Semi-Annual Groundwater Sampling and Analysis Report October 2017

AMRI - Rensselaer, Inc. Sterling Site 1

CHA Project Number: 21341.2017.44200

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January 18, 2018

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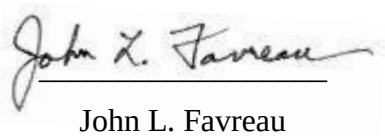

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1.0 INTRODUCTION

CHA was retained by AMRI-Rensselaer, Inc. to perform the Biannual Groundwater Sampling and Analysis Program for Sterling Site 1. This report presents the results of the October 2017 groundwater sampling event, which was conducted on October 18th and 19th, 2017. The Biannual Groundwater Sampling and Analysis Program is conducted in accordance with the existing Agreement and Determination dated 1984 between Albany Molecular Research, Inc. (AMRI) and the New York State Department of Environmental Conservation (NYSDEC) as modified. The Agreement and Determination serves as the sampling and analysis plan.

2.0 OBJECTIVES

The objectives of the Biannual Groundwater Sampling and Analysis Program are to collect data from site-related groundwater monitoring wells and to monitor groundwater quality within and adjacent to the site. Wells monitored as part of this program include on-site wells MW-3, MW-5A, MW-6A, MW-8, MW-12 and MW-14A, and off-site wells OS-1A, OS-3, OS-4A, and OS-5A. In addition to these wells, on-site monitoring wells MW-11A and MW-17 were voluntarily sampled during this event to monitor groundwater quality in the immediate vicinity of these wells. MW-11A was installed as an up-gradient monitoring well on the southeastern edge of the property to provide background groundwater quality data for the groundwater that migrates onto and across the site. MW-17 is near the middle of the site and provides groundwater quality data for the southern side of Building 4.

3.0 GROUNDWATER SAMPLING

Prior to sampling, groundwater elevations at Sterling Site 1 were collected. Each well was then purged of approximately three well volumes, or until dry, to obtain representative groundwater samples. During purging groundwater from all wells was analyzed in the field for turbidity, pH, specific conductance, oxidation-reduction potential and temperature using a YSI 556 MPS water quality meter and a Hach 2100-P turbidimeter.

CHA personnel collected groundwater samples using disposable polyethylene bailers and transferred the samples to pre-preserved bottles provided by Adirondack Environmental Services, Inc. (Adirondack) in Albany, New York. Upon collection, the samples were packed in a cooler with ice and hand-delivered to the laboratory. Adirondack analyzed all groundwater samples for the site-specific volatile organic compounds (VOCs) benzene, toluene, chlorobenzene, and 1,2-dichloroethane by United States Environmental Protection Agency (EPA) Method 624.

Additionally, groundwater samples from wells MW-5A, MW-6A, MW-12 and MW-14A were analyzed for arsenic (EPA Method 206.2), and samples from MW-5A, MW-6A and MW-17 were analyzed for sodium (EPA Method 200.7).

Figure 1 depicts monitoring well locations and the groundwater piezometric surface contours based on the data recorded during this event. Groundwater flow patterns across the site during the October 2017 monitoring event are generally consistent with those observed during previous monitoring events, exhibiting both northwesterly and southeasterly/southerly components of flow, with an apparent divide extending northeastward across the site from the area of MW-7A and MW-14A.

Table 1 provides a summary of the groundwater laboratory and field data, and Appendix A provides the laboratory report from the current sampling event. Table 2 presents a summary of historical groundwater analytical data for select parameters in on-site and off-site wells. Graphs 1 and 2 depict concentrations of benzene and chlorobenzene at MW-3 over time, and Graphs 3 and 4 depict concentrations of benzene and chlorobenzene at MW-5/MW-5A over time. A summary of the groundwater field measurements and observations is presented in Table 3.

4.0 FIELD OBSERVATIONS

The following physical descriptions of groundwater were derived from field notes taken during the well purging and sampling activities at each monitoring well. Detailed descriptions for each well are presented in Table 3.

- Groundwater from MW-3 was clear and colorless, with a slight odor. No sheen or effervescence noted. It was purged dry after 3 gallons were removed.
- Groundwater from MW-5A had an orange color and was slightly turbid, with a slight odor. No sheen or effervescence noted. It was purged dry after 5 gallons were removed.
- Groundwater from MW-6A had a tan color and was mildly turbid, with a faint odor. No sheen or effervescence noted.
- Groundwater from MW-8 had a gray color and was moderately turbid. No odor, sheen or effervescence noted.
- Groundwater from MW-11A had a tan color and was slightly turbid. No odor, sheen or effervescence noted. It was purged dry after 0.25 gallons were removed.
- Groundwater from MW-12 had a dark gray color and was mildly turbid, with a sewage-like odor. No sheen or effervescence noted. MW-12 was purged dry after 1.5 gallons were removed.

- Groundwater from MW-14A was clear and colorless. No odor, sheen or effervescence noted.
- Groundwater from MW-17 was colorless and slightly turbid, with a faint odor. No sheen or effervescence noted.
- Groundwater from OS-1A was clear and colorless. No odor, sheen or effervescence noted.
- Groundwater from OS-3 had a gray color and was moderately turbid. No odor, sheen or effervescence noted.
- Groundwater from OS-4A was clear and colorless. No odor, sheen or effervescence noted.
- Groundwater from OS-5A had a tan color and was moderately turbid. No odor, sheen or effervescence noted. It was purged dry after 10 gallons were removed.

5.0 COMPARISON OF ANALYTICAL RESULTS

Analytical results from each monitoring well are presented below and are compared to results from the three previous sampling events. The New York State Department of Environmental Conservation (NYSDEC) Ambient Water Quality Standards (AWQS), as published in the Division of Water Technical and Operational Guidance Series 1.1.1, June 1998, are also shown for comparison purposes. Concentrations of VOCs are reported in micrograms per liter (µg/L). Concentrations of sodium and arsenic are reported in milligrams per liter (mg/L). Bolded values exceed their respective AWQS.

- **MW-3:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 250	**270**	< 500	< 1,000	1
Chlorobenzene	**6,800**	**5,800**	**14,000**	**8,800**	5
Toluene	< 250	< 250	< 500	< 1,000	5
1,2-Dichloroethane	< 250	< 250	< 500	< 1,000	5

- **MW-5A:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5
Arsenic	0.015	**0.026**	0.021	0.014	0.025
Sodium	388	1,160	910	1,379	case-by-case

- **MW-6A:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5
Arsenic	**0.046**	**0.084**	**0.032**	**0.044**	0.025
Sodium	351	271	366	424	case-by-case

- **MW-8:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5

- **MW-11A:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5

- **MW-12:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 250	< 250	1
Chlorobenzene	< 5.0	< 5.0	< 250	< 250	5
Toluene	< 5.0	< 5.0	< 250	< 250	5
1,2-Dichloroethane	< 5.0	< 5.0	**5,000**	< 250	5
Arsenic	**0.034**	**0.120**	0.013	0.013	0.025

- **MW-14A:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	<5.0	< 5.0	< 5.0	5
Arsenic	**1.25**	**1.84**	**0.621**	**1.22**	0.025

- **MW-17:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	**7.6**	**5.0**	**5.6**	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5
Sodium	140	361	249	374	case-by-case

- **OS-1A:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5

- **OS-3:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5

- **OS-4A:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5

- **OS-5A:**

Parameter	April 2016	October 2016	April 2017	October 2017	NYSDEC AWQS
Benzene	< 5.0	< 5.0	< 5.0	< 5.0	1
Chlorobenzene	< 5.0	< 5.0	< 5.0	< 5.0	5
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	5
1,2-Dichloroethane	< 5.0	< 5.0	< 5.0	< 5.0	5

6.0 CONCLUSIONS

The laboratory analytical results of the October 2017 groundwater sampling event indicate that target VOCs were not detected at concentrations above laboratory reporting limits at on-site monitoring wells with the exception of monitoring well MW-3.

The VOC chlorobenzene was detected at location MW-3 at a concentration of 8,800 µg/L. This concentration is significantly lower than during the last monitoring event in April 2017, but is higher than the concentrations detected during the April and October 2016 monitoring events. Although the detected concentration is above the NYSDEC AWQS of 5 µg/L, it should be noted that MW-3 is upgradient of the groundwater collection trench, and chlorobenzene was not detected in monitoring well OS-5A, which downgradient from MW-3. None of the other three target VOCs were detected above laboratory reporting limits in the sample from MW-3. It should be noted, however, that the laboratory reporting limit for each of the other VOCs was 1,000 µg/L, due to laboratory dilution of the sample.

The parameter arsenic was detected in four monitoring wells. Arsenic concentrations were 0.014 mg/L in MW-5A, 0.044 mg/L in MW-6A, 0.013 mg/L in MW-12 and 1.22 mg/L in MW-14A. The detections in MW-6A and MW-14A were in exceedance of the NYSDEC AWQS of 0.025 mg/L. The concentrations of arsenic detected in these four wells at the time of the October 2017 monitoring event were similar to the concentrations detected during the previous three monitoring

events. Arsenic concentrations will be evaluated during the next monitoring event for further exceedances of the AWQS and potential increasing trends.

The parameter sodium was analyzed for and detected in monitoring wells MW-5A, MW-6A and MW-17. Sodium does not have an established NYSDEC AWQS limit. The detection of sodium in each monitoring well was comparable to detections observed in the previous three monitoring events.

