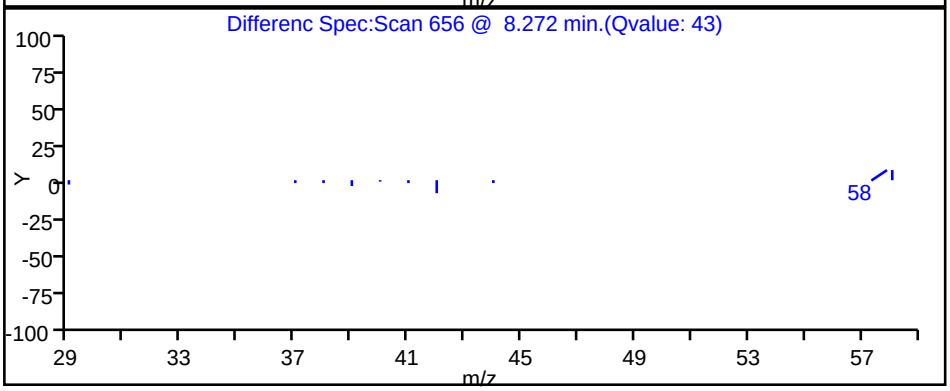
Injection Date:	02-Feb-2017 00:22:30	Instrument ID:	ATMS6		
Lims ID:	320-25393-A-1	Lab Sample ID:	320-25393-1		
Client ID:	34001452				
Operator ID:	LHS	ALS Bottle#:	9	Worklist Smp#:	14
Purge Vol:	25.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS6	Limit Group:	MSA - TO15 - ICAL		
Column:	RTX Volatiles (0.32 mm)	Detector	MS SCAN		

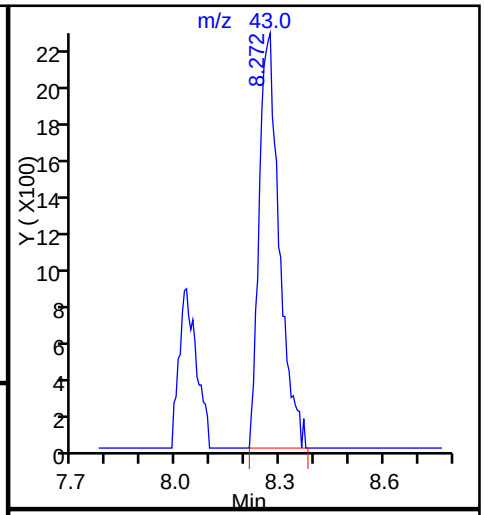
32 Acetone, CAS: 67-64-1

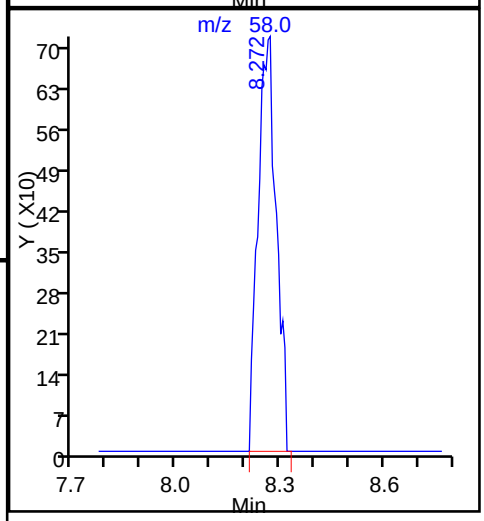












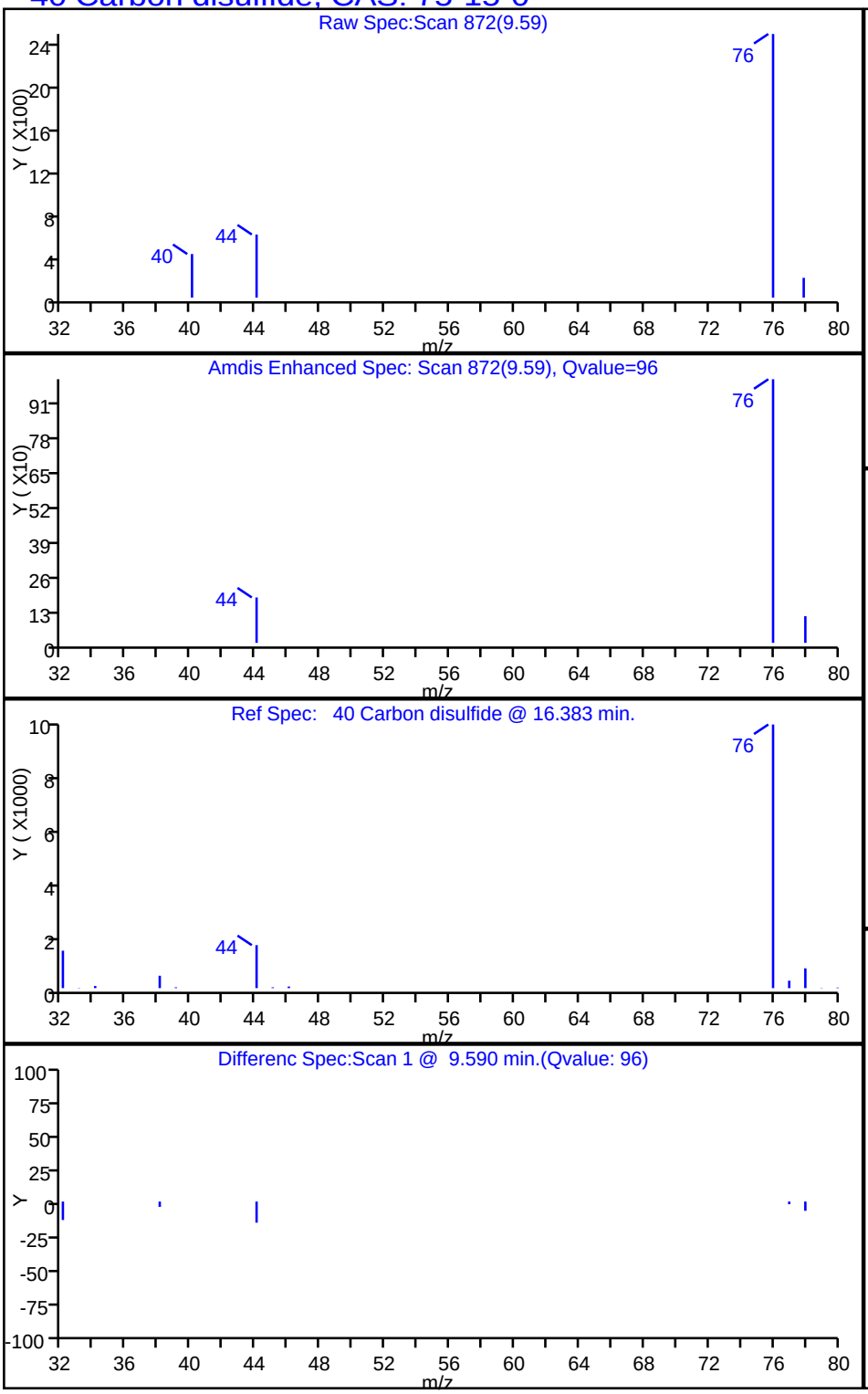
Report Date: 02-Feb-2017 16:05:20 Chrom Revision: 2.2 10-Jan-2017 11:26:10

