

Intended for

Michigan Department of Environment, Great Lakes, and Energy

Document type

Post-Closure Groundwater Monitoring Annual Report 2023

Date

February 2024

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



Bright ideas. Sustainable change.

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

Project name **RACER Trust Coldwater Road Landfill**
Project no. **1088190/1940103642**
Recipient **Nicole Sanabria (EGLE) & Christina Hebert (EGLE)**
Document type **Annual Report**
Version **1**
Date **February 28, 2024**
Prepared by **Kalyssa Ramirez**
Checked by **Kevin Schneider**
Approved by **Clifford Yantz**
Description **Post-Closure Groundwater Monitoring Annual Report**

Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105
USA

T 734-761-4000
F 734-761-2050
<https://ramboll.com>

CONTENTS

1.	INTRODUCTION	2
2.	SAMPLING AND ANALYSIS	3
3.	SUMMARY	5

TABLES

Table 1:	Depth to Groundwater Levels
Table 2:	Historical Analytical Results

FIGURES

Figure 1:	Site Location Map
Figure 2:	Site Layout
Figure 3:	Perched Zone Groundwater Potentiometric Surface Map
Figure 4:	Drift Unit Groundwater Potentiometric Surface Map

APPENDICES

Appendix A:	Sampling Procedures
Appendix B:	Groundwater Sampling Logs
Appendix C:	Analytical Laboratory Results
Appendix D:	Groundwater Sampling Program QA/QC Summary
Appendix E:	Monitoring Well Control Charts

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 2023 in accordance with the approved 2014 Post-Closure Care Plan (PCCP), additional updates provided in slipsheets in 2017 and 2018 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 the perched zone (B-7, B-9, B-18A, B-19AR, B-24R, and B-28). The monitoring well locations are shown (all in the vicinity of the landfill) on **Figure 2**. Samples were collected during the week of November 5, 2023.

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 were collected using a Whale pump (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. Samples to be analyzed for dissolved metals were field filtered. Groundwater sampling logs are included in **Appendix B**.

Well gauging occurred on November 6, 2023 and sampling occurred on November 8, 2023. 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 groundwater elevation contour map was prepared for the perched zone (**Figure 3**) and a potentiometric surface contour map was prepared 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. When reviewing the groundwater elevation contour map for the perched zone please keep in mind that groundwater in the perched zone includes discontinuous perched saturated zones within an otherwise clayey matrix.

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. The perched zone static water elevations were generally higher compared to the previous gauging event (June 2023), yet consistent with historical data.

The drift unit static water elevations were consistent with historical data and the previous gauging event (June 2023). Groundwater in the drift unit flows in a southerly direction as shown on **Figure 4**.

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. The results were within the range of the historic results, which ranged from below the reporting limit to 37 µg/L at B-9 (8/31/1995).
- Copper concentrations were not detected above the reporting limit of 5 µg/L. The results were within the range of the historic results, which ranged from below the reporting limit to 203 µg/L at OBG MW-16D (6/25/2009).
- Nickel concentrations ranged from below the reporting limit of 5 µg/L in monitoring wells B-7, B-19AR, B-24R, and B-28 to 6 µg/L in monitoring well B-9. The results were within the range of the historic results, which ranged from below the reporting limit to 370 µg/L at B-22D (6/21/1995).
- Zinc concentrations ranged from below the reporting limit of 5 µg/L in monitoring wells B-7, B-9, and B-28 to 13 µg/L in monitoring well B-18A. The results were within the range of the historic results, which ranged from below the reporting limit to 150 µg/L at B-18A (6/21/1995).
- TOC concentrations ranged from 1.4 mg/L in monitoring well B-18A to 5.4 mg/L in monitoring well B-7. The results were within the range of the historic results, which ranged from below the reporting limit to 71 mg/L at B-9 (11/13/1996).
- TOX concentrations ranged from 4.90 (J) µg/L in monitoring well B-19AR to 24.7 µg/L in monitoring well B-7. Three samples (B-18A, B-19AR, and B-19AR duplicate) had an estimated value less than the reporting limit, but greater than the method detection limit and were qualified with a "J" value. The results were within the range of the historic results, which ranged from below the reporting limit to 230 µg/L at B-7 (11/30/2016).
- pH concentrations ranged from 6.66 in monitoring well B-9 to 7.29 in monitoring well B-24R. The results were within the range of previous results, which ranged from 4.60 in monitoring well B-7 (11/5/1998) to 9.73 in monitoring well B-18A (12/8/2005).
- Specific conductivity ranged from 946 µs/cm in monitoring well B-28 to 2,630 µs/cm in monitoring well B-9. The results were within the range of previous results, which ranged from 405 µs/cm in monitoring well OBG MW-16D (11/5/1999) to 3,290 µs/cm in monitoring well B-9 (11/20/2008).

