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**COLDWATER ROAD LANDFILL -
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POST-CLOSURE GROUNDWATER
MONITORING REPORT**



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COLDWATER ROAD LANDFILL - MID 005 356 860 POST-CLOSURE GROUNDWATER MONITORING REPORT

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1. INTRODUCTION

On behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust, Ramboll Americas Engineering Solutions, Inc. (Ramboll), has prepared this report to present the results of the annual groundwater sampling event conducted in November 2020 for the Coldwater Road Landfill (Site) (**Figure 1**).

2. SAMPLING AND ANALYSIS

During this event groundwater samples were collected from six monitoring wells screened in perched zone (B-7, B-9, B-18A, B-19Ar, B-24r, and B-28). Samples were collected during the week of November 2, 2020. B-19Ar was re-sampled on December 4, 2020 due to a Shewart control limit exceedance for copper. EGLE was notified of the control limit exceedance on December 2, 2020 in accordance with the Post-Closure Care Plan (PCCP).

The groundwater samples were analyzed for specific conductivity (Method 120.1), total organic carbon (TOC, Method 5310C), total organic halides (TOX, Method 9020B), and dissolved metals (chromium (Cr), copper (Cu), nickel (Ni), zinc (Zn)) Method 200.8.

The event also included field measurements for pH, specific conductivity, dissolved oxygen, oxidation reduction potential, temperature, and turbidity. Groundwater samples from the perched zone were collected using a Whale pump (B-18A and B-19Ar) or peristaltic pump. The wells were purged "dry", allowed to recharge, and the samples were collected as soon as sufficient water was present to obtain the necessary sample volume. This was done in accordance with Ramboll procedures and the site-specific Field Method Guide ([Appendix A](#)) because low-flow sampling techniques resulted in greater than 0.3 ft of drawdown in each of the perched zone wells sampled during this event. Groundwater sampling logs are included in [Appendix B](#).

Sampling occurred on November 5, 2020 with B-19Ar being re-sampled on December 4, 2020 due to elevated detection for copper in the original sample. The results are presented in two separate tables: [Table 1](#) - Depth to Groundwater Levels in Monitoring Wells; and [Table 2](#) - Post-Closure Monitoring - Historical Analytical Results (Physical Parameters, TOC, TOX, and Metals. Laboratory analytical reports are included in [Appendix C](#).

A Site location map ([Figure 1](#)) and monitoring well location (*i.e.*, Site layout) map ([Figure 2](#)) are also included. A groundwater potentiometric surface map was completed for the perched zone wells ([Figure 3](#)) and for the deeper drift unit ([Figure 4](#)). Additional site monitoring wells (not part of the landfill monitoring program) were used to aid in the creation of the contour maps.

The groundwater flow direction in the perched zone includes discontinuous perched saturated zones within an otherwise clayey matrix. [Figure 3](#) provides interpreted potentiometric surface contours for the groundwater elevation data collected during the November 2020 annual sampling event. Based on these contours, the groundwater flow direction in the perched zone appears to be predominantly toward the northwest but turning toward the west in the westward extension of the Site.

Groundwater in the drift unit flows in a southerly direction as shown on [Figure 4](#). The drift unit static water elevations were consistent with historical data. Additional site monitoring wells (not part of the landfill monitoring program) were used to aid in the creation of the groundwater contours.

A review of the analytical data presented in the attached tables indicates analytical results similar to previous sampling events, a summary of the data is provided below:

- Chromium concentrations were not detected above the reporting limit of 5 µg/L, which is similar or less than previous sample results, except as discussed below for the initial B-19Ar sample.

- Copper concentrations were not detected above the reporting limit of 5 µg/L, which is similar or less than previous sample results, except as discussed below for the initial B-19Ar sample.
- Nickel concentrations were not detected above the reporting limit of 5 µg/L; except in monitoring wells B-9 (7 µg/L) and B-19Ar (6 µg/L). The results were similar or less than previous results, which ranged from below the reporting limit to 370 µg/L at B-22D (6/21/1995), except as discussed below for the initial B-19Ar sample.
- Zinc concentrations ranged from below the reporting limit of 5 µg/L in monitoring wells B-7, B-24r, duplicate from B-24r, and B-28 to 13 µg/L in monitoring well B-19Ar. The results were similar or less than previous results, which ranged from below the reporting limit to 150 µg/L at B-18A (6/21/1995), except as discussed below for the initial B-19Ar sample.
- TOC concentrations ranged from 3.8 mg/L in monitoring well B-28 to 7.3 mg/L in monitoring well B-9. The results were similar or less than previous results, which ranged from below the reporting limit to 71 mg/L at B-9 (11/13/1996).
- TOX concentrations ranged from 4.26 µg/L in monitoring well duplicate from B-24 to 19.4 µg/L in monitoring well B-19Ar. The results were similar or less than previous results, which ranged from below the reporting limit to 230 µg/L at B-7 (11/30/2016).
- pH concentrations ranged from 6.72 in monitoring well B-9 to 7.09 in monitoring wells B-18A and B-28. The results were within the range of previous results, which ranged from 4.84 in monitoring well B-20D (12/8/2005) to 9.01 in monitoring well B-2D (6/21/1995).
- Specific conductivity ranged from 904 µs/cm in monitoring well B-28 to 2,800 µs/cm in monitoring well B-9. The results were comparable to previous results, which ranged from 474 µs/cm in monitoring well B-22D (11/5/1999) to 3,290 µs/cm in monitoring well B-9 (11/20/2008).

The results from the initial sample collected from monitoring well B-19Ar had concentrations of 8 µg/L for chromium, 108 µg/L for copper, 11 µg/L for nickel, and 42 µg/L for zinc. The results from the monitoring well B-19Ar resample had concentrations not detected above the reporting limit (5 µg/L) for chromium and copper, 6 µg/L for nickel, and 13 µg/L for zinc; therefore, the resampling results did not confirm the spike and Shewart control limit exceedance for copper in B-19Ar.

In addition, the elevated concentration of copper in the initial sample from B-19Ar that is considered both a spike and a Shewart control limit exceedance was not confirmed by the metals concentrations in adjacent wells, which as stated above, were non-detect or similar to or less than previous results. Furthermore, the chromium, copper, and zinc concentrations in Vaults A and B, which are closest to monitoring B-19Ar were not detected above the method detection limit of 5 µg/L, and nickel was detected at a concentration of 12 µg/L in Vault A and was not detected in Vault B.

Metals in the other vaults were either not detected or detected at a concentration of 12 µg/L or less, which are considered low concentrations. Therefore, for reporting purposes the result for the resample from monitoring well B-19Ar is being relied upon as the official result for this sampling event, and the spike and Shewart control limit exceedance does not appear to be a result of a release from the landfill.

The results from the resample were more typical than the concentrations in the initial sample. During the collection of the monitoring well B-19Ar resample the turbidity was 108 nephelometric turbidity units (NTU), compared to a turbidity of 603 NTU during the initial sample collection prior to filtering. The turbidity for the resample post filtering the water was 22.6 NTU (we did not test the initial samples turbidity post filtering as this is not our typical protocol). This well typically has

a high turbidity during sampling, which has been greater than 1,000 NTU during previous events. It is possible that the turbidity impacted the original sample results. This well was redeveloped in accordance with the PCCP for the Site in June 2020.

3. SUMMARY

A QA/QC review of the field and analytical data indicates that the data is useable for the intended purpose without deviations from quality assurance standards that would require rejection or further qualification of the data. Details of the data verification results for the groundwater monitoring data are included in [Appendix D](#).

The relative percent difference (RPD) for the duplicate sample results for B-24r and Dup-1 (B-24r) were within acceptable limits; except for TOX. The original TOX sample concentration was 18.5 µg/L in the original sample and in the duplicate sample the concentration was 4.26 µg/L. Therefore, the sample results for TOX in B-24r and Dup-1 (B-24r) should be considered as estimated (J).

There were no exceedances of the Shewart control limits (SCL) during this sampling event, except as previously discussed for the initial sample for copper in B-19AR. There was a positive spike for specific conductivity in monitoring well B-28 (904 µs/cm). The spike was not confirmed by the concentrations of metals, which were not detected (for the four primary metals [Cr, Cu, Ni, and Zn] in particular).

There was a positive (increasing) trend in monitoring well B-28 for specific conductivity. There were negative (decreasing) trends for zinc in monitoring wells B-24r and for pH in monitoring well B-18A. The trends were calculated using regression analysis over the last four sampling events per the Post Closure Care Plan, January 2014.


The positive and negative trends were not confirmed by the concentrations of other metals/parameters. The trends do not suggest there was a release from the landfill and will continue to be evaluated during future sampling events. No other trends or spikes were observed during this monitoring event. The Shewart control charts are included as [Appendix E](#).

The next sampling event (semiannual event) is currently scheduled for June 2021. If you have any questions, please feel free to contact Clifford Yantz at (313) 333-0211.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

On Behalf of RACER Trust



Clifford S. Yantz
Managing Hydrogeologist – Ramboll Americas Engineering Solutions, Inc.
Agent for RACER Trust

Date: February 24, 2021

cc: file

TABLES



TABLE 1
RACER Trust - Coldwater Road
Depth to Groundwater Levels in Monitoring Wells

November 3, 2020

Well ID	Top of Casing Elevation (ft)*	Depth to Water (ft)	Static Water Elevation (ft)
<i>Landfill Monitoring Wells</i>			
B-7	813.63	16.79	796.84
B-9	807.45	2.71	804.74
B-18A	810.85	20.09	790.76
B-19A	812.66	8.01	804.65
B-19AR	811.80	37.61	774.19
B-20D	815.14	70.56	744.58
B-21D	821.07	80.68	740.39
B-22D	822.15	84.66	737.49
B-23DR	812.12	81.07	731.05
B-24R	816.04	12.46	803.58
B-27D	812.70	75.93	736.77
B-28	816.46	4.70	811.76
OBG MW-16D	807.43	58.70	748.73

Notes

Casing elevations were provided by Norwy & Hale Surveyors and are in feet relative to National Geodetic Vertical Datum

-- Depth to water not collected.

NA - Not available

NG - No ground water detected

Top of casing elevations were resurveyed in June 2017.

R - Indicates a replacement well location.



TABLE 2
RACER Trust - Coldwater Road
Landfill Leak Detection Vaults - Historical Analytical Results
Inorganics and Metals

Vault	Sample Date	Indicator Parameters					Dissolved Metals (µg/L)				Inorganics (mg/L)							
		TOC (mg/L)	TOX (µg/L)	pH	SpC	Temp	Cr	Cu	Ni	Zn	Fe	Mn	Na	Chloride	Cyanide	Phenols	Sulfate	
		EGLE Residential Drinking Water Criteria & RBSLs					100 (A)	1,000 (E)	100 (A)	2,400								
B-7	6/21/1995	8.7	23	7.48	1509	13.8	<20	<20	<30	<20	--	--	--	--	--	--	--	
	8/31/1995	--	--	--	--	--	<20	<20	<40	<20	--	--	--	--	--	--	--	
	2/9/1996	14.0	120	--	--	--	<20	<20	<40	22	--	--	--	--	--	--	--	
	6/19/1996	20.0	<100	6.91	1,508	13.2	<20	<20	<20	20	--	--	--	--	--	--	--	
	8/21/1996	55.0	26	7.59	1,567	17.1	<20	<20	<20	60	--	--	--	--	--	--	--	
	11/13/1996	27.0	<5	7.95	1,960	7.2	<20	<20	<20	50	--	--	--	--	--	--	--	
	5/6/1997	16.0	<100	7.20	780	11.0	<10	10	14	10	--	--	--	--	--	--	--	
	11/6/1997	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	5/4/1998	6.0	<5	6.61	1,270	10.7	<10	<10	<5	20	--	--	--	--	--	--	--	
	11/5/1998	4.0	<10	4.60	1,240	11.2	<10	<10	8	30	10	424	31,000	--	--	--	--	
	12/23/1998	--	--	--	--	--	--	--	--	--	--	--	58	<0.005	<0.020	161	--	
	4/26/1999	3.9	<100	7.50	1,413	14.2	<10	<10	10	<10	--	--	--	--	--	--	--	
	11/5/1999	5.1	<100	6.50	1,230	14.2	<10	<10	8	30	260	313	41,800	64	<0.005	<0.020	301	
	Duplicate	4/26/2000	4.8	<100	7.58	1,450	10.2	<10	<10	<5	<10	--	--	--	--	--	--	--
		4/26/2000	5.9	<100	NS	NS	NS	<10	<10	6	10	--	--	--	--	--	--	--
12/8/2000		4.2	<10	7.05	1,180	9.5	<10	<10	20	10	50	--	58,900	79	<0.005	<0.020	227	
5/16/2001		5.0	<100	7.30	1,330	13.0	<10	<10	7	<10	--	--	--	--	--	--	--	
10/18/2001		5.3	<100	7.19	1,210	12.5	<10	<10	5	<10	330	--	60,800	81	<0.005	NA	205	
5/16/2002		3.9	<100	7.19	1,850	11.9	<10	<10	<5	10	--	--	--	--	--	--	--	
11/7/2002		NR	NR	7.35	1,120	10.3	<5	NR	5	5	250	<5	65,500	NA	NA	NA	NA	
6/4/2003		3.3	<30	6.90	1,460	12.6	<5	<5	<5	<5	--	--	--	--	--	--	--	
11/13/2003		3.9	<30	6.90	1,590	9.6	<5	<5	<5	5	190	<5	--	85	<0.005	<0.010	279	
6/30/2004		4.3	43	7.13	1,353	16.0	<5	<5	9	7	--	--	--	--	--	--	--	
12/9/2004		4.0	<30	5.32	1,290	10.8	<5	<5	7	14	180	74	71,200	78	<0.005	<0.010	251	
6/8/2005		7.0	86	7.36	1,121	10.9	5	<5	9	13	170	31	81,900	80	<0.005	<0.010	254	
12/7/2005		7.5	<30	8.70	1,430	12.2	10	<4	6	20	150	50	85,300	--	--	--	--	
6/29/2006		4.3	<30	7.19	1,470	11.7	5	<4	9	18	190	150	76,900	73	<0.005	<0.010	270	
11/29/2006		4.4	<30	6.88	1,380	15.3	<5	<4	9	11	--	--	--	--	--	--	--	
6/7/2007	3.9	23.7	6.87	1,400	13.4	11	27	5	14	130	42	87,300	72	<0.005	<0.010	208		
11/14/2007	3.5	<30	6.85	1,350	13.4	14	6	16	20	--	--	--	--	--	--	--		
6/25/2008	3.8	72.9	6.90	1,410	20.7	<5	3	6	<5	350	10	94,800	68	<0.005	<0.010	222		
11/17/2008	4.6	20.5	6.80	1,258	5.5	<5	3	5	17	--	--	--	--	--	--	--		
6/24/2009	4.5	<30	6.90	1,184	20.0	<5	3	<5	14	67	36	84,500	40	<0.005	<0.010	154		
11/17/2009	8	25.3	7.31	1,090	10.3	<5	<4	<5	<5	--	--	--	--	--	--	--		
6/17/2010	5	<30	7.04	1,290	16.3	<5	<4	<5	<5	<20	47	86,000	61	<0.005	<0.020	160		
11/8/2010	8	103	7.16	997	13.9	17	<4	<5	<5	--	--	--	--	--	--	--		
Replicate	6/22/2011	4.3	25	7.25	910	13.7	10	<4	5	6	220	6	55,200	26	<0.005	<0.010	88	
	6/22/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	--	
	11/16/2011	5	28	7.04	974	12.8	<5	6	8	11	--	--	--	--	--	--	--	
	6/27/2012	3.7	97	6.77	1,082	15.0	<5	<4	<5	<5	<20	58	64,900	40	<0.005	<0.02	134	
	12/6/2012	7.9	<40	7.12	825	8.7	<5	4	<5	9	--	--	--	--	--	--	--	
	6/5/2013	4.5	6	7.24	921	14.0	<5	<4	<5	24	30	13	27,500	32	<0.005	<0.02	106	
	11/4/2013	8.7	16	7.10	733	11.6	14	6	<5	<5	--	--	--	--	--	--	--	
	6/25/2014	--	--	7.10	--	13.3	--	--	--	--	--	--	--	--	--	--	--	--
	11/18/2014	6.5	28	7.31	896	4.8	<5	6	6	6	--	--	--	--	--	--	--	--
	6/24/2015	4.2	<30	6.98	1,019	16.3	<5	<5	<5	<5	<20	69	58,900	36	<0.005	<0.02	122	
	11/18/2015	3.7	16	7.06	1,231	14.7	<5	<5	7	7	--	--	--	--	--	--	--	--
	6/23/2016	3.9	77	7.14	852	15.1	<5	<5	<5	<5	30	41	41,700	22	<0.005	<0.02	82	
	11/30/2016	5.3	230	7.21	880	13.3	<5	<5	<5	<5	--	--	--	--	--	--	--	--
	6/21/2017	3.9	12	6.78	1,092	11.0	<5	<5	<5	<5	40	37	51,700	41	<0.005	<0.02	155	
	11/7/2017	6.5	39	6.94	841	10.8	<5	5	<5	<5	--	--	--	--	--	--	--	--
6/12/2018	4.2	<60	6.95	932	11.0	<5	<5	<5	10	230	26	39,800	27	<0.005	<0.02	116		
11/7/2018	6.5	170	7.25	952	11.4	<5	<5	<5	<5	--	--	--	--	--	--	--	--	
5/30/2019	6.0	<150	7.35	737	10.7	<5	<5	<5	7	40	<5	32,400	20	<0.004	<0.02	110		
11/21/2019	5.4	<40	7.44	910	12.5	<5	<5	<5	5	--	--	--	--	--	--	--	--	
6/18/2020	5.6	<40	7.33	728	15.3	<5	<5	<5	<5	130	41	35,400	27	<0.004	<0.02	145		
11/5/2020	6.2	21.0	6.92	1,126	13.5	<5	<5	<5	<5	--	--	--	--	--	--	--	--	

See notes on page 7.

TABLE 2
RACER Trust - Coldwater Road
Landfill Leak Detection Vaults - Historical Analytical Results
Inorganics and Metals

Vault	Sample Date	Indicator Parameters					Dissolved Metals (µg/L)				Inorganics (mg/L)						
		TOC (mg/L)	TOX (µg/L)	pH	SpC	Temp	Cr	Cu	Ni	Zn	Fe	Mn	Na	Chloride	Cyanide	Phenols	Sulfate
		EGLR Residential Drinking Water Criteria & RBSLs					100 (A)	1,000 (E)	100 (A)	2,400							
B-9	6/21/1995	3.5	34	7.68	2,400	14.6	<20	<20	<30	<20	--	--	--	--	--	--	--
	8/31/1995	3.9	<10	7.72	1,829	14.8	37	43	<40	<20	--	--	--	--	--	--	--
	2/9/1996	3.1	<10	7.34	2,860	8.0	<20	<20	<40	<20	--	--	--	--	--	--	--
	6/19/1996	2.1	<100	6.81	2,550	11.5	<20	<20	<20	<20	--	--	--	--	--	--	--
	8/21/1996	2.3	<5	8.04	2,310	16.4	<20	<20	<20	70	--	--	--	--	--	--	--
	11/13/1996	71.0	<5	6.79	3,280	9.2	<20	<20	<20	40	--	--	--	--	--	--	--
	5/6/1997	3.0	<100	6.80	2,600	10.0	<10	<10	51	20	--	--	--	--	--	--	--
	11/6/1997	2.0	<100	6.50	2,800	11.0	<10	<10	183	40	650	741	--	141	<0.005	<0.020	1,178
	5/4/1998	3.0	<5	6.58	2,400	14.5	10	10	18	40	--	--	--	--	--	--	--
	11/5/1998	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	12/23/1998	--	--	--	--	--	--	--	--	--	--	--	--	NS	NS	NS	NS
	4/26/1999	4.0	<100	7.69	1,860	12.2	<10	<10	19	20	--	--	--	--	--	--	--
	11/5/1999	2.5	<100	6.75	2,340	15.4	<10	<10	20	30	610	1280	47,100	128	<0.005	<0.020	1,222
	4/26/2000	5.5	<100	7.56	2,780	9.5	<10	<10	12	30	--	--	--	--	--	--	--
	12/8/2000	5.0	<10	7.56	2,400	7.8	<10	<10	46	<10	50	--	69,500	142	<0.005	<0.020	1,246
	5/16/2001	4.8	<100	7.41	1,070	12.6	<10	<10	7	10	--	--	--	--	--	--	--
	10/17/2001	4.0	<100	7.54	2,130	10.8	<10	<10	8	20	940	--	66,000	122	<0.005	NA	1,150
	5/16/2002	1.9	<100	7.19	2,470	11.6	<10	<10	7	10	--	--	--	--	--	--	--
	11/7/2002	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/4/2003	2.2	57	6.78	2,690	10.7	<5	<5	15	13	--	--	--	--	--	--	--
	11/13/2003	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/30/2004	3.8	NS	6.91	2,379	12.7	<5	8	19	28	--	--	--	--	--	--	--
	12/9/2004	3.0	<30	5.88	2,480	11.4	<5	<5	11	19	570	248	55,900	149	<0.005	<0.010	1,350
	6/8/2005	4.0	<30	7.09	2,116	10.3	6	6	12	17	480	701	58,300	128	<0.005	<0.010	1,160
	12/7/2005	5.0	<30	8.58	2,830	11.9	11	5	12	40	320	410	58,500	--	--	--	--
	6/29/2006	1.9	<30	6.82	2,820	12.4	6	6	13	19	390	330	63,600	125	<0.005	<0.010	1,150
	11/30/2006	2.7	36.7	7.15	2,830	12.5	<5	6	<5	14	--	--	--	--	--	--	--
	6/5/2007	2.1	<30	6.70	2,770	11.0	12	6	24	21	320	1,900	67,300	112	<0.005	<0.010	1,120
	11/16/2007	2.0	27.4	6.67	3,000	9.4	2	6	24	18	--	--	--	--	--	--	--
	7/2/2008	1.8	36.4	6.44	3,060	19.7	<5	4	13	19	780	812	64,200	133	<0.005	<0.010	1,280
	11/20/2008	2.2	15.9	6.35	3,290	8.1	<5	<1	13	<5	--	--	--	--	--	--	--
	Duplicate	11/20/2008	2.0	127	6.35	3,280	8.1	<5	<1	13	<5	--	--	--	--	--	--
	6/25/2009	1.6	<30	6.67	2,700	19.8	<5	<1	<5	<5	59	173	65,300	107	<0.005	<0.010	1,120
	11/16/2009	3	84.1	6.71	3,030	12.7	<5	<4	16	8	--	--	--	--	--	--	--
	6/15/2010	3	27.5	6.69	3,030	13.0	<5	<4	7	6	460	475	70,700	117	<0.005	<0.020	1,230
11/11/2010	3	37.5	6.37	2,910	12.9	19	4	7	15	--	--	--	--	--	--	--	
Replicate	6/22/2011	1.9	<30	6.70	2,600	14.0	17	6	21	12	780	661	63,300	99	<0.005	<0.010	972
6/22/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	--	
11/16/2011	2	50	7.18	3,060	12.9	<5	<4	7	<5	--	--	--	--	--	--	--	
6/26/2012	2	21	6.53	2,770	14.0	<5	<4	8	<5	60	433	73,700	101	<0.005	<0.02	1,110	
12/5/2012	2.3	19	6.80	3,210	12.0	<5	8	17	23	--	--	--	--	--	--	--	
6/5/2013	2.1	15	7.07	2,660	12.5	<5	<4	6	25	40	173	66,400	106	<0.005	<0.02	1,150	
11/6/2013	2.2	NS	6.36	2,730	13.0	10	8	47	8	--	--	--	--	--	--	--	
6/25/2014	1.9	25	6.82	2,650	11.5	<5	<5	18	8	<20	159	27,100	108	<0.005	<0.02	1,070	
11/19/2014	2.1	29	6.77	2,670	8.12	<5	6	14	12	--	--	--	--	--	--	--	
6/24/2015	2.0	17	6.38	2,480	11.8	<5	<5	<5	<5	<20	89	62,400	87	<0.005	<0.02	1,040	
11/18/2015	2.0	<30	6.68	2,670	13.5	<5	<5	7	<5	--	--	--	--	--	--	--	
6/24/2016	1.9	150	6.68	2,190	12.9	<5	<5	10	<5	20	95	52,800	71	<0.005	<0.02	776	
11/29/2016	1.9	13	6.77	2,780	13.9	<5	<5	8	9	--	--	--	--	--	--	--	
6/20/2017	1.8	12	6.75	2,250	11.5	<5	<5	5	<5	17	172	54,600	74	<0.005	<0.02	770	
11/7/2017	2.1	<30	6.57	2,540	13.1	<5	<5	8	11	--	--	--	--	--	--	--	
6/12/2018	1.9	<60	5.78	2,420	11.6	<5	<5	6	8	20	89	55,500	85	<0.005	<0.02	931	
11/6/2018	4.9	<150	6.74	3,010	13.6	<5	<5	7	<5	--	--	--	--	--	--	--	
6/3/2019	4.3	<150	6.89	2,200	10.7	<5	<5	<5	7	70	12	52,200	69	<0.004	<0.02	838	
11/21/2019	3.2	77	7.05	2,620	12.8	<5	<5	6	9	--	--	--	--	--	--	--	
6/17/2020	4.3	45	7.13	2,260	13.1	<5	<5	<5	13	160	31	52,200	76	<0.004	<0.02	929	
11/5/2020	7.3	14.6	6.72	2,800	13.8	<5	<5	7	6	--	--	--	--	--	--	--	

See notes on page 7.



TABLE 2
RACER Trust - Coldwater Road
Landfill Leak Detection Vaults - Historical Analytical Results
Inorganics and Metals

Vault	Sample Date	Indicator Parameters					Dissolved Metals (µg/L)				Inorganics (mg/L)						
		TOC (mg/L)	TOX (µg/L)	pH	SpC	Temp	Cr	Cu	Ni	Zn	Fe	Mn	Na	Chloride	Cyanide	Phenols	Sulfate
EGLE Residential Drinking Water Criteria & RBSLs							100 (A)	1,000 (E)	100 (A)	2,400							
B-18A	6/21/1995	2.7	<10	7.54	1,048	13.3	<20	<20	<30	150	--	--	--	--	--	--	--
	8/31/1995	3.0	<10	7.91	989	13.2	<20	<20	<40	<20	--	--	--	--	--	--	--
	2/9/1996	2.3	<10	7.42	1,021	9.3	<20	<20	<40	<20	--	--	--	--	--	--	--
	6/19/1996	1.4	<100	7.04	944	13.2	<20	<20	<20	<20	--	--	--	--	--	--	--
	8/21/1996	2.4	<5	7.49	1,041	12.8	<20	<20	<20	60	--	--	--	--	--	--	--
	11/13/1996	19.0	<5	7.22	1,331	6.4	<20	<20	<20	70	--	--	--	--	--	--	--
	5/6/1997	2.0	<100	6.50	900	10.0	<10	<10	13	10	--	--	--	--	--	--	--
	11/6/1997	4.0	<100	6.40	1,100	10.0	<10	<10	62	10	380	62	--	12	<0.005	<0.020	130
	5/4/1998	2.0	<5	6.72	862	11.8	<10	<10	<5	20	--	--	--	--	--	--	--
	11/5/1998	1.0	<10	6.00	1,090	11.8	<10	<10	<5	10	240	128	46,000	--	--	--	--
	12/23/1998	--	--	--	--	--	--	--	--	--	--	--	--	10	<0.005	<0.020	133
	4/26/1999	2.1	<100	8.10	921	14.0	<10	<10	<5	20	--	--	--	--	--	--	--
	11/5/1999	4.3	<100	7.10	832	14.0	<10	<10	<5	60	180	155	39,200	8	<0.005	<0.020	130
	4/26/2000	2.4	<100	7.50	980	10.4	<10	<10	<5	30	--	--	--	--	--	--	--
12/8/2000	2.6	<10	6.96	990	9.9	<10	<10	15	<10	<10	--	34,500	7	<0.005	<0.020	126	
Duplicate	12/8/2000	2.6	<10	--	--	--	<10	<10	13	<10	40	--	35,100	7	<0.005	<0.020	112
5/16/2001	2.4	<100	7.91	1,160	12.9	<10	<10	<5	10	--	--	--	--	--	--	--	
10/17/2001	2.2	<100	7.09	1,020	12.2	<10	<10	<5	<10	350	--	35,400	7	<0.005	<0.020	132	
5/16/2002	1.5	<100	7.19	2,080	12.2	<10	<10	<5	10	--	--	--	--	--	--	--	
11/7/2002	1.9	<30	7.16	820	10.1	<5	<5	<5	<5	190	26	40,800	10	<0.005	<0.020	134	
6/4/2003	1.6	<30	6.92	790	13.1	<5	<5	<5	5	--	--	--	--	--	--	--	
Duplicate	11/13/2003	1	<30	7.68	1,180	7.1	<5	<5	<5	160	<5	--	10	<0.005	<0.010	129	
11/13/2003	--	--	--	--	--	--	--	--	--	--	--	--	11	<0.005	<0.010	130	
6/29/2004	1.2	<30	7.19	863	12.0	<5	<5	7	10	--	--	--	--	--	--	--	
12/9/2004	3	<30	6.19	960	10.5	<5	<5	9	12	900	363	37,900	14	<0.005	<0.010	127	
6/8/2005	2	<30	7.38	819	10.9	<5	<5	6	16	170	80	40,000	11	<0.005	<0.010	120	
12/8/2005	2.6	<30	9.73	1,120	10.1	11	<4	<5	10	390	170	47,000	--	--	--	--	
6/27/2006	1.2	<30	7.09	1,110	13.2	5	4	<5	46	170	50	48,200	13	<0.005	<0.010	125	
11/30/2006	1.4	119	7.18	1,100	11.5	5	4	<5	9	--	--	--	--	--	--	--	
6/4/2007	1	19.9	7.01	1,070	13.2	9	3	3	14	110	22	51,800	15	<0.005	<0.010	114	
11/14/2007	<1	19	6.91	1,090	13.7	1	2	6	11	--	--	--	--	--	--	--	
6/25/2008	12	34.1	7.10	1,060	20.4	<5	2	<5	11	310	<5	54,800	15	<0.005	<0.010	110	
11/18/2008	<1	<30	6.58	1,088	2.9	<5	<1	<5	<5	--	--	--	--	--	--	--	
6/24/2009	<1	<30	7.25	1,060	26.2	<5	1	<5	15	<20	<5	53,100	16	<0.005	<0.010	111	
11/18/2009	2	<30	6.89	1,070	11.7	<5	<4	<5	45	--	--	--	--	--	--	--	
6/17/2010	1	<30	7.19	1,080	17.5	<5	<4	<5	8	<20	<5	45,500	15	<0.005	<0.020	109	
11/10/2010	2	28	6.91	1,065	9.5	12	<4	<5	<5	--	--	--	--	--	--	--	
6/21/2011	1.2	<30	7.16	1,031	18.8	10	<4	5	12	240	<5	46,100	17	<0.005	<0.010	103	
Replicate	6/21/2011	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	--	
11/15/2011	1	28	7.01	1,063	12.0	<5	<4	<5	<5	--	--	--	--	--	--	--	
Duplicate	6/27/2012	1.2	<40	6.99	1,057	14.4	<5	<4	<5	30	26	50,000	18	<0.005	<0.02	103	
6/27/2012	1.2	<40	6.99	1,054	14.4	<5	<4	<5	5	40	27	46,500	18	<0.005	<0.02	101	
12/6/2012	1.5	<40	7.03	1,071	9.3	<5	<4	5	9	--	--	--	--	--	--	--	
6/5/2013	1.5	4.7	7.17	1,040	14.6	<5	<4	<5	31	20	12	43,900	19	<0.005	<0.02	110	
11/5/2013	1.4	<10	7.15	1,063	12.1	<5	<4	<5	11	--	--	--	--	--	--	--	
6/24/2014	1.5	<30	7.03	1,048	12.8	<5	<5	6	7	<20	20	20,500	18	<0.005	<0.02	107	
11/19/2014	1.4	16	7.10	1,073	6.27	<5	<4	5	7	--	--	--	--	--	--	--	
Duplicate	11/19/2014	1.5	<60	7.10	1,072	6.27	<5	<4	5	7	--	--	--	--	--	--	
6/23/2015	1.3	<30	6.95	1,060	15.5	<5	<5	<5	<5	30	10	43,600	18	<0.005	<0.02	110	
11/18/2015	1.4	<30	7.03	1,065	12.2	<5	<5	<5	5	--	--	--	--	--	--	--	
6/23/2016	1.4	55	7.08	1,063	13.8	<5	<5	<5	<5	30	7	42,400	19	<0.005	<0.02	108	
11/30/2016	1.2	<30	7.10	1,059	11.4	<5	<5	<5	7	--	--	--	--	--	--	--	
6/20/2017	1.5	<30	6.97	1,075	12.7	<5	<5	<5	8	<20	27	36,300	18	<0.005	<0.02	118	
11/7/2017	1.2	<30	6.96	1,092	11.6	<5	<5	<5	<5	--	--	--	--	--	--	--	
6/12/2018	1.4	<60	6.90	1,074	12.4	<5	<5	<5	10	160	41	32,900	16	<0.005	<0.02	131	
11/7/2018	3.0	<150	6.85	1,106	11.7	<5	<5	<5	7	--	--	--	--	--	--	--	
Duplicate	6/3/2019	3.6	<150	7.36	1,050	11.2	<5	<5	<5	9	<20	15	34,900	18	<0.004	<0.02	127
6/3/2019	3.8	<150	7.36	1,056	11.2	<5	<5	<5	34	110	16	35,300	17	<0.004	<0.02	127	
11/20/2019	2.2	65	7.30	1,055	11.2	<5	<5	<5	8	--	--	--	--	--	--	--	
6/18/2020	3.2	44	7.18	725	13.2	<5	<5	<5	7	50	65	39,700	20	<0.004	<0.02	137	
Duplicate	6/18/2020	3.9	<40	7.18	769	13.2	<5	<5	<5	6	50	68	40,800	20	<0.004	<0.02	138
11/5/2020	4.3	9.42	7.09	1,084	13.2	<5	<5	<5	9	--	--	--	--	--	--	--	

See notes on page 7.