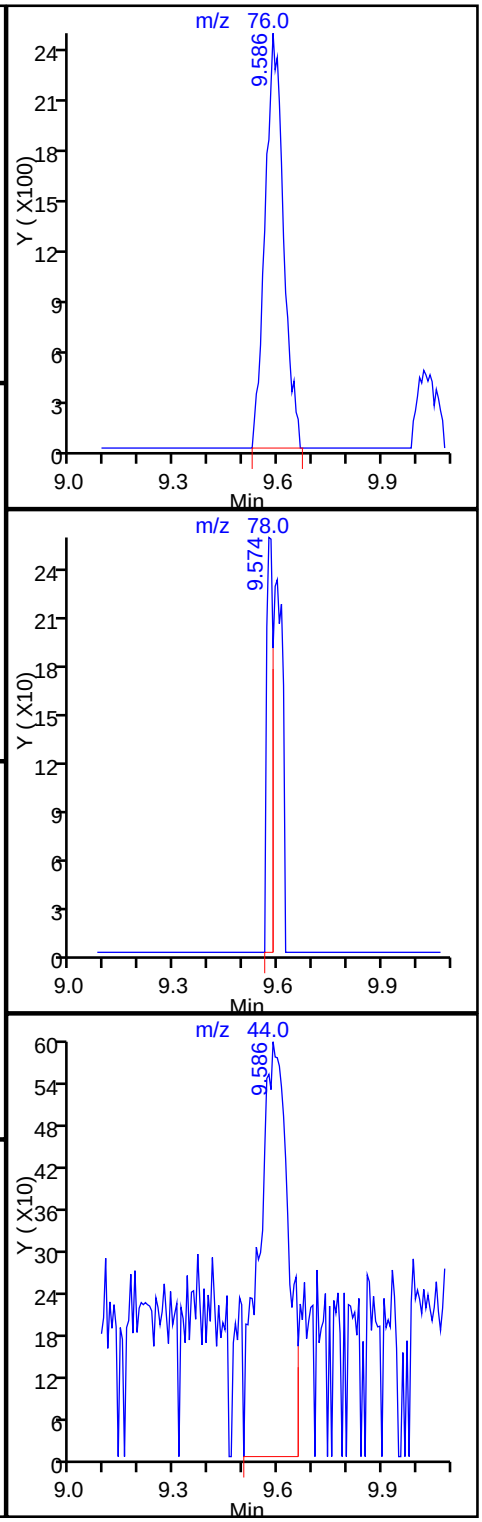
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20170201-39400.b\MS6020114.D

Injection Date:	02-Feb-2017 00:22:30	Instrument ID:	ATMS6		
Lims ID:	320-25393-A-1	Lab Sample ID:	320-25393-1		
Client ID:	34001452				
Operator ID:	LHS	ALS Bottle#:	9	Worklist Smp#:	14
Purge Vol:	25.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS6	Limit Group:	MSA - TO15 - ICAL		
Column:	RTX Volatiles (0.32 mm)	Detector	MS SCAN		

40 Carbon disulfide, CAS: 75-15-0





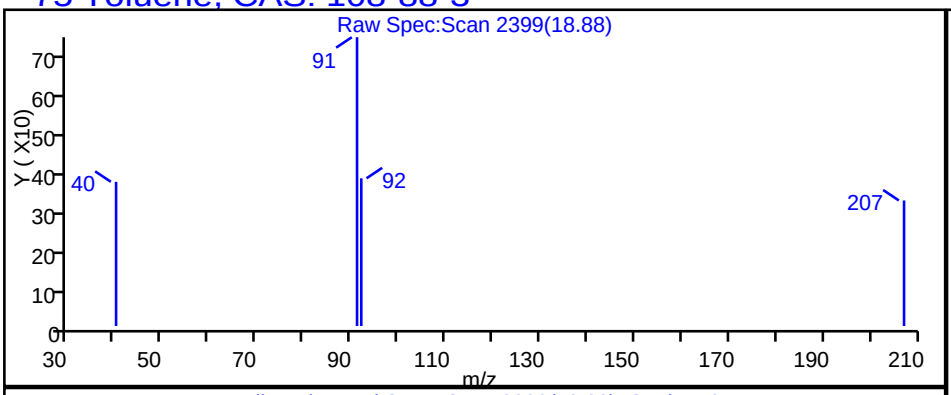
Report Date: 02-Feb-2017 16:05:20 Chrom Revision: 2.2 10-Jan-2017 11:26:10