3. SUMMARY

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. 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-19AR and GW-Dup-110923 (B-19AR) were within acceptable limits.

There were no exceedances of the Shewart control limits during this sampling event. There was a significant positive (increasing) trend for specific conductivity in monitoring well B-9 this event. The trend was calculated using regression analysis over the last four sampling events per the Post Closure Care Plan, January 2014. The positive trend for specific conductivity does not suggest there was a release from the landfill because concentrations of other metals/parameters do not support a release has occurred, including data from the landfill sumps and vaults. The trend 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 2024. 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
Project Manager – Ramboll Americas Engineering Solutions, Inc. Agent for
RACER Trust

Date: February 28, 2024
cc: file

TABLES

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

November 6, 2023

Well ID	Top of Casing Elevation (ft)*	Depth to Water (ft)	Static Water Elevation (ft)
<i>Landfill Monitoring Wells</i>			
B-7	813.63	14.32	799.31
B-9	807.45	7.28	800.17
B-18A	810.85	19.90	790.95
B-19A	812.66	9.63	803.03
B-19AR	811.80	39.47	772.33
B-20D	815.14	70.64	744.50
B-21D	821.07	81.06	740.01
B-22D	822.15	84.72	737.43
B-23DR	812.12	86.25	725.87
B-24R	816.04	11.96	804.08
B-27D	812.70	75.75	736.95
B-28	816.46	4.50	811.96
OBG MW-16D	807.43	58.64	748.79
<i>former WWTP Monitoring Wells</i>			
OBG MW-1	811.56	4.25	807.31
OBG MW-2	813.77	7.44	806.33
OBG MW-3	810.09	4.13	805.96
OBG MW-4	812.66	5.64	807.02
OBG MW-5	816.04	7.17	808.87
OBG MW-6	815.75	11.72	804.03
OBG MW-7	813.47	7.67	805.80
OBG MW-8	817.50	8.63	808.87
OBG MW-9	809.97	3.53	806.44
OBG MW-10	811.54	5.50	806.04
<i>Additional Site Monitoring Wells</i>			
OBG MW-11	801.94	7.32	794.62
OBG MW-12D	797.13	48.10	749.03
OBG MW-12S	796.88	9.26	787.62
OBG MW-13	801.81	6.90	794.91
OBG MW-14	810.98	7.62	803.36
OBG MW-15D	810.68	79.08	731.60
OBG MW-17D	800.09	51.36	748.73
OBG MW-17S	800.51	11.98	788.53
OBG MW-18D	800.17	51.03	749.14
OBG MW-18S	799.32	15.62	783.70
OBG MW-19D	795.37	48.43	746.94
OBG MW-20	783.93	27.21	756.72
OBG MW-21	797.49	5.11	792.38
OBG MW-22	794.11	3.23	790.88
OBG MW-23 (D)	776.76	28.90	747.86
OBG MW-24	781.50	5.73	775.77
OBG MW-25R	783.12	5.60	781.01
OBG MW-26R	--	--	--
OBG MW-27R (D)	--	--	--
OBG MW-28	800.35	13.34	787.01
OBG MW-29 (D)	773.28	25.73	747.55
<i>Piezometers</i>			
PZ-3R	785.36	7.46	780.91
<i>Peregrine Site Wells</i>			
MW-19-13	807.85	2.12	805.73
MW-20-13	810.81	4.49	806.32
MW-15-10	808.15	76.30	731.85
MW-16-10	798.64	66.60	732.04
PFW-1	809.51	77.31	732.20

Notes

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

-- No data.

Top of casing elevations were resurveyed in June 2017, except for OBG MW-25R and PZ-3R that were surveyed in April 2023.

R - Indicates a replacement well location.