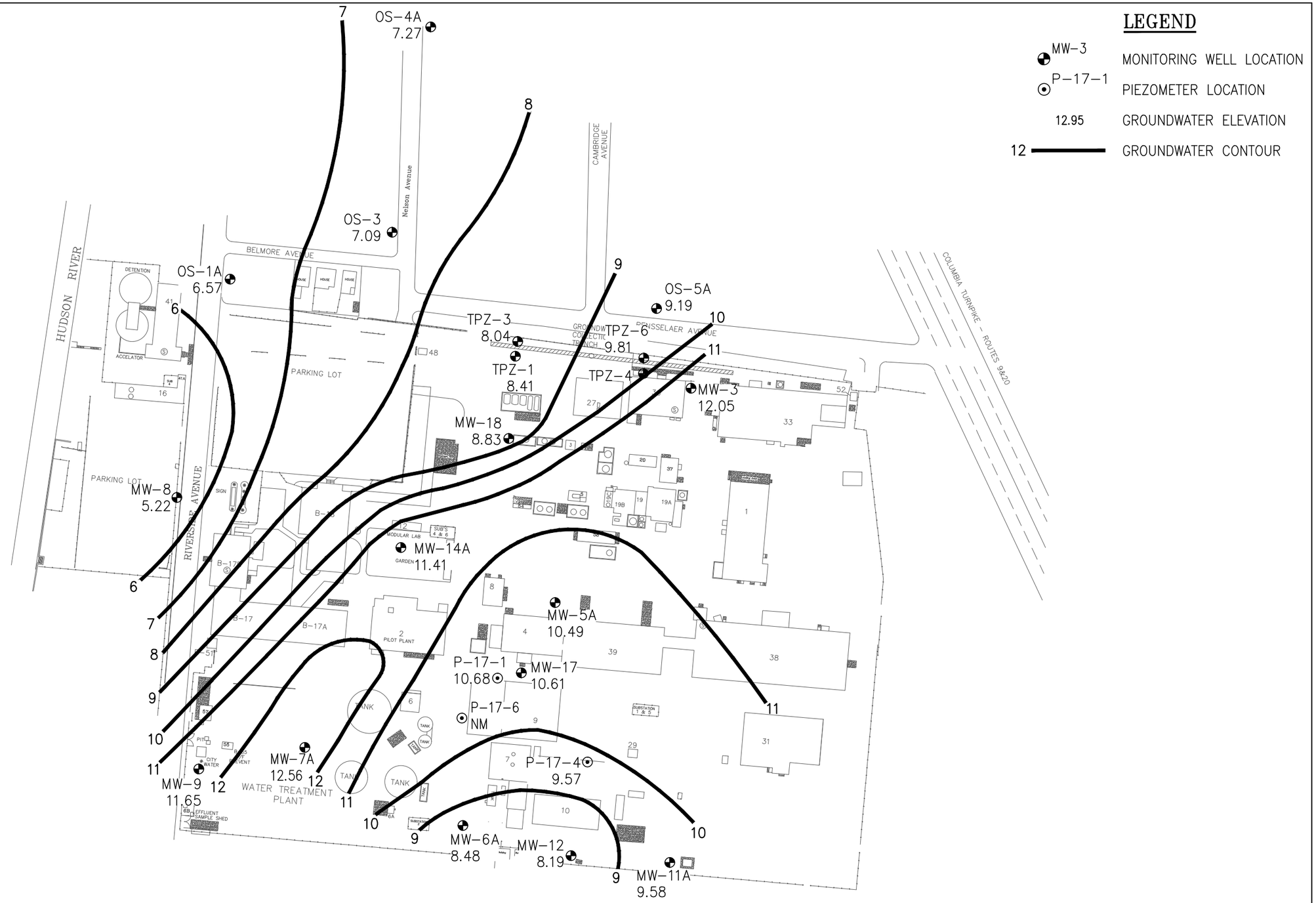
Analytical results indicate that target VOCs were not detected at concentrations above laboratory reporting limits at any of the four off-site well locations.

The off-site monitoring well data and the groundwater elevation data indicate that the existing groundwater treatment system is maintaining hydraulic control of the impacted groundwater near Building 30. Based on the Groundwater Elevation Contour Map, impacted groundwater at the location of MW-3, and in its immediate vicinity, flows to the northwest, toward the groundwater collection trench, which captures contaminated water and directs it to the groundwater treatment system.

7.0 RECOMMENDATIONS

CHA recommends that AMRI continue to monitor on-site and off-site groundwater quality and continue operation of the groundwater treatment system near Building 30 in accordance with the 1984 Agreement and Determination, as modified. AMRI operates the SVE system in the vicinity of Building 30 to remove VOCs from the unsaturated soil zone on a seasonal basis to reduce VOCs in groundwater in this area through source removal. CHA recommends that AMRI continue the operation and maintenance of the SVE system during the warm weather months to reduce VOCs at the site. The next groundwater sampling event is scheduled to occur in April 2018.

FIGURES



SOURCE: PLANT SITE MAP, GROUNDWATER ELEVATION CONTOUR DATED OCTOBER 27, 2009 BY SAIC

CHA
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GROUNDWATER ELEVATION CONTOUR MAP
MONITORING DATE: OCTOBER 18, 2017
AMRI RENSSELAER
33 RIVERSIDE AVENUE
RENSSELAER, NEW YORK

PROJECT NO. 21341

DATE: 01/2018

FIGURE 1

File: M:\21341\CADD\ACAD\FIGURES\ENVIRONMENTAL\21341_SITE PLAN_GW CONTOUR 10-18-17.DWG
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TABLES

Table 1

Summary of Groundwater Analytical Results
Sterling - Site 1

October 2017

Compound	Units	Location / Date	MW-3 10/19/2017	MW-5A 10/19/2017	MW-6A 10/19/2017	MW-8 10/18/2017	MW-11A 10/19/2017	MW-12 10/19/2017	MW-14A 10/19/2017	MW-17 10/19/2017	OS-1A 10/18/2017	OS-3 10/18/2017	OS-4A 10/18/2017	OS-5A 10/18/2017
Volatiles														
Benzene	µg/L		< 1000	< 5	< 5	< 5	< 5	< 250	< 5	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	µg/L		8800	< 5	< 5	< 5	< 5	< 250	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	µg/L		< 1000	< 5	< 5	< 5	< 5	< 250	< 5	< 5	< 5	< 5	< 5	< 5
Toluene	µg/L		< 1000	< 5	< 5	< 5	< 5	< 250	< 5	< 5	< 5	< 5	< 5	< 5
Metals														
Arsenic	mg/L		NA	0.014	0.044	NA	NA	0.013	1.22	NA	NA	NA	NA	NA
Sodium	mg/L		NA	1379	424	NA	NA	NA	NA	374	NA	NA	NA	NA
Field Parameters														
pH			7.45	6.34	6.64	6.10	6.30	5.40	7.28	6.86	6.10	6.28	6.36	5.27
Specific Conductance	ms/cm		0.640	5.510	1.843	4.660	0.941	3.403	0.717	1.878	4.590	6.880	1.000	0.753

µg/L = micrograms per liter
mg/L = milligrams per liter
mS/cm = millisiemans per centimeter
< = Not detected at Laboratory Reporting Limit
NA = Sample was not analyzed for this parameter.

Table 2

MW-3 Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Apr-90	910	5,600
Nov-90	840	15,000
May-91	600	< 300
Oct-91	2,400	44,000
Apr-92	740	22,000
Sep-92	960	34,000
Apr-93	5,000	92,000
Oct-93	2,600	65,000
Apr-94	3,400	74,000
Nov-94	340	51,000
Apr-95	7,000	172,000
Nov-95	2,500	34,000
May-96	< 5,000	28,000
Dec-96	5,200	40,000
May-97	6,000	48,000
Dec-97	3,500	30,000
Jun-98	11,000	21,000
Nov-98	8,000	54,000
Dec-98	9,000	94,500
Apr-99	1,400	23,000
Dec-99	1,500	18,000
Apr-00	2,900	50,000
Oct-00	6,000	30,000
Apr-01	3,600	< 50
Oct-01	9,500	55,000
Apr-02	3,500	30,000
Oct-02	2,500	18,500
Apr-03	3,000	25,000
Nov-03	5,500	35,000
May-04	3,400	46,000
Nov-04	1,900	16,000
May-05	3,000	27,000
Nov-05	11,000	37,000
May-06	1,200	17,000
Nov-06	8,200	66,000
Jun-07	6,900	31,000
Nov-07	17,000	100,000
May-08	4,200	68,000
Nov-08	1,800	28,000
May-09	6,700	81,000
Nov-09	11,000	51,000
Apr-10	930	14,000
Oct-10	460	9,100
Apr-11	1000	21,000
Oct-11	< 500	13,000
Apr-12	< 250	9,400
Oct-12	< 250	4,100
Apr-13	< 1,200	33,000
Oct-13	< 1,000	12,000
Apr-14	< 500	5,600
Oct-14	< 250	4,500
Apr-15	< 120	4,500
Oct-15	< 120	4,400
Apr-16	< 250	6,800
Oct-16	270	5,800
Apr-17	< 500	14,000
Oct-17	< 1000	8,800
< = Not Detected at Reporting Limit		