TABLE 2
RACER Trust - Coldwater Road
Landfill Leak Detection Vaults - Historical Analytical Results
Inorganics and Metals

Vault	Sample Date	Indicator Parameters					Dissolved Metals (µg/L)					Inorganics (mg/L)						
		TOC (mg/L)	TOX (µg/L)	pH	SpC	Temp	Cr	Cu	Ni	Zn	Fe	Mn	Na	Chloride	Cyanide	Phenols	Sulfate	
		EGLR Residential Drinking Water Criteria & RBSLs					100 (A)	1,000 (E)	100 (A)	2,400								
B-19A	6/21/1995	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	8/31/1995	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	
	2/9/1996	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	
	6/19/1996	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	
	8/21/1996	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	
	11/13/1996	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	
	5/6/1997	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	
	11/6/1997	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	WD	WD	WD	WD	
	5/4/1998	3.0	<5	6.84	1,480	10.1	<10	<10	<5	30	--	--	--	--	--	--	--	
	11/5/1998	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	
	12/23/1998	--	--	--	--	--	--	--	--	--	--	--	NS	NS	NS	NS	NS	
	4/26/1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	11/5/1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	
	12/8/2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/16/2001	4.0	<100	7.14	1,050	11.8	<10	<10	<5	<10	--	--	--	--	--	--	--	--
	10/17/2001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/16/2002	6.0	<100	7.19	1,740	10.6	<10	<10	<5	10	--	--	--	--	--	--	--	--
	11/7/2002	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/4/2003	5.8	<30	6.92	1,350	12.9	<5	<5	<5	<5	--	--	--	--	--	--	--	--
	11/13/2003	3.4	<30	7.59	1,620	10.2	<5	<5	<5	<5	20	<5	--	148	<0.005	<0.010	229	--
6/29/2004	3.9	<30	7.17	1,316	14.7	<5	<5	<5	8	--	--	--	--	--	--	--	--	
12/9/2004	5.0	33	6.24	1,340	9.9	<5	<5	<5	9	240	11	111,000	116	<0.005	<0.010	233	--	
Duplicate	12/9/2004	5.0	<30	--	--	--	<5	<5	7	170	<5	114,000	116	<0.005	<0.010	233	--	
Duplicate	6/7/2005	3.0	<30	7.09	829	12.2	<5	<5	7	<5	1,320	228	15,700	52	<0.005	<0.010	130	--
Duplicate	12/8/2005	5.5	<30	--	1,390	--	10	<4	<5	20	160	<20	81,400	--	--	--	--	
Re-sample	12/8/2005	5.3	<30	7.13	1,390	12.3	10	<4	<5	<10	150	<20	74,800	--	--	--	--	
Re-sample	2/14/2006	--	--	7.95	840	5.9	<5	--	--	--	--	--	--	--	--	--	--	
Re-sample	6/29/2006	2.7	<30	7.58	860	12.0	<5	<4	12	21	240	210	22,400	51	<0.005	<0.010	153	--
Re-sample	11/30/2006	6.2	<33.7	7.18	1,300	11.4	5	<4	<5	<5	--	--	--	--	--	--	--	
Re-sample	6/7/2007	2	<30	6.97	899	11.4	6	4	4	9	70	21	19,700	58	<0.005	<0.010	136	--
Re-sample	11/13/2007	1.5	<30	7.27	1,070	12.1	3	7	26	11	--	--	--	--	--	--	--	
Re-sample	6/25/2008	2.4	38.8	7.13	1,060	17.4	<5	3	<5	16	380	9	18,500	58	<0.005	<0.010	148	--
Re-sample	11/18/2008	1.3	<30	7.00	1,052	8.0	<5	1	<5	14	--	--	--	--	--	--	--	
Re-sample	6/24/2009	1.0	<30	7.74	911	17.3	<5	2	<5	<5	36	<5	21,200	60	<0.005	<0.010	147	--
Re-sample	11/19/2009	2	<30	7.41	994	10.4	<5	<4	<5	7	--	--	--	--	--	--	--	
Re-sample	6/15/2010	2	<30	7.57	992	16.1	<5	<4	<5	<5	<20	<5	19,800	59	<0.005	<0.020	154	--
Re-sample	11/10/2010	2	<30	6.91	1,128	8.7	12	<4	<5	<5	--	--	--	--	--	--	--	
Re-sample	6/22/2011	1.5	<30	7.35	902	17.2	5	<4	5	<5	240	<5	22,400	64	<0.005	<0.010	140	--
Re-sample	6/22/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	--	
Re-sample	11/16/2011	2	26	7.06	1,091	8.4	<5	<4	<5	5	--	--	--	--	--	--	--	
Re-sample	6/27/2012	1.5	<40	7.78	1,005	13.3	<5	<4	<5	<5	<20	<5	23,200	62	<0.005	<0.02	145	--
Re-sample	12/6/2012	1.8	<40	7.36	1,129	10.2	<5	<4	5	6	--	--	--	--	--	--	--	
Re-sample	6/5/2013	1.5	39	8.16	777	13.0	<5	<4	<5	25	40	<5	27,700	72	<0.005	<0.02	136	--
Re-sample	11/6/2013	1.6	3.6	7.33	1,104	11.6	<5	<4	10	<5	--	--	--	--	--	--	--	
Re-sample	6/23/2014	2.0	23	8.40	817	17.3	<5	<5	5	<5	<20	<5	11,900	74	<0.005	<0.02	136	--
Re-sample	11/20/2014	2.1	190	7.37	1,038	6.16	<5	6	6	10	--	--	--	--	--	--	--	
Re-sample	6/23/2015	1.5	<30	6.77	1,165	20.2	<5	6	<5	26	30	50	28,700	72	<0.005	<0.02	132	--
Re-sample	11/19/2015	1.4	17	6.90	1,170	10.6	<5	<5	7	7	--	--	--	--	--	--	--	
Re-sample	6/27/2016	1.5	71	8.13	712	18.8	<5	<5	<5	<5	40	<5	26,700	70	<0.005	<0.02	128	--
Re-sample	11/30/2016	1.8	12	7.39	1,104	11.2	14	14	20	39	--	--	--	--	--	--	--	
Re-sample	1/12/2017	--	--	7.34	--	11.1	<5	<5	6	11	--	--	--	--	--	--	--	
Re-sample	6/21/2017	2.0	30	7.29	1,064	12.1	<5	<5	<5	<5	<20	13	28,200	75	<0.005	<0.02	131	--
Re-sample	11/7/2017	2.6	120	7.05	1,134	12.0	<5	<5	<5	<5	--	--	--	--	--	--	--	
Re-sample	6/12/2018	1.8	<60	8.63	688	12.5	<5	<5	<5	<5	30	<5	24,700	81	<0.005	<0.02	135	--
Re-sample	11/7/2018	5.9	<150	7.35	1,176	11.1	6	5	11	15	--	--	--	--	--	--	--	
Re-sample	6/3/2019	6.5	<150	7.26	1,062	11.7	<5	<5	7	10	2,760	203	27,300	82	<0.004	<0.02	148	--
Re-sample	11/21/2019	2.4	<40	7.36	1,121	11.1	7	6	12	23	--	--	--	--	--	--	--	
Re-sample	6/18/2020	3.1	<40	7.26	845	13.4	<5	<5	6	8	1,180	276	22,200	88	<0.004	<0.02	157	--
Re-sample	11/5/2020	6.6	19.4	7.02	1,172	13.0	8	108	11	42	--	--	--	--	--	--	--	
Re-sample	12/4/2020	--	--	--	--	--	<5	<5	6	13	--	--	--	--	--	--	--	

See notes on page 7.



TABLE 2
RACER Trust - Coldwater Road
Landfill Leak Detection Vaults - Historical Analytical Results
Inorganics and Metals

Vault	Sample Date	Indicator Parameters					Dissolved Metals (µg/L)				Inorganics (mg/L)						
		TOC (mg/L)	TOX (µg/L)	pH	SpC	Temp	Cr	Cu	Ni	Zn	Fe	Mn	Na	Chloride	Cyanide	Phenols	Sulfate
		EGLR Residential Drinking Water Criteria & RBSLs					100 (A)	1,000 (E)	100 (A)	2,400							
B-24	6/21/1995	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/31/1995	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2/9/1996	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/19/1996	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/21/1996	5.6	<5	7.80	1,502	12.7	<20	<20	<20	90	--	--	--	--	--	--	--
	11/13/1996	20.0	<5	7.09	2,030	7.8	<20	<20	<20	50	--	--	--	--	--	--	--
	5/6/1997	5.0	<100	6.40	1,700	10.0	<10	<10	31	10	--	--	--	--	--	--	--
	11/6/1997	--	--	--	--	--	--	--	--	--	--	--	--	NS	NS	NS	NS
	5/4/1998	4.0	<5	6.52	1,410	11.6	<10	<10	8	20	--	--	--	--	--	--	--
	11/5/1998	4.0	23	5.50	1,595	10.4	<10	<10	9	20	60	120	27,700	--	--	--	--
	12/23/1998	--	--	--	--	--	--	--	--	--	--	--	--	163	<0.005	<0.020	205
	4/26/1999	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	11/5/1999	NS	NS	7.20	1,152	13.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/26/2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	12/8/2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/15/2001	NS	NS	6.40	1,450	12.9	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	10/17/2001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/16/2002	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	11/7/2002	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/3/2003	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	11/13/2003	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/30/2004	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--
	12/9/2004	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/7/2005	8.0	<30	7.27	857	10.6	8	<5	<5	<5	10,600	448	27,100	49	<0.005	<0.010	206
	12/8/2005	6.6	<30	5.16	1,120	11.9	11	<4	<5	10	3,180	210	28,700	--	--	--	--
	6/28/2006	4.7	<30	7.31	1,080	11.9	6	<4	<5	<5	3,760	210	27,700	48	<0.005	<0.010	182
	11/30/2006	4.8	30	7.31	1,100	11.7	6	<4	<5	<5	--	--	--	--	--	--	--
	6/4/2007	4.5	110	7.19	1,080	11.0	9	2	2	19	2,400	194	27,900	47	<0.005	<0.010	184
	11/13/2007	4.1	30.1	7.13	1,130	14.0	3	1	5	7	--	--	--	--	--	--	--
	6/26/2008	4.3	<30	6.99	1,130	19.0	<5	1	<5	8	3,490	175	39,600	46	<0.005	<0.010	189
11/18/2008	3.8	<30	6.76	1,125	5.3	<5	<1	<5	<5	--	--	--	--	--	--	--	
6/24/2009	5.2	<30	6.62	1,120	17.4	<5	<1	<5	<5	4,000	155	38,400	48	<0.005	<0.010	201	
11/18/2009	5	86.4	7.08	1,140	12.9	<5	--	<5	<5	--	--	--	--	--	--	--	
6/16/2010	4	22.7	7.02	1,150	16.3	<5	<4	<5	<5	1,880	222	39,500	46	<0.005	<0.020	196	
11/9/2010	5	26.8	6.90	1,136	13.5	11	<4	<5	<5	--	--	--	--	--	--	--	
6/21/2011	3.7	<30	7.11	1,136	17.5	10	<4	6	<5	1,130	255	51,700	45	<0.005	<0.010	206	
Duplicate	6/21/2011	3.7	<30	7.11	1,137	17.5	8	<4	6	<5	1,070	255	52,000	45	<0.005	<0.010	206
Replicate	6/21/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	
Dup. Replicate	6/21/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	
11/16/2011	4	24	7.69	1,141	11.1	<5	<4	<5	<5	--	--	--	--	--	--	--	
6/26/2012	3.5	16	6.80	1,219	13.7	<5	<4	<5	<5	1,200	242	72,000	45	<0.005	<0.02	219	
12/6/2012	4.2	48	6.98	1,204	10.2	<5	<4	<5	6	--	--	--	--	--	--	--	
6/3/2013	4	4.8	7.19	1,127	11.4	<5	<4	<5	<5	110	130	38,600	45	<0.005	<0.02	227	
11/5/2013	4	5.5	7.16	1,203	12.6	<5	<4	<5	<5	--	--	--	--	--	--	--	
Duplicate	11/5/2013	4	<10	7.16	1,203	12.6	<5	<4	<5	<5	--	--	--	--	--	--	
6/24/2014	3.7	16	7.10	1,202	13.9	<5	8	8	9	60	238	24,300	45	<0.005	<0.02	243	
Duplicate	6/24/2014	3.7	16	7.10	1,201	13.9	<5	<5	7	8	231	25,000	46	<0.005	<0.02	240	
11/19/2014	3.9	21	6.98	1,290	5.44	<5	<4	11	<5	--	--	--	--	--	--	--	
6/24/2015	3.5	<30	7.03	1,235	15.4	<5	<5	7	<5	<20	240	59,600	44	<0.005	<0.02	261	
11/18/2015	3.6	19	7.03	1,234	12.9	<5	<5	5	<5	--	--	--	--	--	--	--	
Duplicate	11/18/2015	3.5	18	7.03	1,233	12.9	<5	<5	6	7	--	--	--	--	--	--	
6/23/2016	3.2	110	6.88	1,275	15.0	<5	<5	<5	<5	320	210	67,800	45	<0.005	<0.02	245	
11/29/2016	3.4	12	7.19	1,220	10.7	<5	<5	<5	<5	--	--	--	--	--	--	--	
6/20/2017	3.1	14	7.10	1,307	11.4	<5	<5	<5	<5	<20	74	74,400	48	<0.005	<0.02	246	
11/7/2017	3.4	<30	7.09	1,231	11.3	<5	<5	<5	<5	--	--	--	--	--	--	--	
6/12/2018	2.9	<60	7.07	1,280	11.4	<5	<5	<5	7	100	64	64,500	47	<0.005	<0.02	240	
11/7/2018	3.7	<150	7.22	1,269	11.0	<5	<5	<5	<5	--	--	--	--	--	--	--	
5/30/2019	4.7	<150	7.17	1,161	11.2	<5	<5	<5	13	540	108	70,100	46	<0.004	<0.02	249	
11/21/2019	4.0	59	7.26	1,216	11.8	<5	<5	<5	7	--	--	--	--	--	--	--	
6/17/2020	5.4	<40	7.38	1,125	14.9	<5	<5	<5	6	70	44	62,600	49	<0.004	<0.02	271	
Duplicate	11/5/2020	5.2	18.5	7.07	1,257	14.4	<5	<5	<5	<5	--	--	--	--	--	--	
Duplicate	11/5/2020	5.2	4.26	7.07	1,226	14.4	<5	<5	<5	--	--	--	--	--	--	--	

See notes on page 7.



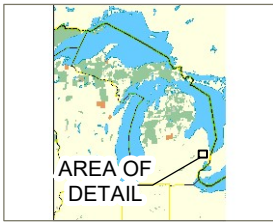
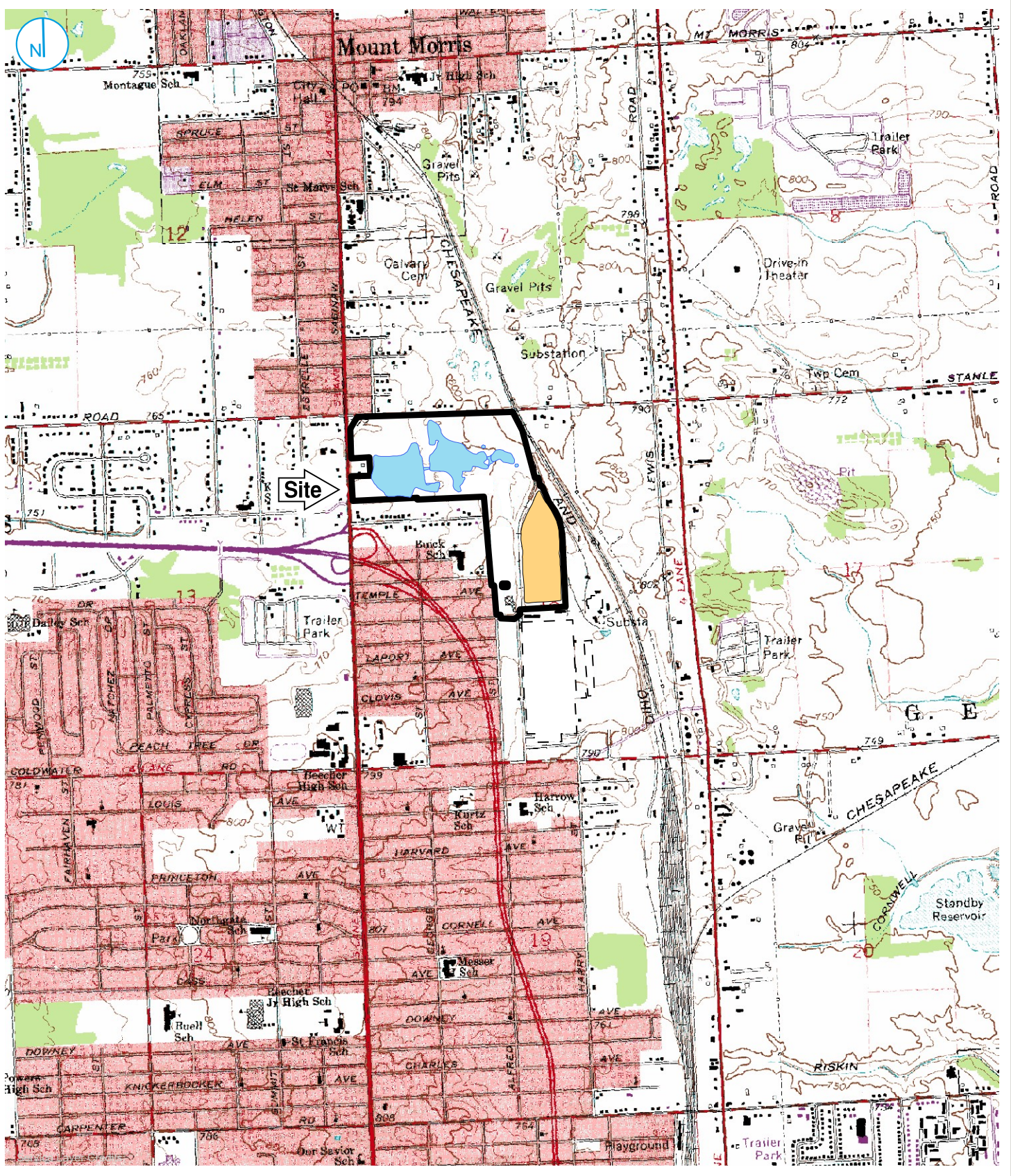
TABLE 2
RACER Trust - Coldwater Road
Landfill Leak Detection Vaults - Historical Analytical Results
Inorganics and Metals

Vault	Sample Date	Indicator Parameters					Dissolved Metals (µg/L)					Inorganics (mg/L)					
		TOC (mg/L)	TOX (µg/L)	pH	SpC	Temp	Cr	Cu	Ni	Zn	Fe	Mn	Na	Chloride	Cyanide	Phenols	Sulfate
		EGLE Residential Drinking Water Criteria & RBSLs					100 (A)	1,000 (E)	100 (A)	2,400							
Duplicate	11/21/2005	--	--	6.21	994	12.3	--	--	--	<5	--	--	--	--	--	--	--
	11/21/2005	--	--	6.21	--	12.3	--	--	--	7	--	--	--	--	--	--	--
Duplicate	6/27/2006	3	<30	7.12	828	13.2	5	<4	<5	18	2,380	210	17,000	--	--	--	--
	12/1/2006	2.4	<30	7.48	812	12.3	<5	<4	<5	5	--	--	--	--	--	--	--
	12/1/2006	3.3	<30	7.48	810	12.3	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/5/2007	2.1	<30	6.84	845	10.6	9	2	3	6	1,690	160	25,100	12	<0.005	<0.010	87
	11/15/2007	2.5	15	6.81	816	9.1	3	2	5	11	--	--	--	--	--	--	--
Duplicate	6/27/2008	1.8	<30	6.87	840	17.6	<5	1	<5	5	370	84	16,300	10	<0.005	<0.010	88
	11/19/2008	1.1	<30	6.75	804	7.0	<5	<1	<5	<5	--	--	--	--	--	--	--
	6/24/2009	1.1	<30	6.96	822	19.5	<5	<1	<5	<5	204	132	14,600	10	<0.005	<0.010	84
	11/18/2009	2	<30	6.94	814	11.6	<5	<4	<5	20	--	--	--	--	--	--	--
	6/16/2010	2	<30	7.02	841	17.6	<5	<4	<5	<5	790	173	19,100	12	<0.005	<0.020	78
	11/10/2010	3	<30	7.05	813	13.3	18	<4	<5	<5	--	--	--	--	--	--	--
	6/21/2011	1.5	<30	7.23	837	14.1	9	<4	5	<5	1,380	130	23,400	12	<0.005	<0.010	80
	6/21/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	--
	11/15/2011	2	160	7.17	823	12.5	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/26/2012	2	<40	6.45	849	13.0	<5	<4	<5	<5	1,960	84	29,800	12	<0.005	<0.02	80
Duplicate	12/6/2012	1.6	<40	7.25	823	11.4	<5	<4	<5	<5	--	--	--	--	--	--	--
	12/6/2012	1.7	<40	7.25	823	11.4	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/3/2013	1.5	10	6.88	834	13.1	<5	<4	5	<5	1,310	111	26,000	12	<0.005	<0.02	87
Replicate	11/5/2013	1.6	<10	7.26	842	12.9	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/24/2014	1.5	<30	7.03	852	12.2	<5	9	<5	<5	1,490	53	15,400	12	<0.005	<0.02	89
	7/28/2014	--	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--
	11/19/2014	1.6	<60	7.05	844	7.48	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/22/2015	1.5	<30	7.04	860	13.4	<5	<5	<5	<5	3,330	53	37,100	11	<0.005	<0.02	92
	11/18/2015	1.6	<30	7.13	849	13.8	<5	<5	<5	6	--	--	--	--	--	--	--
	6/24/2016	1.6	49	7.18	866	15.0	<5	<5	<5	<5	4,960	53	45,800	11	<0.005	<0.02	92
	11/29/2016	1.5	<30	7.27	853	12.6	<5	<5	<5	<5	--	--	--	--	--	--	--
Duplicate	11/29/2016	1.5	16	7.27	860	12.6	<5	<5	<5	<5	--	--	--	--	--	--	--
	6/20/2017	1.6	18	7.05	863	11.4	<5	<5	<5	<5	80	35	30,000	13	<0.005	<0.02	106
Duplicate	11/7/2017	1.6	<30	7.11	859	12.5	<5	<5	<5	<5	--	--	--	--	--	--	--
	11/7/2017	1.5	<30	7.11	867	12.5	<5	<5	<5	<5	--	--	--	--	--	--	--
Duplicate	6/12/2018	1.6	<60	7.09	839	12.2	<5	<5	<5	<5	60	27	14,600	12	<0.005	<0.02	100
	11/7/2018	1.5	<150	7.37	880	11.8	<5	<5	<5	<5	--	--	--	--	--	--	--
	11/7/2018	1.6	<150	7.37	880	11.8	<5	<5	<5	<5	--	--	--	--	--	--	--
Duplicate	5/29/2019	3.4	<150	7.39	803	11.0	<5	<5	<5	<5	50	84	16,200	13	<0.004	<0.02	118
	11/21/2019	2.1	42	7.34	833	12.2	<5	<5	<5	<5	--	--	--	--	--	--	--
	11/21/2019	2.1	<40	7.34	839	12.2	<5	<5	<5	<5	--	--	--	--	--	--	--
	6/16/2020	2.8	41	7.38	862	14.4	<5	<5	<5	<5	110	74	14,200	13	<0.004	<0.02	142
	11/5/2020	3.8	<10	7.09	904	13.8	<5	<5	<5	<5	--	--	--	--	--	--	--
Equipment Blank	12/10/2004	<1	<30	--	--	--	<5	<5	<5	11	<20	13	810	<2	<0.005	<0.010	<2
	6/8/2005	<1	<30	--	--	--	<5	<5	<5	<5	<20	<5	120	<5	<0.005	<0.010	<5
	12/8/2005	<1	<30	--	5	--	<5	<4	<5	<10	<100	<20	<1000	--	--	--	--
	6/28/2006	<1	<30	--	12	--	<5	<4	<5	<5	<100	<20	<1000	<1	<0.005	<0.010	<1
	12/1/2006	<1	<30	--	26	--	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/8/2007	<1	26	--	13	--	<5	1	1	13	<20	11	340	<2	<0.005	<0.010	<2
	11/15/2007	<1	<30	--	4	--	<5	1	1	9	--	--	--	--	--	--	--
	6/26/2008	<1	<30	--	3	--	<5	1	<5	<5	100	7	420	<2	<0.005	<0.010	<2
	11/19/2008	<1	<30	--	6	--	<5	1	<5	<5	--	--	--	--	--	--	--
	6/25/2009	<1	<30	--	24	--	<5	<1	<5	<5	110	<5	200	<2	<0.005	<0.010	<2
	11/19/2009	0.7	<30	--	5	--	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/17/2010	0.4	<30	--	4	--	<5	<4	<5	<5	<20	<5	<200	<2	<0.005	<0.020	<2
	11/11/2010	1	<30	--	1.2	--	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/22/2011	0.88	<30	--	3	--	<5	<4	<5	<5	<20	<5	460	<2	<0.005	<0.010	<2
	11/16/2011	<1	4.9	--	1,330	--	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/27/2012	<1	<20	--	3	--	<5	<4	<5	13	50	<5	6350	<2	<0.005	<0.02	<2
	12/6/2012	<1	<40	--	17.0	--	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/6/2013	<1	<10	--	1,370	--	<5	<4	<5	<5	<20	<5	<500	<2	<0.005	<0.02	<2
	11/6/2013	<1	<10	--	2,350	--	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/24/2014	<1	<30	--	1,930	--	<5	<5	<5	<5	<20	<5	<1000	<2.5	<0.005	<0.02	<2.5
	6/24/2015	<1	<30	--	4.09	--	<5	<5	<5	<5	<20	<5	140	<2	<0.005	<0.02	<2
	6/24/2016	<1	6.2	--	2,220	--	<5	<5	<5	<5	<20	<5	<500	<2.5	<0.005	<0.02	<2
	6/22/2017	<1	<30	--	5,780	--	<5	<5	<5	<5	<20	<5	<200	<5	<0.005	<0.02	<5
	11/7/2017	<1	<30	--	7.07	--	<5	<5	<5	<5	--	--	--	--	--	--	--
	6/14/2018	1.2	<60	--	28.8	--	<5	<5	<5	<5	<20	<5	<250	<2.5	<0.005	<0.02	<2.5
	11/7/2018	39.3	<150	--	5.40	--	<5	<5	<5	<5	--	--	--	--	--	--	--
	6/3/2019	<1	<150	--	2.63	--	<5	<5	<5	<5	<20	<5	530	<2.5	<0.004	<0.02	<2.5
	11/21/2019	<1	<40	--	4.90	--	<5	<5	<5	<5	--	--	--	--	--	--	--
	6/18/2020	<1	<40	--	3.31	--	<5	<5	<5	<5	<20	<5	<500	<2.5	<0.004	<0.02	<2.5
	11/5/2020	<1	<10	--	3,950	--	<5	<5	<5	<5	--	--	--	--	--	--	--

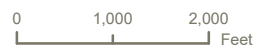
Notes

- 1) < = Not detected.
- 2) NS = Not sampled, insufficient liquid encountered.
- 3) NR = No Result, insufficient sample volume.
- 4) T = Temperature in degrees Celsius.
- 5) -- = Not analyzed.
- 6) Dup = Duplicate sample.
- Exceeds MDEQ Residential Drinking Water Criteria
- 7) A = Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.
- 8) E = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA)

FIGURES



Map Scale: 1:1,24,000;
Map Center: 83°41'9"W 43°5'51"N



SITE LOCATION

FIGURE 01

RACER TRUST
Coldwater Road Landfill Facility
Flint, Michigan

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY



PROJECT: 169000XXXXX | DATED: 12/29/2020 | DESIGNER: MONETANT
 I:\Racer-Trust\1538875178_Coldwater-2020\Docs\Reports\GW_Monitoring\Annual_Nov_2020\Figures\002-Figure 2 GW_Report_Site_Layout_NOV_2020_12292020.mxd



- ⊕ PERCHED MONITORING WELL
- ⊙ DRIFT MONITORING WELL
- ⊙ LEACHATE COLLECTION SUMP
- ACCESS PORT FOR LEAK DETECTION VAULT
- PROPERTY BOUNDARY
- FORMER BUILDING



SITE LAYOUT

RACER TRUST
 Coldwater Road Landfill Facility
 Flint, Michigan

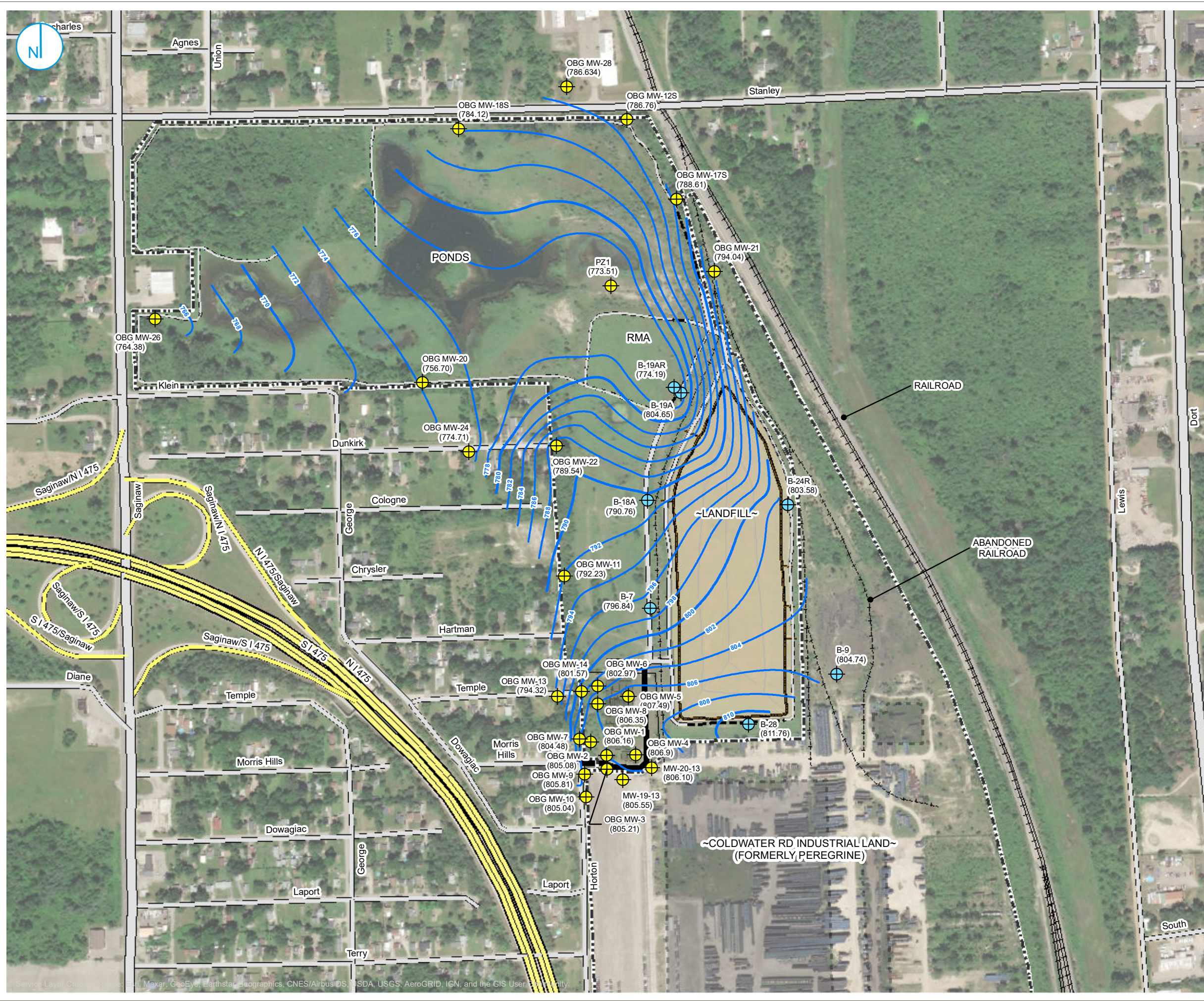
FIGURE 02

O'BRIEN & GERE ENGINEERS, INC.
 A RAMBOLL COMPANY



Service Layer Credits: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

I:\Racer-Trust\15388175178_Coldwater-GW_Monitoring\Annual Nov 2020\Figures\003-Figure 3-GW_Elevations_Perched NOV2020.mxd



- MONITORING WELL / PIEZOMETER
- ADDITIONAL SITE MONITORING WELL
- GROUNDWATER CONTOUR (NOVEMBER 3, 2020)
- PROPERTY BOUNDARY
- FORMER BUILDING
- (800.93) GROUNDWATER ELEVATION

NOTES
 THE GROUNDWATER ELEVATION FOR MONITORING WELL B-19A WAS NOT USED IN DEVELOPING THE GROUNDWATER POTENTIOMETRIC SURFACE DUE TO THE DEPTH OF THIS WELL AND VERTICAL GRADIENTS AT THE SITE.

THE ADDITIONAL SITE MONITORING WELLS WERE USED IN THE CREATION OF THE GROUNDWATER CONTOURS BUT ARE NOT PART OF THE LANDFILL MONITORING PROGRAM.



**PERCHED ZONE
 GROUNDWATER
 ELEVATION MAP
 NOVEMBER 3, 2020**

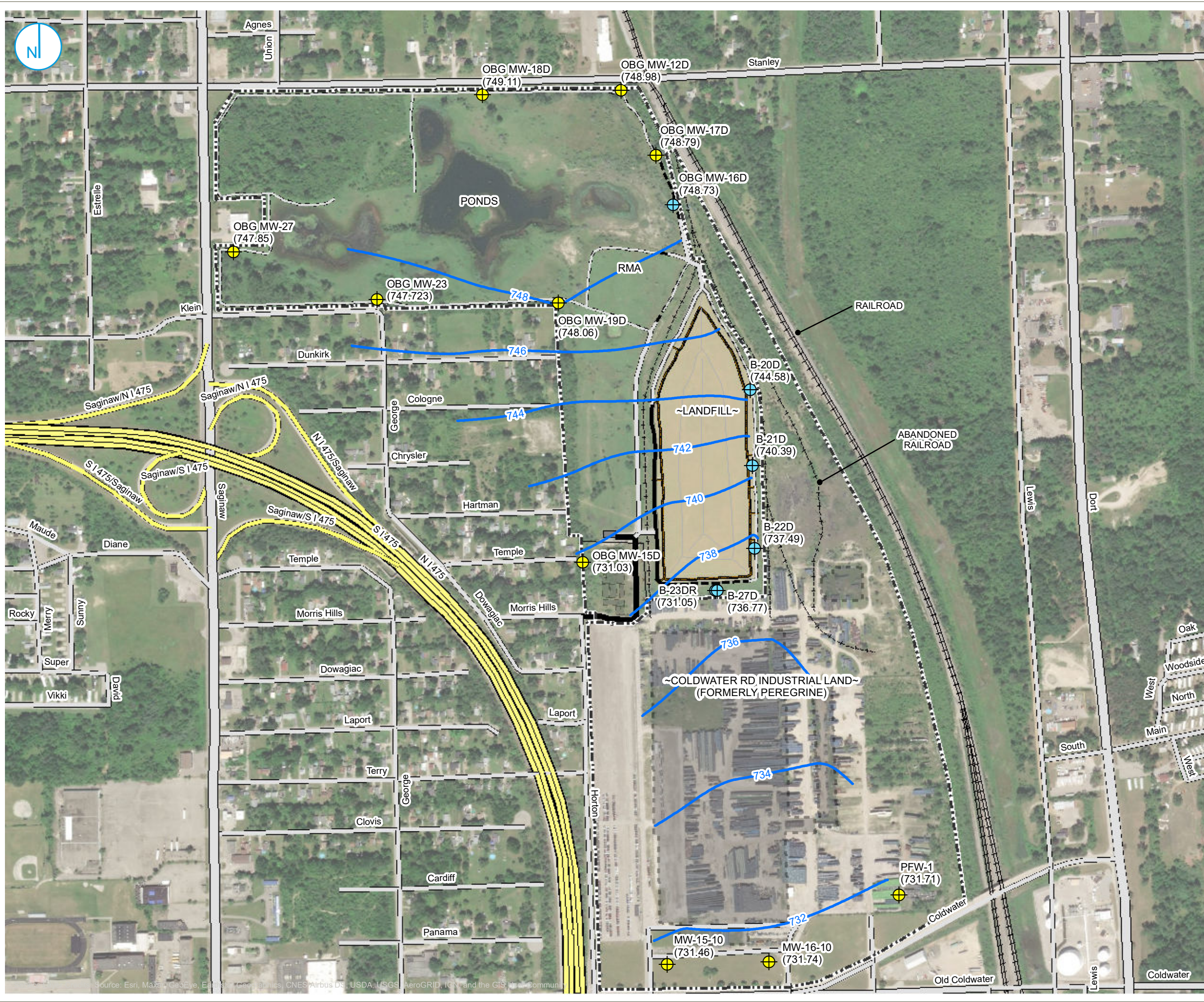
RACER TRUST
 Coldwater Road Landfill Facility
 Flint, Michigan

FIGURE 03

O'BRIEN & GERE ENGINEERS, INC.
 A RAMBOLL COMPANY



Service Layer Credits: Esri, Maxar, GeoEye, Earthstar, Imagotac, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- MONITORING WELL
- ADDITIONAL SITE MONITORING
- GROUNDWATER CONTOUR (NOVEMBER 3, 2020)
- PROPERTY BOUNDARY
- FORMER BUILDING
- (800.93) GROUNDWATER ELEVATION

NOTES
 THE GROUNDWATER ELEVATIONS FOR MONITORING WELLS B-23DR AND OBG MW-15D WERE NOT USED IN DEVELOPING THE GROUNDWATER POTENTIOMETRIC SURFACE DUE TO THE DEPTH OF THESE WELLS AND APPARENT VERTICAL GRADIENT WITHIN THE DRIFT AQUIFER.
 THE ADDITIONAL SITE MONITORING WELLS WERE USED IN THE CREATION OF THE GROUNDWATER CONTOURS BUT ARE NOT PART OF THE LANDFILL MONITORING PROGRAM.