Monitoring wells OBG MW-25, PZ-2, and PZ-3 were abandon on July 7, 2020 as part of the onsite berm construction. PZ-1 was abandoned on December 21, 2022 due to being flooded during high Middle Pond levels. Monitoring wells OBG MW-25R and PZ-3R were replaced on December 21, 2022.

Monitoring wells OBG MW-26, and OBG MW-27 were abandon and replaced in October 2023. The monitoring wells have not yet been resurveyed.

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	Chlorid e	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	--	--	--	--
Duplicate	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
	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	<5	5	5	250	<5	65,500	NA	NA	NA	NA
Replicate	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	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
	6/11/2021	6.3	15.0	7.08	1,057	18.8	<5	<5	<5	6	90	6	43,700	27	<0.004	<0.02	167
	11/5/2021	6.6	21.2	7.15	927	13.0	<5	<5	<5	<5	--	--	--	--	--	--	--
	6/8/2022	7.9	3.3	7.00	1,070	19.97	<5	<5	<5	8	20	9	49,000	33	<0.004	<0.02	171
	11/2/2022	6.4	32.9	6.97	1,073	12.97	<5	6	<5	11	--	--	--	34	--	--	--
	6/9/2023	4.4	18.0	7.04	965	15.16	<5	<5	<5	<5	<20	23.00	40700	28	<0.004	<0.02	160.00
	11/8/2023	5.4	24.7	7.14	1,010	8.29	<5	<5	<5	<5	--	--	--	--	--	--	--

See notes on page 6.

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

Indicator Parameters										Dissolved Metals (µg/L)				Inorganics (mg/L)			
Vault	Sample Date	TOC (mg/L)	TOX (µg/L)	pH	SpC	Temp	Cr	Cu	Ni	Zn	Fe	Mn	Na	Chlorid e	Cyanide	Phenols	Sulfate
EGLE Residential Drinking Water Criteria & RBSLs 100 (A) ,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	--	--	--	--	--	--	--
Duplicate	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	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--	
6/11/2021	5.4	<10	6.85	2,168	14.7	<5	<5	<5	<5	50	124	50,700	62	<0.004	<0.02	731	
11/4/2021	4.8	5.68 J	6.80	2,135	13.9	<5	<5	<5	<5	--	--	--	--	--	--	--	
6/8/2022	7.0	7.40 J	6.74	1,830	14.25	<5	<5	<5	14	70	180	45,900	46	<0.004	<0.02	562	
11/2/2022	4.6	36.6	6.59	2,150	15.03	<5	15	6	14	--	--	--	62	--	--	--	
6/9/2023	1.8	54.1	6.71	2,290	12.68	<5	6	5	13	20.00	107.00	58200.00	71	<0.004	<0.02	841.00	
11/8/2023	1.9	16.7	6.66	2,630	9.89	<5	<5	6	<5	--	--	--	--	--	--	--	

See notes on page 6.

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)	100 (A)	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	<5	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	--	--	--	--	--	--	--
	11/13/2003	1	<30	7.68	1,180	7.1	<5	<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
Replicate	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
	6/21/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	--
	11/15/2011	1	28	7.01	1,063	12.0	<5	<4	<5	<5	--	--	--	--	--	--	--
	6/27/2012	1.2	<40	6.99	1,057	14.4	<5	<4	<5	<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	--	--	--	--	--	--	--
Duplicate	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	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
Duplicate	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
	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	--	--	--	--	--	--	--
	6/11/2021	3.7	8.78 J	7.07	1,080	16.0	<5	<5	<5	16	30	40	40,000	21	<0.004	<0.02	125
	11/5/2021	2.5	<10	7.06	1,091	11.4	<5	<5	<5	11	--	--	--	--	--	--	--
	6/8/2022	5.4	<10	6.91	1,090	13.66	<5	<5	<5	11	<20	39	35200	22	<0.004	<0.02	124
	11/2/2022	3.3	4.16 J	6.81	1,086	13.42	<5	43	<5	43	--	--	--	21 L	--	--	--
	11/2/2022	3.2	11.2	6.81	1,006	13.42	<5	40	<5	45	--	--	--	20	--	--	--
	12/22/2022	--	--	--	--	--	--	34	--	--	--	--	--	--	--	--	--
	6/9/2023	1.3	4.82 J	6.97	1,100	14.65	<5	<5	8	12	<20	123	33300	24	<0.004	0	129
	11/8/2023	1.4	9.98 J	6.86	1,080	8.19	<5	<5	5	13	--	--	--	--	--	--	--

See notes on page 6.