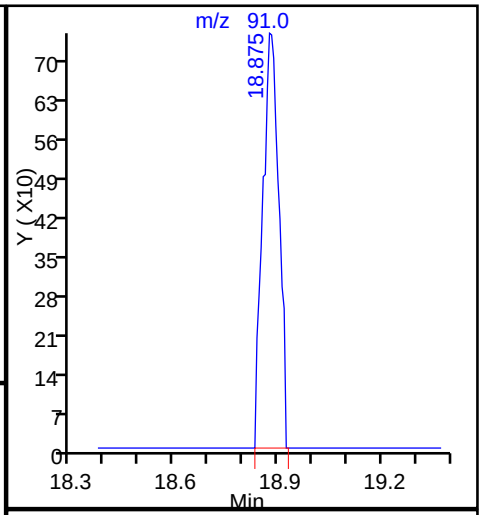
TestAmerica Sacramento

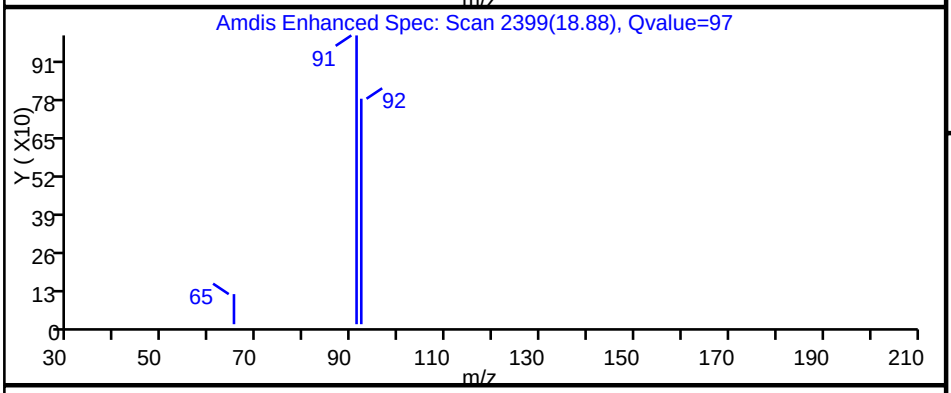
Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20170201-39400.b\MS6020114.D

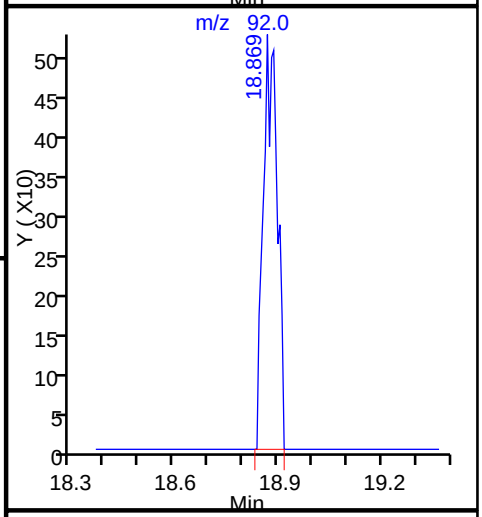
Injection Date:	02-Feb-2017 00:22:30	Instrument ID:	ATMS6		
Lims ID:	320-25393-A-1	Lab Sample ID:	320-25393-1		
Client ID:	34001452				
Operator ID:	LHS	ALS Bottle#:	9	Worklist Smp#:	14
Purge Vol:	25.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS6	Limit Group:	MSA - TO15 - ICAL		
Column:	RTX Volatiles (0.32 mm)	Detector	MS SCAN		