DRIFT UNIT GROUNDWATER ELEVATION MAP
 NOVEMBER 3, 2020

RACER TRUST
 Coldwater Road Landfill Facility
 Flint, Michigan

FIGURE 04



Source: Esri, Maxar, GeoEye, Earthstar, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX A SAMPLING PROCEDURES

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1 Introduction

This procedure is for the collection of groundwater samples for laboratory analysis. The objective of most groundwater quality monitoring programs is to obtain samples that are representative of existing groundwater conditions, or samples that retain the physical and chemical properties of the groundwater within an aquifer.

One of the most important aspects of groundwater sampling is acquiring samples that are free of suspended silt, sediment, or other fine grained particulates. Fine grain materials may often have a variety of chemical components sorbed to the particle or have the ability to sorb chemicals from the aqueous phase to the particle, which will bias the subsequent analytical results.

Constituents known to have an affinity for fine-grained particulates are: polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), and inorganics. Monitoring programs where these constituents are suspected or known to be prevalent must employ sampling methods that minimize particulate presence.

The "Low Stress/Low Flow" purging and sampling method will be utilized to purge the well to allow representative water from the formation to replace the standing water within the sampling zone of the well. Experience has shown that the low stress/low flow technique typically achieves representative groundwater samples with minimal particulate interference.

Lastly, in extreme cases "ultra-low flow" techniques have been employed at select sites where low stress/low flow methods were used, yet particulate-sensitive constituents continue to bias the analytical results, or excessive drawdown is produced using standard low stress/low flow methods due to the presence of low permeability materials within a well's screened zone. Ultra-low flow techniques are conducted at purging rates below 100 ml per minute, and should only be utilized after low stress/low flow methods have been attempted (see Section 2.2 for further discussion on the purging of wells prior to sample collection).

2 Procedural Guidelines

The following describes techniques for groundwater sampling: Low Stress/Low Flow Methods. Low stress/low flow methods will be employed when it is critical to collect groundwater samples truly representative of the groundwater present, and to minimize the impact of sediment/colloid presence.

2.1 PREPARATORY REQUIREMENTS

Prior to groundwater sampling, an inspection will be performed on each well. The inspection will include:

- Inspecting the concrete pad for cracks
- Inspecting the protective steel cover
- Inspecting the integrity of the PVC well casing (to the extent possible)
- Inspecting the well caps
- Inspecting the well identification markings to confirm they are legible (if illegible, re-mark)
- Inspecting the locks to assess whether they are in good working condition.

Results of the well inspection will be documented on the Groundwater Sampling Log for each well. If the inspection indicates repairs are required, these will be performed prior to the next sampling event. Corrective actions implemented to repair well(s) will also be documented on the Groundwater Sampling Log and/or the field notebook for the facility.

Groundwater purging and sampling data will be recorded on the Groundwater Sampling Log.

2.2 WELL PURGING AND STABILIZATION MONITORING (LOW STRESS/LOW FLOW METHOD)

The procedure for sampling the monitoring wells is as follows:

- 1) Sampling equipment will first be decontaminated prior to each use by the following protocol:
 - Scrub equipment thoroughly in a low-sudsing detergent solution (e.g., Alconox). Pump low-sudsing detergent solution through submersible pump for approximately 5 minutes, if utilized
 - Rinse equipment thoroughly with distilled water, and pump distilled water through submersible pump, if utilized
 - Wrap equipment in plastic for handling and/or storage until next use
 - Decontamination of disposable tubing, if used, will not be necessary
- 2) Calibrate field instrument and document calibration activity. Calibration shall be performed in accordance with manufacturer's recommendations, and noted on the Groundwater Sampling Log

- 3) An electric water level probe will be used to measure the depth from the top of the casing to the top of water to the nearest 0.01-ft. The measurement will be recorded in a dedicated field notebook and Groundwater Sampling Log
- 4) Measure the depth from the top of casing to the bottom of the well for the initial sampling event
- 5) Slowly lower the pump and/or tubing into the well positioning the pump intake at the mid-point of the well screen taking care to minimize disturbing the well
- 6) During the purging of the well, monitor and record the field indicator parameters (pH, temperature, conductivity, oxidation-reduction (redox) reaction potential (ORP), dissolved oxygen (DO), and turbidity) approximately every 5 minutes. Stabilization is considered achieved when the final groundwater flow rate is achieved, and three consecutive readings for each parameter are within the following limits:

pH	±0.1 pH units for three consecutive readings;
temperature	±3 percent for three consecutive readings;
conductivity	±3 percent for three consecutive readings;
ORP	±10 millivolts (mV) for three consecutive readings;
DO	±10 percent for three consecutive readings; and
Turbidity	±10 percent for three consecutive readings or a final value of less than 5 nephelometric turbidity units (NTU).
- 7) Verify that drawdowns of 0.3 ft or less are maintained and make adjustments as necessary. Record drawdown measurements and note adjustments in pumping rates as necessary on the Groundwater Sampling Log. If drawdowns of 0.3 ft or less cannot be maintained utilize ultra-low flow purge techniques. However, if ultra-low flow purging still results in excessive drawdown, the well will be purged "dry" and allowed to recharge, and the sample will be collected as soon as sufficient water is present to obtain the necessary sample volume
- 8) Obtain a sample for chemical analyses immediately upon stabilization of field parameter measurements. Field filter the sample for dissolved metals using a 0.45-micron filter prior to preserving with acid. Samples are to be collected in the order of volatility as follows: TOC/TOX (or VOCs) and dissolved metals.

If after 2 hours of purging the indicator parameters have not stabilized, as recommended in the USEPA guidance, the purging will be discontinued and the sample will be collected with an explanation of attempts to achieve stabilization.

Either a decontaminated submersible pump or peristaltic pump (for shallow wells only) may be utilized to purge each well. If a submersible pump is utilized in the purging process, then it will be decontaminated prior to and after sampling each well. Sampling equipment must be protected from the

ground surface by a clean plastic sheet laid around the work area. Water from purging will not be containerized.

2.3 SAMPLE PRESERVATION

Sample bottles will be labeled with sample identification, collection date and time, filtration/preservative status. Sample bottles will be filled and capped securely and immediately preserved (if required) and stored at 4 degrees Celsius in a cooler.

The cooler and samples will be prepared for shipment or transport by the following procedure:

- 1)** Prepare cooler(s) for shipment.
 - Tape drain(s) of cooler shut
 - Place mailing label with laboratory address on top of cooler(s).
- 2)** Arrange sample containers in a manner to prevent potential sample container breakage.
- 3)** Confirm the bottle labels are completed correctly. Place clear tape over bottle labels to prevent moisture accumulation from causing the label to peel off.
- 4)** Seal sample containers within plastic zip-lock bags to prevent packing material from contacting samples.
- 5)** Place packing material at the bottom of the cooler to act as a cushion for the sample containers.
- 6)** Fill remaining spaces with packing material.
- 7)** Confirm containers are firmly packed in cooler.
- 8)** If ice is required to preserve the samples, cubes should be repackaged in double zip-lock bags, and placed on top of the packing material.
- 9)** Sign COC form (or obtain signature) and indicate the time and date it was relinquished to Federal Express or other carrier, as appropriate.
- 10)** Separate copies of COC forms. Seal proper copies within a large zip-lock bag and tape to inside lid of cooler. Retain copies of forms in-house.
- 11)** Close lid and latch.
- 12)** Tape cooler shut on both ends, making several complete revolutions with strapping tape.
- 13)** Relinquish to Federal Express or other courier service. Retain airbill receipt for project records (Note: Samples will be shipped for "NEXT DAY" delivery).

If samples are delivered directly to the laboratory, or the laboratories in-house courier, by the sampling team, the packaging/shipping requirements may be omitted. COC procedures; however, must be strictly maintained.

2.4 SAMPLE MANAGEMENT AND CHAIN-OF-CUSTODY

COC procedures document the history of sample containers and samples from the time of preparation of sample containers through sample collection, shipment, and analysis. A sample is considered in custody if:

- The sample is in the sampler's physical possession
- The sample is secured by the sampler to prevent tampering
- The sample is secured by the sampler employee in an area that is restricted to authorized personnel.

To maintain a record of sample collection, transfer between personnel, shipment, and receipt by the laboratory, a COC record will be completed for each sample at each sampling location. Each time the samples are transferred, signatures of the person relinquishing and receiving the samples, as well as the date and time, will be documented.

Parallel field notebook/Groundwater Sampling Log and COC records will be maintained. Recorded information will include:

- Sampling Location
- Time and Date
- Sampling Method
- Method of Preservation.

Additionally, the field notebook will also include information on weather conditions, depth to water, total depth of the well, field parameter and instrument calibration records and other useful or pertinent information. The notebook will be kept at the facility or with their designated contractor.

2.5 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) MEASURES

Field QA/QC procedures will consist of collecting one equipment blank (if reusable equipment is used) and one duplicate sample (one additional sample from one of the wells) for each sampling event. The duplicate sample will be assigned a separate sample identification and submitted to the laboratory "blind".

The procedure for collecting an equipment blank will be to pass distilled water through the decontaminated sampling device into a laboratory-supplied sample bottles. An equipment blank sample will not be required if disposable sampling equipment is used.

3 References

USEPA Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures (EPA/540/S -95/504).

USEPA (Region 1) Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells (EQASOP-GW 001), January 19, 2010.

USEPA RCRA Groundwater Monitoring: Draft Technical Guidance (EPA/530-R-93-001).

MDEQ RRD Operational Memorandum No. 2: Sampling and Analysis.

APPENDIX B GROUNDWATER SAMPLING LOGS

Standard Groundwater Sampling Log

Date 11/3/2020-11/5/2020
 Site Name RACER Coldwater Rd Weather Sunny, 50's
 Location Flint, MI Well # B-7
 Project No. 75178 Evacuation Method Whale Pump
 Personnel KBS Sampling Method Purge Dry

Well Information:

Depth of Well * 28.80 ft.
 Depth to Water * 16.35 ft.
 Length of Water Column 12.45 ft.
 Volume of Water in Well 2.03 gal.(s)
 3X Volume of Water in Well 6.09 gal.(s)

Water Volume /ft. for:
 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 4 gal.(s)
 Did well go dry? Yes

* Measurements taken from Well Casing Protective Casing (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	19.25	initial 12.3	initial 0.993	initial 1.60	initial 6.88	initial 188.5	initial 58.20
5 min	25.30	13.2	0.738	5.83	6.96	183.1	24.34
10 min	26.93	12.6	1.003	1.14	6.73	189.2	6.60
15 min	27.70	12.7	1.006	1.11	6.75	188.3	306
11/5/2020	23.76	13.7	1.124	1.23	6.95	153.0	14.31
	25.69	13.5	1.123	0.95	6.92	152.2	12.71

Water Sample:

Time Collected 11:45 (11/5/20)

Physical Appearance at Start Physical Appearance at Sampling

Color Slightly cloudy Color Clear/Slightly cloudy
 Odor None Odor None
 Turbidity (> 100 NTU) No Turbidity (> 100 NTU) No
 Sheen/Free Product None Sheen/Free Product None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO ₃	yes
TOC	2	40 ml Glass	H ₂ SO ₄	
TOX	1	250 ml Amber	H ₂ SO ₄	
SpC	1	500 ml Plastic	None	

Notes:

Standard Groundwater Sampling Log

Date 11/4/2020-11/5/2020
 Site Name RACER Coldwater Rd Weather Sunny, 60's
 Location Flint, MI Well # B-9
 Project No. 75178 Evacuation Method Whale Pump
 Personnel KBS Sampling Method Purge Dry

Well Information:

Depth of Well * 25.22 ft. Water Volume /ft. for:
 Depth to Water * 2.71 ft. 2" Diameter Well = 0.163 X LWC
 Length of Water Column 22.51 ft. 4" Diameter Well = 0.653 X LWC
 Volume of Water in Well 3.67 gal.(s) 6" Diameter Well = 1.469 X LWC
 3X Volume of Water in Well 11.01 gal.(s)
 Volume removed before sampling 1.5 gal.(s)
 Did well go dry? Yes

* Measurements taken from Well Casing Protective Casing (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	<u>4.04</u>	initial <u>14.3</u>	initial <u>2.933</u>	initial <u>1.66</u>	initial <u>6.81</u>	initial <u>159.9</u>	initial <u>203</u>
5 min	<u>11.00</u>	<u>14.1</u>	<u>2.675</u>	<u>1.20</u>	<u>6.61</u>	<u>148.9</u>	<u>34.48</u>
10 min	<u>15.34</u>	<u>14.0</u>	<u>2.539</u>	<u>4.83</u>	<u>6.74</u>	<u>149.1</u>	<u>67.00</u>
15 min	<u>18.59</u>	<u>14.0</u>	<u>2.599</u>	<u>3.83</u>	<u>6.68</u>	<u>149.5</u>	<u>54.69</u>
20 min	<u>20.26</u>	<u>14.2</u>	<u>2.635</u>	<u>2.93</u>	<u>6.63</u>	<u>144.0</u>	<u>158</u>
25 min	<u>21.80</u>	<u>13.9</u>	<u>2.656</u>	<u>2.16</u>	<u>6.60</u>	<u>133.5</u>	<u>835</u>
30 min	<u>23.89</u>						
11/5/2020	<u>3.81</u>	<u>14.0</u>	<u>2.686</u>	<u>5.09</u>	<u>6.77</u>	<u>168.0</u>	<u>32.92</u>
	<u>5.99</u>	<u>13.8</u>	<u>2.712</u>	<u>4.37</u>	<u>6.72</u>	<u>169.5</u>	<u>28.74</u>

Water Sample:

Time Collected 12:20 (11/5/20)

Physical Appearance at Start

Physical Appearance at Sampling

Color Cloudy
 Odor None
 Turbidity (> 100 NTU) Yes
 Sheen/Free Product None

Color Cloudy
 Odor None
 Turbidity (> 100 NTU) Yes
 Sheen/Free Product None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO ₃	yes
TOC	2	40 ml Glass	H ₂ SO ₄	
TOX	1	250 ml Amber	H ₂ SO ₄	
SpC	1	500 ml Plastic	None	

Notes:

Standard Groundwater Sampling Log

Date 11/4/2020-11/5/2020
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 75178
 Personnel KBS

Weather Sunny, 60's
 Well # B-18A
 Evacuation Method Whale Pump
 Sampling Method Purge Dry

Well Information:

Depth of Well * 43.44 ft.
 Depth to Water * 19.64 ft.
 Length of Water Column 23.80 ft.
 Volume of Water in Well 3.88 gal.(s)
 3X Volume of Water in Well 11.64 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 10 gal.(s)
 Did well go dry? Yes

* Measurements taken from Well Casing Protective Casing (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	<u>21.30</u>	initial <u>11.5</u>	initial <u>1.053</u>	initial <u>1.77</u>	initial <u>6.96</u>	initial <u>142.7</u>	initial <u>43.37</u>
5 min	<u>24.55</u>	<u>11.4</u>	<u>1.049</u>	<u>0.79</u>	<u>6.83</u>	<u>144.5</u>	<u>26.00</u>
10 min	<u>28.24</u>	<u>11.6</u>	<u>1.049</u>	<u>0.56</u>	<u>6.81</u>	<u>144.0</u>	
15 min	<u>31.91</u>	<u>11.8</u>	<u>1.048</u>	<u>0.41</u>	<u>6.80</u>	<u>142.0</u>	
20 min	<u>36.19</u>	<u>11.9</u>	<u>1.045</u>	<u>0.16</u>	<u>6.80</u>	<u>135.6</u>	
25 min	<u>39.09</u>	<u>12.0</u>	<u>1.045</u>	<u>0.02</u>	<u>6.79</u>	<u>127.3</u>	
30 min	<u>39.91</u>	<u>11.6</u>	<u>1.066</u>	<u>0.02</u>	<u>6.75</u>	<u>105.5</u>	<u>12.09</u>
35 min	<u>40.15</u>	<u>11.6</u>	<u>1.083</u>	<u>0.01</u>	<u>6.75</u>	<u>89.0</u>	<u>12.51</u>
40 min	<u>40.65</u>	<u>11.6</u>	<u>1.083</u>	<u>0.01</u>	<u>6.76</u>	<u>61.4</u>	<u>11.67</u>
45 min	<u>41.55</u>	<u>11.7</u>	<u>1.074</u>	<u>0.12</u>	<u>6.78</u>	<u>60.3</u>	<u>14.03</u>
50 min	<u>41.55</u>	<u>11.7</u>	<u>1.075</u>	<u>0.24</u>	<u>6.78</u>	<u>63.0</u>	<u>15.83</u>
11/5/2020	<u>37.33</u>	<u>13.2</u>	<u>1.102</u>	<u>3.92</u>	<u>7.09</u>	<u>175.2</u>	<u>23.44</u>

Water Sample:

Time Collected 14:30 (11/5/20)

Physical Appearance at Start

Physical Appearance at Sampling

Color Clear
 Odor None
 Turbidity (> 100 NTU) No
 Sheen/Free Product None

Color Clear
 Odor None
 Turbidity (> 100 NTU) No
 Sheen/Free Product None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO ₃	yes
TOC	2	40 ml Glass	H ₂ SO ₄	
TOX	1	250 ml Amber	H ₂ SO ₄	
SpC	1	500 ml Plastic	None	

Notes:

Standard Groundwater Sampling Log

Date 11/3/2020-11/5/2020
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 75178
 Personnel KBS

Weather Sunny, 60's
 Well # B-19Ar
 Evacuation Method Whale Pump
 Sampling Method Purge Dry

Well Information:

Depth of Well * 47.10 ft.
 Depth to Water * 37.30 ft.
 Length of Water Column 9.80 ft.
 Volume of Water in Well 1.60 gal.(s)
 3X Volume of Water in Well 4.79 gal.(s)

Water Volume /ft. for:
 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 3 gal.(s)
 Did well go dry? Yes

* Measurements taken from Well Casing Protective Casing (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	38.40	initial 11.9	initial 1.121	initial 1.50	initial 6.57	initial 191.6	initial 1017
5 min	41.00	12.0	1.083	0.72	6.66	186.4	582
10 min	41.92	12.2	1.040	0.92	6.68	182.8	386
15 min	42.72	12.4	1.087	0.25	6.69	179.8	346
20 min	43.70	12.4	1.092	0.06	6.73	175.4	434
25 min	44.21	12.2	1.091	0.02	6.77	170.8	553
30 min		12.5	1.106	0.00	6.80	170.3	568
35 min	45.65						
11/5/2020	38.51	13.0	1.208	3.52	7.02	159.1	603.05

Water Sample:

Time Collected 10:57 (11/5/20)

Physical Appearance at Start

Physical Appearance at Sampling

Color Light brown
 Odor None
 Turbidity (> 100 NTU) Yes
 Sheen/Free Product None

Color Light brown
 Odor None
 Turbidity (> 100 NTU) Yes
 Sheen/Free Product None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO ₃	yes
TOC	2	40 ml Glass	H ₂ SO ₄	
TOX	1	250 ml Amber	H ₂ SO ₄	
SpC	1	500 ml Plastic	None	

Notes:

Date 12/3/2020-12/4/2020
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 75178
 Personnel KBS

Weather Mostly sunny, 40's
 Well # B-19Ar-Resample
 Evacuation Method Whale Pump
 Sampling Method Purge Dry

Well Information:

Depth of Well * 47.10 ft.
 Depth to Water * 37.88 ft.
 Length of Water Column 9.22 ft.
 Volume of Water in Well 1.50 gal.(s)
 3X Volume of Water in Well 4.51 gal.(s)

Water Volume /ft. for:
X <u>2"</u> Diameter Well = 0.163 X LWC
<u>4"</u> Diameter Well = 0.653 X LWC
<u>6"</u> Diameter Well = 1.469 X LWC

Volume removed before sampling 3 gal.(s)
 Did well go dry? Yes

* Measurements taken from Well Casing Protective Casing (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	<u>37.88</u>	initial <u>7.6</u>	initial <u>1.630</u>	initial <u>--</u>	initial <u>7.43</u>	initial <u>--</u>	initial <u>brown</u>
5 min	<u>45.75</u>	<u>10.2</u>	<u>1.204</u>	<u>--</u>	<u>7.05</u>	<u>--</u>	<u>brown</u>
12/4/2020	<u>38.00</u>	<u>10.16</u>	<u>1.185</u>	<u>1.90</u>	<u>6.75</u>	<u>141.8</u>	<u>108</u>
	<u>41.50</u>					Reading of filtered water	<u>22.6</u>

Water Sample:

Time Collected 10:08 (12/4/20)

Physical Appearance at Start

Physical Appearance at Sampling

Color Light brown
 Odor None
 Turbidity (> 100 NTU) Yes
 Sheen/Free Product None

Color Cloudy
 Odor None
 Turbidity (> 100 NTU) No
 Sheen/Free Product None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO ₃	yes

Notes:

Standard Groundwater Sampling Log

Date 11/4/2020-11/5/2020
 Site Name RACER Coldwater Rd Weather Sunny, 60's
 Location Flint, MI Well # B-24r
 Project No. 75178 Evacuation Method Whale Pump-Peristaltic
 Personnel KBS Sampling Method purge dry

Well Information:

Depth of Well * 30.38 ft.
 Depth to Water * 12.18 ft.
 Length of Water Column 18.20 ft.
 Volume of Water in Well 2.97 gal.(s)
 3X Volume of Water in Well 8.90 gal.(s)

Water Volume /ft. for:
 X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling 8 gal.(s)
 Did well go dry? Yes

* Measurements taken from Well Casing Protective Casing (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	<u>15.15</u>	initial <u>11.7</u>	initial <u>1.202</u>	initial <u>1.09</u>	initial <u>6.72</u>	initial <u>239.3</u>	initial <u>56</u>
5 min	<u>20.69</u>	<u>12.9</u>	<u>1.188</u>	<u>0.08</u>	<u>6.61</u>	<u>217.9</u>	<u>22.12</u>
10 min	<u>22.05</u>	<u>13.0</u>	<u>1.183</u>	<u>0.71</u>	<u>6.67</u>	<u>203.4</u>	<u>78</u>
15 min	<u>24.71</u>	<u>12.8</u>	<u>1.206</u>	<u>0.40</u>	<u>6.68</u>	<u>136.7</u>	<u>63</u>
20 min	<u>27.60</u>	<u>12.3</u>	<u>1.148</u>	<u>0.04</u>	<u>6.72</u>	<u>103.9</u>	<u>64.04</u>
25 min	<u>28.91</u>						
11/5/2020	<u>13.09</u>	<u>15.60</u>	<u>1.26</u>	<u>7.72</u>	<u>7.17</u>	<u>163.8</u>	<u>25.24</u>
	<u>13.49</u>	<u>14.7</u>	<u>1.26</u>	<u>7.60</u>	<u>7.08</u>	<u>167.4</u>	<u>19.21</u>
	<u>13.84</u>	<u>14.4</u>	<u>1.25</u>	<u>7.52</u>	<u>7.07</u>	<u>169.1</u>	

Water Sample:

Time Collected 13:48 (11/5/20)

Physical Appearance at Start

Physical Appearance at Sampling

Color Slightly cloudy Color Clear
 Odor None Odor None
 Turbidity (> 100 NTU) Yes Turbidity (> 100 NTU) No
 Sheen/Free Product None Sheen/Free Product None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO ₃	yes
TOC	2	40 ml Glass	H ₂ SO ₄	
TOX	1	250 ml Amber	H ₂ SO ₄	
SpC	1	500 ml Plastic	None	

Notes:

Duplicate (DUP-1) sample collected

Standard Groundwater Sampling Log

Date 11/4/2020-11/5/2020
 Site Name RACER Coldwater Rd
 Location Flint, MI
 Project No. 75178
 Personnel KBS

Weather Sunny, 50's
 Well # B-28
 Evacuation Method Whale Pump
 Sampling Method Purge Dry

Well Information:

Depth of Well * 32.23 ft.
 Depth to Water * 4.25 ft.
 Length of Water Column 27.98 ft.
 Volume of Water in Well 4.56 gal.(s)
 3X Volume of Water in Well 13.68 gal.(s)

Water Volume /ft. for:
 2" Diameter Well = 0.163 X LWC
 4" Diameter Well = 0.653 X LWC
 6" Diameter Well = 1.469 X LWC

Volume removed before sampling 14 gal.(s)
 Did well go dry? _____

* Measurements taken from Well Casing Protective Casing (Other, Specify) _____

Instrument Calibration:

Calibrated within range

pH Yes
 ORP Yes
 Conductivity Yes
 DO Yes

Water parameters:

	Drawdown measured 0.3 feet or less	Temperature Celsius ±3 percent	Conductivity mS/cm ±3 percent	Dissolved Oxygen mg/L ±10 percent	pH ±0.1 pH units	ORP mV ±10 millivolts	Turbidity NTUs ±10 percent
initial	<u>7.59</u>	initial <u>12.2</u>	initial <u>0.881</u>	initial <u>1.08</u>	initial <u>6.97</u>	initial <u>70.5</u>	initial <u>158</u>
5 min	<u>15.31</u>	<u>13.2</u>	<u>0.874</u>	<u>0.50</u>	<u>6.86</u>	<u>31.0</u>	<u>20.86</u>
10 min	<u>20.32</u>	<u>13.2</u>	<u>0.873</u>	<u>2.61</u>	<u>6.93</u>	<u>29.0</u>	<u>15.18</u>
15 min	<u>23.31</u>	<u>13.1</u>	<u>0.875</u>	<u>2.04</u>	<u>6.91</u>	<u>17.4</u>	<u>16.02</u>
20 min	<u>23.43</u>	<u>13.1</u>	<u>0.876</u>	<u>1.81</u>	<u>6.91</u>	<u>13.8</u>	<u>12.33</u>
25 min	<u>24.09</u>	<u>12.9</u>	<u>0.894</u>	<u>0.52</u>	<u>6.86</u>	<u>2.0</u>	<u>110</u>
30 min	<u>25.02</u>	<u>12.8</u>	<u>0.884</u>	<u>0.70</u>	<u>6.89</u>	<u>10.6</u>	<u>172</u>
35 min	<u>26.19</u>	<u>12.8</u>	<u>0.870</u>	<u>0.78</u>	<u>6.89</u>	<u>-2.5</u>	<u>183</u>
40 min	<u>27.35</u>	<u>12.7</u>	<u>0.852</u>	<u>0.89</u>	<u>6.89</u>	<u>-0.4</u>	<u>210</u>
45 min	<u>28.61</u>	<u>12.6</u>	<u>0.856</u>	<u>1.06</u>	<u>6.88</u>	<u>-17.7</u>	<u>265</u>
50 min	<u>29.75</u>	<u>12.6</u>	<u>0.858</u>	<u>1.27</u>	<u>6.87</u>	<u>-22.4</u>	<u>195</u>
11/5/2020	<u>5.05</u>	<u>13.9</u>	<u>0.929</u>	<u>3.70</u>	<u>7.26</u>	<u>153.7</u>	<u>101</u>
	<u>5.95</u>	<u>13.8</u>	<u>0.894</u>	<u>2.22</u>	<u>7.15</u>	<u>151.9</u>	<u>52.04</u>
	<u>6.85</u>	<u>13.8</u>	<u>0.883</u>	<u>1.82</u>	<u>7.09</u>	<u>144.4</u>	<u>48.26</u>

Water Sample:

Time Collected 13:18 (11/5/20)

Physical Appearance at Start

Physical Appearance at Sampling

Color Slightly cloudy
 Odor None
 Turbidity (> 100 NTU) Yes
 Sheen/Free Product None

Color Cloudy
 Odor None
 Turbidity (> 100 NTU) Yes
 Sheen/Free Product None

Samples collected:

Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO ₃	yes
TOC	2	40 ml Glass	H ₂ SO ₄	
TOX	1	250 ml Amber	H ₂ SO ₄	
SpC	1	500 ml Plastic	None	

Notes:

APPENDIX C ANALYTICAL LABORATORY RESULTS



Analytical Laboratory Report

Report ID: S19022.01(01)
Generated on 11/23/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 E Saginaw St
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S19022.01-S19022.08
Project: RACER Coldwater Road
Collected Date(s): 11/05/2020
Submitted Date/Time: 11/06/2020 16:05
Sampled by: Kevin Schneider
P.O. #: 12000277

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Analytical Laboratory Report

Method Summary

Method	Version
E120.1	EPA Method 120.1 Revision 1982
E200.8	EPA Method 200.8 Revision 5.4
SM5310C	Standard Method 5310C 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007



Analytical Laboratory Report

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S19022.01	B-19Ar	Groundwater	11/05/20 10:57
S19022.02	B-7	Groundwater	11/05/20 11:45
S19022.03	B-9	Groundwater	11/05/20 12:20
S19022.04	B-28	Groundwater	11/05/20 13:18
S19022.05	B-24r	Groundwater	11/05/20 13:48
S19022.06	B-18A	Groundwater	11/05/20 14:30
S19022.07	DUP-1	Groundwater	11/05/20 00:01
S19022.08	Equipment Blank-1	Water	11/05/20 15:00



Analytical Laboratory Report

Lab Sample ID: S19022.01

Sample Tag: B-19Ar

Collected Date/Time: 11/05/2020 10:57

Matrix: Groundwater

COC Reference: 135892

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.3	IR
2	40ml Glass	H2SO4	Yes	2.3	IR
1	250ml Amber	H2SO4	Yes	2.3	IR
1	125ml Plastic	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/12/20 09:20	CCM	

Inorganics

Method: E120.1, Run Date: 11/10/20 19:16, Analyst: REJ

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,172	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/12/20 16:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	6.6	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/12/20 11:46, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	0.008	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	0.108	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	0.011	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	0.042	0.005		mg/L	5	7440-66-6	

Other / Misc.

Method: , Run Date: 11/17/20 04:18, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S19022.02

Sample Tag: B-7

Collected Date/Time: 11/05/2020 11:45

Matrix: Groundwater

COC Reference: 135892

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.3	IR
2	40ml Glass	H2SO4	Yes	2.3	IR
1	250ml Amber	H2SO4	Yes	2.3	IR
1	125ml Plastic	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/12/20 09:20	CCM	

Inorganics

Method: E120.1, Run Date: 11/10/20 19:18, Analyst: REJ

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,126	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/12/20 17:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	6.2	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/12/20 11:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Other / Misc.

Method: , Run Date: 11/17/20 03:26, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S19022.03

Sample Tag: B-9

Collected Date/Time: 11/05/2020 12:20

Matrix: Groundwater

COC Reference: 135892

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.3	IR
2	40ml Glass	H2SO4	Yes	2.3	IR
1	250ml Amber	H2SO4	Yes	2.3	IR
1	125ml Plastic	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/12/20 09:20	CCM	

Inorganics

Method: E120.1, Run Date: 11/10/20 19:20, Analyst: REJ

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	2,800	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/12/20 17:24, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	7.3	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/12/20 11:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	0.007	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	0.006	0.005		mg/L	5	7440-66-6	

Other / Misc.

Method: , Run Date: 11/17/20 04:51, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S19022.04

Sample Tag: B-28

Collected Date/Time: 11/05/2020 13:18

Matrix: Groundwater

COC Reference: 135892

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.3	IR
2	40ml Glass	H2SO4	Yes	2.3	IR
1	250ml Amber	H2SO4	Yes	2.3	IR
1	125ml Plastic	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/12/20 09:20	CCM	

Inorganics

Method: E120.1, Run Date: 11/10/20 19:22, Analyst: REJ

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	904	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/12/20 17:44, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	3.8	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/12/20 11:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Other / Misc.

Method: , Run Date: 11/17/20 05:40, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S19022.05

Sample Tag: B-24r

Collected Date/Time: 11/05/2020 13:48

Matrix: Groundwater

COC Reference: 135892

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.3	IR
2	40ml Glass	H2SO4	Yes	2.3	IR
1	250ml Amber	H2SO4	Yes	2.3	IR
1	125ml Plastic	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/12/20 09:20	CCM	

Inorganics

Method: E120.1, Run Date: 11/10/20 19:24, Analyst: REJ

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,257	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/12/20 18:03, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	5.2	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/12/20 11:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Other / Misc.

Method: , Run Date: 11/17/20 06:12, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S19022.06

Sample Tag: B-18A

Collected Date/Time: 11/05/2020 14:30

Matrix: Groundwater

COC Reference: 135892

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.3	IR
2	40ml Glass	H2SO4	Yes	2.3	IR
1	250ml Amber	H2SO4	Yes	2.3	IR
1	125ml Plastic	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/12/20 09:20	CCM	

Inorganics

Method: E120.1, Run Date: 11/10/20 19:26, Analyst: REJ

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,084	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/12/20 18:23, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	4.3	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/12/20 12:01, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	0.009	0.005		mg/L	5	7440-66-6	

Other / Misc.

Method: , Run Date: 11/17/20 02:50, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S19022.07

Sample Tag: DUP-1

Collected Date/Time: 11/05/2020 00:01

Matrix: Groundwater

COC Reference: 135892

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.3	IR
2	40ml Glass	H2SO4	Yes	2.3	IR
1	250ml Amber	H2SO4	Yes	2.3	IR
1	125ml Plastic	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/12/20 09:20	CCM	

Inorganics

Method: E120.1, Run Date: 11/10/20 19:28, Analyst: REJ

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,226	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/12/20 18:42, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	5.2	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/12/20 12:03, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Other / Misc.

Method: , Run Date: 11/14/20 02:09, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



Analytical Laboratory Report

Lab Sample ID: S19022.08

Sample Tag: Equipment Blank-1

Collected Date/Time: 11/05/2020 15:00

Matrix: Water

COC Reference: 135892

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.3	IR
2	40ml Glass	H2SO4	Yes	2.3	IR
1	250ml Amber	H2SO4	Yes	2.3	IR
1	125ml Plastic	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/12/20 09:20	CCM	

Inorganics

Method: E120.1, Run Date: 11/10/20 19:30, Analyst: REJ

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	3,950	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/12/20 19:02, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	Not detected	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/12/20 12:05, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	Not detected	0.005		mg/L	5	7440-66-6	

Other / Misc.

Method: , Run Date: 11/14/20 03:06, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID:S19022

Client:OBG02 (O'Brien & Gere Engineers, Inc.)

Project: RACER Coldwater Road

Submitted: 11/06/2020 16:05 Login User: SRS

Attention: Clifford Yantz

Address: O'Brien & Gere Engineers, Inc.
2260 E Saginaw St
East Lansing, MI 48823

Phone: 313-333-0211 FAX:

Email: Clifford.Yantz@ramboll.com

Selection	Description	Note
-----------	-------------	------

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 2.3 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: GEL |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S19022 Submitted: 11/06/2020 16:05

Client: OBG02 (O'Brien & Gere Engineers, Inc.)

Project: RACER Coldwater Road

Initial Preservation Check: 11/06/2020 16:18 SRS

Preservation Recheck (E200.8): N/A

Attention: Clifford Yantz

Address: O'Brien & Gere Engineers, Inc.
2260 E Saginaw St
East Lansing, MI 48823

Phone: 313-333-0211

FAX:

Email: Clifford.Yantz@ramboll.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S19022.01	125ml Plastic HNO3	<2			
S19022.01	250ml Amber H2SO4	<2			
S19022.02	125ml Plastic HNO3	<2			
S19022.02	250ml Amber H2SO4	<2			
S19022.03	125ml Plastic HNO3	<2			
S19022.03	250ml Amber H2SO4	<2			
S19022.04	125ml Plastic HNO3	<2			
S19022.04	250ml Amber H2SO4	<2			
S19022.05	125ml Plastic HNO3	<2			
S19022.05	250ml Amber H2SO4	<2			
S19022.06	125ml Plastic HNO3	<2			
S19022.06	250ml Amber H2SO4	<2			
S19022.07	125ml Plastic HNO3	<2			
S19022.07	250ml Amber H2SO4	<2			
S19022.08	125ml Plastic HNO3	<2			
S19022.08	250ml Amber H2SO4	<2			



November 20, 2020

John Laverty
Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan 48823

Re: Halogen Analysis
Work Order: 526910
SDG: S19022

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 10, 2020. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4443.