Table 2

MW-5A Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)	1,2 - Dichloroethane (µg/1)
Apr-90	< 5	< 5	NA
Nov-90	150	< 5	NA
May-91	71	< 5	NA
Oct-91	37	< 5	NA
May-92	13	< 5	NA
Sep-92	160	<25	NA
Apr-93	32	<25	NA
Oct-93	490	32	NA
Apr-94	< 50	<50	NA
Nov-94	500	<250	NA
Nov-94	270	12	NA
Apr-95	< 5	8	NA
Nov-95	160	<50	NA
May-96	< 5	< 5	NA
Dec-96	16	< 5	NA
May-97	23	< 5	NA
Dec-97	50	< 5	NA
Jun-98	l0	< 5	NA
Jul-98	24	1 J	NA
Aug-98	16	ND	NA
Aug-98	16	ND	NA
Sep-98	< 5	< 5	NA
Oct-98	71	35	NA
Nov-98	< 5	< 5	NA
Dec-98	< 5	9	NA
Apr-99	< 5	< 5	NA
Dec-99	< 5	< 5	NA
Apr-00	< 5	< 5	NA
Oct-00	< 5	< 5	NA
Apr-01	< 5	< 5	NA
Oct-01	120	< 50	NA
Apr-02	< 130	< 130	NA
Oct-02	80	< 50	NA
Apr-03	< 25	< 25	NA
Nov-03	53	< 10	NA
May-04	270	13	NA
Nov-04	92	< 5	NA
May-05	270	< 10	NA
Nov-05	95	9	NA
May-06	440	< 25	NA
Nov-06	< 10	< 10	NA
Jun-07	< 5	< 5	NA
Nov-07	5.2	< 5	NA
May-08	< 5	< 5	NA
Nov-08	< 5	< 5	NA
May-09	< 5	< 5	NA
Nov-09	< 5	< 5	NA
Apr-10	< 5	< 5	< 5
Oct-10	< 5	< 5	17
Apr-11	< 5	< 5	< 5
Oct-11	< 5	< 5	< 5
Apr-12	8.4	< 5	< 5
May-12	< 5	< 5	< 5
Oct-12	< 5	6.3	< 5
Apr-13	< 5	< 5	< 5
Oct-13	< 5	< 5	< 5
Apr-14	< 5	< 5	< 5
Oct-14	< 5	< 5	< 5
Apr-15	< 5	< 5	< 5
Oct-15	< 5	< 5	< 5
Apr-16	< 5	< 5	< 5
Oct-16	< 5	< 5	< 5
Apr-17	< 5	< 5	< 5
Oct-17	< 5	< 5	< 5

< = Not Detected at Reporting Limit

J denotes a Laboratory estimated concentration

NA = data not available

Table 2

MW-6A Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Oct-91	78	30
Apr-92	29	17
Sep-92	33	39
Apr-93	< 5	< 5
Oct-93	< 5	6
Apr-94	19	< 5
Nov-94	350	59
Apr-95	290	41
Nov-95	100	33
May-96	190	32
Dec-96	240	42
May-97	7	< 5
Dec-97	97	17
Dec-97	120	17
Jun-98	92	11
Jul-98	66	14
Aug-98	78	15
Aug-98	88	15
Sep-98	< 5	< 5
Oct-98	ND	ND
Nov-98	100	21
Dec-98	71	14
Apr-99	15	<5
Dec-99	120	18
Dec-99 (dup)	75	11
Apr-00	51	6.3
Oct-00	41	7
Apr-01	30	< 5
Oct-01	<5	< 5
Apr-02	10	< 5
Oct-02	< 5	< 5
Apr-03	11	< 5
Nov-03	57	9.6
May-04	20	5.6
Nov-04	24	5.8
May-05	16	< 5
Nov-05	29	6.4
May-06	< 5	< 5
Nov-06	< 5	< 5
Jun-07	< 5	< 5
Nov-07	< 5	< 5
May-08	< 5	< 5
Nov-08	< 5	< 5
May-09	< 5	< 5
Oct-09	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-11	< 5	< 5
Oct-11	< 5	< 5
Apr-12	< 5	< 5
Oct-12	< 5	< 5
Apr-13	< 5	< 5
Oct-13	< 5	< 5
Apr-14	< 5	< 5
Oct-14	< 5	< 5
Apr-15	< 5	< 5
Oct-15	< 5	< 5
Apr-16	< 5	< 5
Oct-16	< 5	< 5
Apr-17	< 5	< 5
Oct-17	< 5	< 5
< = Not Detected at Reporting Limit		

Table 2

MW-8 Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Apr-90	< 5	< 5
Nov-90	< 5	< 5
May-91	< 5	< 5
Oct-91	< 5	< 5
May-92	< 5	< 5
Sep-92	< 5	< 5
Apr-93	< 5	< 5
Oct-93	< 5	< 5
Apr-94	< 5	< 5
Nov-94	< 5	< 5
Apr-95	< 5	< 5
Nov-95	< 5	< 5
May-96	< 5	< 5
Dec-96	< 5	< 5
May-97	< 5	< 5
Dec-97	< 5	< 5
Jun-98	< 5	< 5
Nov-98	< 5	< 5
Dec-98	NS	NS
Apr-99	< 5	< 5
Dec-99	< 5	< 5
Apr-00	< 5	< 5
Oct-00	< 5	< 5
Apr-01	< 5	< 5
Oct-01	< 5	< 5
Apr-02	< 5	< 5
Oct-02	< 5	< 5
Apr-03	< 5	< 5
Nov-03	< 5	< 5
May-04	< 5	< 5
Nov-04	< 5	< 5
May-05	< 5	< 5
Nov-05	< 5	< 5
May-06	< 5	< 5
Nov-06	< 5	< 5
Jun-07	< 5	< 5
Nov-07	< 5	< 5
May-08	< 5	< 5
Nov-08	< 5	< 5
May-09	< 5	< 5
Oct-09	< 5	< 5
Apr-10	< 5	< 5
Apr-11	< 5	< 5
Nov-10	< 5	< 5
Apr-11	< 5	< 5
Oct-11	< 5	< 5
Apr-12	< 5	< 5
Oct-12	< 5	< 5
Apr-13	< 5	< 5
Oct-13	< 5	< 5
Apr-14	< 5	< 5
Oct-14	< 5	< 5
Apr-15	< 5	< 5
Oct-15	< 5	< 5
Apr-16	< 5	< 5
Oct-16	< 5	< 5
Apr-17	< 5	< 5
Oct-17	< 5	< 5

< = Not Detected at Reporting Limit
NS = Not Sampled

Table 2

MW-11 | MW-11A Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Oct-93	< 5	< 5
Apr-94	< 5	< 5
Apr-95	< 5	< 5
Nov-95	< 5	< 5
May-96	< 5	< 5
Dec-96	NS	NS
May-97	< 5	< 5
Dec-97	< 5	< 5
Jun-98	< 5	< 5
Jul-98	< 5	< 5
Aug-98	< 5	< 5
Aug-98	< 5	< 5
Sep-98	< 5	< 5
Oct-98	< 5	< 5
Dec-99	< 5	< 5
Dec-99 (dup)	< 5	< 5
Apr-00	< 5	< 5
Oct-00	< 5	< 5
Apr-10	< 5	< 5
Oct-11	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-10	< 5	< 5
Nov-10	< 5	< 5
May-10	< 5	< 5
Nov-10	< 5	< 5
May-10	< 5	< 5
Nov-10	< 5	< 5
May-10	< 5	< 5
Nov-10	< 5	< 5
Jun-10	< 5	< 5
Nov-10	< 5	< 5
May-10	< 5	< 5
Nov-10	< 5	< 5
May-10	< 5	< 5
Oct-10	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-11	< 5	< 5
Oct-11	< 5	< 5
Apr-12	< 5	< 5
Apr-12	< 5	< 5
Oct-12	< 5	< 5
Apr-13	< 5	< 5
Oct-13	< 5	< 5
Apr-14	< 5	< 5
Oct-14	< 5	< 5
Apr-15	< 5	< 5
Oct-15	< 5	< 5
Apr-16	< 5	< 5
Oct-16	< 5	< 5
Apr-17	< 5	< 5
Oct-17	< 5	< 5

< = Not Detected at Reporting Limit
NS = Not Sampled
MW-11 replaced with MW-11A July 1998

Table 2

MW-12 Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)	1,2-Dichloroethane (µg/1)
Apr-90	< 5	< 5	NA
Nov-90	< 5	< 5	NA
May-91	< 5	< 5	NA
Oct-91	< 5	< 5	NA
May-92	< 5	< 5	NA
Sep-92	< 5	< 5	NA
Apr-93	< 5	< 5	NA
Oct-93	< 5	< 5	NA
Apr-94	< 5	< 5	NA
Nov-94	< 5	< 5	NA
Apr-95	< 5	< 5	NA
Nov-95	< 5	< 5	NA
May-96	< 5	< 5	NA
Dec-96	< 5	< 5	NA
May-97	< 5	< 5	NA
Dec-97	< 5	< 5	NA
Jun-98	< 5	< 5	NA
Jul-98	< 5	< 5	NA
Aug-98	< 5	< 5	NA
Aug-98	< 5	< 5	NA
Sep-98	< 5	< 5	NA
Oct-98	< 5	< 5	NA
Nov-98	< 5	< 5	NA
Nov-98	< 5	< 5	NA
Dec-98	< 5	2 J	NA
Dec-98	< 5	< 5	NA
Apr-99	< 5	< 5	NA
Dec-99	< 5	< 5	NA
Apr-00	< 5	< 5	NA
Oct-00	< 5	< 5	NA
Apr-01	< 50	< 50	NA
Oct-01	< 50	< 50	NA
Apr-02	< 5	< 5	NA
Oct-02	< 50	< 50	NA
Apr-03	< 5	< 5	NA
Nov-03	< 5	< 5	NA
May-04	< 5	< 5	NA
Nov-04	< 5	< 5	NA
May-05	< 5	< 5	NA
Nov-05	< 5	< 5	NA
May-06	< 5	< 5	NA
Nov-06	< 5	< 5	NA
Jun-07	< 5	< 5	NA
Nov-07	< 5	< 5	NA
May-08	< 5	< 5	NA
Nov-08	< 5	< 5	NA
May-09	< 5	< 5	NA
Oct-09	< 5	< 5	NA
Apr-10	< 5	< 5	< 5
Oct-10	< 5	< 5	14
Apr-11	< 5	< 5	< 5
Oct-11	< 5	< 5	6.2
Dec-11	< 5	< 5	< 5
Apr-12	< 5	< 5	< 5
Oct-12	< 5	< 5	< 5
Apr-13	< 5	< 5	< 5
Oct-13	< 5	< 5	< 5
Apr-14	< 5	< 5	< 5
Oct-14	< 5	< 5	< 5
Apr-15	< 5	< 5	< 5
Oct-15	< 5	< 5	< 5
Apr-16	< 5	< 5	< 5
Oct-16	< 5	< 5	< 5
Apr-17	< 5	< 5	5,000
Oct-17	< 250	< 250	< 250