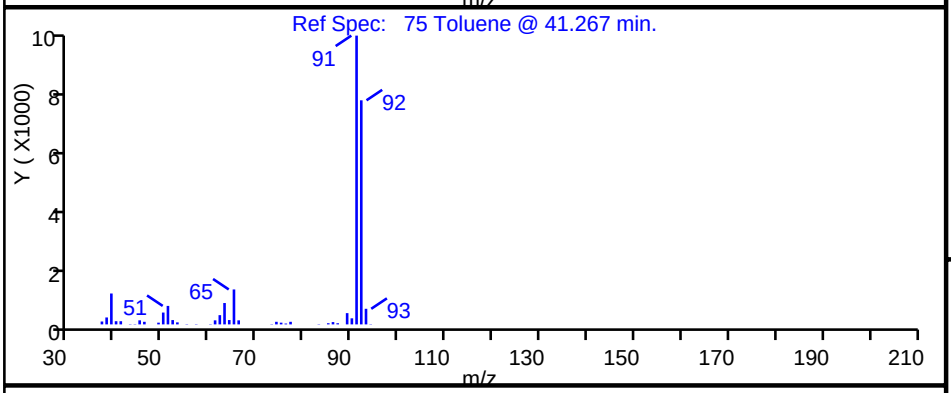
75 Toluene, CAS: 108-88-3

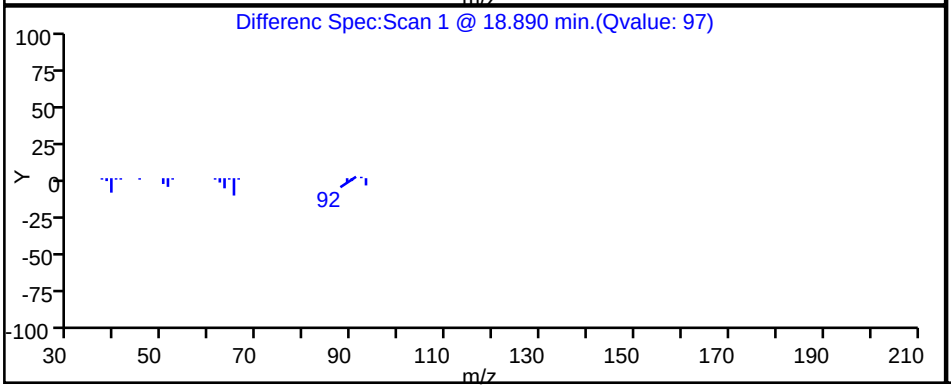


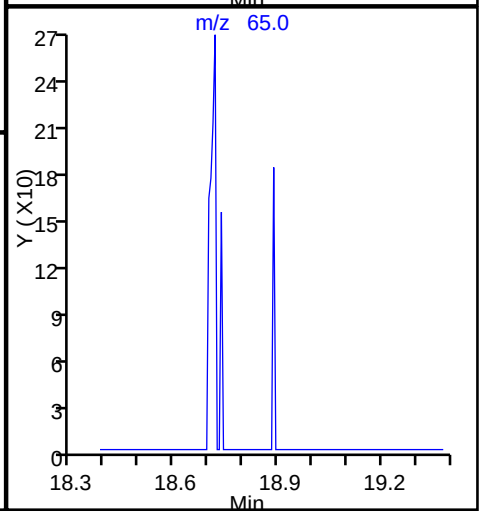












TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-26484-1
TestAmerica Sample Delivery Group: Property ID: 891077
Client Project/Site: STATE M-1
Revision: 1

For:
Enviro Clean Services LLC
7060 S. Yale Avenue, Suite 603
Tulsa, Oklahoma 74136

Attn: Ms. Julie Czech

Cathy Gartner

Authorized for release by:
3/23/2017 2:51:54 PM

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

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Table of Contents

Definitions/Glossary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Job ID: 320-26484-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative
320-26484-1

Comments
No additional comments.

Receipt
The sample was received on 3/10/2017 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice.

Air - GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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

Detection Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Client Sample ID: 20170309 M SVE — Lab Sample ID: 320-26484-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	550		16.2		ppb v/v	40.5		TO-15	Total/NA
Ethylbenzene	908		16.2		ppb v/v	40.5		TO-15	Total/NA
4-Ethyltoluene	263		16.2		ppb v/v	40.5		TO-15	Total/NA
1,1,2,2-Tetrachloroethane	20.0		16.2		ppb v/v	40.5		TO-15	Total/NA
Toluene	193		16.2		ppb v/v	40.5		TO-15	Total/NA
1,2,4-Trimethylbenzene	411		32.4		ppb v/v	40.5		TO-15	Total/NA
1,3,5-Trimethylbenzene	397		16.2		ppb v/v	40.5		TO-15	Total/NA
m,p-Xylene	1510		32.4		ppb v/v	40.5		TO-15	Total/NA
o-Xylene	337		16.2		ppb v/v	40.5		TO-15	Total/NA
Total VOC as Hexane (C6-C12)	985000	B	4050		ppb v/v	40.5		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Client Sample ID: 20170309 M SVE
Date Collected: 03/09/17 12:13
Date Received: 03/10/17 18:21
Sample Container: Summa Canister 6L

Lab Sample ID: 320-26484-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		203		ppb v/v			03/15/17 18:11	40.5
Benzene	**550**		16.2		ppb v/v			03/15/17 18:11	40.5
Benzyl chloride	ND		32.4		ppb v/v			03/15/17 18:11	40.5
Bromodichloromethane	ND		12.2		ppb v/v			03/15/17 18:11	40.5
Bromoform	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Bromomethane	ND		32.4		ppb v/v			03/15/17 18:11	40.5
2-Butanone (MEK)	ND		32.4		ppb v/v			03/15/17 18:11	40.5
Carbon disulfide	ND		32.4		ppb v/v			03/15/17 18:11	40.5
Carbon tetrachloride	ND		32.4		ppb v/v			03/15/17 18:11	40.5
Chlorobenzene	ND		12.2		ppb v/v			03/15/17 18:11	40.5
Dibromochloromethane	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Chloroethane	ND		32.4		ppb v/v			03/15/17 18:11	40.5
Chloroform	ND		12.2		ppb v/v			03/15/17 18:11	40.5
Chloromethane	ND		32.4		ppb v/v			03/15/17 18:11	40.5
1,2-Dibromoethane (EDB)	ND		32.4		ppb v/v			03/15/17 18:11	40.5
1,2-Dichlorobenzene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
1,3-Dichlorobenzene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
1,4-Dichlorobenzene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Dichlorodifluoromethane	ND		16.2		ppb v/v			03/15/17 18:11	40.5
1,1-Dichloroethane	ND		12.2		ppb v/v			03/15/17 18:11	40.5
1,2-Dichloroethane	ND		32.4		ppb v/v			03/15/17 18:11	40.5
1,1-Dichloroethene	ND		32.4		ppb v/v			03/15/17 18:11	40.5
cis-1,2-Dichloroethene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
trans-1,2-Dichloroethene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
1,2-Dichloropropane	ND		16.2		ppb v/v			03/15/17 18:11	40.5
cis-1,3-Dichloropropene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
trans-1,3-Dichloropropene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Ethylbenzene	**908**		16.2		ppb v/v			03/15/17 18:11	40.5
4-Ethyltoluene	**263**		16.2		ppb v/v			03/15/17 18:11	40.5
Hexachlorobutadiene	ND		81.0		ppb v/v			03/15/17 18:11	40.5
2-Hexanone	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Methylene Chloride	ND		16.2		ppb v/v			03/15/17 18:11	40.5
4-Methyl-2-pentanone (MIBK)	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Styrene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
1,1,2,2-Tetrachloroethane	**20.0**		16.2		ppb v/v			03/15/17 18:11	40.5
Tetrachloroethene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Toluene	**193**		16.2		ppb v/v			03/15/17 18:11	40.5
1,2,4-Trichlorobenzene	ND		81.0		ppb v/v			03/15/17 18:11	40.5
1,1,1-Trichloroethane	ND		12.2		ppb v/v			03/15/17 18:11	40.5
1,1,2-Trichloroethane	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Trichloroethene	ND		16.2		ppb v/v			03/15/17 18:11	40.5
Trichlorofluoromethane	ND		16.2		ppb v/v			03/15/17 18:11	40.5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		16.2		ppb v/v			03/15/17 18:11	40.5
1,2,4-Trimethylbenzene	**411**		32.4		ppb v/v			03/15/17 18:11	40.5
1,3,5-Trimethylbenzene	**397**		16.2		ppb v/v			03/15/17 18:11	40.5
Vinyl acetate	ND		32.4		ppb v/v			03/15/17 18:11	40.5
Vinyl chloride	ND		16.2		ppb v/v			03/15/17 18:11	40.5