Sincerely,

Lindsay Fabra
Project Manager

Purchase Order: GELP20-0014
Enclosures

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis Report for

MERI001 Merit Laboratories, Inc.

Client SDG: S19022 GEL Work Order: 526910

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- ** Analyte is a surrogate compound
- J See case narrative for an explanation
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Lindsay Fabra.

Reviewed by _____

Lindsay Fabra

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 20, 2020

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Halogen Analysis

Client Sample ID: S19022.01	Project: MERI00220
Sample ID: 526910001	Client ID: MERI001
Matrix: Ground Water	
Collect Date: 05-NOV-20 10:57	
Receive Date: 10-NOV-20	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Halogen Analysis												
SW9020B TOX (Organic Halogen) "As Received"												
Total Organic Halogens		19.4	3.33	10.0	ug/L		1	RMJ	11/17/20	0418	2062487	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 20, 2020

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive

East Lansing, Michigan 48823
Contact: John Laverty
Project: Halogen Analysis

Client Sample ID: S19022.02 Project: MERI00220
Sample ID: 526910002 Client ID: MERI001
Matrix: Ground Water
Collect Date: 05-NOV-20 11:45
Receive Date: 10-NOV-20
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Halogen Analysis												
SW9020B TOX (Organic Halogen) "As Received"												
Total Organic Halogens		21.0	3.33	10.0	ug/L		1	RMJ	11/17/20	0326	2062487	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level
DL: Detection Limit PF: Prep Factor
MDA: Minimum Detectable Activity RL: Reporting Limit
MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 20, 2020

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive
East Lansing, Michigan 48823
Contact: John Lavery
Project: Halogen Analysis

Client Sample ID: S19022.06 Project: MERI00220
Sample ID: 526910006 Client ID: MERI001
Matrix: Ground Water
Collect Date: 05-NOV-20 14:30
Receive Date: 10-NOV-20
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Halogen Analysis												
SW9020B TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	9.42	3.33	10.0	ug/L		1	RMJ	11/17/20	0250	2062487	1

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
1	SW846 9020B		

Notes:

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level
DL: Detection Limit PF: Prep Factor
MDA: Minimum Detectable Activity RL: Reporting Limit
MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 20, 2020

Company : Merit Laboratories Inc.
 Address : 2680 East Lansing Drive
 East Lansing, Michigan 48823
 Contact: John Lavery
 Project: Halogen Analysis

Client Sample ID: S19022.07 Project: MERI00220
 Sample ID: 526910007 Client ID: MERI001
 Matrix: Ground Water
 Collect Date: 05-NOV-20 00:01
 Receive Date: 10-NOV-20
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Halogen Analysis												
SW9020B TOX (Organic Halogen) "As Received"												
Total Organic Halogens	J	4.26	3.33	10.0	ug/L		1	RMJ	11/14/20	0209	2062931	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level
 DL: Detection Limit PF: Prep Factor
 MDA: Minimum Detectable Activity RL: Reporting Limit
 MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 20, 2020

Company : Merit Laboratories Inc.
Address : 2680 East Lansing Drive
East Lansing, Michigan 48823
Contact: John Lavery
Project: Halogen Analysis

Client Sample ID: S19022.08 (Blank) Project: MERI00220
Sample ID: 526910008 Client ID: MERI001
Matrix: Water
Collect Date: 05-NOV-20 15:00
Receive Date: 10-NOV-20
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Halogen Analysis												
SW9020B TOX (Organic Halogen) "As Received"												
Total Organic Halogens	U	ND	3.33	10.0	ug/L		1	RMJ	11/14/20	0306	2062931	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9020B	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 20, 2020

Page 1 of 2

Merit Laboratories Inc.
2680 East Lansing Drive
East Lansing, Michigan

Contact: John Laverty

Workorder: 526910

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Halogen Analysis											
Batch	2062487										
QC1204693462	LCS										
Total Organic Halogens	100			111	ug/L		111	(73%-122%)	RMJ	11/17/20	01:32
QC1204696227	LCSD										
Total Organic Halogens	100			113	ug/L	2.15	113	(0%-20%)		11/17/20	01:53
QC1204693461	MB										
Total Organic Halogens			U	ND	ug/L					11/17/20	01:08
Batch	2062931										
QC1204694491	526335010	DUP									
Total Organic Halogens		J	9.42	11.5	ug/L	19.9 ^		(+/-10.0)	RMJ	11/13/20	22:50
QC1204694490	LCS										
Total Organic Halogens	100			114	ug/L		114	(73%-122%)		11/13/20	22:14
QC1204694489	MB										
Total Organic Halogens			U	ND	ug/L					11/13/20	21:48
QC1204694492	526335010	MS									
Total Organic Halogens	100	J	9.42	99.3	ug/L		89.8	(55%-149%)		11/13/20	23:56

Notes:

The Qualifiers in this report are defined as follows:

- < Result is less than value reported
- > Result is greater than value reported
- B The target analyte was detected in the associated blank.
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- H Analytical holding time was exceeded
- J See case narrative for an explanation
- J Value is estimated

**General Chemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S19022
Work Order #: 526910**

Product: Total Organic Halogens (TOX)

Analytical Method: SW846 9020B

Analytical Procedure: GL-GC-E-007 REV# 16

Analytical Batch: 2062487

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
526910001	S19022.01
526910002	S19022.02
526910003	S19022.03
526910004	S19022.04
526910005	S19022.05
526910006	S19022.06
1204693461	Method Blank (MB)
1204693462	Laboratory Control Sample (LCS)
1204696227	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Laboratory Control Sample Duplicate (LCSD)

An LCSD was used in place of matrix QC due to limited sample volume.

Technical Information

Sample Re-analysis

Sample 526910006 (S19022.06) was re-analyzed to verify the result. The reanalysis data reported 526910006 (S19022.06).

Miscellaneous Information

Additional Comments

A pair of nitrate wash blanks is analyzed at the start of the batch. Although they are designated as ICB, they are performed for calculating purposes only. The value of the nitrate wash blanks are averaged and subtracted from all samples. Neither of these values should exceed 0.6 ug Cl. The PQL limit typically applied to ICB results does not apply in this application, since the results are used only to determine background concentrations and are subtracted from all calculated results.

Breakthrough effect

Breakthrough effect: If the value for a sample is greater than the reporting limit (10 ug/L), the result for the second slug should not be greater than 25% of the combined value of the first and second slug. Results which do not meet these criteria are designated with a "Fail" comment in the Breakthrough effect column on the Logbook page; however, the "fail" designation is not applicable for samples with a result of less than 10 ug/L.

Product: Total Organic Halogens (TOX)

Analytical Method: SW846 9020B

Analytical Procedure: GL-GC-E-007 REV# 16

Analytical Batch: 2062931

The following samples were analyzed using the above methods and analytical procedure(s).

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
526910007	S19022.07
526910008	S19022.08 (Blank)
1204694489	Method Blank (MB)
1204694490	Laboratory Control Sample (LCS)
1204694491	526335010(NonSDG) Sample Duplicate (DUP)
1204694492	526335010(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments

A pair of nitrate wash blanks is analyzed at the start of the batch. Although they are designated as ICB, they are performed for calculating purposes only. The value of the nitrate wash blanks are averaged and subtracted from all samples. Neither of these values should exceed 0.6 ug Cl. The PQL limit typically applied to ICB results does not apply in this application, since the results are used only to determine background concentrations and are subtracted from all calculated results.

Breakthrough effect

Breakthrough effect: If the value for a sample is greater than the reporting limit (10 ug/L), the result for the second slug should not be greater than 25% of the combined value of the first and second slug. Results which do not meet these criteria are designated with a "Fail" comment in the Breakthrough effect column on the Logbook page; however, the "fail" designation is not applicable for samples with a result of less than 10 ug/L.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

SAMPLE RECEIPT & REVIEW FORM

Client: <u>WUERI</u>		SDG/AR/COC/Work Order: <u>526910</u>		L-H	
Received By: <u>Tye</u>		Date Received: <u>11/10/20</u>		Circle Applicable: FedEx Express FedEx Ground <u>UPS</u> Field Services Courier Other	
Carrier and Tracking Number		<u>1Z4CC64770161305583</u>			
Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.		
A) Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____ If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___		
B) Did the client designate the samples are to be received as radioactive?		<input checked="" type="checkbox"/>	COC notation or radioactive stickers on containers equal client designation.		
C) Did the RSO classify the samples as radioactive?		<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3		
D) Did the client designate samples are hazardous?		<input checked="" type="checkbox"/>	COC notation or hazard labels on containers equal client designation.		
E) Did the RSO identify possible hazards?		<input checked="" type="checkbox"/>	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:		
Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)	
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)	
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			Circle Applicable: Client contacted and provided COC COC created upon receipt	
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: <u>2C</u>	
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: <u>IR3-19</u> Secondary Temperature Device Serial # (If Applicable):	
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)	
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's and Containers Affected: If Preservation added, Lot#:	
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>			If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ NA ___ (If yes, take to VOA Freezer)	
				Do liquid VOA vials contain acid preservation? Yes ___ No ___ NA ___ (If unknown, select No)	
				Are liquid VOA vials free of headspace? Yes ___ No ___ NA ___	
Sample ID's and containers affected:					
8 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:	
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			ID's and containers affected:	
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)	
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Circle Applicable: No container count on COC Other (describe)	
12 Are sample containers identifiable as GEL provided by use of GEL labels?	<input checked="" type="checkbox"/>				
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			Circle Applicable: Not relinquished Other (describe)	
Comments (Use Continuation Form if needed):					

PM (or PMA) review: Initials NZG Date 11/11/2020 Page 1 of 1

List of current GEL Certifications as of 20 November 2020

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122021-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2019-165
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-20-17
Utah NELAP	SC000122020-33
Vermont	VT87156
Virginia NELAP	460202
Washington	C780



Quality Control Report

Report ID: QC-S19022-01
Generated on 11/23/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 E Saginaw St
East Lansing, MI 48823

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S19022.01-S19022.08
Project: RACER Coldwater Road
Submitted Date/Time: 11/06/2020 16:05
Sampled by: Kevin Schneider
P.O. #: 12000277

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-9)
Prep Batch Summary (Pages 10-11)
Batch QC Results (Pages 12-15)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S19022.01

Sample Tag: B-19Ar

Collected Date/Time: 11/05/2020 10:57

Matrix: Groundwater

COC Reference: 135892

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Conductivity	E120.1	11/10/20 19:16	COND201110-W2	COND201110-W2	No	BLK/LCS/DUP
TOC	SM5310C	11/12/20 16:45	TOC201112-W1	TOC201112-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Chromium, Dissolved	E200.8	11/12/20 11:46	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/12/20 11:46	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/12/20 11:46	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/12/20 11:46	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S19022.02

Sample Tag: B-7

Collected Date/Time: 11/05/2020 11:45

Matrix: Groundwater

COC Reference: 135892

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/10/20 19:18	COND201110-W2	COND201110-W2	No	BLK/LCS/DUP
TOC	SM5310C	11/12/20 17:05	TOC201112-W1	TOC201112-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/12/20 11:48	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/12/20 11:48	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/12/20 11:48	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/12/20 11:48	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S19022.03

Sample Tag: B-9

Collected Date/Time: 11/05/2020 12:20

Matrix: Groundwater

COC Reference: 135892

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/10/20 19:20	COND201110-W2	COND201110-W2	No	BLK/LCS/DUP
TOC	SM5310C	11/12/20 17:24	TOC201112-W1	TOC201112-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/12/20 11:56	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/12/20 11:56	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/12/20 11:56	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/12/20 11:56	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S19022.04

Sample Tag: B-28

Collected Date/Time: 11/05/2020 13:18

Matrix: Groundwater

COC Reference: 135892

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/10/20 19:22	COND201110-W2	COND201110-W2	No	BLK/LCS/DUP
TOC	SM5310C	11/12/20 17:44	TOC201112-W1	TOC201112-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/12/20 11:57	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/12/20 11:57	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/12/20 11:57	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/12/20 11:57	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S19022.05

Sample Tag: B-24r

Collected Date/Time: 11/05/2020 13:48

Matrix: Groundwater

COC Reference: 135892

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/10/20 19:24	COND201110-W2	COND201110-W2	No	BLK/LCS/DUP
TOC	SM5310C	11/12/20 18:03	TOC201112-W1	TOC201112-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/12/20 11:59	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/12/20 11:59	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/12/20 11:59	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/12/20 11:59	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S19022.06

Sample Tag: B-18A

Collected Date/Time: 11/05/2020 14:30

Matrix: Groundwater

COC Reference: 135892

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/10/20 19:26	COND201110-W2	COND201110-W2	No	BLK/LCS/DUP
TOC	SM5310C	11/12/20 18:23	TOC201112-W1	TOC201112-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/12/20 12:01	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/12/20 12:01	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/12/20 12:01	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/12/20 12:01	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S19022.07

Sample Tag: DUP-1

Collected Date/Time: 11/05/2020 00:01

Matrix: Groundwater

COC Reference: 135892

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/10/20 19:28	COND201110-W2	COND201110-W2	No	BLK/LCS/DUP
TOC	SM5310C	11/12/20 18:42	TOC201112-W1	TOC201112-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/12/20 12:03	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/12/20 12:03	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/12/20 12:03	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/12/20 12:03	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S19022.08

Sample Tag: Equipment Blank-1

Collected Date/Time: 11/05/2020 15:00

Matrix: Water

COC Reference: 135892

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Conductivity	E120.1	11/10/20 19:30	COND201110-W2	COND201110-W2	No	BLK/LCS/DUP
TOC	SM5310C	11/12/20 19:02	TOC201112-W1	TOC201112-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Chromium, Dissolved	E200.8	11/12/20 12:05	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/12/20 12:05	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/12/20 12:05	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/12/20 12:05	MT4-20-1112A	MTD-111220-1	No	BLK/LCS/MS/MSD

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: COND201110-W2

Surrogates: No, QC Types: BLK/LCS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19022.01	Conductivity	E120.1	11/10/20 19:16	COND201110-W2
S19022.02	Conductivity	E120.1	11/10/20 19:18	COND201110-W2
S19022.03	Conductivity	E120.1	11/10/20 19:20	COND201110-W2
S19022.04	Conductivity	E120.1	11/10/20 19:22	COND201110-W2
S19022.05	Conductivity	E120.1	11/10/20 19:24	COND201110-W2
S19022.06	Conductivity	E120.1	11/10/20 19:26	COND201110-W2
S19022.07	Conductivity	E120.1	11/10/20 19:28	COND201110-W2
S19022.08	Conductivity	E120.1	11/10/20 19:30	COND201110-W2

Inorganics, Prep Batch ID: TOC201112-W1

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19022.01	TOC	SM5310C	11/12/20 16:45	TOC201112-W1
S19022.02	TOC	SM5310C	11/12/20 17:05	TOC201112-W1
S19022.03	TOC	SM5310C	11/12/20 17:24	TOC201112-W1
S19022.04	TOC	SM5310C	11/12/20 17:44	TOC201112-W1
S19022.05	TOC	SM5310C	11/12/20 18:03	TOC201112-W1
S19022.06	TOC	SM5310C	11/12/20 18:23	TOC201112-W1
S19022.07	TOC	SM5310C	11/12/20 18:42	TOC201112-W1
S19022.08	TOC	SM5310C	11/12/20 19:02	TOC201112-W1

Metals, Prep Batch ID: MTD-111220-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19022.01	Chromium, Dissolved	E200.8	11/12/20 11:46	MT4-20-1112A
S19022.01	Copper, Dissolved	E200.8	11/12/20 11:46	MT4-20-1112A
S19022.01	Nickel, Dissolved	E200.8	11/12/20 11:46	MT4-20-1112A
S19022.01	Zinc, Dissolved	E200.8	11/12/20 11:46	MT4-20-1112A
S19022.02	Chromium, Dissolved	E200.8	11/12/20 11:48	MT4-20-1112A
S19022.02	Copper, Dissolved	E200.8	11/12/20 11:48	MT4-20-1112A
S19022.02	Nickel, Dissolved	E200.8	11/12/20 11:48	MT4-20-1112A
S19022.02	Zinc, Dissolved	E200.8	11/12/20 11:48	MT4-20-1112A
S19022.03	Chromium, Dissolved	E200.8	11/12/20 11:56	MT4-20-1112A
S19022.03	Copper, Dissolved	E200.8	11/12/20 11:56	MT4-20-1112A
S19022.03	Nickel, Dissolved	E200.8	11/12/20 11:56	MT4-20-1112A
S19022.03	Zinc, Dissolved	E200.8	11/12/20 11:56	MT4-20-1112A
S19022.04	Chromium, Dissolved	E200.8	11/12/20 11:57	MT4-20-1112A
S19022.04	Copper, Dissolved	E200.8	11/12/20 11:57	MT4-20-1112A
S19022.04	Nickel, Dissolved	E200.8	11/12/20 11:57	MT4-20-1112A
S19022.04	Zinc, Dissolved	E200.8	11/12/20 11:57	MT4-20-1112A
S19022.05	Chromium, Dissolved	E200.8	11/12/20 11:59	MT4-20-1112A
S19022.05	Copper, Dissolved	E200.8	11/12/20 11:59	MT4-20-1112A
S19022.05	Nickel, Dissolved	E200.8	11/12/20 11:59	MT4-20-1112A
S19022.05	Zinc, Dissolved	E200.8	11/12/20 11:59	MT4-20-1112A
S19022.06	Chromium, Dissolved	E200.8	11/12/20 12:01	MT4-20-1112A
S19022.06	Copper, Dissolved	E200.8	11/12/20 12:01	MT4-20-1112A
S19022.06	Nickel, Dissolved	E200.8	11/12/20 12:01	MT4-20-1112A
S19022.06	Zinc, Dissolved	E200.8	11/12/20 12:01	MT4-20-1112A
S19022.07	Chromium, Dissolved	E200.8	11/12/20 12:03	MT4-20-1112A
S19022.07	Copper, Dissolved	E200.8	11/12/20 12:03	MT4-20-1112A

QC Report - Prep Batch Summary

Metals, Prep Batch ID: MTD-111220-1 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19022.07	Nickel, Dissolved	E200.8	11/12/20 12:03	MT4-20-1112A
S19022.07	Zinc, Dissolved	E200.8	11/12/20 12:03	MT4-20-1112A
S19022.08	Chromium, Dissolved	E200.8	11/12/20 12:05	MT4-20-1112A
S19022.08	Copper, Dissolved	E200.8	11/12/20 12:05	MT4-20-1112A
S19022.08	Nickel, Dissolved	E200.8	11/12/20 12:05	MT4-20-1112A
S19022.08	Zinc, Dissolved	E200.8	11/12/20 12:05	MT4-20-1112A

QC Report - Batch QC Results

Inorganics, Prep Batch ID: COND201110-W2

Surrogates: No, QC Types: BLK/LCS/DUP

Blank (BLK)

Lab Sample ID: COND201110-W2.LRB1

Run in Batch: COND201110-W2, Run Date: 11/10/2020 19:00, Prep Date: 11/10/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Conductivity		ND	NA	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: COND201110-W2.LCS1

Run in Batch: COND201110-W2, Run Date: 11/10/2020 19:06, Prep Date: 11/10/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Conductivity		98	90	110

Duplicate (DUP)

Lab Sample ID: COND201110-W2.DP1, Parent Sample ID: S18992.03

Run in Batch: COND201110-W2, Run Date: 11/10/2020 19:12, Prep Date: 11/10/2020, Matrix: Liquid, Dilution: 6

Analyte	Flags	RPD	RPD CL
Conductivity		1	15

QC Report - Batch QC Results

Inorganics, Prep Batch ID: TOC201112-W1

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Blank (BLK)

Lab Sample ID: TOC201112-W1.LRB1

Run in Batch: TOC201112-W1, Run Date: 11/12/2020 11:51, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
TOC		ND	1	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: TOC201112-W1.LCS1

Run in Batch: TOC201112-W1, Run Date: 11/12/2020 12:31, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
TOC		91	90	110

Matrix Spike (MS)

Lab Sample ID: TOC201112-W1.MS1, Parent Sample ID: S18975.02

Run in Batch: TOC201112-W1, Run Date: 11/12/2020 14:09, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
TOC		80	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: TOC201112-W1.MSD1, Parent Sample ID: TOC201112-W1.MS1

Run in Batch: TOC201112-W1, Run Date: 11/12/2020 14:29, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
TOC		80	80	120	0	15

Duplicate (DUP)

Lab Sample ID: TOC201112-W1.DP1, Parent Sample ID: S18975.01

Run in Batch: TOC201112-W1, Run Date: 11/12/2020 13:30, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
TOC		14	15

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-111220-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-20-1112A.021.LRB

Run in Batch: MT4-20-1112A, Run Date: 11/12/2020 11:26, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Nickel		ND	0.001	mg/L
Zinc		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-20-1112A.019.LCS

Run in Batch: MT4-20-1112A, Run Date: 11/12/2020 11:19, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium		105	85	115
Copper		101	85	115
Nickel		101	85	115
Zinc		102	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-20-1112A.042.MS, Parent Sample ID: S18975.07

Run in Batch: MT4-20-1112A, Run Date: 11/12/2020 11:50, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Chromium		111	75	125
Copper		104	75	125
Nickel		107	75	125
Zinc		110	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-20-1112A.064.MS, Parent Sample ID: S19022.08

Run in Batch: MT4-20-1112A, Run Date: 11/12/2020 12:12, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Chromium		110	75	125
Copper		107	75	125
Nickel		106	75	125
Zinc		112	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-20-1112A.043.MSD, Parent Sample ID: MT4-20-1112A.042.MS

Run in Batch: MT4-20-1112A, Run Date: 11/12/2020 11:51, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium		110	75	125	1	20
Copper		102	75	125	2	20
Nickel		106	75	125	1	20
Zinc		110	75	125	1	20

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-111220-1 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-20-1112A.065.MSD, Parent Sample ID: MT4-20-1112A.064.MS

Run in Batch: MT4-20-1112A, Run Date: 11/12/2020 12:13, Prep Date: 11/12/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium		104	75	125	6	20
Copper		105	75	125	2	20
Nickel		104	75	125	1	20
Zinc		105	75	125	7	20



Merit
Laboratories, Inc.

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Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

135892

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Clifford Yantz
 COMPANY Ramboll
 ADDRESS 2260 East Saginaw
 CITY East Lansing STATE MI ZIP CODE 48823
 PHONE NO. 313-333-0211 FAX NO. _____ P.O. NO. _____
 E-MAIL ADDRESS clifford.yantz@ramboll.com QUOTE NO. _____

CONTACT NAME SAME
 COMPANY _____
 ADDRESS _____
 CITY _____ STATE _____ ZIP CODE _____
 PHONE NO. _____ E-MAIL ADDRESS _____

PROJECT NO./NAME RACER Coldwater Road SAMPLER(S) - PLEASE PRINT/SIGN NAME Kevin Schneider
 TURNAROUND TIME REQUIRED 1 DAY 2 DAYS 3 DAYS STANDARD OTHER _____
 DELIVERABLES REQUIRED STD LEVEL II LEVEL III LEVEL IV EDD OTHER _____

MATRIX GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
 CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIFE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

MERIT LAB NO. <small>FOR LAB USE ONLY</small>	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	Disolved Metals	TOC	specific conductivity	TOX	Certifications		Project Locations		Special Instructions	
	DATE	TIME															<input type="checkbox"/> OHIO VAP	<input type="checkbox"/> Drinking Water	<input type="checkbox"/> DoD	<input type="checkbox"/> NPDES		
19022.01	11/5/20	1057	B-19Ar	GW	5	1		1	3				X	X	X	X		<input type="checkbox"/> Detroit	<input type="checkbox"/> New York		Disolved Metals	
.02		1145	B-7										X	X	X	X						were fdd filtered
.03		1220	B-9										X	X	X	X						
.04		1318	B-28										X	X	X	X						Metals Are:
.05		1348	B-24r										X	X	X	X						Cu, Cr, Ni, Zn
.06		1430	B-18A										X	X	X	X						
.07		-	DUP-1										X	X	X	X						
.08		1500	Equipment Blank-1	QC									X	X	X	X						

RELINQUISHED BY: Kevin Schneider Sampler DATE 11/6/20 TIME 1605
 RECEIVED BY: Merit Secure Locker DATE 11/6/20 TIME 1605
 RELINQUISHED BY: Merit Drop box DATE 11/6/20 TIME 1605
 RECEIVED BY: [Signature] DATE 11/6/20 TIME 1605

RELINQUISHED BY: _____ DATE _____ TIME _____
 RECEIVED BY: _____ DATE _____ TIME _____
 SEAL NO. SEAL INTACT YES NO INITIALS _____
 SEAL NO. SEAL INTACT YES NO INITIALS _____
 NOTES: TEMP. ON ARRIVAL 2.3

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE



Analytical Laboratory Report

Report ID: S19701.01(01)
Generated on 12/09/2020

Report to

Attention: Clifford Yantz
Ramboll Americas - East Lansing, MI
2260 E Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Additional Contacts: Kevin Schneider

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S19701.01
Project: RACER Coldwater Rd
Collected Date(s): 12/04/2020
Submitted Date/Time: 12/04/2020 12:30
Sampled by: Kevin Schneider
P.O. #: 12000277

Table of Contents

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General Report Notes (Page 2)
Report Narrative (Page 2)
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Sample Summary (Page 5)

Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Analytical Laboratory Report

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
SW3015A	SW 846 Method 3015A Revision 1 February 2007



Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S19701.01	B-19 Ar - Resample	Groundwater	12/04/20 10:08



Analytical Laboratory Report

Lab Sample ID: S19701.01

Sample Tag: B-19 Ar - Resample

Collected Date/Time: 12/04/2020 10:08

Matrix: Groundwater

COC Reference: 125024

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	12/08/20 10:00	CCM	

Metals

Method: E200.8, Run Date: 12/08/20 12:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Nickel, Dissolved	0.006	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	0.013	0.005		mg/L	5	7440-66-6	

Merit Laboratories Login Checklist

Lab Set ID:S19701

Attention: Clifford Yantz
Address: Ramboll Americas - East Lansing, MI
2260 E Saginaw Street
East Lansing, MI 48823

Client:OBG02 (Ramboll Americas - East Lansing, MI)

Project: RACER Coldwater Rd

Submitted: 12/04/2020 12:30 Login User: REJ

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Selection	Description	Note
-----------	-------------	------

Sample Receiving

- | | | |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 2.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

Chain of Custody

- | | | |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

Preservation

- | | | |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation |
| 11. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab? |

Bottle Conditions

- | | | |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S19701 Submitted: 12/04/2020 12:30

Client: OBG02 (Ramboll Americas - East Lansing, MI)

Project: RACER Coldwater Rd

Initial Preservation Check: 12/04/2020 12:49 REJ

Preservation Recheck (E200.8): N/A

Attention: Clifford Yantz

Address: Ramboll Americas - East Lansing, MI
2260 E Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S19701.01	125ml Plastic HNO3	<2			



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 www.meritlabs.com

C.O.C. PAGE # 1 OF 1

125024

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Clifford Yantz / Kevin Schneider
 COMPANY Ramboll
 ADDRESS 2260 East Saginaw
 CITY East Lansing STATE MI ZIP CODE 48823
 PHONE NO. 313-333-0211 FAX NO. _____ P.O. NO. _____
 E-MAIL ADDRESS Clifford.Yantz@Ramboll.com / Kevin.Schneider@Ramboll.com QUOTE NO. _____

CONTACT NAME SAME
 COMPANY _____
 ADDRESS _____
 CITY _____ STATE _____ ZIP CODE _____
 PHONE NO. _____ E-MAIL ADDRESS _____

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME RACER Coldwater Rd SAMPLER(S) - PLEASE PRINT/SIGN NAME Kevin Schneider JC SLL
 TURNAROUND TIME REQUIRED 1 DAY 2 DAYS 3 DAYS STANDARD OTHER _____
 DELIVERABLES REQUIRED STD LEVEL II LEVEL III LEVEL IV EDD OTHER _____
 MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
 SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIFE A=AIR W=WASTE

Containers & Preservatives

Certifications
 OHIO VAP Drinking Water
 DoD NPDES
Project Locations
 Detroit New York
 Other _____
Special Instructions

MERIT LAB NO. <small>FOR LAB USE ONLY</small>	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	Dissolved Metals							
	DATE	TIME																		
19701.01	12/4/20	1008	B-19 Ar - Resample	GW	1			1					X							

Metals Are:
 Cr, W, Ni, Zn
 Sample was field filtered

RELINQUISHED BY: JC SLL Sampler DATE 12/4/20 TIME 11:40
 RECEIVED BY: JWA/MLK DATE 12/4/20 TIME 11:40
 RELINQUISHED BY: JWA/MLK DATE 12/4/20 TIME 12:20
 RECEIVED BY: MLK DATE 12/4/20 TIME 12:30

RELINQUISHED BY: _____ DATE _____ TIME _____
 RECEIVED BY: _____ DATE _____ TIME _____
 SEAL NO. SEAL INTACT YES NO INITIALS _____
 SEAL NO. SEAL INTACT YES NO INITIALS _____
 NOTES: TEMP. ON ARRIVAL 29

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE



Quality Control Report

Report ID: QC-S19701-01
Generated on 12/09/2020

Report to

Attention: Clifford Yantz
Ramboll Americas - East Lansing, MI
2260 E Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S19701.01
Project: RACER Coldwater Rd
Submitted Date/Time: 12/04/2020 12:30
Sampled by: Kevin Schneider
P.O. #: 12000277

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Page 2)
Prep Batch Summary (Page 3)
Batch QC Results (Pages 4-5)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S19701.01

Sample Tag: B-19 Ar - Resample

Collected Date/Time: 12/04/2020 10:08

Matrix: Groundwater

COC Reference: 125024

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Chromium, Dissolved	E200.8	12/08/20 12:04	MT4-20-1208A	MTD-120820-1	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	12/08/20 12:04	MT4-20-1208A	MTD-120820-1	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	12/08/20 12:04	MT4-20-1208A	MTD-120820-1	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	12/08/20 12:04	MT4-20-1208A	MTD-120820-1	No	BLK/LCS/MS/MSD

QC Report - Prep Batch Summary

Metals, Prep Batch ID: MTD-120820-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19701.01	Chromium, Dissolved	E200.8	12/08/20 12:04	MT4-20-1208A
S19701.01	Copper, Dissolved	E200.8	12/08/20 12:04	MT4-20-1208A
S19701.01	Nickel, Dissolved	E200.8	12/08/20 12:04	MT4-20-1208A
S19701.01	Zinc, Dissolved	E200.8	12/08/20 12:04	MT4-20-1208A

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-120820-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-20-1208A.021.LRB

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 11:33, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Nickel		ND	0.001	mg/L
Zinc		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-20-1208A.019.LCS

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 11:29, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium		101	85	115
Copper		104	85	115
Nickel		103	85	115
Zinc		103	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-20-1208A.042.MS, Parent Sample ID: S19684.01

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 12:08, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Chromium		109	75	125
Copper		105	75	125
Nickel		102	75	125
Zinc		106	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-20-1208A.066.MS, Parent Sample ID: S19711.05

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 12:43, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Chromium		108	75	125
Copper		108	75	125
Nickel		107	75	125
Zinc		111	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-20-1208A.043.MSD, Parent Sample ID: MT4-20-1208A.042.MS

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 12:10, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium		106	75	125	3	20
Copper		102	75	125	2	20
Nickel		102	75	125	0	20
Zinc		105	75	125	1	20

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-120820-1 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-20-1208A.067.MSD, Parent Sample ID: MT4-20-1208A.066.MS

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 12:44, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium		110	75	125	2	20
Copper		106	75	125	2	20
Nickel		106	75	125	1	20
Zinc		110	75	125	1	20

APPENDIX D
GROUNDWATER SAMPLING PROGRAM QA/QC SUMMARY

Appendix D

Quality Assurance/Quality Control Summary

Data verification was independently performed by Ramboll Americas Engineering Solutions, Inc. (Ramboll), to assess the groundwater monitoring data quality for samples collected during the 2020 annual groundwater sampling event conducted in November 2020. Data verification was utilized to confirm the quality of the field and laboratory (Merit Laboratories, Inc. (Merit) of East Lansing, Michigan) data. The data verification included review of: (1) laboratory documentation, (2) chain-of-custody (COC) documentation, (3) target analyte results, (4) laboratory data qualifiers, if any, (5) laboratory reporting (quantitation) limits, (6) laboratory blank analysis, and (7) quality control samples, including duplicate samples.

The results of the data verification indicated the following:

- Laboratory documentation was complete.
- Chain-of-custody (COC) documentation was complete.
- Target analyte results were reported in accordance with the project requirements.
- Laboratory blank analysis did not indicate evidence of artifacts from the sampling or analytical process (above reporting limit [RL]).
- Laboratory quantitation (or reporting) limits (RLs) were within the project required limits for undiluted samples.
- No elevated RLs were reported due to matrix interference or sample dilution.
- No breakthroughs exceeding 10% for TOX samples were reported.
- The primary and secondary constituents of concern (COCs) were not detected in Equipment Blank-1; therefore, cross-contamination during sampling and shipping is not evident.
- The relative percent difference (RPD) for the duplicate sample results for B-24r and Dup-1 (B-24r) were within acceptable limits, except for TOX, which should be qualified as estimated (J) due to the exceedance of acceptable limits (50%) for the RPD. The original TOX sample concentration was 18.5 µg/L in the original sample and in the duplicate sample the concentration was 4.26 µg/L. The difference is likely due to natural variations in the samples and do not cause the rejection of the data.

Furthermore, the instrument utilized for measurement of field parameters calibrated within range (deviation from standard of less than 3 percent) for pH, oxidation reduction potential (ORP), specific conductivity (conductivity), and dissolved oxygen (DO); therefore, operated within manufacturers specifications during sample collection.

The data verification indicates that the overall usability of the groundwater monitoring data is acceptable for the intended use without further qualification or rejection of the data.