< = Not Detected at Reporting Limit

Table 2

MW-14 | MW-14A Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Apr-90	< 5	< 5
Nov-90	< 5	< 5
May-91	< 5	< 5
Oct-91	< 5	< 5
May-92	< 5	< 5
Sep-92	9	< 5
Apr-93	< 5	< 5
Oct-93	11	< 5
Apr-94	86	< 5
Nov-94	35	< 5
Apr-95	19	6
Nov-95	9	7
May-96	< 5	5
Dec-96	36	8
May-97	< 5	< 5
Dec-97	46	< 5
Jun-98	< 5	< 5
Nov-98	280	8
Dec-98	NS	NS
Apr-99	33	7
Dec-99	12	6
Apr-00	< 5	< 5
Oct-00	< 5	< 5
Apr-01	< 5	< 5
Oct-01	< 5	< 5
Apr-02	< 5	< 5
Oct-02	< 5	< 5
Apr-03	< 5	< 5
Nov-03	< 5	< 5
May-04	< 5	< 5
Nov-04	< 5	< 5
May-05	< 5	< 5
Nov-05	< 5	< 5
May-06	< 5	< 5
Nov-06	< 5	< 5
Jun-07	< 5	< 5
Nov-07	< 5	< 5
May-08	< 5	< 5
Nov-08	< 5	< 5
May-09	< 5	< 5
Oct-09	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-11	< 5	< 5
Oct-11	< 5	< 5
Apr-12	< 5	< 5
Oct-12	< 5	< 5
Apr-13	< 5	< 5
Oct-13	< 5	< 5
Apr-14	< 5	< 5
Oct-14	< 5	< 5
Apr-15	< 5	< 5
Oct-15	< 5	< 5
Apr-16	< 5	< 5
Oct-16	< 5	< 5
Apr-17	< 5	< 5
Oct-17	< 5	< 5

< = Not Detected at Reporting Limit
NS = Not Sampled
MW-14 replaced with MW-14A May 1996

Table 2

MW-17 Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Dec-96	63	< 5
Feb-97	57	< 25
May-97	42	< 5
Dec-97	50	< 5
Jun-98	< 5	< 5
Jul-98	38	3 J
Aug-98	29	2 J
Aug-98	35	3 J
Sep-98	37	3 J
Oct-98	35	5 J
Nov-98	29	< 5
Dec-98	13	2 J
Apr-99	< 5	< 5
Dec-99	9	< 5
Oct-00	35	< 5
Apr-01	3 5	< 5
Oct-01	< 5	< 5
Apr-02	< 5	< 5
Oct-02	23	< 5
Apr-03	56	< 5
Nov-03	38	< 5
May-04	35	< 5
Nov-04	1 1	< 5
May-05	13	< 5
Nov-05	22	< 5
May-06	24	< 5
Nov-06	11	< 5
Jun-07	< 5	< 5
Nov-07	< 5	< 5
May-08	< 5	< 5
Nov-08	< 5	< 5
May-09	< 5	< 5
Oct-09	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-11	6.8	< 5
Oct-11	24	< 5
Apr-12	12	< 5
Oct-12	11	< 5
Apr-13	< 5	< 5
Oct-13	14	< 5
Apr-14	6.6	< 5
Oct-14	6.5	< 5
Apr-15	5.8	< 5
Oct-15	7.3	< 5
Apr-16	7.6	< 5
Oct-16	5.0	< 5
Apr-17	5.6	< 5
Oct-17	< 5	< 5

< = Not Detected at Reporting Limit
J denotes a laboratory estimation

Table 2

OS-1A Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Dec-96	< 5	< 5
May-97	< 5	< 5
Dec-97	< 5	< 5
Jun-98	< 5	< 5
Nov-98	< 5	< 5
Apr-99	< 5	< 5
Dec-99	< 5	< 5
Apr-00	< 5	< 5
Oct-00	< 5	< 5
Apr-01	< 5	< 5
Oct-01	< 5	< 5
Apr-02	< 5	< 5
Oct-02	< 5	< 5
Apr-03	< 5	< 5
Nov-03	< 5	< 5
May-04	< 5	< 5
Nov-04	< 5	< 5
May-05	< 5	< 5
Nov-05	< 5	< 5
May-06	< 5	< 5
Nov-06	< 5	< 5
Jun-07	< 5	< 5
Nov-07	< 5	< 5
May-08	< 5	< 5
Nov-08	< 5	< 5
May-09	< 5	< 5
Oct-09	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-11	< 5	< 5
Oct-11	< 5	< 5
Apr-12	< 5	< 5
Oct-12	< 5	< 5
Apr-13	< 5	< 5
Oct-13	< 5	< 5
Apr-14	< 5	< 5
Oct-14	< 5	< 5
Apr-15	< 5	< 5
Oct-15	< 5	< 5
Apr-16	< 5	< 5
Oct-16	< 5	< 5
Apr-17	< 5	< 5
Oct-17	< 5	< 5

< = Not Detected at Reporting Limit
NA = Not Available

Table 2

OS-3 Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Apr-90	< 5	< 5
Nov-90	< 5	< 5
Feb-91	< 5	< 5
May-91	< 5	< 5
Oct-91	< 5	< 5
Apr-92	< 5	< 5
Sep-92	< 5	< 5
Apr-93	< 5	< 5
Oct-93	< 5	< 5
Apr-94	< 5	< 5
Nov-94	< 5	< 5
Apr-95	< 5	< 5
Nov-95	< 5	< 5
May-96	< 5	< 5
Dec-96	< 5	< 5
May-97	< 5	< 5
Dec-97	< 5	< 5
Jun-98	< 5	< 5
Nov-98	< 5	< 5
Apr-99	< 5	< 5
Dec-99	< 5	< 5
Apr-00	< 5	< 5
Oct-00	< 5	< 5
Apr-01	< 5	< 5
Oct-01	< 5	< 5
Apr-02	< 5	< 5
Oct-02	< 5	< 5
Apr-03	< 5	< 5
Nov-03	< 5	< 5
May-04	< 5	< 5
Nov-04	< 5	< 5
May-05	< 5	< 5
Nov-05	< 5	< 5
May-06	< 5	< 5
Nov-06	< 5	< 5
Jun-07	< 5	< 5
Nov-07	< 5	< 5
May-08	< 5	< 5
Nov-08	< 5	< 5
May-09	< 5	< 5
Oct-09	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-11	< 5	< 5
Oct-11	< 5	< 5
Apr-12	< 5	< 5
Oct-12	< 5	< 5
Apr-13	< 5	< 5
Oct-13	< 5	< 5
Apr-14	< 5	< 5
Oct-14	< 5	< 5
Apr-15	< 5	< 5
Oct-15	< 5	< 5
Apr-16	< 5	< 5
Oct-16	< 5	< 5
Apr-17	< 5	< 5
Oct-17	< 5	< 5

< = Not Detected at Reporting Limit
NA = Not Available

Table 2

OS-4 | OS-4A Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Apr-90	< 5	< 5
Nov-90	< 5	< 5
Oct-91	< 5	< 5
Apr-92	< 5	< 5
Sep-92	DRY	DRY
Apr-93	DRY	DRY
Oct-93	DRY	DRY
Apr-94	DRY	DRY
Nov-94	DRY	DRY
Apr-95	< 5	< 5
Nov-95	DRY	DRY
May-96	< 5	< 5
Dec-96	< 5	< 5
May-97	< 5	< 5
Dec-97	< 5	< 5
Jun-98	< 5	< 5
Nov-98	< 5	< 5
Apr-99	< 5	< 5
Dec-99	< 5	< 5
Apr-00	< 5	< 5
Oct-00	< 5	< 5
Apr-01	< 5	< 5
Oct-01	< 5	< 5
Apr-02	< 5	< 5
Oct-02	< 5	< 5
Apr-03	< 5	< 5
Nov-03	< 5	< 5
May-04	< 5	< 5
Nov-04	< 5	< 5
May-05	< 5	< 5
Nov-05	< 5	< 5
May-06	< 5	< 5
Nov-06	< 5	< 5
Jun-07	< 5	< 5
Nov-07	< 5	< 5
May-08	< 5	< 5
Nov-08	< 5	< 5
May-09	< 5	< 5
Oct-09	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-11	< 5	< 5
Oct-11	< 5	< 5
Apr-12	< 5	< 5
Oct-12	< 5	< 5
Apr-13	< 5	< 5
Oct-13	< 5	< 5
Apr-14	< 5	< 5
Oct-14	< 5	< 5
Apr-15	< 5	< 5
Oct-15	< 5	< 5
Apr-16	< 5	< 5
Oct-16	< 5	< 5
Apr-17	< 5	< 5
Oct-17	< 5	< 5

< = Not Detected at Reporting Limit
NA = Not Available
OS-4 replaced with OS-4A May 1996