Client Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Client Sample ID: 20170309 M SVE
Date Collected: 03/09/17 12:13
Date Received: 03/10/17 18:21
Sample Container: Summa Canister 6L

Lab Sample ID: 320-26484-1
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	1510		32.4		ppb v/v			03/15/17 18:11	40.5
o-Xylene	337		16.2		ppb v/v			03/15/17 18:11	40.5
Total VOC as Hexane (C6-C12)	985000	B	4050		ppb v/v			03/15/17 18:11	40.5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*03/15/17 18:11*	*40.5*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*03/15/17 18:11*	*40.5*
Toluene-d8 (Surr)	*96*		*70 - 130*		*03/15/17 18:11*	*40.5*

Surrogate Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	12DCE	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
320-26484-1	20170309 M SVE	101	92	96
LCS 320-155067/7	Lab Control Sample	110	86	96
LCSD 320-155067/4	Lab Control Sample Dup	109	87	97
MB 320-155067/6	Method Blank	87	91	97

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-155067/6
Matrix: Air
Analysis Batch: 155067

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.00		ppb v/v			03/15/17 17:21	1
Benzene	ND		0.400		ppb v/v			03/15/17 17:21	1
Benzyl chloride	ND		0.800		ppb v/v			03/15/17 17:21	1
Bromodichloromethane	ND		0.300		ppb v/v			03/15/17 17:21	1
Bromoform	ND		0.400		ppb v/v			03/15/17 17:21	1
Bromomethane	ND		0.800		ppb v/v			03/15/17 17:21	1
2-Butanone (MEK)	ND		0.800		ppb v/v			03/15/17 17:21	1
Carbon disulfide	ND		0.800		ppb v/v			03/15/17 17:21	1
Carbon tetrachloride	ND		0.800		ppb v/v			03/15/17 17:21	1
Chlorobenzene	ND		0.300		ppb v/v			03/15/17 17:21	1
Dibromochloromethane	ND		0.400		ppb v/v			03/15/17 17:21	1
Chloroethane	ND		0.800		ppb v/v			03/15/17 17:21	1
Chloroform	ND		0.300		ppb v/v			03/15/17 17:21	1
Chloromethane	ND		0.800		ppb v/v			03/15/17 17:21	1
1,2-Dibromoethane (EDB)	ND		0.800		ppb v/v			03/15/17 17:21	1
1,2-Dichlorobenzene	ND		0.400		ppb v/v			03/15/17 17:21	1
1,3-Dichlorobenzene	ND		0.400		ppb v/v			03/15/17 17:21	1
1,4-Dichlorobenzene	ND		0.400		ppb v/v			03/15/17 17:21	1
Dichlorodifluoromethane	ND		0.400		ppb v/v			03/15/17 17:21	1
1,1-Dichloroethane	ND		0.300		ppb v/v			03/15/17 17:21	1
1,2-Dichloroethane	ND		0.800		ppb v/v			03/15/17 17:21	1
1,1-Dichloroethene	ND		0.800		ppb v/v			03/15/17 17:21	1
cis-1,2-Dichloroethene	ND		0.400		ppb v/v			03/15/17 17:21	1
trans-1,2-Dichloroethene	ND		0.400		ppb v/v			03/15/17 17:21	1
1,2-Dichloropropane	ND		0.400		ppb v/v			03/15/17 17:21	1
cis-1,3-Dichloropropene	ND		0.400		ppb v/v			03/15/17 17:21	1
trans-1,3-Dichloropropene	ND		0.400		ppb v/v			03/15/17 17:21	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.400		ppb v/v			03/15/17 17:21	1
Ethylbenzene	ND		0.400		ppb v/v			03/15/17 17:21	1
4-Ethyltoluene	ND		0.400		ppb v/v			03/15/17 17:21	1
Hexachlorobutadiene	ND		2.00		ppb v/v			03/15/17 17:21	1
2-Hexanone	ND		0.400		ppb v/v			03/15/17 17:21	1
Methylene Chloride	ND		0.400		ppb v/v			03/15/17 17:21	1
4-Methyl-2-pentanone (MIBK)	ND		0.400		ppb v/v			03/15/17 17:21	1
Styrene	ND		0.400		ppb v/v			03/15/17 17:21	1
1,1,2,2-Tetrachloroethane	ND		0.400		ppb v/v			03/15/17 17:21	1
Tetrachloroethene	ND		0.400		ppb v/v			03/15/17 17:21	1
Toluene	ND		0.400		ppb v/v			03/15/17 17:21	1
1,2,4-Trichlorobenzene	ND		2.00		ppb v/v			03/15/17 17:21	1
1,1,1-Trichloroethane	ND		0.300		ppb v/v			03/15/17 17:21	1
1,1,2-Trichloroethane	ND		0.400		ppb v/v			03/15/17 17:21	1
Trichloroethene	ND		0.400		ppb v/v			03/15/17 17:21	1
Trichlorofluoromethane	ND		0.400		ppb v/v			03/15/17 17:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.400		ppb v/v			03/15/17 17:21	1
1,2,4-Trimethylbenzene	ND		0.800		ppb v/v			03/15/17 17:21	1
1,3,5-Trimethylbenzene	ND		0.400		ppb v/v			03/15/17 17:21	1
Vinyl acetate	ND		0.800		ppb v/v			03/15/17 17:21	1
Vinyl chloride	ND		0.400		ppb v/v			03/15/17 17:21	1