APPENDIX E MONITORING WELL CONTROL CHARTS

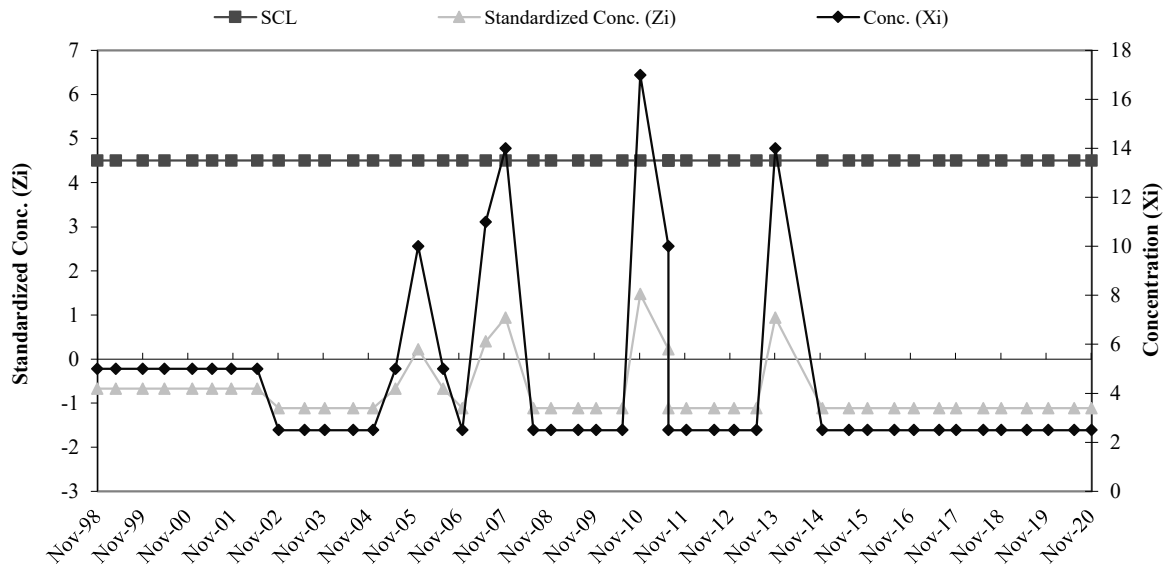
**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART**

B-7 Cr

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	8.75	5.60
2	Aug-95	10		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	10		
7	May-97	5		
8	May-98	5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-98	4.5	5	-0.67	36	Nov-11	4.5	2.5	-1.12
10	Apr-99	4.5	5	-0.67	37	Jun-12	4.5	2.5	-1.12
11	Nov-99	4.5	5	-0.67	38	Dec-12	4.5	2.5	-1.12
12	Apr-00	4.5	5	-0.67	39	Jun-13	4.5	2.5	-1.12
13	Dec-00	4.5	5	-0.67	40	Nov-13	4.5	14	0.94
14	May-01	4.5	5	-0.67	41	Nov-14	4.5	2.5	-1.12
15	Oct-01	4.5	5	-0.67	42	Jun-15	4.5	2.5	-1.12
16	May-02	4.5	5	-0.67	43	Nov-15	4.5	2.5	-1.12
17	Nov-02	4.5	2.5	-1.12	44	Jun-16	4.5	2.5	-1.12
18	Jun-03	4.5	2.5	-1.12	45	Nov-16	4.5	2.5	-1.12
19	Nov-03	4.5	2.5	-1.12	46	Jun-17	4.5	2.5	-1.12
20	Jun-04	4.5	2.5	-1.12	47	Nov-17	4.5	2.5	-1.12
21	Dec-04	4.5	2.5	-1.12	48	Jun-18	4.5	2.5	-1.12
22	Jun-05	4.5	5	-0.67	49	Nov-18	4.5	2.5	-1.12
23	Dec-05	4.5	10	0.22	50	May-19	4.5	2.5	-1.12
24	Jun-06	4.5	5	-0.67	51	Nov-19	4.5	2.5	-1.12
25	Nov-06	4.5	2.5	-1.12	52	Jun-20	4.5	2.5	-1.12
26	Jun-07	4.5	11	0.40	53	Nov-20	4.5	2.5	-1.12
27	Nov-07	4.5	14	0.94					
28	Jun-08	4.5	2.5	-1.12					
29	Nov-08	4.5	2.5	-1.12					
30	Jun-09	4.5	2.5	-1.12					
31	Nov-09	4.5	2.5	-1.12					
32	Jun-10	4.5	2.5	-1.12					
33	Nov-10	4.5	17	1.47					
34	Jun-11	4.5	10	0.22					
35	Jun-11	4.5	2.5	-1.12					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean



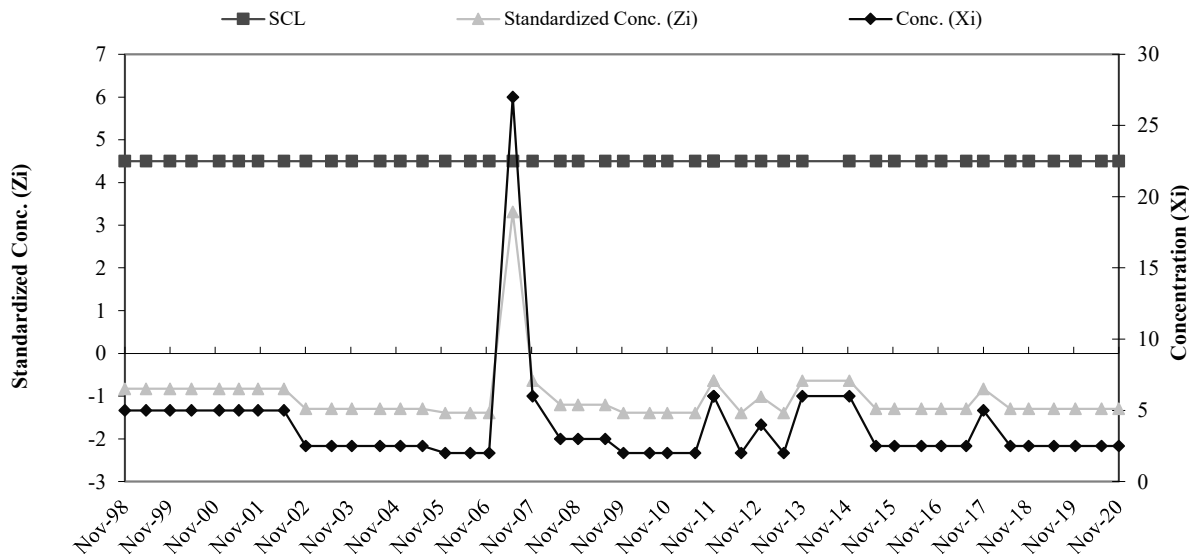
**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART**

B-7 Cu

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	9.40	5.32
2	Aug-95	10		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	10		
7	May-97	10		
8	May-98	5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-98	4.5	5	-0.83	35	Nov-11	4.5	6	-0.64
10	Apr-99	4.5	5	-0.83	36	Jun-12	4.5	2	-1.39
11	Nov-99	4.5	5	-0.83	37	Dec-12	4.5	4	-1.02
12	Apr-00	4.5	5	-0.83	38	Jun-13	4.5	2	-1.39
13	Dec-00	4.5	5	-0.83	39	Nov-13	4.5	6	-0.64
14	May-01	4.5	5	-0.83	40	Nov-14	4.5	6	-0.64
15	Oct-01	4.5	5	-0.83	41	Jun-15	4.5	2.5	-1.30
16	May-02	4.5	5	-0.83	42	Nov-15	4.5	2.5	-1.30
17	Nov-02	4.5	2.5	-1.30	43	Jun-16	4.5	2.5	-1.30
18	Jun-03	4.5	2.5	-1.30	44	Nov-16	4.5	2.5	-1.30
19	Nov-03	4.5	2.5	-1.30	45	Jun-17	4.5	2.5	-1.30
20	Jun-04	4.5	2.5	-1.30	46	Nov-17	4.5	5	-0.83
21	Dec-04	4.5	2.5	-1.30	47	Jun-18	4.5	2.5	-1.30
22	Jun-05	4.5	2.5	-1.30	48	Nov-18	4.5	2.5	-1.30
23	Dec-05	4.5	2	-1.39	49	May-19	4.5	2.5	-1.30
24	Jun-06	4.5	2	-1.39	50	Nov-19	4.5	2.5	-1.30
25	Nov-06	4.5	2	-1.39	51	Jun-20	4.5	2.5	-1.30
26	Jun-07	4.5	27	3.31	52	Nov-20	4.5	2.5	-1.30
27	Nov-07	4.5	6	-0.64					
28	Jun-08	4.5	3	-1.20					
29	Nov-08	4.5	3	-1.20					
30	Jun-09	4.5	3	-1.20					
31	Nov-09	4.5	2	-1.39					
32	Jun-10	4.5	2	-1.39					
33	Nov-10	4.5	2	-1.39					
34	Jun-11	4.5	2	-1.39					
35	Nov-11	4.5	6	-0.64					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean



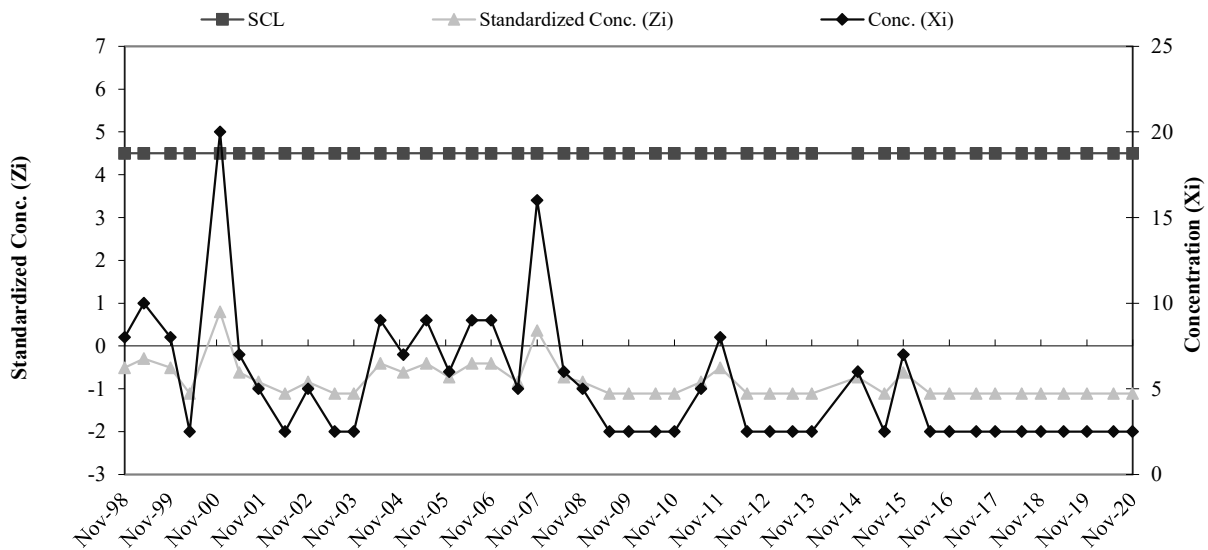
**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART**

B-7 Ni

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	15	12.70	9.19
2	Aug-95	20		
3	Feb-96	20		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	20		
7	May-97	14		
8	May-98	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-98	4.5	8	-0.51	35	Nov-11	4.5	8	-0.51
10	Apr-99	4.5	10	-0.29	36	Jun-12	4.5	2.5	-1.11
11	Nov-99	4.5	8	-0.51	37	Dec-12	4.5	2.5	-1.11
12	Apr-00	4.5	2.5	-1.11	38	Jun-13	4.5	2.5	-1.11
13	Dec-00	4.5	20	0.79	39	Nov-13	4.5	2.5	-1.11
14	May-01	4.5	7	-0.62	40	Nov-14	4.5	6	-0.73
15	Oct-01	4.5	5	-0.84	41	Jun-15	4.5	2.5	-1.11
16	May-02	4.5	2.5	-1.11	42	Nov-15	4.5	7	-0.62
17	Nov-02	4.5	5	-0.84	43	Jun-16	4.5	2.5	-1.11
18	Jun-03	4.5	2.5	-1.11	44	Nov-16	4.5	2.5	-1.11
19	Nov-03	4.5	2.5	-1.11	45	Jun-17	4.5	2.5	-1.11
20	Jun-04	4.5	9	-0.40	46	Nov-17	4.5	2.5	-1.11
21	Dec-04	4.5	7	-0.62	47	Jun-18	4.5	2.5	-1.11
22	Jun-05	4.5	9	-0.40	48	Nov-18	4.5	2.5	-1.11
23	Dec-05	4.5	6	-0.73	49	May-19	4.5	2.5	-1.11
24	Jun-06	4.5	9	-0.40	50	Nov-19	4.5	2.5	-1.11
25	Nov-06	4.5	9	-0.40	51	Jun-20	4.5	2.5	-1.11
26	Jun-07	4.5	5	-0.84	52	Nov-20	4.5	2.5	-1.11
27	Nov-07	4.5	16	0.36					
28	Jun-08	4.5	6	-0.73					
29	Nov-08	4.5	5	-0.84					
30	Jun-09	4.5	2.5	-1.11					
31	Nov-09	4.5	2.5	-1.11					
32	Jun-10	4.5	2.5	-1.11					
33	Nov-10	4.5	2.5	-1.11					
34	Jun-11	4.5	5	-0.84					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean



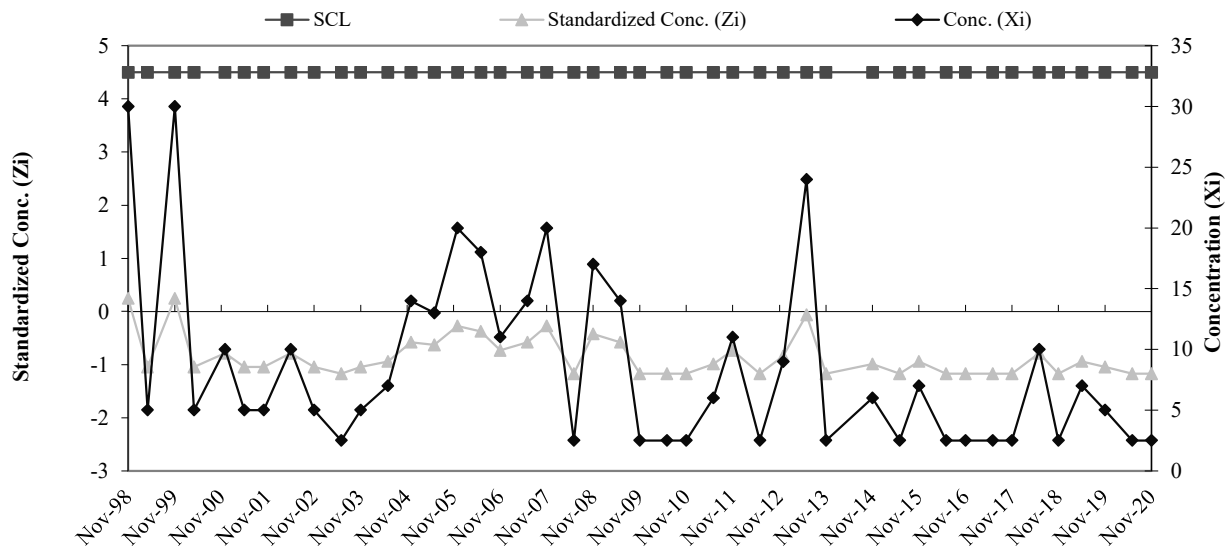
**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART**

B-7 Zn

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	25.25	19.40
2	Aug-95	10		
3	Feb-96	22		
4	Jun-96	20		
5	Aug-96	60		
6	Nov-96	50		
7	May-97	10		
8	May-98	20		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-98	4.5	30	0.24	35	Nov-11	4.5	11	-0.73
10	Apr-99	4.5	5	-1.04	36	Jun-12	4.5	2.5	-1.17
11	Nov-99	4.5	30	0.24	37	Dec-12	4.5	9	-0.84
12	Apr-00	4.5	5	-1.04	38	Jun-13	4.5	24	-0.06
13	Dec-00	4.5	10	-0.79	39	Nov-13	4.5	2.5	-1.17
14	May-01	4.5	5	-1.04	40	Nov-14	4.5	6	-0.99
15	Oct-01	4.5	5	-1.04	41	Jun-15	4.5	2.5	-1.17
16	May-02	4.5	10	-0.79	42	Nov-15	4.5	7	-0.94
17	Nov-02	4.5	5	-1.04	43	Jun-16	4.5	2.5	-1.17
18	Jun-03	4.5	2.5	-1.17	44	Nov-16	4.5	2.5	-1.17
19	Nov-03	4.5	5	-1.04	45	Jun-17	4.5	2.5	-1.17
20	Jun-04	4.5	7	-0.94	46	Nov-17	4.5	2.5	-1.17
21	Dec-04	4.5	14	-0.58	47	Jun-18	4.5	10	-0.79
22	Jun-05	4.5	13	-0.63	48	Nov-18	4.5	2.5	-1.17
23	Dec-05	4.5	20	-0.27	49	May-19	4.5	7	-0.94
24	Jun-06	4.5	18	-0.37	50	Nov-19	4.5	5	-1.04
25	Nov-06	4.5	11	-0.73	51	Jun-20	4.5	2.5	-1.17
26	Jun-07	4.5	14	-0.58	52	Nov-20	4.5	2.5	-1.17
27	Nov-07	4.5	20	-0.27			4.5		
28	Jun-08	4.5	2.5	-1.17					
29	Nov-08	4.5	17	-0.43					
30	Jun-09	4.5	14	-0.58					
31	Nov-09	4.5	2.5	-1.17					
32	Jun-10	4.5	2.5	-1.17					
33	Nov-10	4.5	2.5	-1.17					
34	Jun-11	4.5	6	-0.99					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

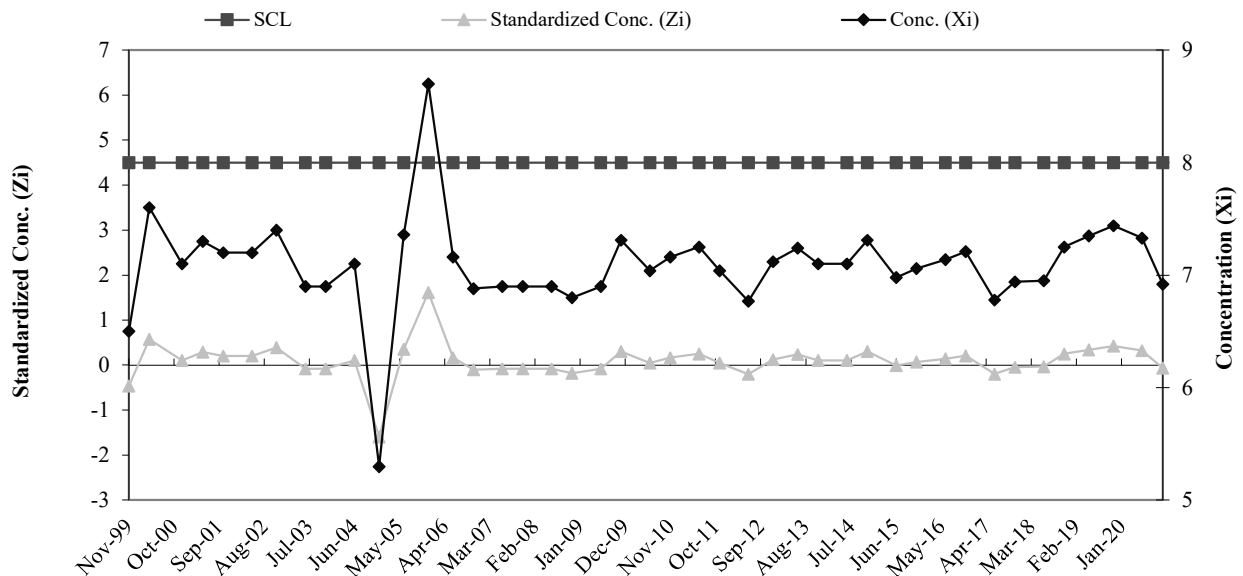


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-7 pH

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	7.5	6.99	1.06
2	Jun-96	6.9		
3	Aug-96	7.6		
4	Nov-96	8.0		
5	May-97	7.2		
6	May-98	6.6		
7	Nov-98	4.6		
8	Apr-99	7.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-99	4.5	6.5	-0.46	33	Nov-11	4.5	7.0	0.05
10	Apr-00	4.5	7.6	0.58	34	Jun-12	4.5	6.8	-0.21
11	Dec-00	4.5	7.1	0.11	35	Dec-12	4.5	7.1	0.13
12	May-01	4.5	7.3	0.30	36	Jun-13	4.5	7.2	0.24
13	Oct-01	4.5	7.2	0.20	37	Nov-13	4.5	7.1	0.11
14	May-02	4.5	7.2	0.20	38	Jun-14	4.5	7.1	0.11
15	Nov-02	4.5	7.4	0.39	39	Nov-14	4.5	7.3	0.30
16	Jun-03	4.5	6.9	-0.08	40	Jun-15	4.5	7.0	-0.01
17	Nov-03	4.5	6.9	-0.08	41	Nov-15	4.5	7.1	0.07
18	Jun-04	4.5	7.1	0.11	42	Jun-16	4.5	7.1	0.14
19	Dec-04	4.5	5.3	-1.60	43	Nov-16	4.5	7.2	0.21
20	Jun-05	4.5	7.4	0.35	44	Jun-17	4.5	6.8	-0.20
21	Dec-05	4.5	8.7	1.62	45	Nov-17	4.5	6.9	-0.04
22	Jun-06	4.5	7.2	0.16	46	Jun-18	4.5	7.0	-0.04
23	Nov-06	4.5	6.9	-0.10	47	Nov-18	4.5	7.3	0.25
24	Jun-07	4.5	6.9	-0.08	48	May-19	4.5	7.4	0.34
25	Nov-07	4.5	6.9	-0.08	49	Nov-19	4.5	7.4	0.43
26	Jun-08	4.5	6.9	-0.08	50	Jun-20	4.5	7.3	0.32
27	Nov-08	4.5	6.8	-0.18	51	Nov-20	4.5	6.9	-0.06
28	Jun-09	4.5	6.9	-0.08					
29	Nov-09	4.5	7.3	0.30					
30	Jun-10	4.5	7.0	0.05					
31	Nov-10	4.5	7.2	0.16					
32	Jun-11	4.5	7.3	0.25					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

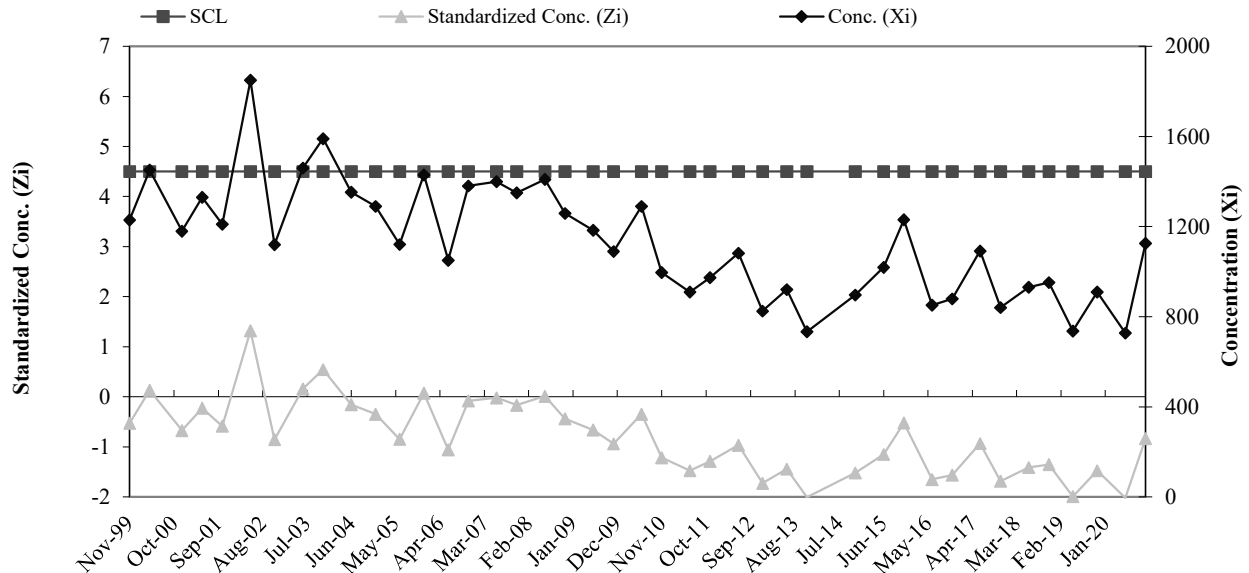


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-7 SpC

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	1509.0	1,405.88	336.33
2	Jun-96	1508.0		
3	Aug-96	1567.0		
4	Nov-96	1960.0		
5	May-97	780.0		
6	May-98	1270.0		
7	Nov-98	1240.0		
8	Apr-99	1413.0		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-99	4.5	1230.0	-0.52	33	Nov-11	4.5	974.0	-1.28
10	Apr-00	4.5	1450.0	0.13	34	Jun-12	4.5	1082.0	-0.96
11	Dec-00	4.5	1180.0	-0.67	35	Dec-12	4.5	825.0	-1.73
12	May-01	4.5	1330.0	-0.23	36	Jun-13	4.5	921.0	-1.44
13	Oct-01	4.5	1210.0	-0.58	37	Nov-13	4.5	733.0	-2.00
14	May-02	4.5	1850.0	1.32	38	Nov-14	4.5	896.0	-1.52
15	Nov-02	4.5	1120.0	-0.85	39	Jun-15	4.5	1019.0	-1.15
16	Jun-03	4.5	1460.0	0.16	40	Nov-15	4.5	1231.0	-0.52
17	Nov-03	4.5	1590.0	0.55	41	Jun-16	4.5	852.0	-1.65
18	Jun-04	4.5	1353.0	-0.16	42	Nov-16	4.5	880.0	-1.56
19	Dec-04	4.5	1290.0	-0.34	43	Jun-17	4.5	1092.0	-0.93
20	Jun-05	4.5	1121.0	-0.85	44	Nov-17	4.5	841.0	-1.68
21	Dec-05	4.5	1430.0	0.07	45	Jun-18	4.5	932.0	-1.41
22	Jun-06	4.5	1051.0	-1.06	46	Nov-18	4.5	952.0	-1.35
23	Nov-06	4.5	1380.0	-0.08	47	May-19	4.5	737.0	-1.99
24	Jun-07	4.5	1400.0	-0.02	48	Nov-19	4.5	910.0	-1.47
25	Nov-07	4.5	1350.0	-0.17	49	Jun-20	4.5	728.0	-2.02
26	Jun-08	4.5	1410.0	0.01	50	Nov-20	4.5	1126.0	-0.83
27	Nov-08	4.5	1258.0	-0.44			4.5		
28	Jun-09	4.5	1184.0	-0.66					
29	Nov-09	4.5	1090.0	-0.94					
30	Jun-10	4.5	1290.0	-0.34					
31	Nov-10	4.5	997.0	-1.22					
32	Jun-11	4.5	910.0	-1.47					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

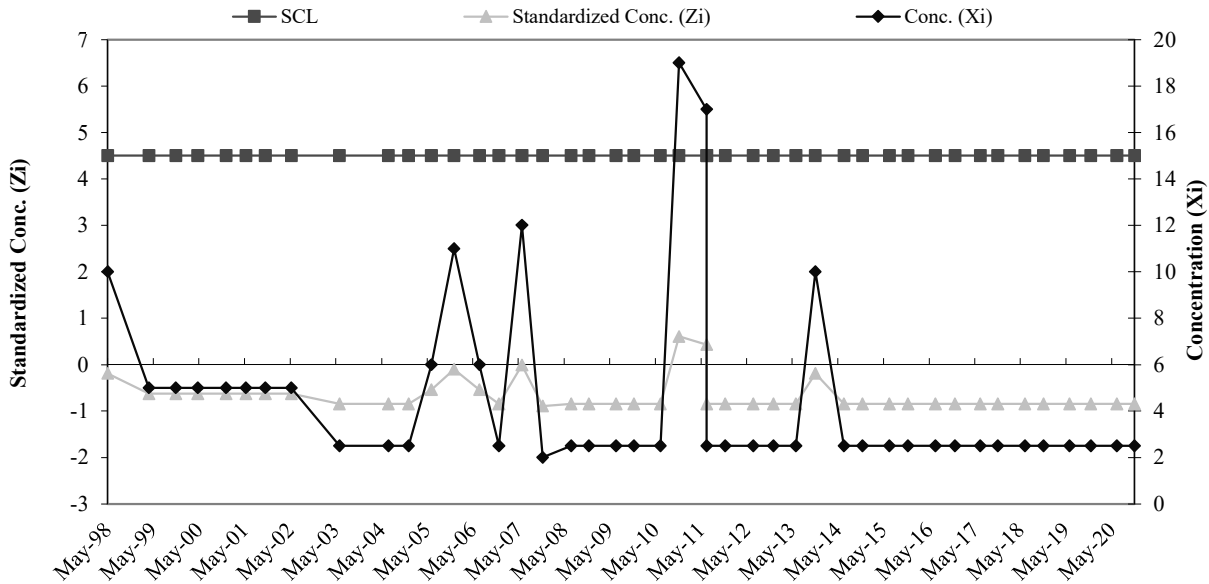


**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 Cr**

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	12.12	11.34
2	Aug-95	37		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	10		
7	May-97	5		
8	Nov-97	5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	10	-0.19	34	Nov-11	4.5	2.5	-0.85
10	Apr-99	4.5	5	-0.63	35	Jun-12	4.5	2.5	-0.85
11	Nov-99	4.5	5	-0.63	36	Dec-12	4.5	2.5	-0.85
12	Apr-00	4.5	5	-0.63	37	Jun-13	4.5	2.5	-0.85
13	Dec-00	4.5	5	-0.63	38	Nov-13	4.5	10	-0.19
14	May-01	4.5	5	-0.63	39	Jun-14	4.5	2.5	-0.85
15	Oct-01	4.5	5	-0.63	40	Nov-14	4.5	2.5	-0.85
16	May-02	4.5	5	-0.63	41	Jun-15	4.5	2.5	-0.85
17	Jun-03	4.5	2.5	-0.85	42	Nov-15	4.5	2.5	-0.85
18	Jun-04	4.5	2.5	-0.85	43	Jun-16	4.5	2.5	-0.85
19	Dec-04	4.5	2.5	-0.85	44	Nov-16	4.5	2.5	-0.85
20	Jun-05	4.5	6	-0.54	45	Jun-17	4.5	2.5	-0.85
21	Dec-05	4.5	11	-0.10	46	Nov-17	4.5	2.5	-0.85
22	Jun-06	4.5	6	-0.54	47	Jun-18	4.5	2.5	-0.85
23	Nov-06	4.5	2.5	-0.85	48	Nov-18	4.5	2.5	-0.85
24	Jun-07	4.5	12	-0.01	49	Jun-19	4.5	2.5	-0.85
25	Nov-07	4.5	2	-0.89	50	Nov-19	4.5	2.5	-0.85
26	Jul-08	4.5	2.5	-0.85	51	Jun-20	4.5	2.5	-0.85
27	Nov-08	4.5	2.5	-0.85	52	Nov-20	4.5	2.5	-0.85
28	Jun-09	4.5	2.5	-0.85					
29	Nov-09	4.5	2.5	-0.85					
30	Jun-10	4.5	2.5	-0.85					
31	Nov-10	4.5	19	0.61					
32	Jun-11	4.5	17	0.43					
33	Jun-11	4.5	2.5	-0.85					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

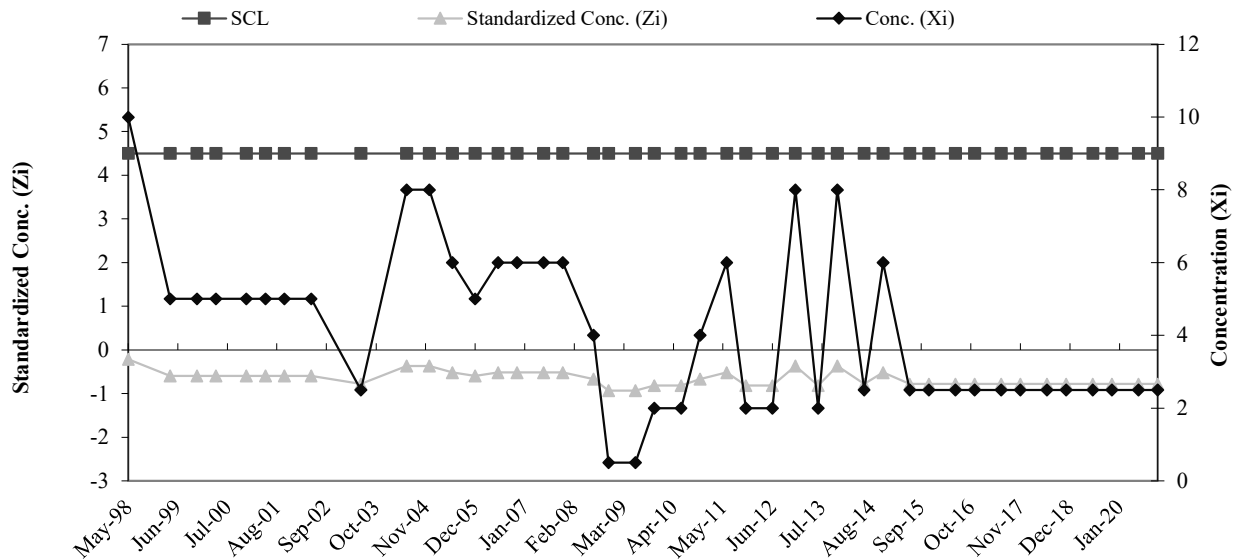


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 Cu

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	12.87	13.26
2	Aug-95	43		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	10		
7	May-97	5		
8	Nov-97	5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	10	-0.22	33	Nov-11	4.5	2	-0.82
10	Apr-99	4.5	5	-0.59	34	Jun-12	4.5	2	-0.82
11	Nov-99	4.5	5	-0.59	35	Dec-12	4.5	8	-0.37
12	Apr-00	4.5	5	-0.59	36	Jun-13	4.5	2	-0.82
13	Dec-00	4.5	5	-0.59	37	Nov-13	4.5	8	-0.37
14	May-01	4.5	5	-0.59	38	Jun-14	4.5	2.5	-0.78
15	Oct-01	4.5	5	-0.59	39	Nov-14	4.5	6	-0.52
16	May-02	4.5	5	-0.59	40	Jun-15	4.5	2.5	-0.78
17	Jun-03	4.5	2.5	-0.78	41	Nov-15	4.5	2.5	-0.78
18	Jun-04	4.5	8	-0.37	42	Jun-16	4.5	2.5	-0.78
19	Dec-04	4.5	8	-0.37	43	Nov-16	4.5	2.5	-0.78
20	Jun-05	4.5	6	-0.52	44	Jun-17	4.5	2.5	-0.78
21	Dec-05	4.5	5	-0.59	45	Nov-17	4.5	2.5	-0.78
22	Jun-06	4.5	6	-0.52	46	Jun-18	4.5	2.5	-0.78
23	Nov-06	4.5	6	-0.52	47	Nov-18	4.5	2.5	-0.78
24	Jun-07	4.5	6	-0.52	48	Jun-19	4.5	2.5	-0.78
25	Nov-07	4.5	6	-0.52	49	Nov-19	4.5	2.5	-0.78
26	Jul-08	4.5	4	-0.67	50	Jun-20	4.5	2.5	-0.78
27	Nov-08	4.5	0.5	-0.93	51	Nov-20	4.5	2.5	-0.78
28	Jun-09	4.5	0.5	-0.93					
29	Nov-09	4.5	2	-0.82					
30	Jun-10	4.5	2	-0.82					
31	Nov-10	4.5	4	-0.67					
32	Jun-11	4.5	6	-0.52					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

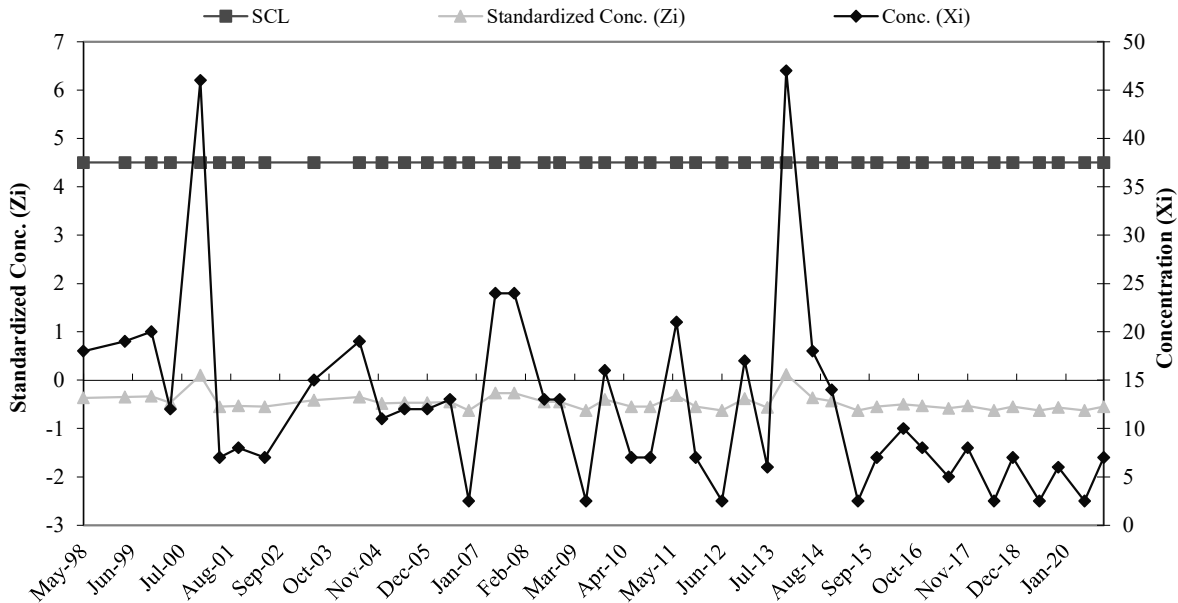


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 Ni

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	15	39.83	59.86
2	Aug-95	20		
3	Feb-96	20		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	10		
7	May-97	51		
8	Nov-97	183		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	18	-0.36	33	Nov-11	4.5	7	-0.55
10	Apr-99	4.5	19	-0.35	34	Jun-12	4.5	2.5	-0.62
11	Nov-99	4.5	20	-0.33	35	Dec-12	4.5	17	-0.38
12	Apr-00	4.5	12	-0.46	36	Jun-13	4.5	6	-0.57
13	Dec-00	4.5	46	0.10	37	Nov-13	4.5	47	0.12
14	May-01	4.5	7	-0.55	38	Jun-14	4.5	18	-0.36
15	Oct-01	4.5	8	-0.53	39	Nov-14	4.5	14	-0.43
16	May-02	4.5	7	-0.55	40	Jun-15	4.5	2.5	-0.62
17	Jun-03	4.5	15	-0.41	41	Nov-15	4.5	7	-0.55
18	Jun-04	4.5	19	-0.35	42	Jun-16	4.5	10	-0.50
19	Dec-04	4.5	11	-0.48	43	Nov-16	4.5	8	-0.53
20	Jun-05	4.5	12	-0.46	44	Jun-17	4.5	5	-0.58
21	Dec-05	4.5	12	-0.46	45	Nov-17	4.5	8	-0.53
22	Jun-06	4.5	13	-0.45	46	Jun-18	4.5	2.5	-0.62
23	Nov-06	4.5	2.5	-0.62	47	Nov-18	4.5	7	-0.55
24	Jun-07	4.5	24	-0.26	48	Jun-19	4.5	2.5	-0.62
25	Nov-07	4.5	24	-0.26	49	Nov-19	4.5	6	-0.57
26	Jul-08	4.5	13	-0.45	50	Jun-20	4.5	2.5	-0.62
27	Nov-08	4.5	13	-0.45	51	Nov-20	4.5	7	-0.55
28	Jun-09	4.5	2.5	-0.62					
29	Nov-09	4.5	16	-0.40					
30	Jun-10	4.5	7	-0.55					
31	Nov-10	4.5	7	-0.55					
32	Jun-11	4.5	21	-0.31					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