Table 2

OS-5 | OS-5A Historical Groundwater Analytical Results
Sterling - Site 1

October 2017

Date	Benzene (µg/1)	Chlorobenzene (µg/1)
Apr-90	< 5	< 5
Nov-90	< 5	< 5
May-91	< 5	< 5
Oct-91	< 5	< 5
Apr-92	< 5	< 5
Sep-92	DRY	DRY
Apr-93	DRY	DRY
Apr-94	< 5	< 5
Nov-94	DRY	DRY
Apr-95	< 5	< 5
Nov-95	< 5	< 5
May-96	< 5	< 5
Dec-96	< 5	< 5
May-97	< 5	< 5
Dec-97	< 5	< 5
Jun-98	< 5	< 5
Nov-98	< 5	< 5
Apr-99	< 5	< 5
Dec-99	< 5	< 5
Apr-00	< 5	< 5
Oct-00	< 5	< 5
Apr-01	< 5	< 5
Oct-01	< 5	< 5
Apr-02	< 5	< 5
Oct-02	< 5	< 5
Apr-03	< 5	< 5
Nov-03	< 5	< 5
May-04	< 5	< 5
Nov-04	< 5	< 5
May-05	< 5	< 5
Nov-05	< 5	54
Dec-05	< 5	< 5
May-06	< 5	< 5
Nov-06	< 5	< 5
Jun-07	< 5	< 5
Nov-07	< 5	< 5
May-08	< 5	< 5
Nov-08	< 5	< 5
May-09	< 5	< 5
Oct-09	< 5	< 5
Apr-10	< 5	< 5
Oct-10	< 5	< 5
Apr-11	< 5	< 5
Oct-11	< 5	< 5
Apr-12	< 5	< 5
Oct-12	< 5	< 5
Apr-13	< 5	< 5
Oct-13	< 5	< 5
Apr-14	< 5	< 5
Oct-14	< 5	< 5
Apr-15	< 5	< 5
Oct-15	< 5	< 5
Apr-16	< 5	< 5
Oct-16	< 5	< 5
Apr-17	< 5	< 5
Oct-17	< 5	< 5

< = Not Detected at Reporting Limit
NA = Not Available
OS-5 replaced with OS-5A May 1996

Table 3

Field Data Summary
Sterling - Site 1

October 2017

Well ID	Date	Well Depth (ft.)	Water Depth (ft.)	Vol. Water (gal.)	Purge Method	Temp. (°C)	Turbidity (NTU)	ORP/EH (mV)	pH	Conductivity (mS/cm)	Field Notes
MW-3	10/19/2017	11.70	7.45	3.00	Bailer	20.62	88.5	121.5	7.45	0.640	Water was clear and colorless with a slight chemical odor, but no sheen or effervescence. Suspended black particulates present in water. Well went dry at 3.00 gallons purged.
				NA		-	-	-	-	-	
				NA		-	-	-	-	-	
MW-5A	10/19/2017	15.10	6.42	5.00	Bailer	18.36	128	236.5	6.34	5.510	Water was orange and slightly turbid with a slight metallic odor, but no sheen or effervescence. Well went dry at 5.00 gallons purged.
				NA		-	-	-	-	-	
				NA		-	-	-	-	-	
MW-6A	10/19/2017	13.10	10.65	2.00	Bailer	18.80	355	211.6	6.74	1.518	Water was tan and mildly turbid with a faint chemical odor, but no sheen or effervescence.
				3.50		19.35	240	151.0	6.75	1.815	
				5.00		19.51	178	143.7	6.64	1.843	
MW-8	10/18/2017	17.75	14.74	1.00	Bailer	19.89	250	212.6	6.68	1.920	Water was gray and moderately turbid (cloudy) with no odor, sheen or effervescence.
				2.00		19.59	< 1000	194.3	6.28	2.600	
				3.50		20.63	> 1000	186.1	6.10	4.660	
MW-11A	10/19/2017	10.00	9.66	0.25	Bailer	18.19	97.4	165.5	6.30	0.941	Water was tinted tan and slightly turbid with no odor, sheen or effervescence. Well went dry at .25 gallons purged
				NA		-	-	-	-	-	
				NA		-	-	-	-	-	
MW-12	10/19/2017	12.90	10.66	1.50	Bailer	21.69	> 1000	232.7	5.40	3.403	Water was dark gray and mildly turbid with a sewage odor, but no sheen or effervescence. Well went dry at 1.5 gallons purged.
				NA		-	-	-	-	-	
				NA		-	-	-	-	-	
MW-14A	10/19/2017	12.20	8.48	2.50	Bailer	16.25	72.9	162.4	6.91	0.761	Water was clear and colorless with no odor, sheen, or effervescence.
				5.00		16.45	69.6	142.4	7.32	0.741	
				7.25		16.58	84.9	131.3	7.28	0.717	
MW-17	10/19/2017	14.70	6.16	5.00	Bailer	19.08	89.4	188.3	6.07	1.872	Water was slightly turbid and colorless with a mild chemical odor, but no sheen or effervescence.
				10.00		19.03	99.3	172.4	7.40	1.898	
				17.00		18.96	75.3	156.5	6.86	1.878	

Table 3

Field Data Summary
Sterling - Site 1

October 2017

Well ID	Date	Well Depth (ft.)	Water Depth (ft.)	Vol. Water (gal.)	Purge Method	Temp. (°C)	Turbidity (NTU)	ORP/EH (mV)	pH	Conductivity (mS/cm)	Field Notes
OS-1A	10/18/2017	17.50	13.71	1.00	Bailer	17.96	34.70	181.8	6.47	2.922	Water was clear and colorless with no odor, sheen or effervescence.
				1.50		17.74	62.8	166.7	6.56	3.310	
				2.50		17.66	60.5	173.1	6.10	4.590	
OS-3	10/18/2017	10.70	7.71	2.00	Bailer	17.76	< 1000	184.4	6.85	0.393	Water was gray and moderately turbid with no odor, sheen or effervescence.
				4.00		19.04	< 1000	205.1	5.50	1.333	
				6.00		17.76	< 1000	211.5	6.28	6.880	
OS-4A	10/18/2017	10.00	6.64	2.25	Bailer	19.26	57.2	171.0	6.76	1.060	Water was clear and colorless with no odor, sheen or effervescence.
				5.50		19.08	51.4	200.5	5.99	1.020	
				7.50		19.24	51.8	216.7	6.36	1.000	
OS-5A	10/18/2017	13.00	4.67	6.00	Bailer	17.86	387	142.6	6.79	0.708	Water was tan and moderately urbid with no odor, sheen or effervescence. Well went dry at 10.0 gallons purged.
				10.00		17.11	> 1000	179.9	5.27	0.753	
				NA		-	-	-	-	-	