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-155067/6
Matrix: Air
Analysis Batch: 155067

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		0.800		ppb v/v			03/15/17 17:21	1
o-Xylene	ND		0.400		ppb v/v			03/15/17 17:21	1
Total VOC as Hexane (C6-C12)	318.2		100		ppb v/v			03/15/17 17:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*		*03/15/17 17:21*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 130*		*03/15/17 17:21*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*03/15/17 17:21*	*1*

Lab Sample ID: LCS 320-155067/7
Matrix: Air
Analysis Batch: 155067

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	15.96		ppb v/v		80	71 - 131
Benzene	20.0	19.30		ppb v/v		96	68 - 128
Benzyl chloride	20.0	18.97		ppb v/v		95	58 - 120
Bromodichloromethane	20.0	19.48		ppb v/v		97	65 - 130
Bromoform	20.0	21.24		ppb v/v		106	64 - 144
Bromomethane	20.0	20.39		ppb v/v		102	70 - 131
2-Butanone (MEK)	20.0	17.69		ppb v/v		88	71 - 131
Carbon disulfide	20.0	17.81		ppb v/v		89	63 - 123
Carbon tetrachloride	20.0	21.22		ppb v/v		106	67 - 127
Chlorobenzene	20.0	20.53		ppb v/v		103	70 - 132
Dibromochloromethane	20.0	20.39		ppb v/v		102	68 - 128
Chloroethane	20.0	19.63		ppb v/v		98	70 - 131
Chloroform	20.0	18.31		ppb v/v		92	69 - 129
Chloromethane	20.0	19.81		ppb v/v		99	67 - 127
1,2-Dibromoethane (EDB)	20.0	20.48		ppb v/v		102	68 - 131
1,2-Dichlorobenzene	20.0	23.21		ppb v/v		116	73 - 143
1,3-Dichlorobenzene	20.0	22.83		ppb v/v		114	77 - 136
1,4-Dichlorobenzene	20.0	22.71		ppb v/v		114	73 - 143
Dichlorodifluoromethane	20.0	19.00		ppb v/v		95	69 - 129
1,1-Dichloroethane	20.0	18.06		ppb v/v		90	65 - 125
1,2-Dichloroethane	20.0	18.55		ppb v/v		93	71 - 131
1,1-Dichloroethene	20.0	16.34		ppb v/v		82	53 - 128
cis-1,2-Dichloroethene	20.0	18.65		ppb v/v		93	68 - 128
trans-1,2-Dichloroethene	20.0	17.55		ppb v/v		88	70 - 130
1,2-Dichloropropane	20.0	20.61		ppb v/v		103	74 - 128
cis-1,3-Dichloropropene	20.0	21.45		ppb v/v		107	78 - 132
trans-1,3-Dichloropropene	20.0	18.77		ppb v/v		94	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	19.95		ppb v/v		100	64 - 124
Ethylbenzene	20.0	20.46		ppb v/v		102	76 - 136
4-Ethyltoluene	20.0	21.72		ppb v/v		109	62 - 136
Hexachlorobutadiene	20.0	19.71		ppb v/v		99	42 - 150
2-Hexanone	20.0	18.93		ppb v/v		95	70 - 128
Methylene Chloride	20.0	16.20		ppb v/v		81	65 - 125

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-155067/7
Matrix: Air
Analysis Batch: 155067

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Methyl-2-pentanone (MIBK)	20.0	18.47		ppb v/v		92	73 - 133
Styrene	20.0	21.53		ppb v/v		108	76 - 144
1,1,2,2-Tetrachloroethane	20.0	22.41		ppb v/v		112	75 - 135
Tetrachloroethene	20.0	19.89		ppb v/v		99	56 - 138
Toluene	20.0	19.81		ppb v/v		99	71 - 132
1,2,4-Trichlorobenzene	20.0	17.81		ppb v/v		89	59 - 150
1,1,1-Trichloroethane	20.0	18.27		ppb v/v		91	65 - 124
1,1,2-Trichloroethane	20.0	20.61		ppb v/v		103	71 - 131
Trichloroethene	20.0	19.89		ppb v/v		99	64 - 127
Trichlorofluoromethane	20.0	18.70		ppb v/v		93	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.30		ppb v/v		87	50 - 132
1,2,4-Trimethylbenzene	20.0	22.77		ppb v/v		114	61 - 145
1,3,5-Trimethylbenzene	20.0	22.52		ppb v/v		113	65 - 136
Vinyl acetate	20.0	19.80		ppb v/v		99	77 - 134
Vinyl chloride	20.0	20.16		ppb v/v		101	69 - 129
Hexane	20.0	16.09		ppb v/v		80	63 - 123
m,p-Xylene	40.0	42.23		ppb v/v		106	75 - 138
o-Xylene	20.0	21.59		ppb v/v		108	77 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 130*
Toluene-d8 (Surr)	*96*		*70 - 130*

Lab Sample ID: LCSD 320-155067/4
Matrix: Air
Analysis Batch: 155067

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
Acetone	20.0	16.05		ppb v/v		80	71 - 131	1	25
Benzene	20.0	19.21		ppb v/v		96	68 - 128	0	25
Benzyl chloride	20.0	19.45		ppb v/v		97	58 - 120	3	25
Bromodichloromethane	20.0	19.57		ppb v/v		98	65 - 130	0	25
Bromoform	20.0	21.34		ppb v/v		107	64 - 144	0	25
Bromomethane	20.0	20.86		ppb v/v		104	70 - 131	2	25
2-Butanone (MEK)	20.0	18.26		ppb v/v		91	71 - 131	3	25
Carbon disulfide	20.0	18.02		ppb v/v		90	63 - 123	1	25
Carbon tetrachloride	20.0	21.20		ppb v/v		106	67 - 127	0	25
Chlorobenzene	20.0	20.66		ppb v/v		103	70 - 132	1	25
Dibromochloromethane	20.0	20.42		ppb v/v		102	68 - 128	0	25
Chloroethane	20.0	20.09		ppb v/v		100	70 - 131	2	25
Chloroform	20.0	18.64		ppb v/v		93	69 - 129	2	25
Chloromethane	20.0	20.16		ppb v/v		101	67 - 127	2	25
1,2-Dibromoethane (EDB)	20.0	20.72		ppb v/v		104	68 - 131	1	25
1,2-Dichlorobenzene	20.0	23.45		ppb v/v		117	73 - 143	1	25
1,3-Dichlorobenzene	20.0	23.15		ppb v/v		116	77 - 136	1	25
1,4-Dichlorobenzene	20.0	23.12		ppb v/v		116	73 - 143	2	25