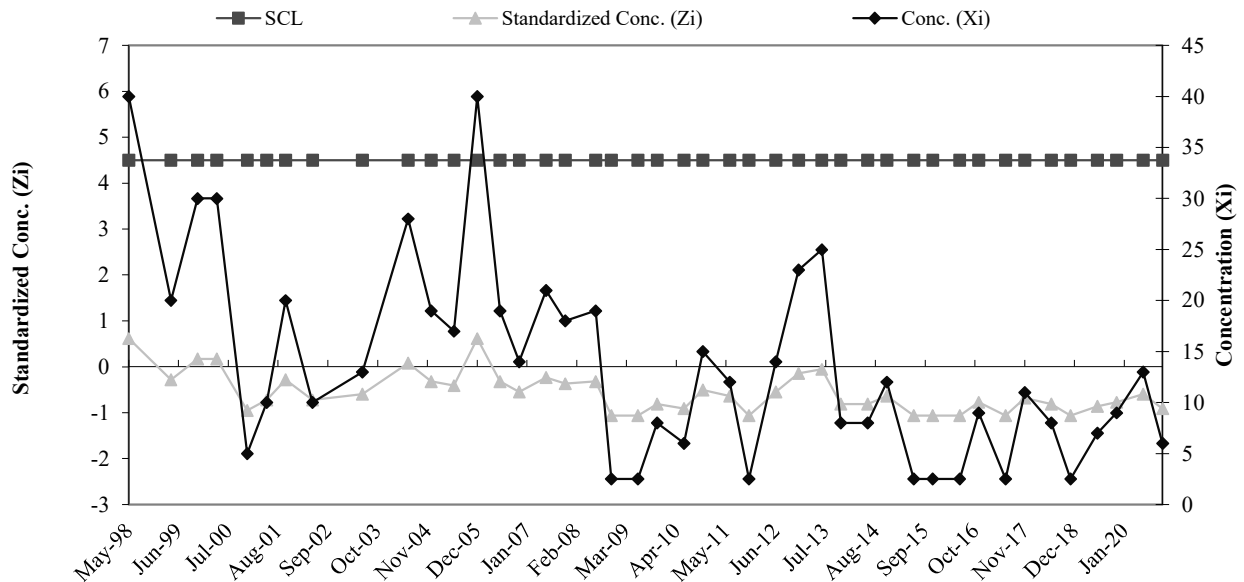


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 Zn

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	26.23	22.36
2	Aug-95	10		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	70		
6	Nov-96	40		
7	May-97	20		
8	Nov-97	40		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	40	0.62	33	Nov-11	4.5	2.5	-1.06
10	Apr-99	4.5	20	-0.28	34	Jun-12	4.5	14	-0.55
11	Nov-99	4.5	30	0.17	35	Dec-12	4.5	23	-0.14
12	Apr-00	4.5	30	0.17	36	Jun-13	4.5	25	-0.06
13	Dec-00	4.5	5	-0.95	37	Nov-13	4.5	8	-0.82
14	May-01	4.5	10	-0.73	38	Jun-14	4.5	8	-0.82
15	Oct-01	4.5	20	-0.28	39	Nov-14	4.5	12	-0.64
16	May-02	4.5	10	-0.73	40	Jun-15	4.5	2.5	-1.06
17	Jun-03	4.5	13	-0.59	41	Nov-15	4.5	2.5	-1.06
18	Jun-04	4.5	28	0.08	42	Jun-16	4.5	2.5	-1.06
19	Dec-04	4.5	19	-0.32	43	Nov-16	4.5	9	-0.77
20	Jun-05	4.5	17	-0.41	44	Jun-17	4.5	2.5	-1.06
21	Dec-05	4.5	40	0.62	45	Nov-17	4.5	11	-0.68
22	Jun-06	4.5	19	-0.32	46	Jun-18	4.5	8	-0.82
23	Nov-06	4.5	14	-0.55	47	Nov-18	4.5	2.5	-1.06
24	Jun-07	4.5	21	-0.23	48	Jun-19	4.5	7	-0.86
25	Nov-07	4.5	18	-0.37	49	Nov-19	4.5	9	-0.77
26	Jul-08	4.5	19	-0.32	50	Jun-20	4.5	13	-0.59
27	Nov-08	4.5	2.5	-1.06	51	Nov-20	4.5	6	-0.90
28	Jun-09	4.5	2.5	-1.06					
29	Nov-09	4.5	8	-0.82					
30	Jun-10	4.5	6	-0.90					
31	Nov-10	4.5	15	-0.50					
32	Jun-11	4.5	12	-0.64					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

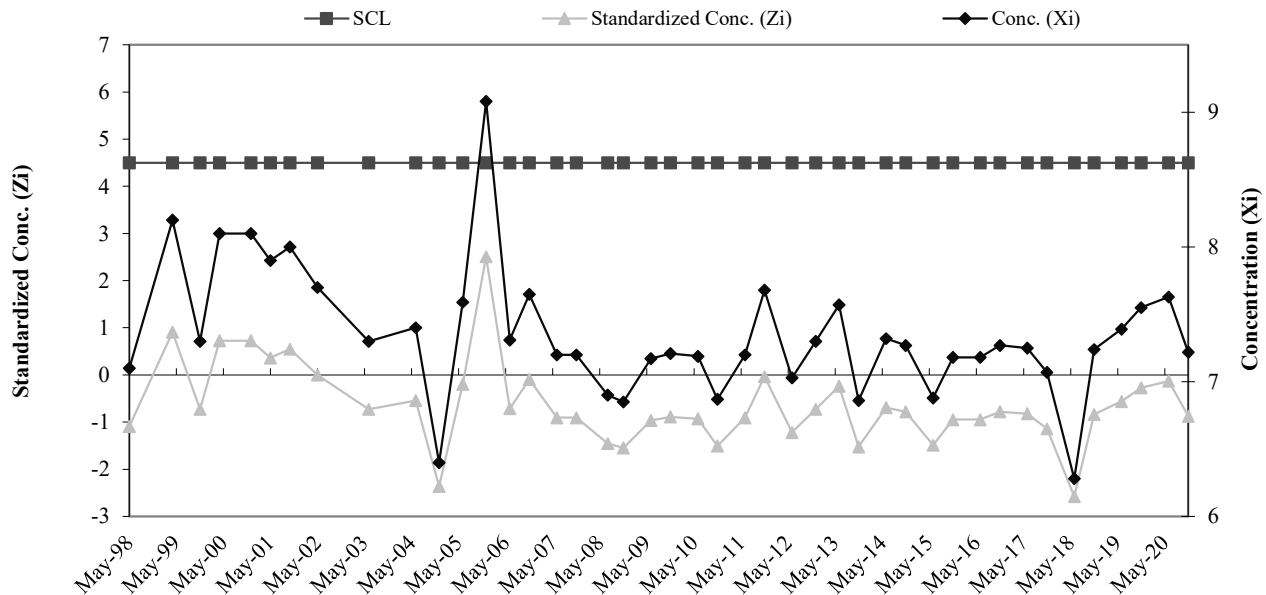


**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 pH**

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	7.7	7.20	0.55
2	Aug-95	7.7		
3	Feb-96	7.3		
4	Jun-96	6.8		
5	Aug-96	8.0		
6	Nov-96	6.8		
7	May-97	6.8		
8	Nov-97	6.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	6.6	-1.09	33	Nov-11	4.5	7.2	-0.04
10	Apr-99	4.5	7.7	0.91	34	Jun-12	4.5	6.5	-1.22
11	Nov-99	4.5	6.8	-0.73	35	Dec-12	4.5	6.8	-0.73
12	Apr-00	4.5	7.6	0.73	36	Jun-13	4.5	7.1	-0.24
13	Dec-00	4.5	7.6	0.73	37	Nov-13	4.5	6.4	-1.53
14	May-01	4.5	7.4	0.36	38	Jun-14	4.5	6.8	-0.69
15	Oct-01	4.5	7.5	0.55	39	Nov-14	4.5	6.8	-0.78
16	May-02	4.5	7.2	0.00	40	Jun-15	4.5	6.4	-1.49
17	Jun-03	4.5	6.8	-0.73	41	Nov-15	4.5	6.7	-0.94
18	Jun-04	4.5	6.9	-0.55	42	Jun-16	4.5	6.7	-0.94
19	Dec-04	4.5	5.9	-2.36	43	Nov-16	4.5	6.8	-0.78
20	Jun-05	4.5	7.1	-0.20	44	Jun-17	4.5	6.8	-0.82
21	Dec-05	4.5	8.6	2.51	45	Nov-17	4.5	6.6	-1.14
22	Jun-06	4.5	6.8	-0.71	46	Nov-18	4.5	5.8	-2.58
23	Nov-06	4.5	7.2	-0.09	47	Nov-18	4.5	6.7	-0.84
24	Jun-07	4.5	6.7	-0.91	48	Jun-19	4.5	6.9	-0.56
25	Nov-07	4.5	6.7	-0.91	49	Nov-19	4.5	7.1	-0.27
26	Jul-08	4.5	6.4	-1.45	50	Jun-20	4.5	7.1	-0.13
27	Nov-08	4.5	6.4	-1.54	51	Nov-20	4.5	6.7	-0.87
28	Jun-09	4.5	6.7	-0.96					
29	Nov-09	4.5	6.7	-0.89					
30	Jun-10	4.5	6.7	-0.93					
31	Nov-10	4.5	6.4	-1.51					
32	Jun-11	4.5	6.7	-0.91					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

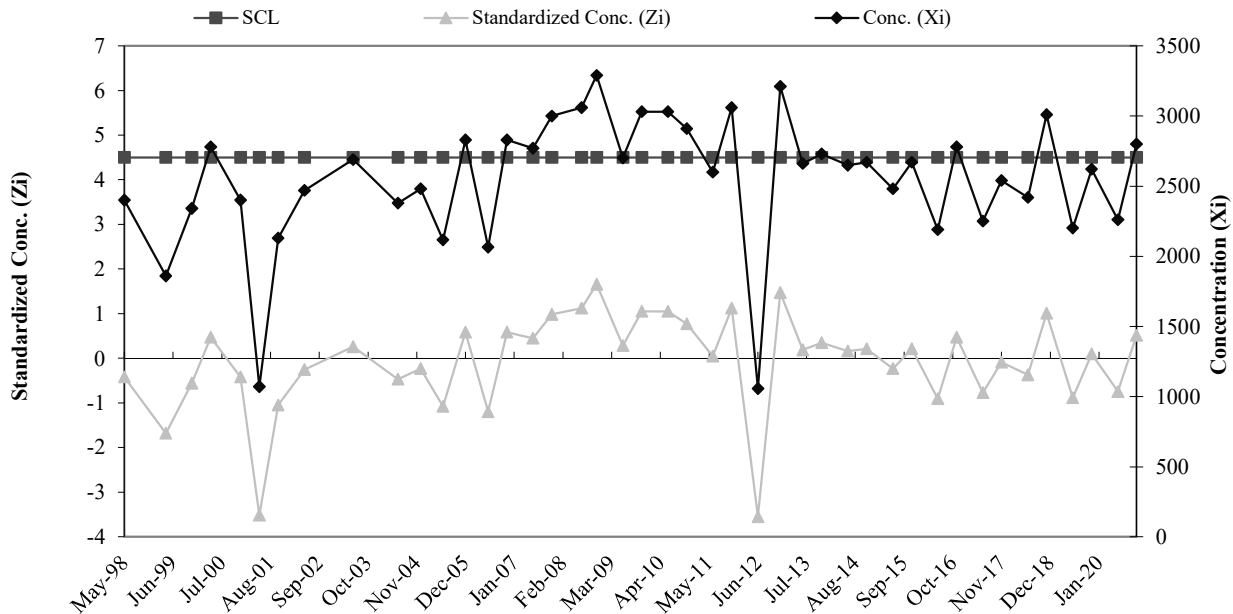


**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 SpC**

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	2400	2,578.63	428.85
2	Aug-95	1829		
3	Feb-96	2860		
4	Jun-96	2550		
5	Aug-96	2310		
6	Nov-96	3280		
7	May-97	2600		
8	Nov-97	2800		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	2400	-0.42	33	Nov-11	4.5	3060	1.12
10	Apr-99	4.5	1860	-1.68	34	Jun-12	4.5	1057	-3.55
11	Nov-99	4.5	2340	-0.56	35	Dec-12	4.5	3210	1.47
12	Apr-00	4.5	2780	0.47	36	Jun-13	4.5	2660	0.19
13	Dec-00	4.5	2400	-0.42	37	Nov-13	4.5	2730	0.35
14	May-01	4.5	1070	-3.52	38	Jun-14	4.5	2650	0.17
15	Oct-01	4.5	2130	-1.05	39	Nov-14	4.5	2670	0.21
16	May-02	4.5	2470	-0.25	40	Jun-15	4.5	2480	-0.23
17	Jun-03	4.5	2690	0.26	41	Nov-15	4.5	2670	0.21
18	Jun-04	4.5	2379	-0.47	42	Jun-16	4.5	2190	-0.91
19	Dec-04	4.5	2480	-0.23	43	Nov-16	4.5	2780	0.47
20	Jun-05	4.5	2116	-1.08	44	Jun-17	4.5	2250	-0.77
21	Dec-05	4.5	2830	0.59	45	Nov-17	4.5	2540	-0.09
22	Jun-06	4.5	2065	-1.20	46	Jun-18	4.5	2420	-0.37
23	Nov-06	4.5	2830	0.59	47	Nov-18	4.5	3010	1.01
24	Jun-07	4.5	2770	0.45	48	Jun-19	4.5	2200	-0.88
25	Nov-07	4.5	3000	0.98	49	Nov-19	4.5	2620	0.10
26	Jul-08	4.5	3060	1.12	50	Jun-20	4.5	2260	-0.74
27	Nov-08	4.5	3290	1.66	51	Nov-20	4.5	2800	0.52
28	Jun-09	4.5	2700	0.28					
29	Nov-09	4.5	3030	1.05					
30	Jun-10	4.5	3030	1.05					
31	Nov-10	4.5	2910	0.77					
32	Jun-11	4.5	2600	0.05					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

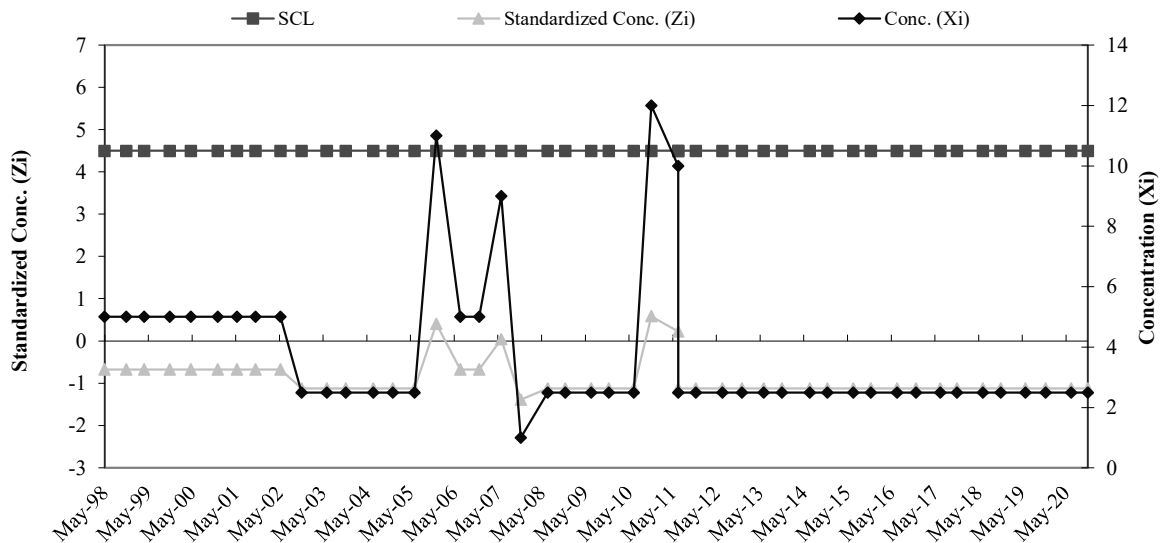


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18a Cr

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	8.74	5.57
2	Aug-95	10		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	10		
7	May-97	5		
8	Nov-97	5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	5	-0.67	37	Nov-11	4.5	2.5	-1.12
10	Nov-98	4.5	5	-0.67	38	Jun-12	4.5	2.5	-1.12
11	Apr-99	4.5	5	-0.67	39	Dec-12	4.5	2.5	-1.12
12	Nov-99	4.5	5	-0.67	40	Jun-13	4.5	2.5	-1.12
13	Apr-00	4.5	5	-0.67	41	Nov-13	4.5	2.5	-1.12
14	Dec-00	4.5	5	-0.67	42	Jun-14	4.5	2.5	-1.12
15	May-01	4.5	5	-0.67	43	Nov-14	4.5	2.5	-1.12
16	Oct-01	4.5	5	-0.67	44	Jun-15	4.5	2.5	-1.12
17	May-02	4.5	5	-0.67	45	Nov-15	4.5	2.5	-1.12
18	Nov-02	4.5	2.5	-1.12	46	Jun-16	4.5	2.5	-1.12
19	Jun-03	4.5	2.5	-1.12	47	Nov-16	4.5	2.5	-1.12
20	Nov-03	4.5	2.5	-1.12	48	Jun-17	4.5	2.5	-1.12
21	Jun-04	4.5	2.5	-1.12	49	Nov-17	4.5	2.5	-1.12
22	Dec-04	4.5	2.5	-1.12	50	Jun-18	4.5	2.5	-1.12
23	Jun-05	4.5	2.5	-1.12	51	Nov-18	4.5	2.5	-1.12
24	Dec-05	4.5	11	0.41	52	Jun-19	4.5	2.5	-1.12
25	Jun-06	4.5	5	-0.67	53	Nov-19	4.5	2.5	-1.12
26	Nov-06	4.5	5	-0.67	54	Jun-20	4.5	2.5	-1.12
27	Jun-07	4.5	9	0.05	55	Nov-20	4.5	2.5	-1.12
28	Nov-07	4.5	1	-1.39					
29	Jun-08	4.5	2.5	-1.12					
30	Nov-08	4.5	2.5	-1.12					
31	Jun-09	4.5	2.5	-1.12					
32	Nov-09	4.5	2.5	-1.12					
33	Jun-10	4.5	2.5	-1.12					
34	Nov-10	4.5	12	0.59					
35	Jun-11	4.5	10	0.23					
36	Jun-11	4.5	2.5	-1.12					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

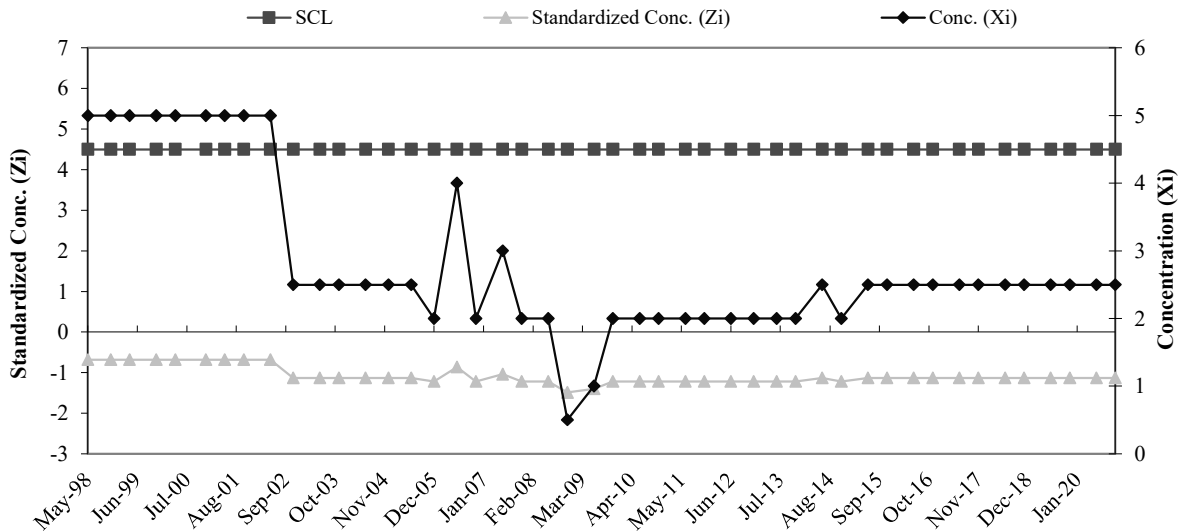


**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18a Cu**

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	10	8.78	5.56
2	Aug-95	10		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	10		
7	May-97	5		
8	Nov-97	5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	5	-0.68	36	Nov-11	4.5	2	-1.22
10	Nov-98	4.5	5	-0.68	37	Jun-12	4.5	2	-1.22
11	Apr-99	4.5	5	-0.68	38	Dec-12	4.5	2	-1.22
12	Nov-99	4.5	5	-0.68	39	Jun-13	4.5	2	-1.22
13	Apr-00	4.5	5	-0.68	40	Nov-13	4.5	2	-1.22
14	Dec-00	4.5	5	-0.68	41	Jun-14	4.5	2.5	-1.13
15	May-01	4.5	5	-0.68	42	Nov-14	4.5	2	-1.22
16	Oct-01	4.5	5	-0.68	43	Jun-15	4.5	2.5	-1.13
17	May-02	4.5	5	-0.68	44	Nov-15	4.5	2.5	-1.13
18	Nov-02	4.5	2.5	-1.13	45	Jun-16	4.5	2.5	-1.13
19	Jun-03	4.5	2.5	-1.13	46	Nov-16	4.5	2.5	-1.13
20	Nov-03	4.5	2.5	-1.13	47	Jun-17	4.5	2.5	-1.13
21	Jun-04	4.5	2.5	-1.13	48	Nov-17	4.5	2.5	-1.13
22	Dec-04	4.5	2.5	-1.13	49	Jun-18	4.5	2.5	-1.13
23	Jun-05	4.5	2.5	-1.13	50	Nov-18	4.5	2.5	-1.13
24	Dec-05	4.5	2	-1.22	51	Jun-19	4.5	2.5	-1.13
25	Jun-06	4.5	4	-0.86	52	Nov-19	4.5	2.5	-1.13
26	Nov-06	4.5	2	-1.22	53	Jun-20	4.5	2.5	-1.13
27	Jun-07	4.5	3	-1.04	54	Nov-20	4.5	2.5	-1.13
28	Nov-07	4.5	2	-1.22					
29	Jun-08	4.5	2	-1.22					
30	Nov-08	4.5	0.5	-1.49					
31	Jun-09	4.5	1	-1.40					
32	Nov-09	4.5	2	-1.22					
33	Jun-10	4.5	2	-1.22					
34	Nov-10	4.5	2	-1.22					
35	Jun-11	4.5	2	-1.22					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean



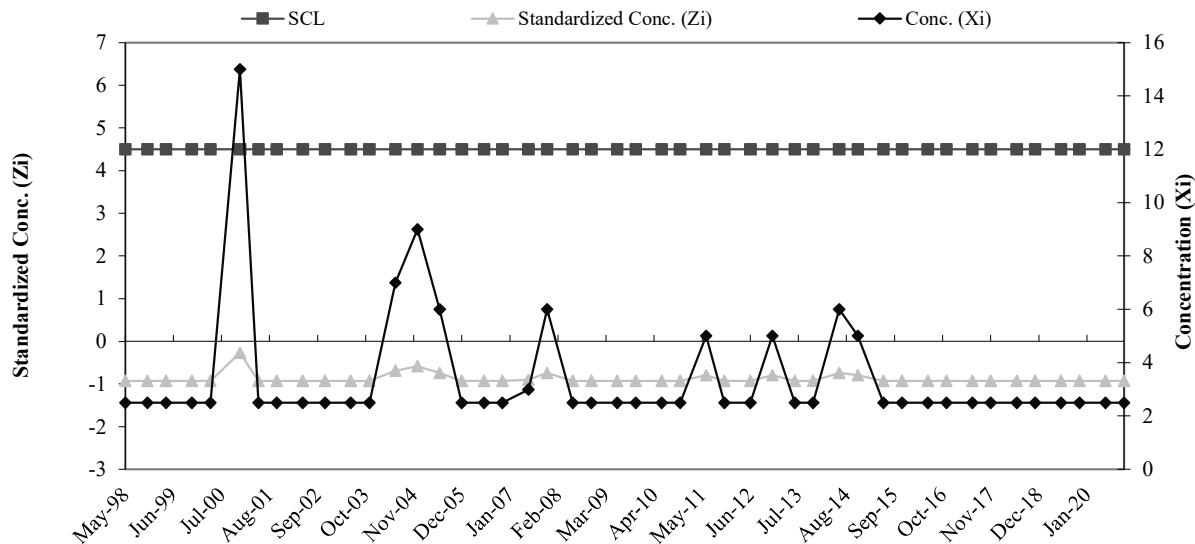
**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART**

B-18a Ni

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	15	20.01	18.96
2	Aug-95	20		
3	Feb-96	20		
4	Jun-96	10		
5	Aug-96	10		
6	Nov-96	10		
7	May-97	13		
8	Nov-97	62		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	2.5	-0.92	36	Nov-11	4.5	2.5	-0.92
10	Nov-98	4.5	2.5	-0.92	37	Jun-12	4.5	2.5	-0.92
11	Apr-99	4.5	2.5	-0.92	38	Dec-12	4.5	5	-0.79
12	Nov-99	4.5	2.5	-0.92	39	Jun-13	4.5	2.5	-0.92
13	Apr-00	4.5	2.5	-0.92	40	Nov-13	4.5	2.5	-0.92
14	Dec-00	4.5	15	-0.26	41	Jun-14	4.5	6	-0.74
15	May-01	4.5	2.5	-0.92	42	Nov-14	4.5	5	-0.79
16	Oct-01	4.5	2.5	-0.92	43	Jun-15	4.5	2.5	-0.92
17	May-02	4.5	2.5	-0.92	44	Nov-15	4.5	2.5	-0.92
18	Nov-02	4.5	2.5	-0.92	45	Jun-16	4.5	2.5	-0.92
19	Jun-03	4.5	2.5	-0.92	46	Nov-16	4.5	2.5	-0.92
20	Nov-03	4.5	2.5	-0.92	47	Jun-17	4.5	2.5	-0.92
21	Jun-04	4.5	7	-0.69	48	Nov-17	4.5	2.5	-0.92
22	Dec-04	4.5	9	-0.58	49	Jun-18	4.5	2.5	-0.92
23	Jun-05	4.5	6	-0.74	50	Nov-18	4.5	2.5	-0.92
24	Dec-05	4.5	2.5	-0.92	51	Jun-19	4.5	2.5	-0.92
25	Jun-06	4.5	2.5	-0.92	52	Nov-19	4.5	2.5	-0.92
26	Nov-06	4.5	2.5	-0.92	53	Jun-20	4.5	2.5	-0.92
27	Jun-07	4.5	3	-0.90	54	Nov-20	4.5	2.5	-0.92
28	Nov-07	4.5	6	-0.74					
29	Jun-08	4.5	2.5	-0.92					
30	Nov-08	4.5	2.5	-0.92					
31	Jun-09	4.5	2.5	-0.92					
32	Nov-09	4.5	2.5	-0.92					
33	Jun-10	4.5	2.5	-0.92					
34	Nov-10	4.5	2.5	-0.92					
35	Jun-11	4.5	5	-0.79					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

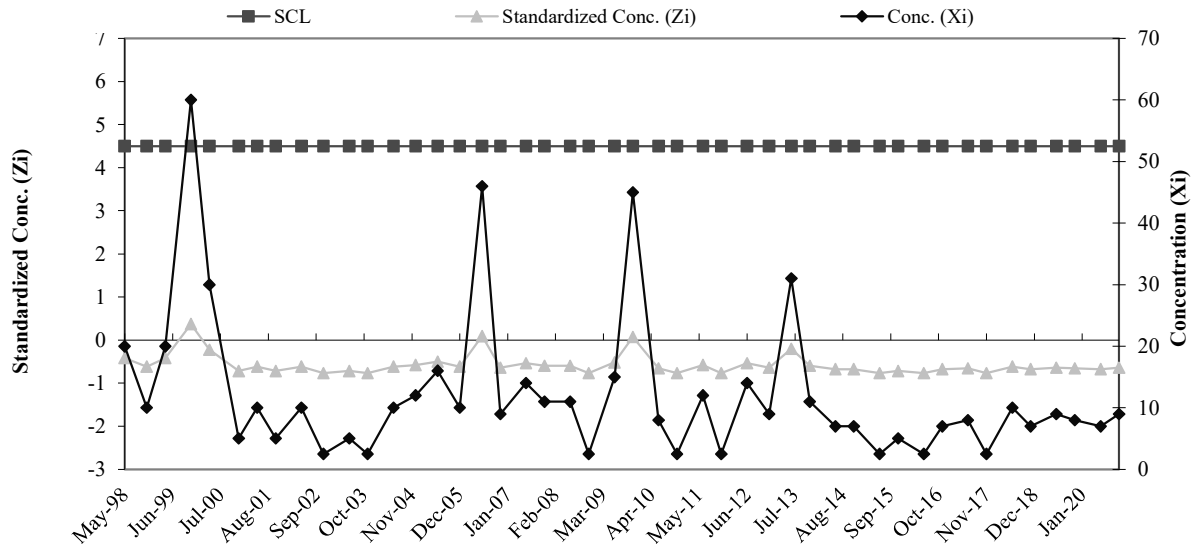


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18a Zn

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	150	41.25	50.67
2	Aug-95	10		
3	Feb-96	10		
4	Jun-96	10		
5	Aug-96	60		
6	Nov-96	70		
7	May-97	10		
8	Nov-97	10		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	20	-0.42	36	Nov-11	4.5	2.5	-0.76
10	Nov-98	4.5	10	-0.62	37	Jun-12	4.5	14	-0.54
11	Apr-99	4.5	20	-0.42	38	Dec-12	4.5	9	-0.64
12	Nov-99	4.5	60	0.37	39	Jun-13	4.5	31	-0.20
13	Apr-00	4.5	30	-0.22	40	Nov-13	4.5	11	-0.60
14	Dec-00	4.5	5	-0.72	41	Jun-14	4.5	7	-0.68
15	May-01	4.5	10	-0.62	42	Nov-14	4.5	7	-0.68
16	Oct-01	4.5	5	-0.72	43	Jun-15	4.5	2.5	-0.76
17	May-02	4.5	10	-0.62	44	Nov-15	4.5	5	-0.72
18	Nov-02	4.5	2.5	-0.76	45	Jun-16	4.5	2.5	-0.76
19	Jun-03	4.5	5	-0.72	46	Nov-16	4.5	7	-0.68
20	Nov-03	4.5	2.5	-0.76	47	Jun-17	4.5	8	-0.66
21	Jun-04	4.5	10	-0.62	48	Nov-17	4.5	2.5	-0.76
22	Dec-04	4.5	12	-0.58	49	Jun-18	4.5	10	-0.62
23	Jun-05	4.5	16	-0.50	50	Nov-18	4.5	7	-0.68
24	Dec-05	4.5	10	-0.62	51	Jun-19	4.5	9	-0.64
25	Jun-06	4.5	46	0.09	52	Nov-19	4.5	8	-0.66
26	Nov-06	4.5	9	-0.64	53	Jun-20	4.5	7	-0.68
27	Jun-07	4.5	14	-0.54	54	Nov-20	4.5	9	-0.64
28	Nov-07	4.5	11	-0.60					
29	Jun-08	4.5	11	-0.60					
30	Nov-08	4.5	2.5	-0.76					
31	Jun-09	4.5	15	-0.52					
32	Nov-09	4.5	45	0.07					
33	Jun-10	4.5	8	-0.66					
34	Nov-10	4.5	2.5	-0.76					
35	Jun-11	4.5	12	-0.58					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

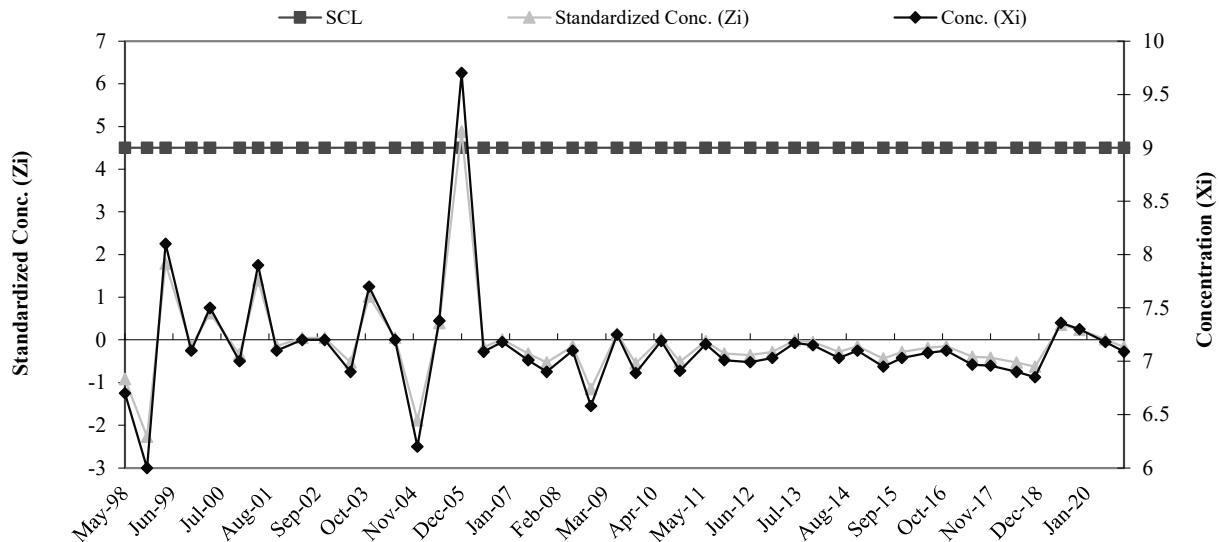


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18a pH

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	7.5	7.18	0.52
2	Aug-95	7.9		
3	Feb-96	7.4		
4	Jun-96	7.0		
5	Aug-96	7.5		
6	Nov-96	7.2		
7	May-97	6.5		
8	Nov-97	6.4		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	6.7	-0.92	36	Nov-11	4.5	7.0	-0.32
10	Nov-98	4.5	6.0	-2.27	37	Jun-12	4.5	7.0	-0.36
11	Apr-99	4.5	8.1	1.79	38	Dec-12	4.5	7.0	-0.28
12	Nov-99	4.5	7.1	-0.14	39	Jun-13	4.5	7.2	-0.01
13	Apr-00	4.5	7.5	0.63	40	Nov-13	4.5	7.2	-0.05
14	Dec-00	4.5	7.0	-0.34	41	Jun-14	4.5	7.0	-0.28
15	May-01	4.5	7.9	1.40	42	Nov-14	4.5	7.1	-0.14
16	Oct-01	4.5	7.1	-0.14	43	Jun-15	4.5	7.0	-0.43
17	May-02	4.5	7.2	0.05	44	Nov-15	4.5	7.0	-0.28
18	Nov-02	4.5	7.2	0.05	45	Jun-16	4.5	7.1	-0.18
19	Jun-03	4.5	6.9	-0.53	46	Nov-16	4.5	7.1	-0.14
20	Nov-03	4.5	7.7	1.01	47	Jun-17	4.5	7.0	-0.40
21	Jun-04	4.5	7.2	0.05	48	Nov-17	4.5	7.0	-0.42
22	Dec-04	4.5	6.2	-1.88	49	Jun-18	4.5	6.9	-0.53
23	Jun-05	4.5	7.4	0.40	50	Nov-18	4.5	6.9	-0.63
24	Dec-05	4.5	9.7	4.88	51	Jun-19	4.5	7.4	0.36
25	Jun-06	4.5	7.1	-0.16	52	Nov-19	4.5	7.3	0.24
26	Nov-06	4.5	7.2	0.01	53	Jun-20	4.5	7.2	0.01
27	Jun-07	4.5	7.0	-0.32	54	Nov-20	4.5	7.1	-0.16
28	Nov-07	4.5	6.9	-0.53					
29	Jun-08	4.5	7.1	-0.14					
30	Nov-08	4.5	6.6	-1.15					
31	Jun-09	4.5	7.3	0.14					
32	Nov-09	4.5	6.9	-0.55					
33	Jun-10	4.5	7.2	0.03					
34	Nov-10	4.5	6.9	-0.51					
35	Jun-11	4.5	7.2	-0.03					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