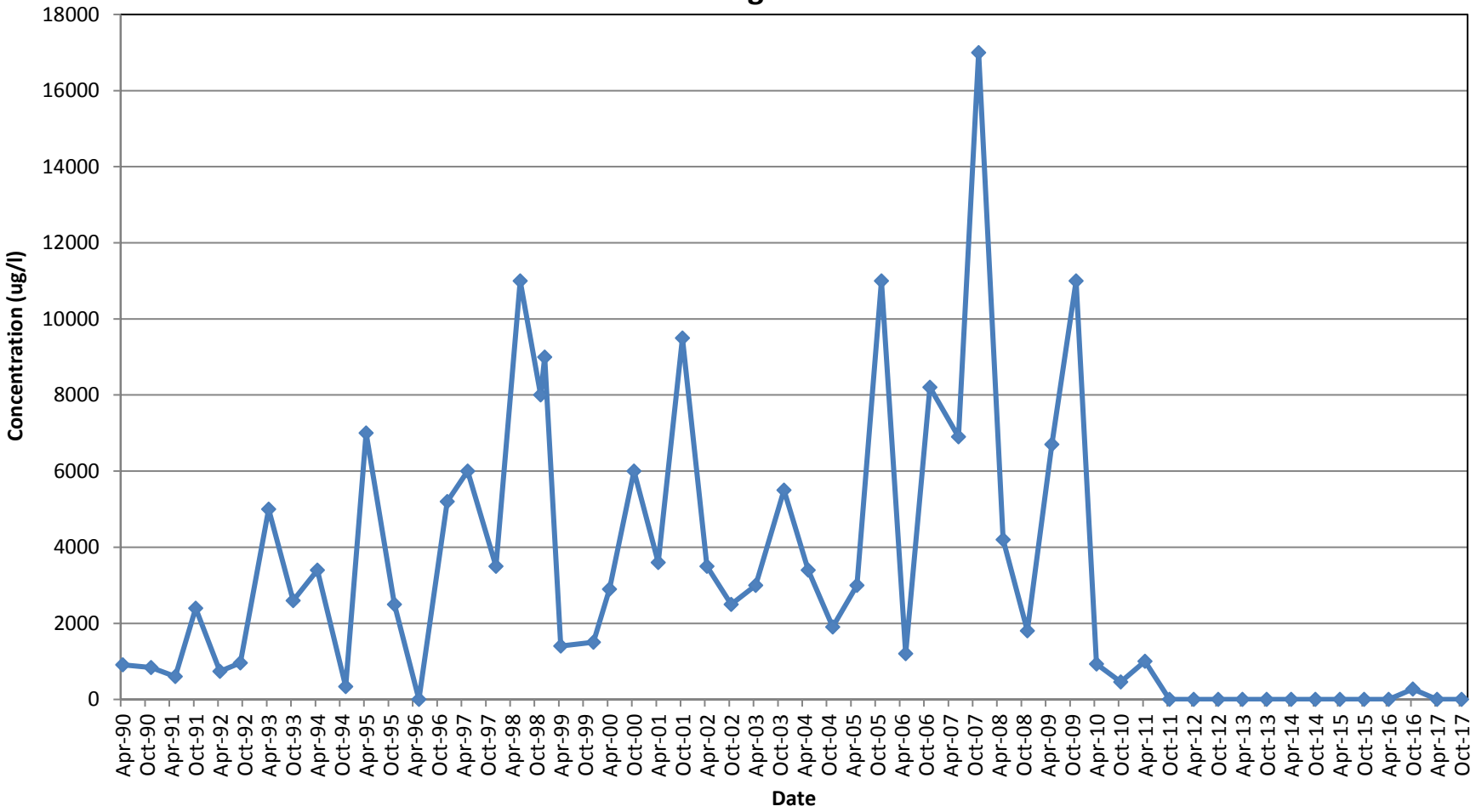
NA = Not Applicable

GRAPHS

Graph 1

MW-3 Benzene Concentrations vs. Time

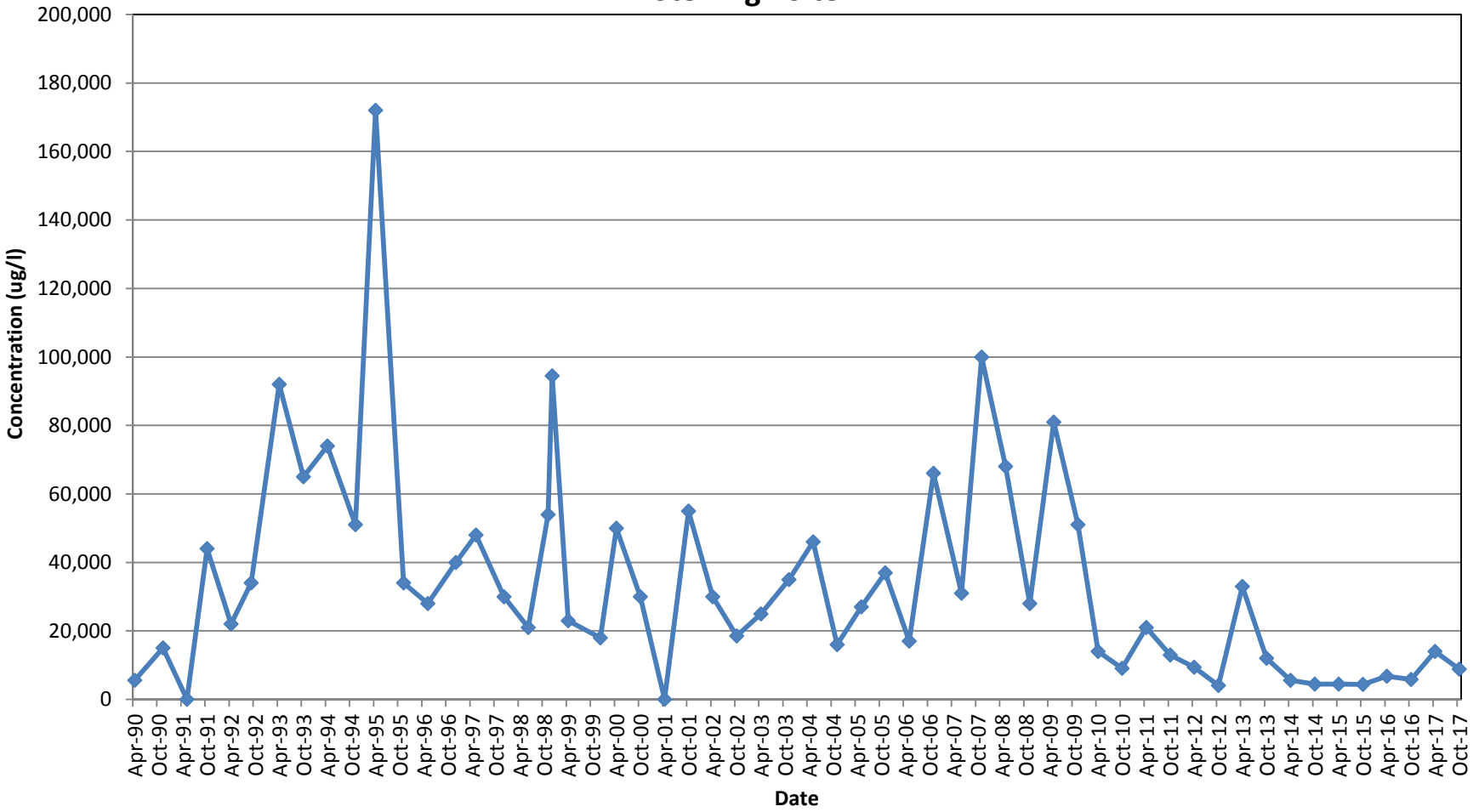
Sterling - Site 1



Graph 2

MW-3 Chlorobenzene Concentrations vs. Time

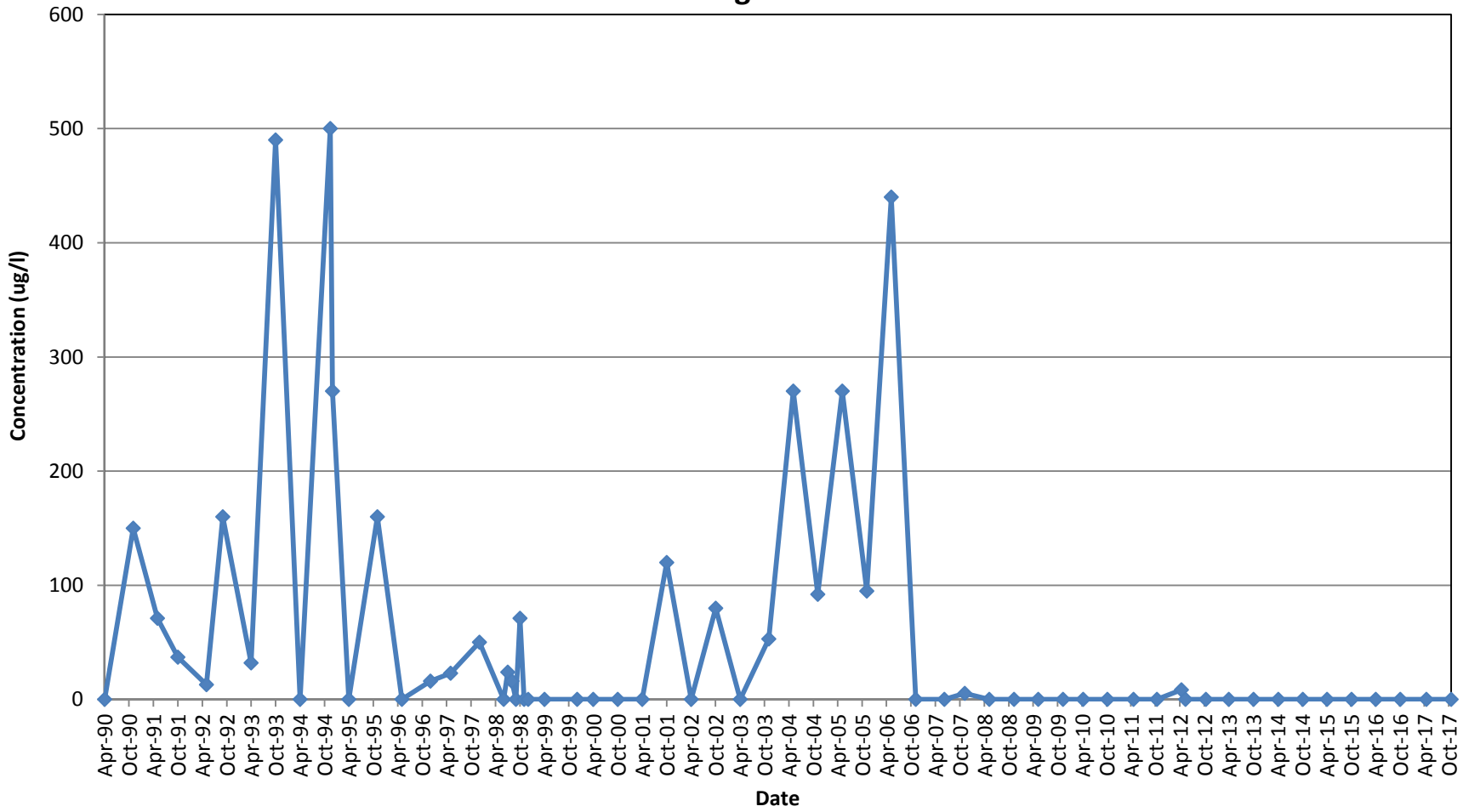
Sterling - Site 1



Graph 3

MW-5/MW-5A Benzene Concentrations vs. Time

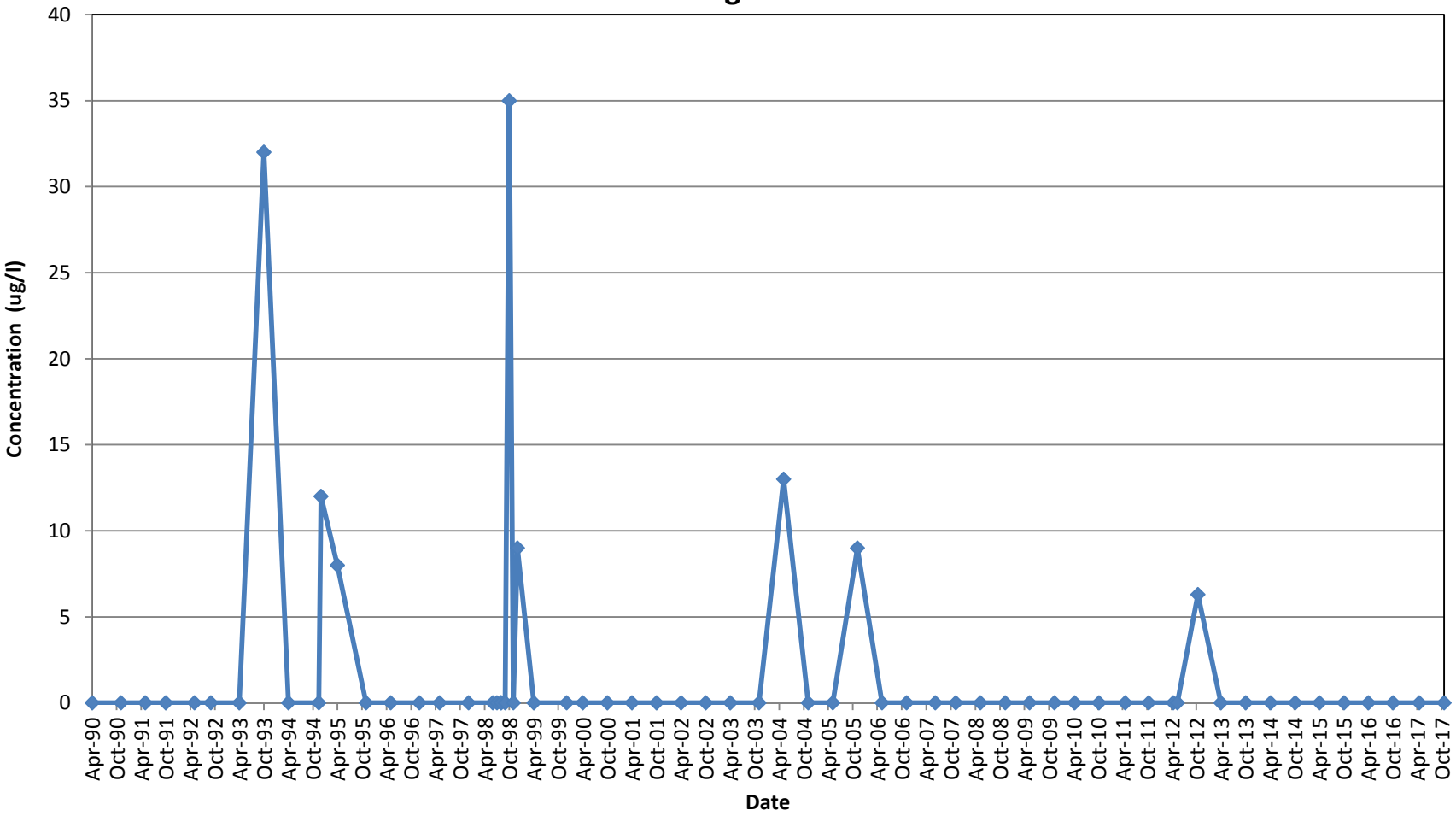
Sterling - Site 1



Graph 4

MW-5/MW-5A Chlorobenzene Concentrations vs. Time

Sterling - Site 1



APPENDIX A
LABORATORY ANALYTICAL REPORTS

Experience is the solution
314 North Pearl Street ♦ Albany, New York 12207
(800) 848-4983 ♦ (518) 434-4546 ♦ Fax (518) 434-0891

October 30, 2017

David Orton
AMRI-Rensselaer, Inc
33 Riverside Avenue
Rensselaer, NY 12144

TEL: (518)433-7772
FAX: (518) 433-7759

Work Order No: 171018069
PO#: 20053195

RE: Sterling Site 1
Semi-Annual GW

Dear David Orton:

Adirondack Environmental Services, Inc received 5 samples on 10/18/2017 for the analyses presented in the following report.

Please see case narrative for specifics on analysis.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709

Krzysztof Trafalski
Laboratory Manager

Adirondack Environmental Services, Inc CASE NARRATIVE

CLIENT:	AMRI-Rensselaer, Inc	**Date:** *30-Oct-17*
Project:	Sterling Site 1	
Lab Order:	171018069	

Sample containers were supplied by Adirondack Environmental Services.

Qualifiers:

ND - Not Detected at reporting limit
J - Analyte detected below quantitation limit
B - Analyte detected in Blank
X - Exceeds maximum contamination limit
H - Hold time exceeded
N - Matrix Spike below acceptable limits
N+ - Matrix Spike is above acceptable limits
C - Details are above in Case Narrative
S - LCS Spike recovery is below acceptable limits
S+ - LCS Spike recovery is above acceptable limits
Z - Duplication outside acceptable limits
T - Tentatively Identified Compound-Estimated
E -Above quantitation range-Estimated

Note : All Results are reported as wet weight unless noted

The results relate only to the items tested. Information supplied by the client is assumed to be correct.

Adirondack Environmental Services, Inc

Date: *30-Oct-17*

CLIENT: AMRI-Rensselaer, Inc
Project: Sterling Site 1
Semi-Annual GW

LabWork Order: **171018069**
PO#: 20053195

Lab SampleID: 171018069-001 **Collection Date:** 10/18/2017
Client Sample ID: OS-4A **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 3:59:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 3:59:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 3:59:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 3:59:00 PM
Surr: 1,2-Dichloroethane-d4	**117**	83.7-124		%REC	1	10/23/2017 3:59:00 PM
Surr: 4-Bromofluorobenzene	**104**	82.7-120		%REC	1	10/23/2017 3:59:00 PM
Surr: Toluene-d8	**97.4**	76.5-121		%REC	1	10/23/2017 3:59:00 PM

Lab SampleID: 171018069-002 **Collection Date:** 10/18/2017
Client Sample ID: OS-3 **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 4:20:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 4:20:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 4:20:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 4:20:00 PM
Surr: 1,2-Dichloroethane-d4	**123**	83.7-124		%REC	1	10/23/2017 4:20:00 PM
Surr: 4-Bromofluorobenzene	**106**	82.7-120		%REC	1	10/23/2017 4:20:00 PM
Surr: Toluene-d8	**97.1**	76.5-121		%REC	1	10/23/2017 4:20:00 PM

Lab SampleID: 171018069-003 **Collection Date:** 10/18/2017
Client Sample ID: OS-5A **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 4:40:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 4:40:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 4:40:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 4:40:00 PM
Surr: 1,2-Dichloroethane-d4	**117**	83.7-124		%REC	1	10/23/2017 4:40:00 PM
Surr: 4-Bromofluorobenzene	**103**	82.7-120		%REC	1	10/23/2017 4:40:00 PM