QC Sample Results

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-155067/4
Matrix: Air
Analysis Batch: 155067

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
Dichlorodifluoromethane			20.0	19.23		ppb v/v		96	69 - 129	1	25
1,1-Dichloroethane			20.0	18.25		ppb v/v		91	65 - 125	1	25
1,2-Dichloroethane			20.0	18.52		ppb v/v		93	71 - 131	0	25
1,1-Dichloroethene			20.0	16.45		ppb v/v		82	53 - 128	1	25
cis-1,2-Dichloroethene			20.0	18.77		ppb v/v		94	68 - 128	1	25
trans-1,2-Dichloroethene			20.0	17.64		ppb v/v		88	70 - 130	0	25
1,2-Dichloropropane			20.0	20.37		ppb v/v		102	74 - 128	1	25
cis-1,3-Dichloropropene			20.0	21.48		ppb v/v		107	78 - 132	0	25
trans-1,3-Dichloropropene			20.0	18.78		ppb v/v		94	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane			20.0	20.45		ppb v/v		102	64 - 124	2	25
Ethylbenzene			20.0	20.45		ppb v/v		102	76 - 136	0	25
4-Ethyltoluene			20.0	21.95		ppb v/v		110	62 - 136	1	25
Hexachlorobutadiene			20.0	19.50		ppb v/v		98	42 - 150	1	25
2-Hexanone			20.0	18.93		ppb v/v		95	70 - 128	0	25
Methylene Chloride			20.0	16.47		ppb v/v		82	65 - 125	2	25
4-Methyl-2-pentanone (MIBK)			20.0	18.47		ppb v/v		92	73 - 133	0	25
Styrene			20.0	21.42		ppb v/v		107	76 - 144	0	25
1,1,2,2-Tetrachloroethane			20.0	22.37		ppb v/v		112	75 - 135	0	25
Tetrachloroethene			20.0	19.98		ppb v/v		100	56 - 138	0	25
Toluene			20.0	19.85		ppb v/v		99	71 - 132	0	25
1,2,4-Trichlorobenzene			20.0	17.84		ppb v/v		89	59 - 150	0	25
1,1,1-Trichloroethane			20.0	18.59		ppb v/v		93	65 - 124	2	25
1,1,2-Trichloroethane			20.0	20.64		ppb v/v		103	71 - 131	0	25
Trichloroethene			20.0	19.95		ppb v/v		100	64 - 127	0	25
Trichlorofluoromethane			20.0	19.08		ppb v/v		95	68 - 128	2	25
1,1,2-Trichloro-1,2,2-trifluoroethane			20.0	17.42		ppb v/v		87	50 - 132	1	25
1,2,4-Trimethylbenzene			20.0	23.20		ppb v/v		116	61 - 145	2	25
1,3,5-Trimethylbenzene			20.0	22.90		ppb v/v		114	65 - 136	2	25
Vinyl acetate			20.0	19.89		ppb v/v		99	77 - 134	0	25
Vinyl chloride			20.0	20.27		ppb v/v		101	69 - 129	1	25
Hexane			20.0	16.31		ppb v/v		82	63 - 123	1	25
m,p-Xylene			40.0	42.16		ppb v/v		105	75 - 138	0	25
o-Xylene			20.0	21.53		ppb v/v		108	77 - 132	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*87*		*70 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*

QC Association Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Air - GC/MS VOA

Analysis Batch: 155067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26484-1	20170309 M SVE	Total/NA	Air	TO-15	
MB 320-155067/6	Method Blank	Total/NA	Air	TO-15	
LCS 320-155067/7	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-155067/4	Lab Control Sample Dup	Total/NA	Air	TO-15	

Lab Chronicle

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Client Sample ID: 20170309 M SVE
Date Collected: 03/09/17 12:13
Date Received: 03/10/17 18:21

Lab Sample ID: 320-26484-1
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		40.5	11 mL	250 mL	155067	03/15/17 18:11	AP1	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-17

* Certification renewal pending - certification considered valid.

Method Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Enviro Clean Services LLC
Project/Site: STATE M-1

TestAmerica Job ID: 320-26484-1
SDG: Property ID: 891077

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26484-1	20170309 M SVE	Air	03/09/17 12:13	03/10/17 18:21

CHAIN OF CUSTODY RECORD

No. 02720

ENVIRO CLEAN SERVICES, LLC
(918) 794-7828

PROJECT NUMBER: CHKHSTM1Ø1	PROJECT NAME: CHK STATE M-1
SHIPPED TO: TA - SACRAMENTO	PROJECT MANAGER: BRUCE McKENZIE
COC 1 of 1	TAT: STANDARD

SAMPLER'S PRINTED NAME: TERRY FISHER
SAMPLER'S SIGNATURE:

ASOW: N/A.