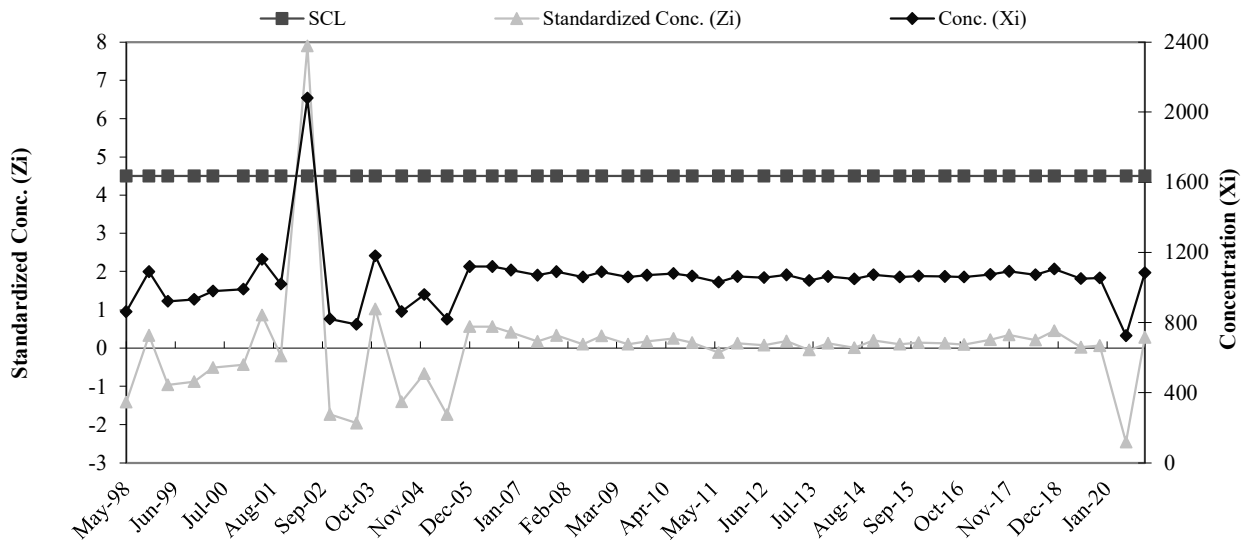


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18a SpC

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-95	1048	1,046.75	130.80
2	Aug-95	989		
3	Feb-96	1021		
4	Jun-96	944.0		
5	Aug-96	1041		
6	Nov-96	1331		
7	May-97	900		
8	Nov-97	1100		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	May-98	4.5	862	-1.41	36	Nov-11	4.5	1063	0.12
10	Nov-98	4.5	1090.0	0.33	37	Jun-12	4.5	1057	0.08
11	Apr-99	4.5	921	-0.96	38	Dec-12	4.5	1071	0.19
12	Nov-99	4.5	932	-0.88	39	Jun-13	4.5	1040	-0.05
13	Apr-00	4.5	980	-0.51	40	Nov-13	4.5	1063	0.12
14	Dec-00	4.5	990.0	-0.43	41	Jun-14	4.5	1048	0.01
15	May-01	4.5	1160	0.87	42	Nov-14	4.5	1073	0.20
16	Oct-01	4.5	1020	-0.20	43	Jun-15	4.5	1060	0.10
17	May-02	4.5	2080	7.90	44	Nov-15	4.5	1065	0.14
18	Nov-02	4.5	820	-1.73	45	Jun-16	4.5	1063	0.12
19	Jun-03	4.5	790	-1.96	46	Nov-16	4.5	1059	0.09
20	Nov-03	4.5	1180	1.02	47	Jun-17	4.5	1075	0.22
21	Jun-04	4.5	863	-1.40	48	Nov-17	4.5	1092	0.35
22	Dec-04	4.5	960	-0.66	49	Jun-18	4.5	1074	0.21
23	Jun-05	4.5	819	-1.74	50	Nov-18	4.5	1106	0.45
24	Dec-05	4.5	1120	0.56	51	Jun-19	4.5	1050	0.02
25	Jun-06	4.5	1120	0.56	52	Nov-19	4.5	1055	0.06
26	Nov-06	4.5	1100	0.41	53	Jun-20	4.5	725	-2.46
27	Jun-07	4.5	1070	0.18	54	Nov-20	4.5	1084	0.28
28	Nov-07	4.5	1090	0.33					
29	Jun-08	4.5	1060	0.10					
30	Nov-08	4.5	1088	0.32					
31	Jun-09	4.5	1060	0.10					
32	Nov-09	4.5	1070	0.18					
33	Jun-10	4.5	1080	0.25					
34	Nov-10	4.5	1065	0.14					
35	Jun-11	4.5	1031	-0.12					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

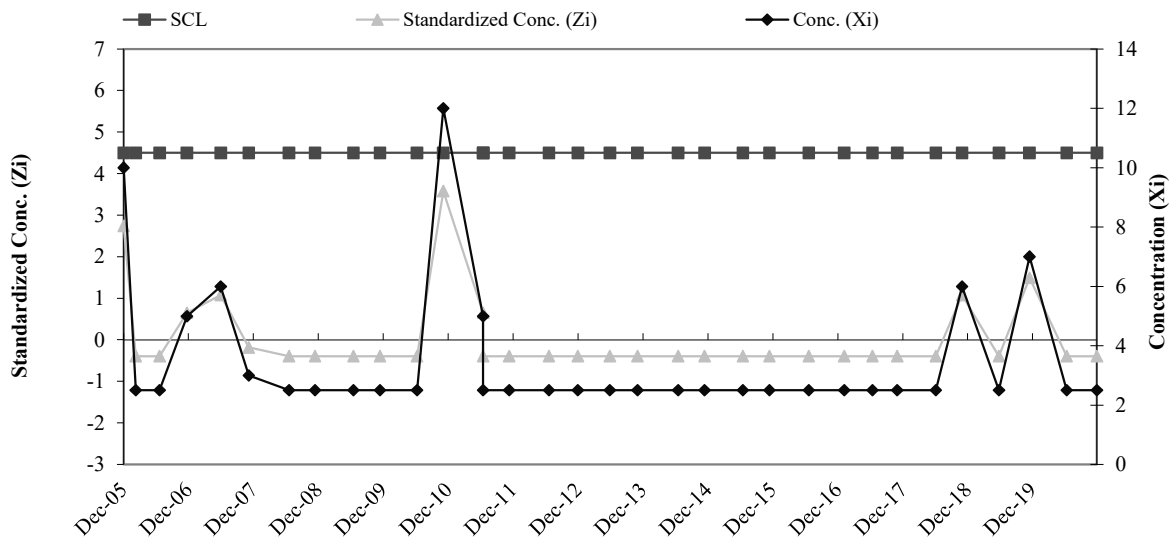


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19a Cr

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	May-98	5	3.44	2.39
2	May-01	5		
3	May-02	5		
4	Jun-03	2.5		
5	Nov-03	2.5		
6	Jun-04	2.5		
7	Dec-04	2.5		
8	Jun-05	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Dec-05	4.5	10	2.74	37	Nov-18	4.5	6	1.07
10	Feb-06	4.5	2.5	-0.39	38	Jun-19	4.5	2.5	-0.39
11	Jun-06	4.5	2.5	-0.39	39	Nov-19	4.5	7	1.49
12	Nov-06	4.5	5	0.65	40	Jun-20	4.5	2.5	-0.39
13	Jun-07	4.5	6	1.07	41	Dec-20	4.5	2.5	-0.39
14	Nov-07	4.5	3	-0.18					
15	Jun-08	4.5	2.5	-0.39					
16	Nov-08	4.5	2.5	-0.39					
17	Jun-09	4.5	2.5	-0.39					
18	Nov-09	4.5	2.5	-0.39					
19	Jun-10	4.5	2.5	-0.39					
20	Nov-10	4.5	12	3.58					
21	Jun-11	4.5	5	0.65					
22	Jun-11	4.5	2.5	-0.39					
23	Nov-11	4.5	2.5	-0.39					
24	Jun-12	4.5	2.5	-0.39					
25	Dec-12	4.5	2.5	-0.39					
26	Jun-13	4.5	2.5	-0.39					
27	Nov-13	4.5	2.5	-0.39					
28	Jun-14	4.5	2.5	-0.39					
29	Nov-14	4.5	2.5	-0.39					
30	Jun-15	4.5	2.5	-0.39					
31	Nov-15	4.5	2.5	-0.39					
32	Jun-16	4.5	2.5	-0.39					
33	Jan-17	4.5	2.5	-0.39					
34	Jun-17	4.5	2.5	-0.39					
35	Nov-17	4.5	2.5	-0.39					
36	Jun-18	4.5	2.5	-0.39					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

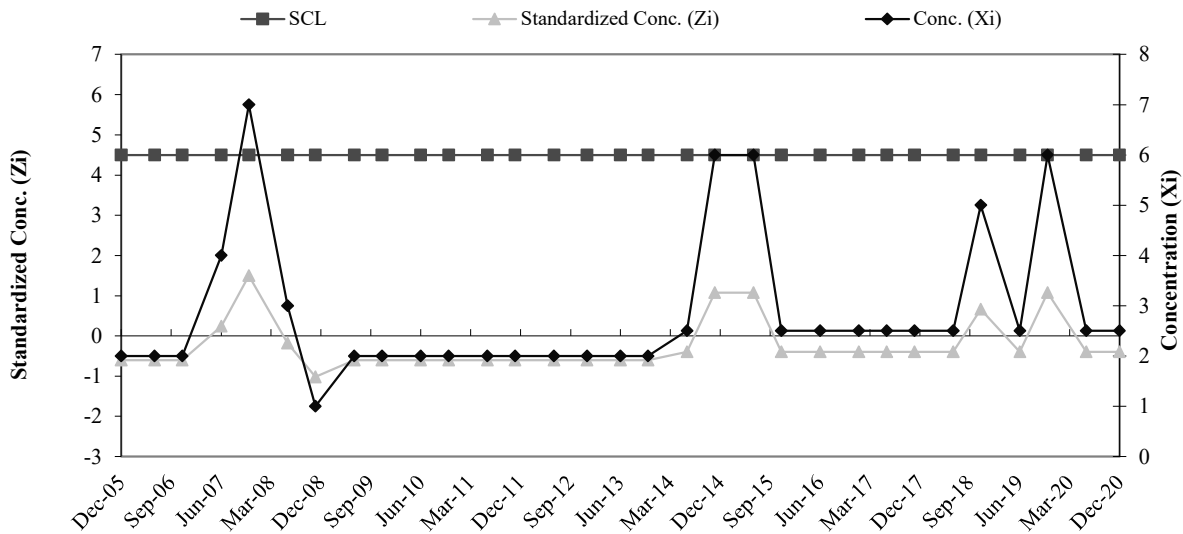


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19a Cu

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	May-98	5	3.43	2.38
2	May-01	5		
3	May-02	5		
4	Jun-03	2.5		
5	Nov-03	2.5		
6	Jun-04	2.5		
7	Dec-04	2.5		
8	Jun-05	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Dec-05	4.5	2	-0.60	36	Jun-19	4.5	2.5	-0.39
10	Jun-06	4.5	2	-0.60	37	Nov-19	4.5	6	1.08
11	Nov-06	4.5	2	-0.60	38	Jun-20	4.5	2.5	-0.39
12	Jun-07	4.5	4	0.24	39	Dec-20	4.5	2.5	-0.39
13	Nov-07	4.5	7	1.50					
14	Jun-08	4.5	3	-0.18					
15	Nov-08	4.5	1	-1.02					
16	Jun-09	4.5	2	-0.60					
17	Nov-09	4.5	2	-0.60					
18	Jun-10	4.5	2	-0.60					
19	Nov-10	4.5	2	-0.60					
20	Jun-11	4.5	2	-0.60					
21	Nov-11	4.5	2	-0.60					
22	Jun-12	4.5	2	-0.60					
23	Dec-12	4.5	2	-0.60					
24	Jun-13	4.5	2	-0.60					
25	Nov-13	4.5	2	-0.60					
26	Jun-14	4.5	2.5	-0.39					
27	Nov-14	4.5	6	1.08					
28	Jun-15	4.5	6	1.08					
29	Nov-15	4.5	2.5	-0.39					
30	Jun-16	4.5	2.5	-0.39					
31	Jan-17	4.5	2.5	-0.39					
32	Jun-17	4.5	2.5	-0.39					
33	Nov-17	4.5	2.5	-0.39					
34	Jun-18	4.5	2.5	-0.39					
35	Nov-18	4.5	5	0.66					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

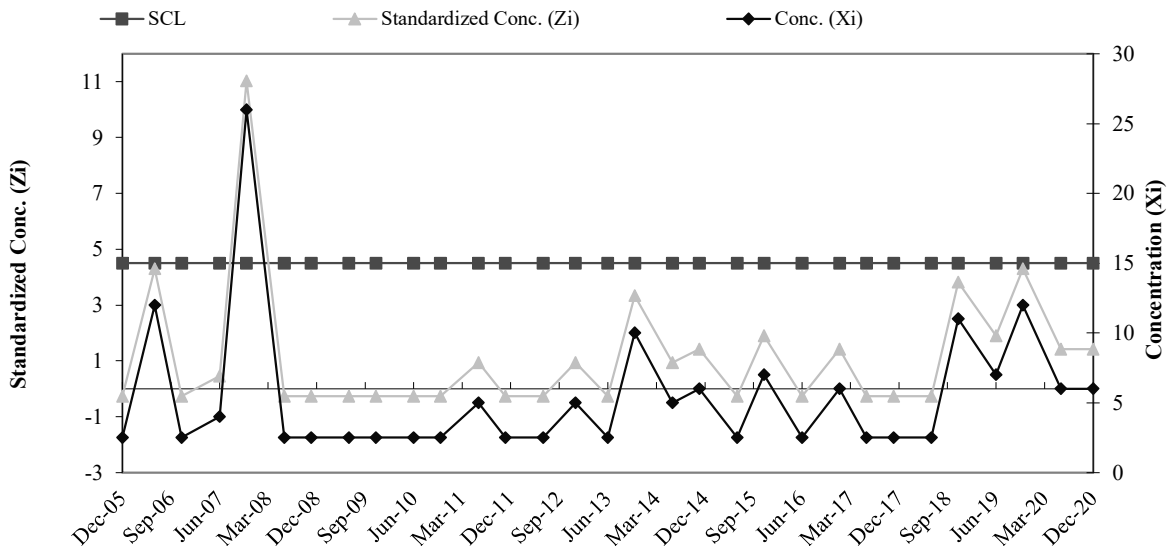


**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19a Ni**

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	May-98	2.5	3.06	2.08
2	May-01	2.5		
3	May-02	2.5		
4	Jun-03	2.5		
5	Nov-03	2.5		
6	Jun-04	2.5		
7	Dec-04	2.5		
8	Jun-05	7		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Dec-05	4.5	2.5	-0.27	37	Jun-19	4.5	7	1.89
10	Jun-06	4.5	12	4.30	38	Nov-19	4.5	12	4.30
11	Nov-06	4.5	2.5	-0.27	39	Jun-20	4.5	6	1.41
12	Jun-07	4.5	4	0.45	40	Dec-20	4.5	6	1.41
13	Nov-07	4.5	26	11.03					
14	Jun-08	4.5	2.5	-0.27					
15	Nov-08	4.5	2.5	-0.27					
16	Jun-09	4.5	2.5	-0.27					
17	Nov-09	4.5	2.5	-0.27					
19	Jun-10	4.5	2.5	-0.27					
20	Nov-10	4.5	2.5	-0.27					
21	Jun-11	4.5	5	0.93					
22	Nov-11	4.5	2.5	-0.27					
23	Jun-12	4.5	2.5	-0.27					
24	Dec-12	4.5	5	0.93					
25	Jun-13	4.5	2.5	-0.27					
26	Nov-13	4.5	10	3.34					
27	Jun-14	4.5	5	0.93					
28	Nov-14	4.5	6	1.41					
29	Jun-15	4.5	2.5	-0.27					
30	Nov-15	4.5	7	1.89					
31	Jun-16	4.5	2.5	-0.27					
32	Jan-17	4.5	6	1.41					
33	Jun-17	4.5	2.5	-0.27					
34	Nov-17	4.5	2.5	-0.27					
35	Jun-18	4.5	2.5	-0.27					
36	Nov-18	4.5	11	3.82					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

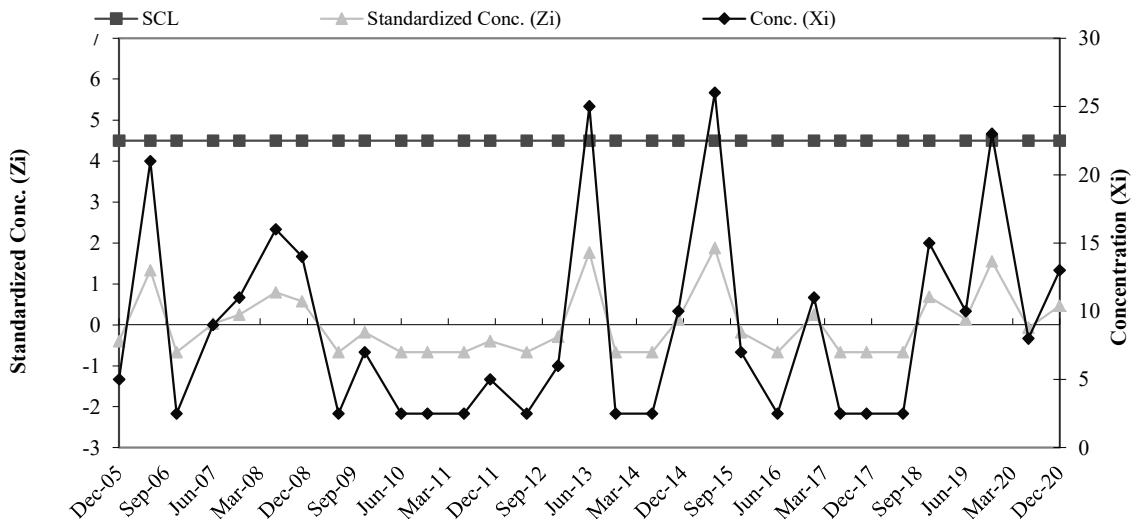


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19a Zn

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	May-98	30	8.69	9.24
2	May-01	5		
3	May-02	10		
4	Jun-03	2.5		
5	Nov-03	2.5		
6	Jun-04	8		
7	Dec-04	9		
8	Jun-05	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Dec-05	4.5	5	-0.40	37	Nov-19	4.5	23	1.55
10	Jun-06	4.5	21	1.33	38	Jun-20	4.5	8	-0.07
11	Nov-06	4.5	2.5	-0.67	39	Dec-20	4.5	13	0.47
12	Jun-07	4.5	9	0.03					
13	Nov-07	4.5	11	0.25					
14	Jun-08	4.5	16	0.79					
15	Nov-08	4.5	14	0.57					
16	Jun-09	4.5	2.5	-0.67					
17	Nov-09	4.5	7	-0.18					
18	Jun-10	4.5	2.5	-0.67					
19	Nov-10	4.5	2.5	-0.67					
20	Jun-11	4.5	2.5	-0.67					
21	Nov-11	4.5	5	-0.40					
22	Jun-12	4.5	2.5	-0.67					
23	Dec-12	4.5	6	-0.29					
24	Jun-13	4.5	25	1.77					
25	Nov-13	4.5	2.5	-0.67					
26	Jun-14	4.5	2.5	-0.67					
27	Nov-14	4.5	10	0.14					
28	Jun-15	4.5	26	1.87					
29	Nov-15	4.5	7	-0.18					
30	Jun-16	4.5	2.5	-0.67					
31	Jan-17	4.5	11	0.25					
32	Jun-17	4.5	2.5	-0.67					
33	Nov-17	4.5	2.5	-0.67					
34	Jun-18	4.5	2.5	-0.67					
35	Nov-18	4.5	15	0.68					
36	Jun-19	4.5	10	0.14					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

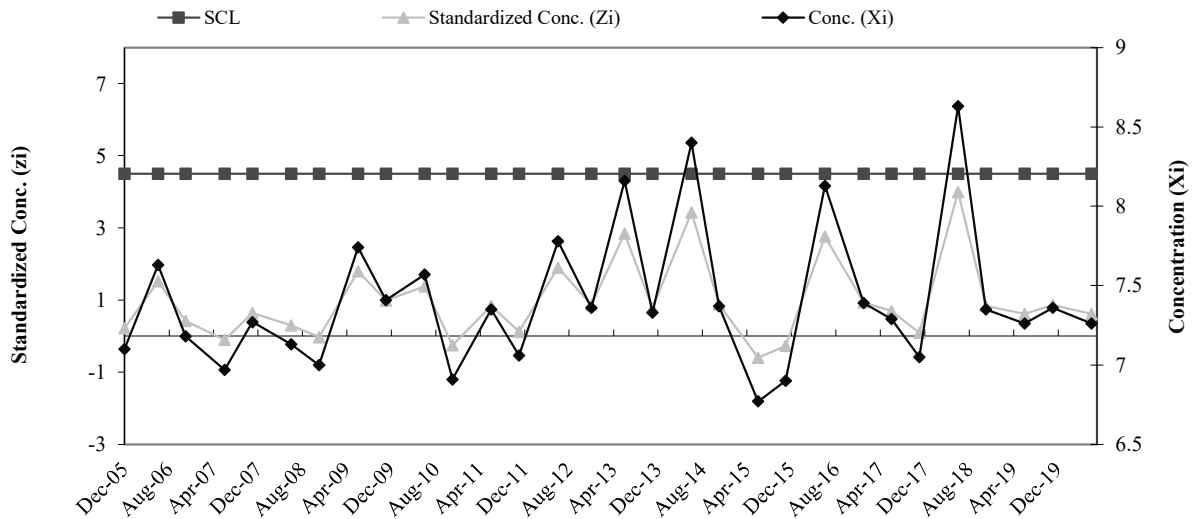


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19a pH

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	May-98	6.8	7.01	0.40
2	May-01	7.1		
3	May-02	7.2		
4	Jun-03	6.9		
5	Nov-03	7.6		
6	Jun-04	7.2		
7	Dec-04	6.2		
8	Jun-05	7.1		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Dec-05	4.5	7.1	0.22	38	Jun-20	4.5	7.3	0.61
10	Jun-06	4.5	7.6	1.53	39	Nov-20	4.5	7.0	0.02
11	Nov-06	4.5	7.2	0.42					
12	Jun-07	4.5	7.0	-0.10					
13	Nov-07	4.5	7.3	0.64					
14	Jun-08	4.5	7.1	0.29					
15	Nov-08	4.5	7.0	-0.03					
16	Jun-09	4.5	7.7	1.80					
17	Nov-09	4.5	7.4	0.99					
18	Jun-10	4.5	7.6	1.38					
19	Nov-10	4.5	6.9	-0.25					
20	Jun-11	4.5	7.4	0.84					
21	Nov-11	4.5	7.1	0.12					
22	Jun-12	4.5	7.8	1.90					
23	Dec-12	4.5	7.4	0.86					
24	Jun-13	4.5	8.2	2.84					
25	Nov-13	4.5	7.3	0.79					
26	Jun-14	4.5	8.4	3.43					
27	Nov-14	4.5	7.4	0.89					
28	Jun-15	4.5	6.8	-0.60					
29	Nov-15	4.5	6.9	-0.27					
30	Jun-16	4.5	8.1	2.76					
31	Jan-17	4.5	7.4	0.94					
32	Jun-17	4.5	7.3	0.69					
33	Nov-17	4.5	7.1	0.10					
34	Jun-18	4.5	8.6	4.00					
35	Nov-18	4.5	7.4	0.84					
36	Jun-19	4.5	7.3	0.61					
37	Nov-19	4.5	7.4	0.86					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

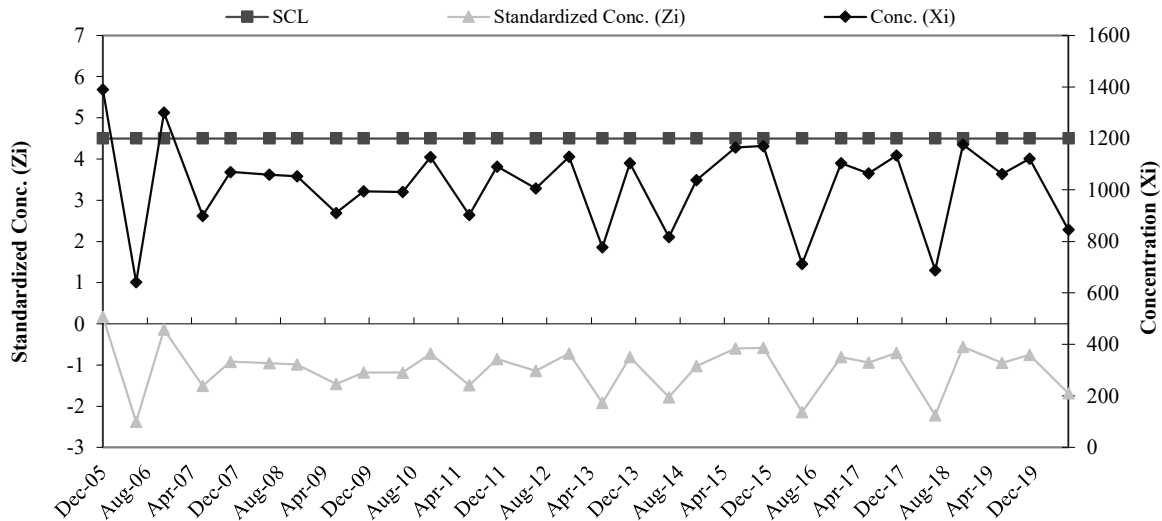


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19a SpC

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	May-98	1480	1,340.63	293.72
2	May-01	1050		
3	May-02	1740		
4	Jun-03	1350		
5	Nov-03	1620		
6	Jun-04	1316		
7	Dec-04	1340		
8	Jun-05	829		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Dec-05	4.5	1390	0.17	38	Jun-20	4.5	845	-1.69
10	Jun-06	4.5	642	-2.38	39	Nov-20	4.5	1172	-0.57
11	Nov-06	4.5	1300	-0.14					
12	Jun-07	4.5	899	-1.50					
13	Nov-07	4.5	1070	-0.92					
14	Jun-08	4.5	1060	-0.96					
15	Nov-08	4.5	1052	-0.98					
16	Jun-09	4.5	911	-1.46					
17	Nov-09	4.5	994	-1.18					
18	Jun-10	4.5	992	-1.19					
19	Nov-10	4.5	1128	-0.72					
20	Jun-11	4.5	902	-1.49					
21	Nov-11	4.5	1091	-0.85					
22	Jun-12	4.5	1005	-1.14					
23	Dec-12	4.5	1129	-0.72					
24	Jun-13	4.5	777	-1.92					
25	Nov-13	4.5	1104	-0.81					
26	Jun-14	4.5	817	-1.78					
27	Nov-14	4.5	1038	-1.03					
28	Jun-15	4.5	1165	-0.60					
29	Nov-15	4.5	1170	-0.58					
30	Jun-16	4.5	712	-2.14					
31	Jan-17	4.5	1104	-0.81					
32	Jun-17	4.5	1064	-0.94					
33	Nov-17	4.5	1134	-0.70					
34	Jun-18	4.5	688	-2.22					
35	Nov-18	4.5	1176	-0.56					
36	Jun-19	4.5	1062	-0.95					
37	Nov-19	4.5	1121	-0.75					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

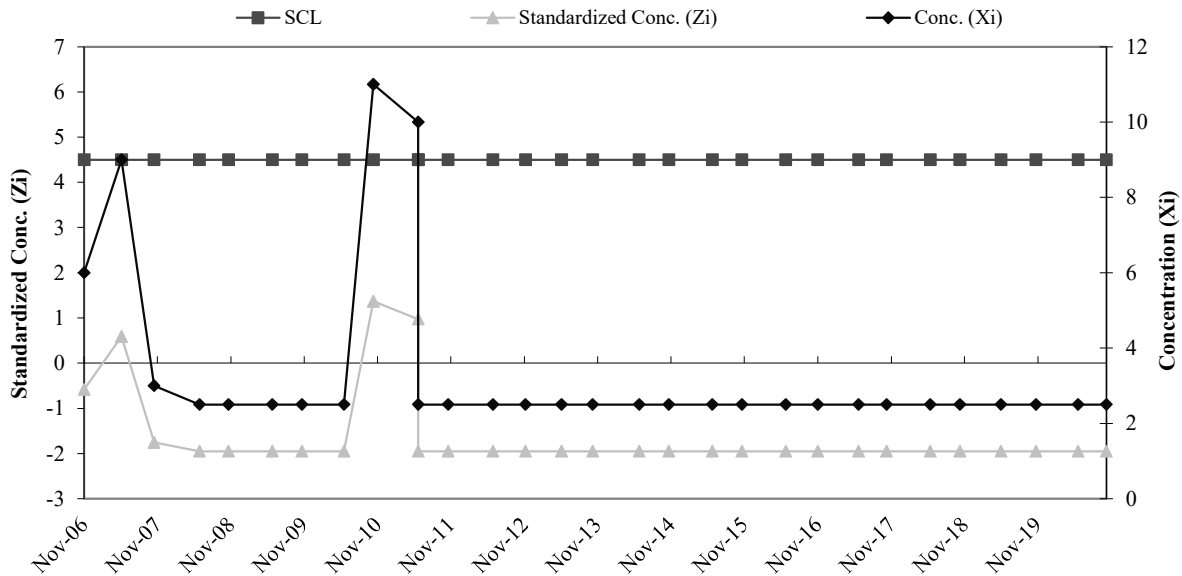


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24 Cr

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Aug-96	10	7.50	2.56
2	Nov-96	10		
3	May-97	5		
4	May-98	5		
5	Nov-03	5		
6	Jun-05	8		
7	Dec-05	11		
8	Jun-06	6		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-06	4.5	6	-0.59	35	May-19	4.5	2.5	-1.95
10	Jun-07	4.5	9	0.59	36	Nov-19	4.5	2.5	-1.95
11	Nov-07	4.5	3	-1.76	37	Jun-20	4.5	2.5	-1.95
12	Jun-08	4.5	2.5	-1.95	38	Nov-20	4.5	2.5	-1.95
13	Nov-08	4.5	2.5	-1.95					
14	Jun-09	4.5	2.5	-1.95					
15	Nov-09	4.5	2.5	-1.95					
16	Jun-10	4.5	2.5	-1.95					
17	Nov-10	4.5	11	1.37					
18	Jun-11	4.5	10	0.98					
19	Jun-11	4.5	2.5	-1.95					
20	Nov-11	4.5	2.5	-1.95					
21	Jun-12	4.5	2.5	-1.95					
22	Dec-12	4.5	2.5	-1.95					
23	Jun-13	4.5	2.5	-1.95					
24	Nov-13	4.5	2.5	-1.95					
25	Jun-14	4.5	2.5	-1.95					
26	Nov-14	4.5	2.5	-1.95					
27	Jun-15	4.5	2.5	-1.95					
28	Nov-15	4.5	2.5	-1.95					
29	Jun-16	4.5	2.5	-1.95					
30	Nov-16	4.5	2.5	-1.95					
31	Jun-17	4.5	2.5	-1.95					
32	Nov-17	4.5	2.5	-1.95					
33	Jun-18	4.5	2.5	-1.95					
34	Nov-18	4.5	2.5	-1.95					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

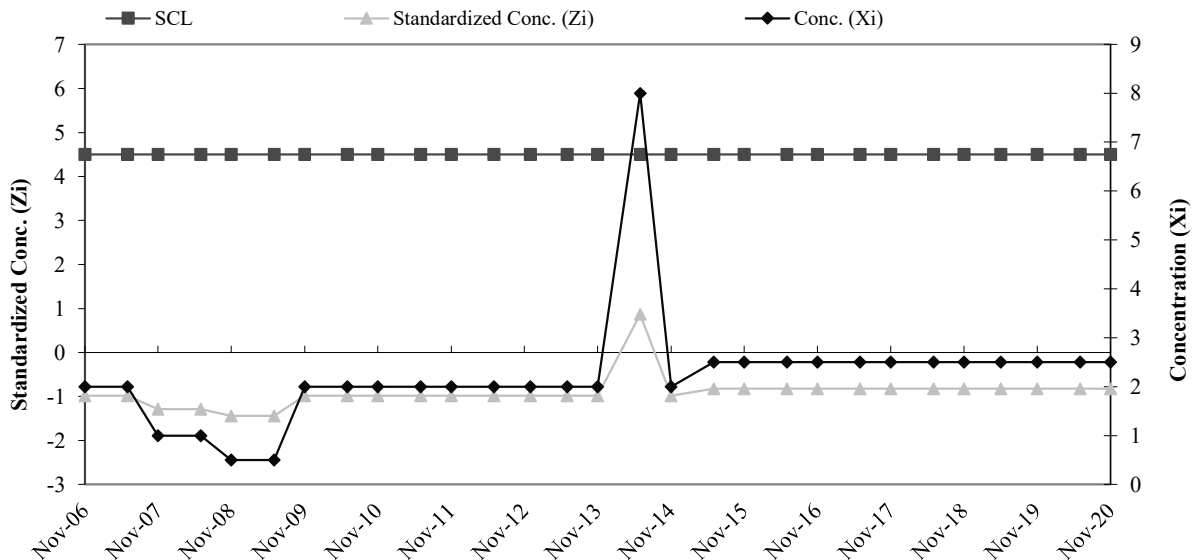


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24 Cu

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Aug-96	10	5.19	3.25
2	Nov-96	10		
3	May-97	5		
4	May-98	5		
5	Nov-03	5		
6	Jun-05	2.5		
7	Dec-05	2		
8	Jun-06	2		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-06	4.5	2	-0.98	35	Nov-19	4.5	2.5	-0.83
10	Jun-07	4.5	2	-0.98	36	Jun-20	4.5	2.5	-0.83
11	Nov-07	4.5	1	-1.29	37	Nov-20	4.5	2.5	-0.83
12	Jun-08	4.5	1	-1.29					
13	Nov-08	4.5	0.5	-1.44					
14	Jun-09	4.5	0.5	-1.44					
15	Nov-09	4.5	2	-0.98					
16	Jun-10	4.5	2	-0.98					
17	Nov-10	4.5	2	-0.98					
18	Jun-11	4.5	2	-0.98					
19	Nov-11	4.5	2	-0.98					
20	Jun-12	4.5	2	-0.98					
21	Dec-12	4.5	2	-0.98					
22	Jun-13	4.5	2	-0.98					
23	Nov-13	4.5	2	-0.98					
24	Jun-14	4.5	8	0.87					
25	Nov-14	4.5	2	-0.98					
26	Jun-15	4.5	2.5	-0.83					
27	Nov-15	4.5	2.5	-0.83					
28	Jun-16	4.5	2.5	-0.83					
29	Nov-16	4.5	2.5	-0.83					
30	Jun-17	4.5	2.5	-0.83					
31	Nov-17	4.5	2.5	-0.83					
32	Jun-18	4.5	2.5	-0.83					
33	Nov-18	4.5	2.5	-0.83					
34	May-19	4.5	2.5	-0.83					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