Surr: Toluene-d8	**95.6**	76.5-121		%REC	1	10/23/2017 4:40:00 PM

Adirondack Environmental Services, Inc

Date: *30-Oct-17*

CLIENT: AMRI-Rensselaer, Inc
Project: Sterling Site 1
Semi-Annual GW

LabWork Order: **171018069**
PO#: 20053195

Lab SampleID: 171018069-004 **Collection Date:** 10/18/2017
Client Sample ID: MW-8 **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 5:02:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 5:02:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 5:02:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 5:02:00 PM
Surr: 1,2-Dichloroethane-d4	**119**	83.7-124		%REC	1	10/23/2017 5:02:00 PM
Surr: 4-Bromofluorobenzene	**104**	82.7-120		%REC	1	10/23/2017 5:02:00 PM
Surr: Toluene-d8	**97.4**	76.5-121		%REC	1	10/23/2017 5:02:00 PM

Lab SampleID: 171018069-005 **Collection Date:** 10/18/2017
Client Sample ID: OS-1A **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 5:23:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 5:23:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 5:23:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 5:23:00 PM
Surr: 1,2-Dichloroethane-d4	**119**	83.7-124		%REC	1	10/23/2017 5:23:00 PM
Surr: 4-Bromofluorobenzene	**101**	82.7-120		%REC	1	10/23/2017 5:23:00 PM
Surr: Toluene-d8	**93.0**	76.5-121		%REC	1	10/23/2017 5:23:00 PM

Adirondack Environmental Services Inc.

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CHAIN OF CUSTODY RECORD

AES Work Order # 171018069

Client Name: AMRI	Address: 33 River St. Rensselaer, N.Y. 12144		
Send Report To: DAVE ORTON	Project Name (Location) Semi-Annual GW Sampl.	Samplers: (Names) Jim Morey (CHA)	
Client Phone No: 518-433-7722	Client Email:	PO Number:	Samplers: (Signature)

AES Sample Number	Client Sample Identification & Location	Date Sampled	Time A=a.m. P=p.m.		Sample Type Matrix	Comp	Grab	Number of Cont's	Analysis Required
001	OS-4A	10/18/17	1545	A (P)	GW		X	2	A
002	OS-3		1550	A (P)			X	2	A
003	OS-5A		1600	A (P)			X	2	A
004	MW-8		1540	A (P)			X	2	A
005	OS-1A		1530	A (P)			X	2	A
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					

Shipment Arrived Via:
FedEx UPS (Client) AES Other:_____

CC Report To / Special Instructions/Remarks:
A - benzene, toluene, Chlorobenzene
1,2DCA via 624

Turnaround Time Request:
☐ 1 Day ☐ 3 Day ☒ Normal
☐ 2 Day ☐ 5 Day
Note: Samples received after 3:30 pm are considered next business day

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received for Laboratory by:	Date/Time 10/18/17 4:17pm

Temperature	AES Bottles	Properly Preserved	Received Within Holding Times
Ambient or (Chilled)	Y ☒ N ☐	(Y) N	(Y) N
Notes:		Notes:	

WHITE - Lab Copy YELLOW - Sampler Copy

Adirondack Environmental Serv

Demo
171018069

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TERMS, CONDITIONS & LIMITATIONS

All service rendered by the **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or nonperformance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed or irrevocably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees, agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

(f) Results pertain only to items analyzed. Information supplied by client is assumed to be correct. This information may be used on reports and in calculations and **Adirondack Environmental Services, Inc.** is not responsible for the accuracy of this information.

(g) Payments by Credit Card/Purchase Cards are subject to a 3% additional charge.

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November 06, 2017

David Orton
AMRI-Rensselaer, Inc
33 Riverside Avenue
Rensselaer, NY 12144

TEL: (518)433-7772

Work Order No: 171019049
PO#: 20053195

RE: Sterling Site 1

Dear David Orton:

Adirondack Environmental Services, Inc received 7 samples on 10/19/2017 for the analyses presented in the following report.