TAGs/#s on Summa: 34002127

Date	Time	Sample ID	Sample Matrix	# of Sample Containers	TO-15	TOTAL VOCs as HEXANE	REMARKS
3-9-17	1213	20170309 M SVE	AIR	1	X	X	

TOTAL NUMBER OF CONTAINERS: 1

320-26484 Chain of Custody

RELINQUISHED BY:	DATE 3-9-17	RECEIVED BY:	DATE 3-10-17
	TIME 1600		TIME 10:50
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
	TIME		TIME

METHOD OF SHIPMENT:
AIRBILL NUMBER:

RECEIVED IN LABORATORY BY:
DATE
TIME

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

LABORATORY CONTACT: CATHY GARTNER @ TA-NASHVILLE

LABORATORY ADDRESS: 880 RIVERSIDE PARKWAY W. SACRAMENTO, CA 95605

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: 320-26484-1
SDG Number: Property ID: 891077

Login Number: 26484
List Number: 1
Creator: Ortiz, Ana M

List Source: TestAmerica Sacramento

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.	N/A	
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

Sacramento
Canister QC Certification
Batch Certification

Certification Type: TO-15 Scan

Date Cleaned/Batch ID: 1/30/17 320-25393

Date of QC: 2/1/17

Data File Number: C:\MSDCHEM\1\DATA\170201\ MS6020114.d

320-25393 Chain of Custody

CANISTER ID NUMBERS

34001452 *	34002127	
34000877	34000397	
8011	34000301	
34002059	8154	
7836		
7969		
34000820		
7527		

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "*Certification Type*" indicated above.

"*" INDICATES THE CAN OR CANS WHICH WERE SCREENED.

1st level Reviewed By: _____ Date: 2/2/17

2nd level Reviewed By: _____ Date: 2/6/17

Q:\FORMS\QA-814 BATCH CAN QC 20130729.DOC
QA-814

ERS 7/29/2013

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-25393-1

SDG No.:

Client Sample ID: 34001452 Lab Sample ID: 320-25393-1

Matrix: Air Lab File ID: MS6020114.D

Analysis Method: TO-15 Date Collected: 01/30/2017 00:00

Sample wt/vol: 500(mL) Date Analyzed: 02/02/2017 00:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-Volatiles ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 148573 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.41	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	0.32	J	0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-25393-1

SDG No.:

Client Sample ID: 34001452 Lab Sample ID: 320-25393-1

Matrix: Air Lab File ID: MS6020114.D

Analysis Method: TO-15 Date Collected: 01/30/2017 00:00

Sample wt/vol: 500(mL) Date Analyzed: 02/02/2017 00:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-Volatiles ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 148573 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	0.056	J	0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-25393-1

SDG No.:

Client Sample ID: 34001452 Lab Sample ID: 320-25393-1

Matrix: Air Lab File ID: MS6020114.D

Analysis Method: TO-15 Date Collected: 01/30/2017 00:00

Sample wt/vol: 500(mL) Date Analyzed: 02/02/2017 00:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-Volatiles ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 148573 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	97		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		70-130
2037-26-5	Toluene-d8 (Surr)	105		70-130

Report Date: 02-Feb-2017 16:05:20 Chrom Revision: 2.2 10-Jan-2017 11:26:10

TestAmerica Sacramento
Target Compound Quantitation Report

Data File:	\\ChromNA\Sacramento\ChromData\ATMS6\20170201-39400.b\MS6020114.D				
Lims ID:	320-25393-A-1				
Client ID:	34001452				
Sample Type:	Client				
Inject. Date:	02-Feb-2017 00:22:30	ALS Bottle#:	9	Worklist Smp#:	14
Purge Vol:	25.000 mL	Dil. Factor:	1.0000		
Sample Info:	320-25393-A-1				
Misc. Info.:	500 mL CAN CERT				
Operator ID:	LHS	Instrument ID:	ATMS6		
Method:	\\ChromNA\Sacramento\ChromData\ATMS6\20170201-39400.b\TO15_ATMS6.m				
Limit Group:	MSA - TO15 - ICAL				
Last Update:	02-Feb-2017 16:05:19	Calib Date:	06-Jan-2017 14:12:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\ATMS6\20170105-38520.b\MS6010523.D				
Column 1 :	RTX Volatiles (0.32 mm)		Det: MS SCAN		
Process Host:	XAWRK010				
First Level Reviewer: phanthasena		Date:	02-Feb-2017 16:05:19		

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.102	13.096	0.006	97	38197	4.00	
* 2 1,4-Difluorobenzene	114	15.243	15.244	-0.001	96	145248	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.990	21.984	0.006	89	111310	4.00	
$ 4 1,2-Dichloroethane-d4 (Sur	65	14.307	14.301	0.006	98	61589	4.34	
$ 5 Toluene-d8 (Surr)	100	18.705	18.699	0.006	97	79593	4.21	
$ 6 4-Bromofluorobenzene (Surr	95	24.551	24.552	-0.001	88	59254	3.90	
11 Propene	41	4.488	4.476	0.012	27	416	0.0418	
32 Acetone	43	8.272	8.272	0.122	43	9203	0.4068	
40 Carbon disulfide	76	9.586	9.586	0.000	96	9218	0.3212	
48 2-Butanone (MEK)	72	12.086	12.019	0.067	94	897	0.1597	
75 Toluene	91	18.875	18.881	-0.006	97	2424	0.0555	
86 Ethylbenzene	91	22.233	22.227	0.006	91	1609	0.0256	
87 m-Xylene & p-Xylene	91	22.422	22.410	0.012	1	3005	0.0616	
88 o-Xylene	91	23.341	23.329	0.012	1	1667	0.0341	
109 4-Isopropyltoluene	119	26.760	26.754	0.006	96	5051	0.0670	

Reagents:

VAMSIS20_00002 Amount Added: 50.00 Units: mL Run Reagent

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 337534

CONDITIONS

Operator: CHESAPEAKE OPERATING, INC. 6100 NORTH WESTERN AVE OKC, OK 73118	OGRID: 147179
	Action Number: 337534
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Third Annual Groundwater Monitoring Report for CHESAPEAKE ENERGY CORPORATION STATE M LEASE (AP-72) has been accepted as part of the record.	6/4/2024