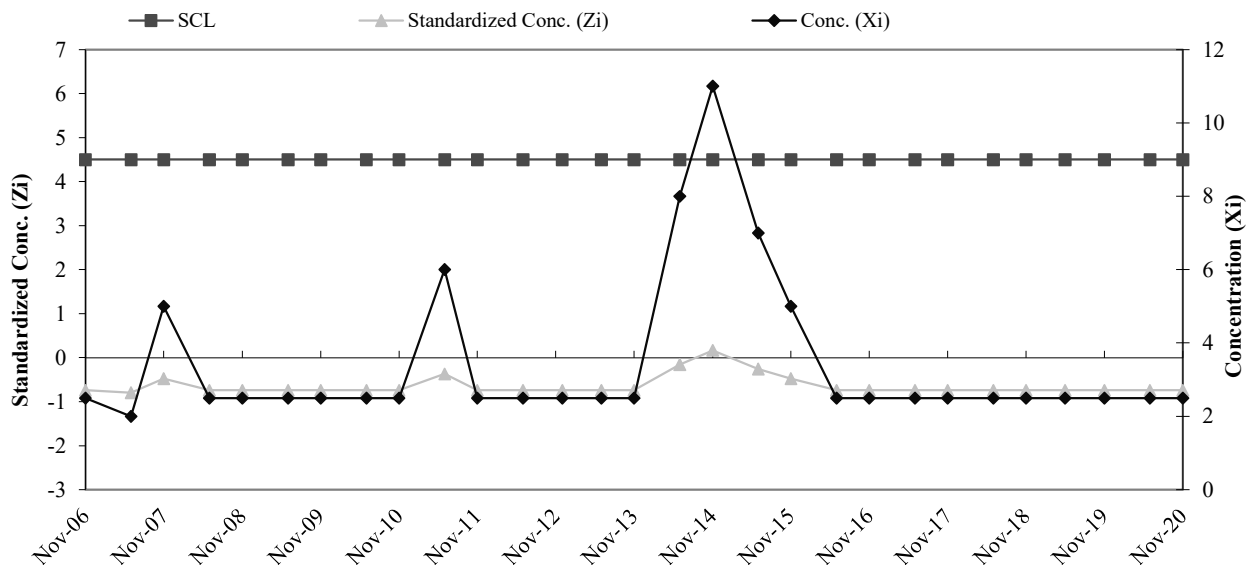


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24 Ni

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Aug-96	10	9.44	9.35
2	Nov-96	10		
3	May-97	31		
4	May-98	8		
5	Nov-03	9		
6	Jun-05	2.5		
7	Dec-05	2.5		
8	Jun-06	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-06	4.5	2.5	-0.74	35	Nov-19	4.5	2.5	-0.74
10	Jun-07	4.5	2	-0.80	36	Jun-20	4.5	2.5	-0.74
11	Nov-07	4.5	5	-0.47	37	Nov-20	4.5	2.5	-0.74
12	Jun-08	4.5	2.5	-0.74					
13	Nov-08	4.5	2.5	-0.74					
14	Jun-09	4.5	2.5	-0.74					
15	Nov-09	4.5	2.5	-0.74					
16	Jun-10	4.5	2.5	-0.74					
17	Nov-10	4.5	2.5	-0.74					
18	Jun-11	4.5	6	-0.37					
19	Nov-11	4.5	2.5	-0.74					
20	Jun-12	4.5	2.5	-0.74					
21	Dec-12	4.5	2.5	-0.74					
22	Jun-13	4.5	2.5	-0.74					
23	Nov-13	4.5	2.5	-0.74					
24	Jun-14	4.5	8	-0.15					
25	Nov-14	4.5	11	0.17					
26	Jun-15	4.5	7	-0.26					
27	Nov-15	4.5	5	-0.47					
28	Jun-16	4.5	2.5	-0.74					
29	Nov-16	4.5	2.5	-0.74					
30	Jun-17	4.5	2.5	-0.74					
31	Nov-17	4.5	2.5	-0.74					
32	Jun-18	4.5	2.5	-0.74					
33	Nov-18	4.5	2.5	-0.74					
34	May-19	4.5	2.5	-0.74					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

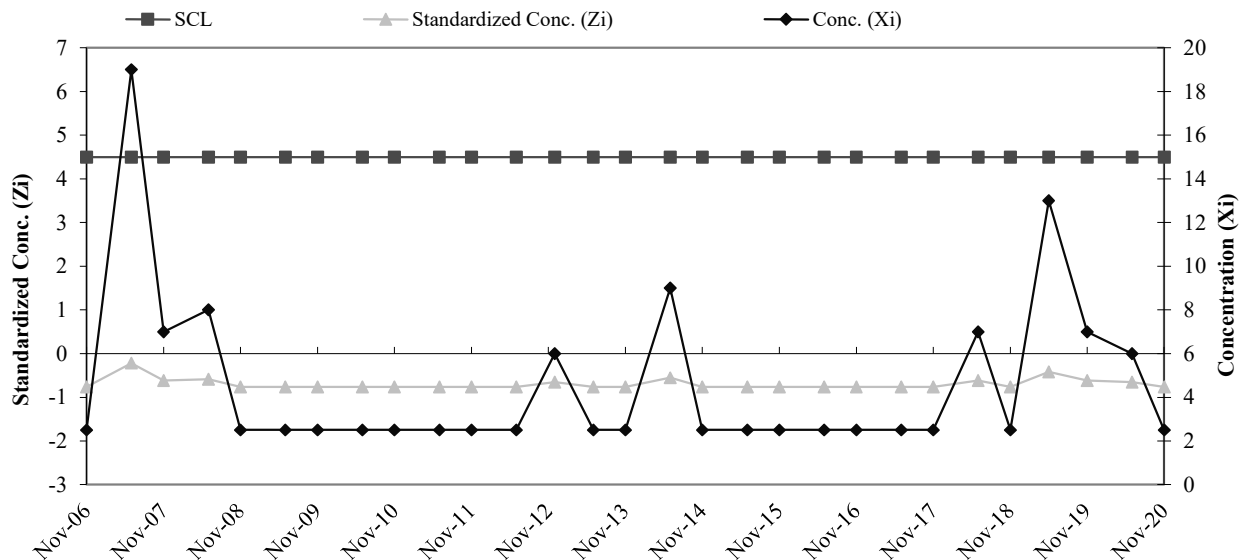


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24 Zn

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Aug-96	90	25.63	30.14
2	Nov-96	50		
3	May-97	10		
4	May-98	20		
5	Nov-03	20		
6	Jun-05	2.5		
7	Dec-05	10		
8	Jun-06	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-06	4.5	2.5	-0.77	35	Nov-19	4.5	7	-0.62
10	Jun-07	4.5	19	-0.22	36	Jun-20	4.5	6	-0.65
11	Nov-07	4.5	7	-0.62	37	Nov-20	4.5	2.5	-0.77
12	Jun-08	4.5	8	-0.58					
13	Nov-08	4.5	2.5	-0.77					
14	Jun-09	4.5	2.5	-0.77					
15	Nov-09	4.5	2.5	-0.77					
16	Jun-10	4.5	2.5	-0.77					
17	Nov-10	4.5	2.5	-0.77					
18	Jun-11	4.5	2.5	-0.77					
19	Nov-11	4.5	2.5	-0.77					
20	Jun-12	4.5	2.5	-0.77					
21	Dec-12	4.5	6	-0.65					
22	Jun-13	4.5	2.5	-0.77					
23	Nov-13	4.5	2.5	-0.77					
24	Jun-14	4.5	9	-0.55					
25	Nov-14	4.5	2.5	-0.77					
26	Jun-15	4.5	2.5	-0.77					
27	Nov-15	4.5	2.5	-0.77					
28	Jun-16	4.5	2.5	-0.77					
29	Nov-16	4.5	2.5	-0.77					
30	Jun-17	4.5	2.5	-0.77					
31	Nov-17	4.5	2.5	-0.77					
32	Jun-18	4.5	7	-0.62					
33	Nov-18	4.5	2.5	-0.77					
34	May-19	4.5	13	-0.42					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

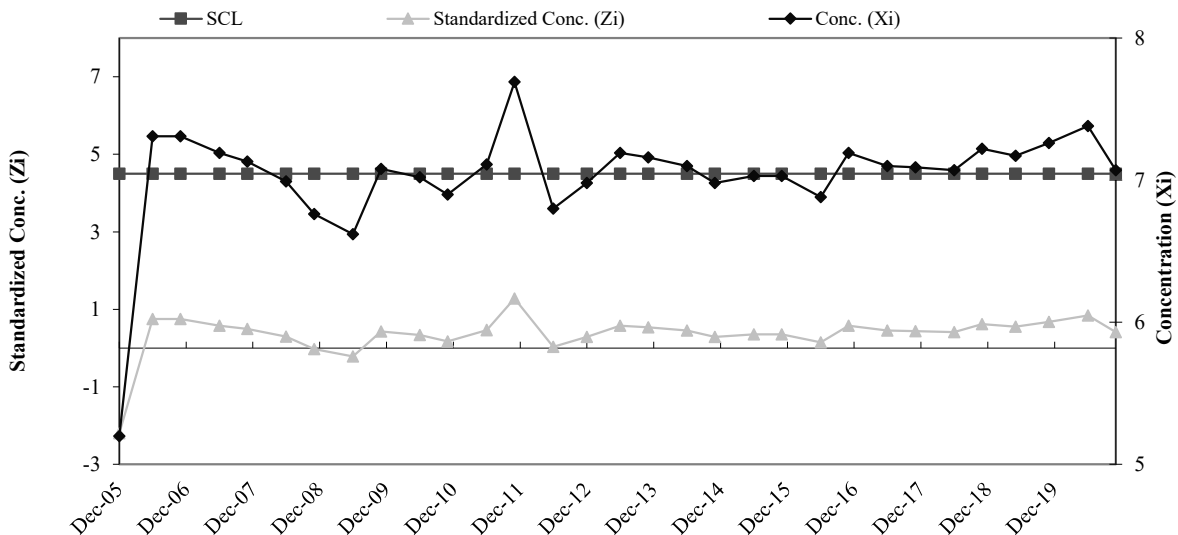


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24 pH

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Aug-96	7.8	6.78	0.72
2	Nov-96	7.1		
3	May-97	6.4		
4	May-98	7		
5	Nov-98	6		
6	Nov-99	7		
7	May-01	6.4		
8	Jun-05	7.3		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Dec-05	4.5	5.2	-2.20	35	Nov-19	4.5	7.3	0.68
10	Jun-06	4.5	7.3	0.75	36	Jun-20	4.5	7.4	0.84
11	Nov-06	4.5	7.3	0.75	37	Nov-20	4.5	7.1	0.41
12	Jun-07	4.5	7.2	0.58					
13	Nov-07	4.5	7.1	0.50					
14	Jun-08	4.5	7.0	0.30					
15	Nov-08	4.5	6.8	-0.02					
14	Jun-09	4.5	6.6	-0.22					
15	Nov-09	4.5	7.1	0.43					
16	Jun-10	4.5	7.0	0.34					
17	Nov-10	4.5	6.9	0.17					
18	Jun-11	4.5	7.1	0.47					
19	Nov-11	4.5	7.7	1.28					
20	Jun-12	4.5	6.8	0.03					
21	Dec-12	4.5	7.0	0.29					
22	Jun-13	4.5	7.2	0.58					
23	Nov-13	4.5	7.2	0.54					
24	Jun-14	4.5	7.1	0.45					
25	Nov-14	4.5	7.0	0.29					
26	Jun-15	4.5	7.0	0.36					
27	Nov-15	4.5	7.0	0.36					
28	Jun-16	4.5	6.9	0.15					
29	Nov-16	4.5	7.2	0.58					
30	Jun-17	4.5	7.1	0.45					
31	Nov-17	4.5	7.1	0.44					
32	Jun-18	4.5	7.1	0.41					
33	Nov-18	4.5	7.2	0.62					
34	May-19	4.5	7.2	0.55					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

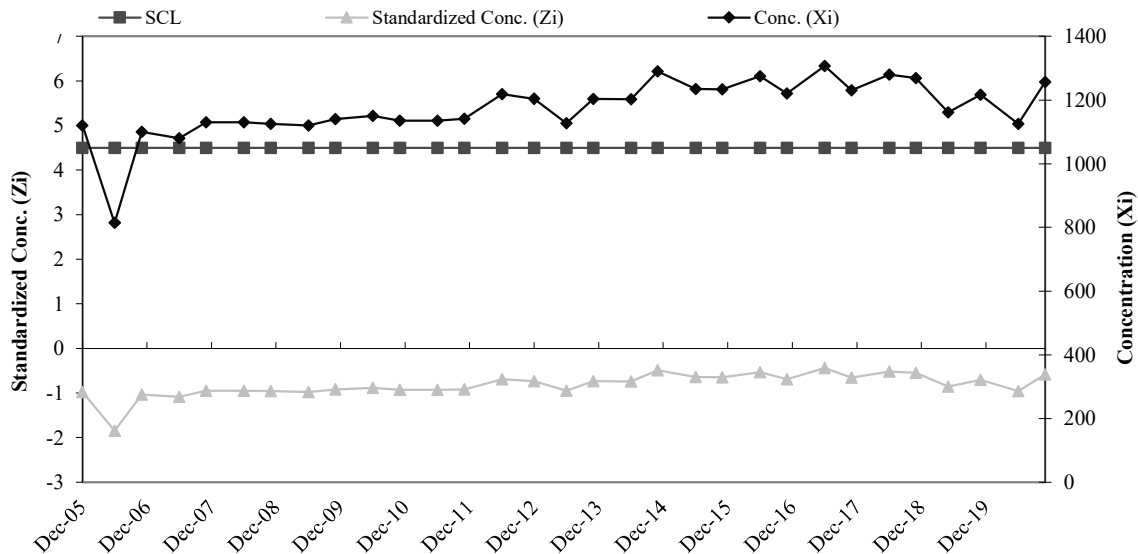


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24 SpC

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Aug-96	1502	1,462.00	351.23
2	Nov-96	2030		
3	May-97	1700		
4	May-98	1410		
5	Nov-98	1595		
6	Nov-99	1152		
7	May-01	1450		
8	Jun-05	857		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Dec-05	4.5	1120	-0.97	37	Nov-19	4.5	1216	-0.70
10	Jun-06	4.5	814	-1.84	38	Jun-20	4.5	1125	-0.96
11	Nov-06	4.5	1100	-1.03	39	Nov-20	4.5	1257	-0.58
12	Jun-07	4.5	1080	-1.09					
13	Nov-07	4.5	1130	-0.95					
14	Jun-08	4.5	1130	-0.95					
15	Nov-08	4.5	1125	-0.96					
16	Jun-09	4.5	1120	-0.97					
17	Nov-09	4.5	1140	-0.92					
18	Jun-10	4.5	1150	-0.89					
19	Nov-10	4.5	1136	-0.93					
20	Jun-11	4.5	1136	-0.93					
21	Nov-11	4.5	1141	-0.91					
22	Jun-12	4.5	1219	-0.69					
23	Dec-12	4.5	1204	-0.73					
24	Jun-13	4.5	1127	-0.95					
25	Nov-13	4.5	1203	-0.74					
26	Jun-14	4.5	1202	-0.74					
27	Nov-14	4.5	1290	-0.49					
28	Jun-15	4.5	1235	-0.65					
29	Nov-15	4.5	1234	-0.65					
30	Jun-16	4.5	1275	-0.53					
31	Nov-16	4.5	1220	-0.69					
32	Jun-17	4.5	1307	-0.44					
33	Nov-17	4.5	1231	-0.66					
34	Jun-18	4.5	1280	-0.52					
35	Nov-18	4.5	1269	-0.55					
36	May-19	4.5	1161	-0.86					

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

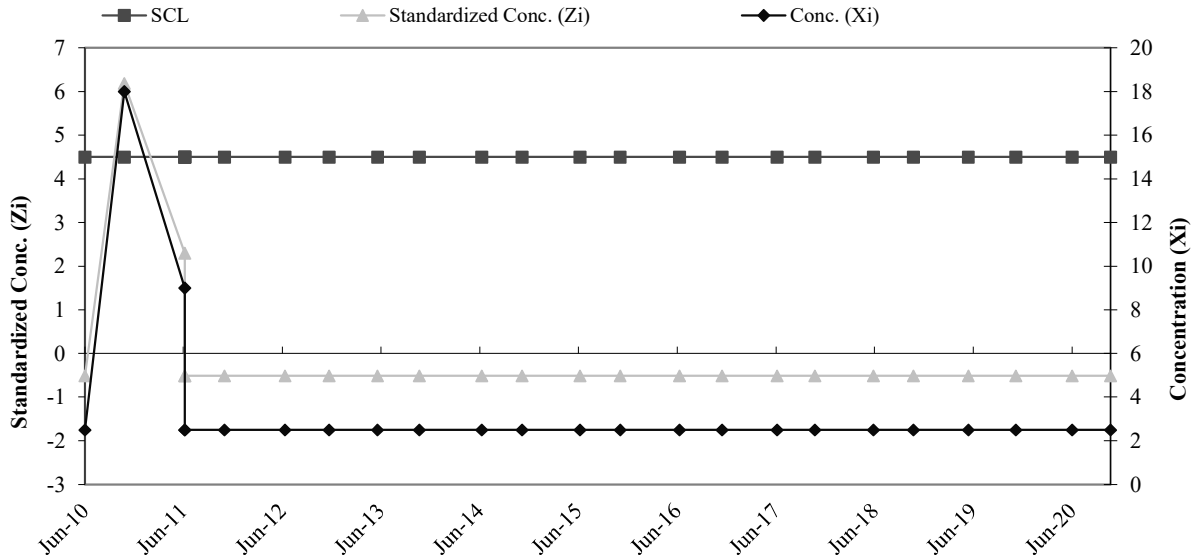


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 Cr

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-06	5	3.69	2.31
2	Dec-06	2.5		
3	Jun-07	9		
4	Nov-07	3		
5	Jun-08	2.5		
6	Nov-08	2.5		
7	Jun-09	2.5		
8	Nov-09	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Jun-10	4.5	2.5	-0.51
10	Nov-10	4.5	18	6.19
11	Jun-11	4.5	9	2.30
12	Jun-11	4.5	2.5	-0.51
13	Jun-11	4.5	2.5	-0.51
14	Nov-11	4.5	2.5	-0.51
15	Jun-12	4.5	2.5	-0.51
16	Dec-12	4.5	2.5	-0.51
17	Jun-13	4.5	2.5	-0.51
18	Nov-13	4.5	2.5	-0.51
19	Jun-14	4.5	2.5	-0.51
20	Nov-14	4.5	2.5	-0.51
21	Jun-15	4.5	2.5	-0.51
22	Nov-15	4.5	2.5	-0.51
23	Jun-16	4.5	2.5	-0.51
24	Nov-16	4.5	2.5	-0.51
25	Jun-17	4.5	2.5	-0.51
26	Nov-17	4.5	2.5	-0.51
27	Jun-18	4.5	2.5	-0.51
28	Nov-18	4.5	2.5	-0.51
29	May-19	4.5	2.5	-0.51
30	Nov-19	4.5	2.5	-0.51
31	Jun-20	4.5	2.5	-0.51
32	Nov-20	4.5	2.5	-0.51

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

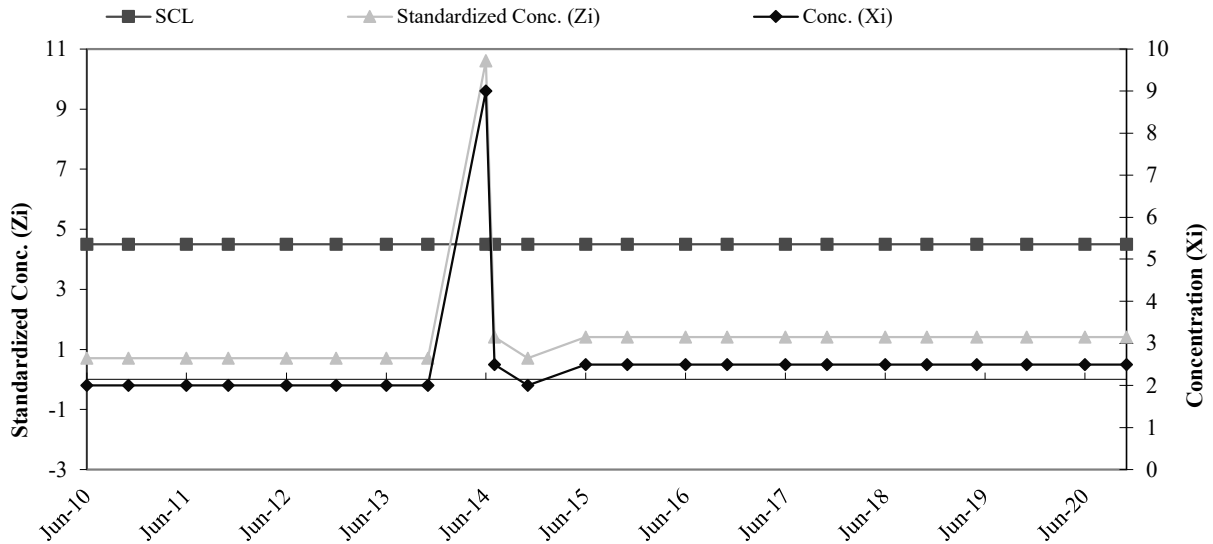


**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 Cu**

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-06	2	1.50	0.71
2	Dec-06	2		
3	Jun-07	2		
4	Nov-07	2		
5	Jun-08	1		
6	Nov-08	0.5		
7	Jun-09	0.5		
8	Nov-09	2		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Jun-10	4.5	2	0.71
10	Nov-10	4.5	2	0.71
11	Jun-11	4.5	2	0.71
12	Nov-11	4.5	2	0.71
13	Jun-12	4.5	2	0.71
14	Dec-12	4.5	2	0.71
15	Jun-13	4.5	2	0.71
16	Nov-13	4.5	2	0.71
17	Jun-14	4.5	9	10.61
18	Jul-14	4.5	2.5	1.41
19	Nov-14	4.5	2	0.71
20	Jun-15	4.5	2.5	1.41
21	Nov-15	4.5	2.5	1.41
22	Jun-16	4.5	2.5	1.41
23	Nov-16	4.5	2.5	1.41
24	Jun-17	4.5	2.5	1.41
25	Nov-17	4.5	2.5	1.41
26	Jun-18	4.5	2.5	1.41
27	Nov-18	4.5	2.5	1.41
28	May-19	4.5	2.5	1.41
29	Nov-19	4.5	2.5	1.41
30	Jun-20	4.5	2.5	1.41
31	Nov-20	4.5	2.5	1.41

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

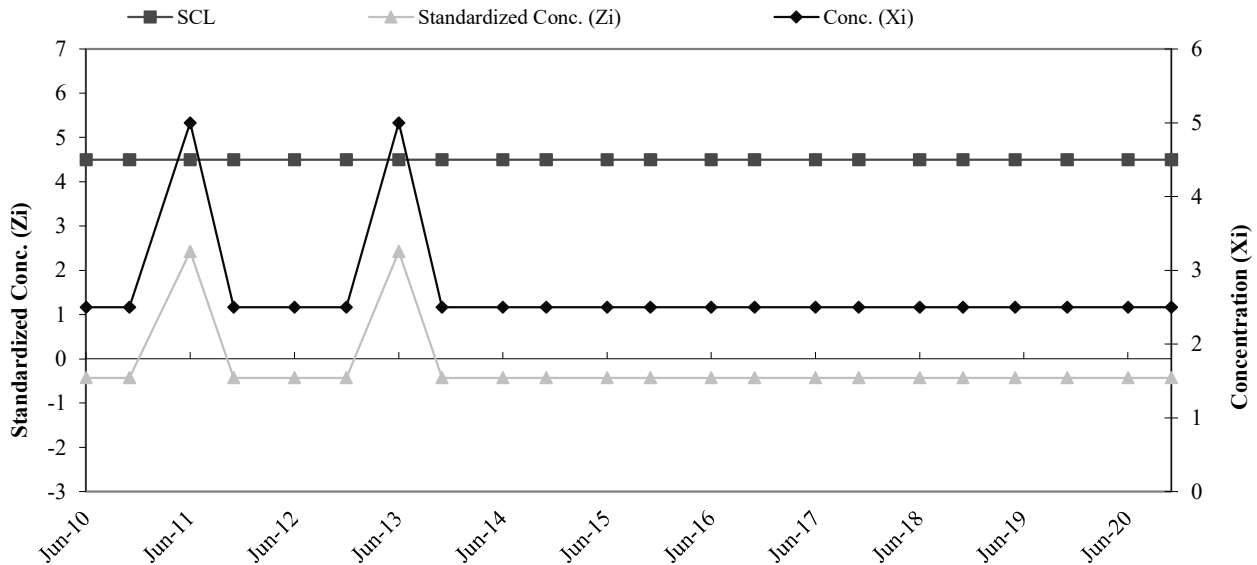


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 Ni

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Jun-06	2.5	2.88	0.88
2	Dec-06	2.5		
3	Jun-07	3		
4	Nov-07	5		
5	Jun-08	2.5		
6	Nov-08	2.5		
7	Jun-09	2.5		
8	Nov-09	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Jun-10	4.5	2.5	-0.43
10	Nov-10	4.5	2.5	-0.43
9	Jun-11	4.5	5	2.43
10	Nov-11	4.5	2.5	-0.43
11	Jun-12	4.5	2.5	-0.43
12	Dec-12	4.5	2.5	-0.43
13	Jun-13	4.5	5	2.43
14	Nov-13	4.5	2.5	-0.43
15	Jun-14	4.5	2.5	-0.43
16	Nov-14	4.5	2.5	-0.43
17	Jun-15	4.5	2.5	-0.43
18	Nov-15	4.5	2.5	-0.43
19	Jun-16	4.5	2.5	-0.43
20	Nov-16	4.5	2.5	-0.43
21	Jun-17	4.5	2.5	-0.43
22	Nov-17	4.5	2.5	-0.43
23	Jun-18	4.5	2.5	-0.43
24	Nov-18	4.5	2.5	-0.43
25	May-19	4.5	2.5	-0.43
26	Nov-19	4.5	2.5	-0.43
27	Jun-20	4.5	2.5	-0.43
28	Nov-20	4.5	2.5	-0.43

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

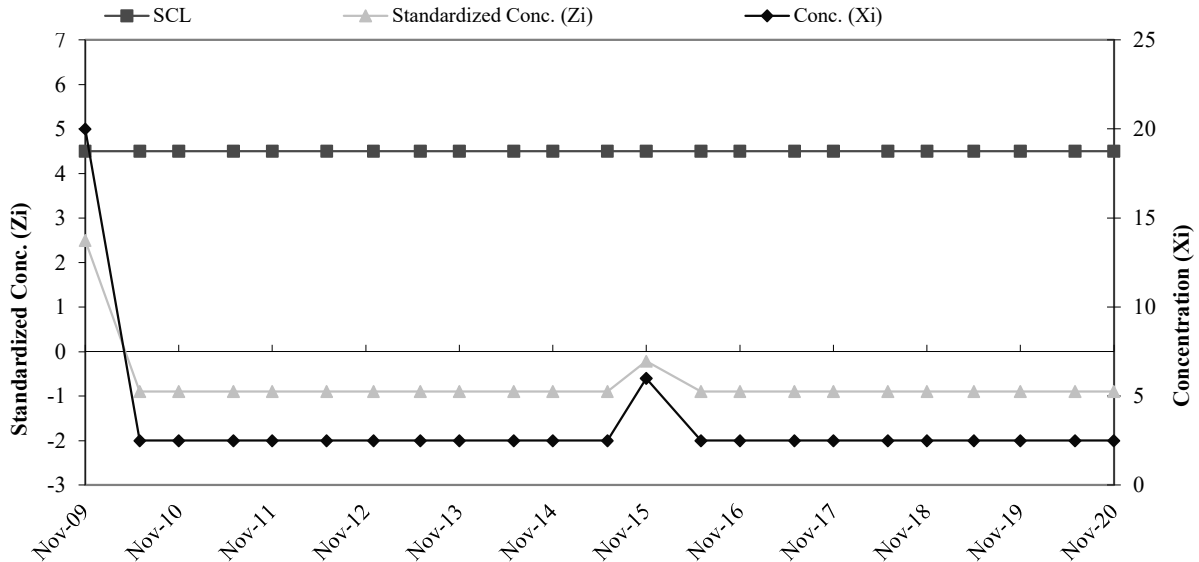


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 Zn

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Nov-05	7	7.13	5.16
2	Jun-06	18		
3	Dec-06	5		
4	Jun-07	6		
5	Nov-07	11		
6	Jun-08	5		
7	Nov-08	2.5		
8	Jun-09	2.5		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-09	4.5	20	2.50
10	Jun-10	4.5	2.5	-0.90
11	Nov-10	4.5	2.5	-0.90
12	Jun-11	4.5	2.5	-0.90
13	Nov-11	4.5	2.5	-0.90
14	Jun-12	4.5	2.5	-0.90
15	Dec-12	4.5	2.5	-0.90
16	Jun-13	4.5	2.5	-0.90
17	Nov-13	4.5	2.5	-0.90
18	Jun-14	4.5	2.5	-0.90
19	Nov-14	4.5	2.5	-0.90
20	Jun-15	4.5	2.5	-0.90
21	Nov-15	4.5	6	-0.22
22	Jun-16	4.5	2.5	-0.90
23	Nov-16	4.5	2.5	-0.90
24	Jun-17	4.5	2.5	-0.90
25	Nov-17	4.5	2.5	-0.90
26	Jun-18	4.5	2.5	-0.90
27	Nov-18	4.5	2.5	-0.90
28	May-19	4.5	2.5	-0.90
29	Nov-19	4.5	2.5	-0.90
30	Jun-20	4.5	2.5	-0.90
31	Nov-20	4.5	2.5	-0.90

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

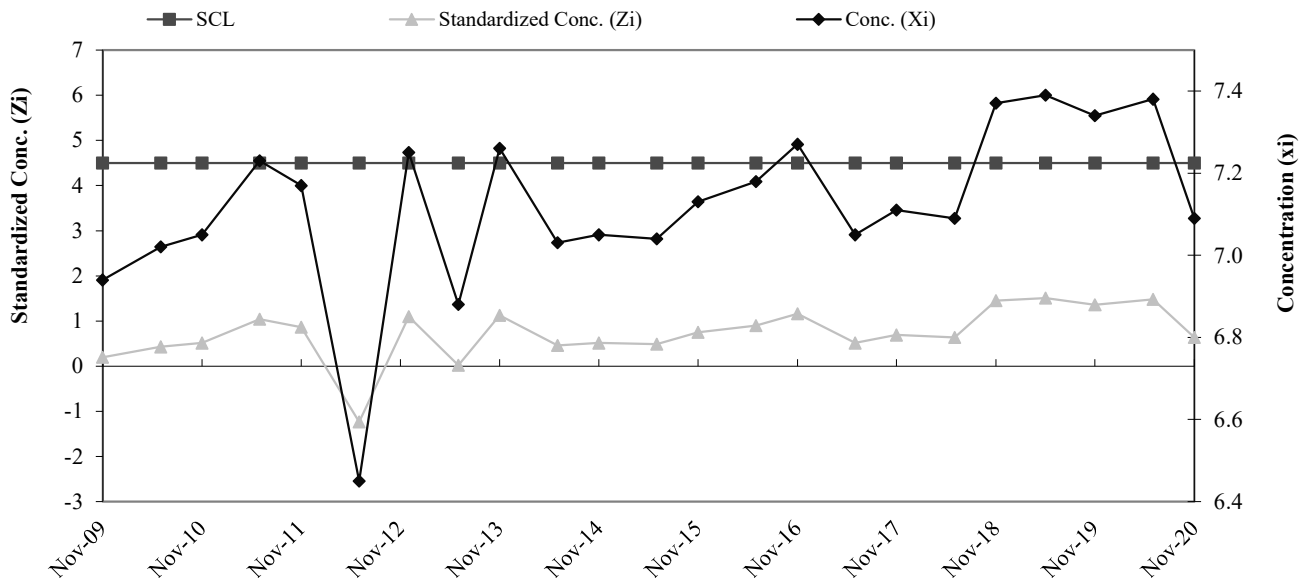


**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 pH**

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Nov-05	6.2	6.87	0.34
2	Jun-06	7.1		
3	Dec-06	7.4		
4	Jun-07	6.8		
5	Nov-07	6.8		
6	Jun-08	6.9		
7	Nov-08	6.8		
8	Jun-09	7.0		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-09	4.5	6.9	0.19
10	Jun-10	4.5	7.0	0.43
11	Nov-10	4.5	7.1	0.51
12	Jun-11	4.5	7.2	1.04
13	Nov-11	4.5	7.2	0.87
14	Jun-12	4.5	6.5	-1.24
15	Dec-12	4.5	7.3	1.10
16	Jun-13	4.5	6.9	0.02
17	Nov-13	4.5	7.3	1.13
18	Jun-14	4.5	7.0	0.46
19	Nov-14	4.5	7.1	0.51
20	Jun-15	4.5	7.0	0.49
21	Nov-15	4.5	7.1	0.75
22	Jun-16	4.5	7.2	0.89
23	Nov-16	4.5	7.3	1.16
24	Jun-17	4.5	7.1	0.51
25	Nov-17	4.5	7.1	0.69
26	Jun-18	4.5	7.1	0.63
27	Nov-18	4.5	7.4	1.45
28	May-19	4.5	7.4	1.51
29	Nov-19	4.5	7.3	1.36
30	Jun-20	4.5	7.4	1.48
31	Nov-20	4.5	7.1	0.63

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean



COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 SpC

Baseline Data				
Ti	Date	Conc.	Mean	Std. Dev
1	Nov-05	994	845.13	61.71
2	Jun-06	828		
3	Dec-06	812		
4	Jun-07	845		
5	Nov-07	816		
6	Jun-08	840		
7	Nov-08	804		
8	Jun-09	822		

Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-09	4.5	814	-0.50
10	Jun-10	4.5	841	-0.07
11	Nov-10	4.5	813	-0.52
12	Jun-11	4.5	837	-0.13
13	Nov-11	4.5	823	-0.36
14	Jun-12	4.5	849	0.06
15	Dec-12	4.5	823	-0.36
16	Jun-13	4.5	834	-0.18
17	Nov-13	4.5	842	-0.05
18	Jun-14	4.5	852	0.11
19	Nov-14	4.5	844	-0.02
20	Jun-15	4.5	860	0.24
21	Nov-15	4.5	849	0.06
22	Jun-16	4.5	866	0.34
23	Nov-16	4.5	853	0.13
24	Jun-17	4.5	863	0.29
25	Nov-17	4.5	859	0.22
26	Jun-18	4.5	839	-0.10
27	Nov-18	4.5	880	0.57
28	May-19	4.5	803	-0.68
29	Nov-19	4.5	833	-0.20
30	Jun-20	4.5	862	0.27
31	Nov-20	4.5	904	0.95

h = Decision Value for CUSUM, SCL = Shewart Control Limit, k = Standard Error Shift Detection Parameter, Zi = Standardized Mean