Please see case narrative for specifics on analysis.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709

Krzysztof Trafalski
Laboratory Manager

Adirondack Environmental Services, Inc CASE NARRATIVE

CLIENT:	AMRI-Rensselaer, Inc	**Date:**	*06-Nov-17*
Project:	Sterling Site 1		
Lab Order:	171019049		

Sample containers were supplied by Adirondack Environmental Services.

Qualifiers:

- ND - Not Detected at reporting limit
- J - Analyte detected below quantitation limit
- B - Analyte detected in Blank
- X - Exceeds maximum contamination limit
- H - Hold time exceeded
- N - Matrix Spike below acceptable limits
- N+ - Matrix Spike is above acceptable limits
- C - Details are above in Case Narrative
- S - LCS Spike recovery is below acceptable limits
- S+ - LCS Spike recovery is above acceptable limits
- Z - Duplication outside acceptable limits
- T - Tentatively Identified Compound-Estimated
- E -Above quantitation range-Estimated

Note : All Results are reported as wet weight unless noted

The results relate only to the items tested. Information supplied by the client is assumed to be correct.

Adirondack Environmental Services, Inc

Date: *06-Nov-17*

CLIENT: AMRI-Rensselaer, Inc
Project: Sterling Site 1

LabWork Order: **171019049**
PO#: 20053195

Lab SampleID: 171019049-001 **Collection Date:** 10/19/2017
Client Sample ID: MW-6A **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS - EPA 200.7 REV 4.4 (**Prep: E200.7 - 10/20/2017**)						Analyst: **SM**
Arsenic	**0.044**	0.005		mg/L	1	11/1/2017 8:12:37 PM
Sodium	**424**	0.500		mg/L	10	11/1/2017 8:17:51 PM
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 5:44:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 5:44:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 5:44:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 5:44:00 PM
Surr: 1,2-Dichloroethane-d4	**118**	83.7-124		%REC	1	10/23/2017 5:44:00 PM
Surr: 4-Bromofluorobenzene	**107**	82.7-120		%REC	1	10/23/2017 5:44:00 PM
Surr: Toluene-d8	**95.9**	76.5-121		%REC	1	10/23/2017 5:44:00 PM

Lab SampleID: 171019049-002 **Collection Date:** 10/19/2017
Client Sample ID: MW-12 **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS - EPA 200.7 REV 4.4 (**Prep: E200.7 - 10/20/2017**)						Analyst: **SM**
Arsenic	**0.089**	0.005		mg/L	1	11/1/2017 8:22:57 PM
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	250		µg/L	50	10/23/2017 9:09:00 PM
Benzene	**ND**	250		µg/L	50	10/23/2017 9:09:00 PM
Toluene	**ND**	250		µg/L	50	10/23/2017 9:09:00 PM
Chlorobenzene	**ND**	250		µg/L	50	10/23/2017 9:09:00 PM
Surr: 1,2-Dichloroethane-d4	**120**	83.7-124		%REC	50	10/23/2017 9:09:00 PM
Surr: 4-Bromofluorobenzene	**105**	82.7-120		%REC	50	10/23/2017 9:09:00 PM
Surr: Toluene-d8	**98.8**	76.5-121		%REC	50	10/23/2017 9:09:00 PM

Lab SampleID: 171019049-003 **Collection Date:** 10/19/2017
Client Sample ID: MW-11A **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 6:06:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 6:06:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 6:06:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 6:06:00 PM
Surr: 1,2-Dichloroethane-d4	**117**	83.7-124		%REC	1	10/23/2017 6:06:00 PM
Surr: 4-Bromofluorobenzene	**98.5**	82.7-120		%REC	1	10/23/2017 6:06:00 PM
Surr: Toluene-d8	**91.6**	76.5-121		%REC	1	10/23/2017 6:06:00 PM

Lab SampleID: 171019049-004 **Collection Date:** 10/19/2017
Client Sample ID: MW-17 **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS - EPA 200.7 REV 4.4 **(Prep: E200.7 - 10/20/2017)**						Analyst: **WB**
Sodium	**374**	5.00		mg/L	100	11/1/2017 3:40:12 PM
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 6:27:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 6:27:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 6:27:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 6:27:00 PM
Surr: 1,2-Dichloroethane-d4	**117**	83.7-124		%REC	1	10/23/2017 6:27:00 PM
Surr: 4-Bromofluorobenzene	**108**	82.7-120		%REC	1	10/23/2017 6:27:00 PM
Surr: Toluene-d8	**97.0**	76.5-121		%REC	1	10/23/2017 6:27:00 PM

Lab SampleID: 171019049-005 **Collection Date:** 10/19/2017
Client Sample ID: MW-5A **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS - EPA 200.7 REV 4.4 (**Prep: E200.7 - 10/20/2017**)						Analyst: **SM**
Arsenic	**0.014**	0.005		mg/L	1	11/1/2017 8:28:11 PM
Sodium	**1370**	5.00		mg/L	100	11/3/2017 12:36:00 PM
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 6:48:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 6:48:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 6:48:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 6:48:00 PM
Surr: 1,2-Dichloroethane-d4	**118**	83.7-124		%REC	1	10/23/2017 6:48:00 PM
Surr: 4-Bromofluorobenzene	**100**	82.7-120		%REC	1	10/23/2017 6:48:00 PM
Surr: Toluene-d8	**96.5**	76.5-121		%REC	1	10/23/2017 6:48:00 PM

Lab SampleID: 171019049-006 **Collection Date:** 10/19/2017
Client Sample ID: MW-14A **Matrix:** GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS - EPA 200.7 REV 4.4 (**Prep: E200.7 - 10/20/2017**)						Analyst: **SM**
Arsenic	**1.22**	0.005		mg/L	1	11/1/2017 8:38:31 PM
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	5.0		µg/L	1	10/23/2017 7:09:00 PM
Benzene	**ND**	5.0		µg/L	1	10/23/2017 7:09:00 PM
Toluene	**ND**	5.0		µg/L	1	10/23/2017 7:09:00 PM
Chlorobenzene	**ND**	5.0		µg/L	1	10/23/2017 7:09:00 PM
Surr: 1,2-Dichloroethane-d4	**117**	83.7-124		%REC	1	10/23/2017 7:09:00 PM
Surr: 4-Bromofluorobenzene	**99.6**	82.7-120		%REC	1	10/23/2017 7:09:00 PM
Surr: Toluene-d8	**96.9**	76.5-121		%REC	1	10/23/2017 7:09:00 PM

Adirondack Environmental Services, Inc

Date: *06-Nov-17*

CLIENT: AMRI-Rensselaer, Inc
Project: Sterling Site 1

LabWork Order: **171019049**
PO#: 20053195

Lab SampleID: 171019049-007
Client Sample ID: MW-3

Collection Date: 10/19/2017
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS EPA 624						Analyst: **SMD**
1,2-Dichloroethane	**ND**	1000		µg/L	200	10/23/2017 9:30:00 PM
Benzene	**ND**	1000		µg/L	200	10/23/2017 9:30:00 PM
Toluene	**ND**	1000		µg/L	200	10/23/2017 9:30:00 PM
Chlorobenzene	**8800**	1000		µg/L	200	10/23/2017 9:30:00 PM
Surr: 1,2-Dichloroethane-d4	**119**	83.7-124		%REC	200	10/23/2017 9:30:00 PM
Surr: 4-Bromofluorobenzene	**105**	82.7-120		%REC	200	10/23/2017 9:30:00 PM
Surr: Toluene-d8	**96.2**	76.5-121		%REC	200	10/23/2017 9:30:00 PM

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CHAIN OF CUSTODY RECORD

AES Work Order # 171019049

Client Name: AMRI	Address: 33 RIVER STREET, RENSSELAER, NY	
Send Report To: Dave Orton	Project Name (Location)	Samplers: (Names) Sam Myers
Client Phone No: 518-433-7772	Client Email:	PO Number:
		Samplers: (Signature)

AES Sample Number	Client Sample Identification & Location	Date Sampled	Time A=a.m. P=p.m.		Sample Type Matrix	Comp	Grab	Number of Cont's	(See below) Analysis Required
001	MW-6A	10/19/17	1300	A P	GW		✓	3	A, B, C
002	MW-12		1340	A P				1	A, B
003	MW-11A		1320	A P				2	A
004	MW-17		1330	A P				3	A, C
005	MW-5A		1340	A P					A, B, C
006	MW-14A		1352	A P					A, B
007	MW-3		1400	A P				2	A
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					

Shipment Arrived Via:
FedEx UPS (Client) AES Other:_____

Turnaround Time Request:
☐ 1 Day ☐ 3 Day ☒ Normal
☐ 2 Day ☐ 5 Day
Note: Samples received after 3:30 pm are considered next business day

CC Report To / Special Instructions/Remarks:
A: benzene, toluene, Chlorobenzene 1,2, DCA, 1,4 DCA via 8260
B: Arsenic via 200.8
C: Sodium via 200.7

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received for Laboratory by:	Date/Time 10/19/17 2:47 PM

Temperature	AES Bottles	Properly Preserved	Received Within Holding Times
Ambient or (Chilled) 4°C	Y ☒ N ☐	(Y) N	(Y) N
Notes:		Notes:	Notes:

WHITE - Lab Copy YELLOW - Sampler Copy

Adirondack Environmental Services,

171019049

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TERMS, CONDITIONS & LIMITATIONS

All service rendered by the **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or nonperformance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed or irrevocably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees, agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

(f) Results pertain only to items analyzed. Information supplied by client is assumed to be correct. This information may be used on reports and in calculations and **Adirondack Environmental Services, Inc.** is not responsible for the accuracy of this information.

(g) Payments by Credit Card/Purchase Cards are subject to a 3% additional charge.