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

Indicator Parameters										Dissolved Metals (µg/L)				Inorganics (mg/L)			
Vault	Sample Date	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) ,000 (E 100 (A) 2,400																	
B-19A	6/21/1995	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
	4/26/1999	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
	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
	5/16/2001	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
	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
	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	<5	7	170	<5	114,000	116	<0.005	<0.010	233
B-19AR	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
	12/8/2005	5.3	<30	7.13	1,390	12.3	10	<4	<5	<10	150	<20	74,800	--	--	--	--
Duplicate Re-sample	12/8/2005	5.5	<30	--	1,390	--	10	<4	<5	20	160	<20	81,400	--	--	--	--
	2/14/2006	--	--	7.95	840	5.9	<5	--	--	--	--	--	--	--	--	--	--
Replicate	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
	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
	11/13/2007	1.5	<30	7.27	1,070	12.1	3	7	26	11	--	--	--	--	--	--	--
Replicate	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
	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
	11/19/2009	2	<30	7.41	994	10.4	<5	<4	<5	7	--	--	--	--	--	--	--
Replicate	6/15/2010	2	<30	7.57	992	16.1	<5	<4	<5	<5	<20	<5	19,800	59	<0.005	<0.020	154
	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
	6/22/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	--
Re-sample	11/16/2011	2	26	7.06	1,091	8.4	<5	<4	<5	5	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
	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	36	7.33	1,104	11.6	<5	<4	10	<5	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
	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
	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
	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
	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
	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	--	--	--	--	--	--	--
	6/9/2021	4.0	5.8 J	7.28	1,194	18.1	<5	5	6	12	1,690	217	23,800	88	<0.004	<0.02	150
Re-sample	11/4/2021	3.6	10.1	7.14	926	11.4	<5	<5	<5	7	--	--	--	--	--	--	--
	6/9/2022	4.5	5.22 J	7.04	1,180	15.21	<5	<5	<5	<5	40	56	19,900	90	<0.004	<0.02	151
Re-sample	11/2/2022	3.1	12.5	6.82	1,126	13.81	<5	<5	<5	20	--	--	--	88	--	--	--
	6/12/2023	1.6	37.3	6.97	1,210	17.04	<5	7	<5	13	360	11	19,100	93	<0.004	<0.02	156
Duplicate	11/8/2023	1.6	4.90 J	7.22	1,240	11.05	<5	<5	<5	<5	--	--	--	--	--	--	--
	11/8/2023	1.6	7.40 J	7.22	1,230	11.05	<5	<5	<5	5	--	--	--	--	--	--	--

See notes on page 6.

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

Indicator Parameters							Dissolved Metals (µg/L)				Inorganics (mg/L)						
Vault	Sample Date	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-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
B-24R	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	<4	<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
	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
	6/21/2011	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
	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
	6/24/2014	3.7	16	7.10	1,201	13.9	<5	<5	7	<5	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	--	--	--	--	--	--	--
	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
	11/5/2020	5.2	18.5	7.07	1,257	14.4	<5	<5	<5	<5	--	--	--	--	--	--	--
	11/5/2020	5.2	4.26	7.07	1,226	14.4	<5	<5	<5	<5	--	--	--	--	--	--	--
	6/10/2021	5.3	11.4	7.24	1,295	17.8	<5	<5	<5	7	170	54	67,600	49	<0.004	<0.02	258
	11/5/2021	4.0	9.72 J	7.21	1,008	11.9	<5	<5	<5	<5	--	--	--	--	--	--	--
	11/5/2021	3.6	7.92 J	7.21	1,210	11.9	<5	<5	<5	6	--	--	--	--	--	--	--
	6/8/2022	7.3	17.7	7.09	1,320	12.89	<5	<5	<5	10	30	45	62,900	50	<0.004	<0.02	264
	11/2/2022	5.2	33.5	6.97	1,186	13.84	<5	<5	<5	10	--	--	--	46	--	--	--
	6/8/2023	2.7	12.8	7.04	1,370	19.47	<5	9	12	10	30.00	20.00	67800.00	51	<0.004	<0.02	287.00
	11/8/2023	3.2	11.1	7.29	1,330	7.94	<5	<5	<5	6	--	--	--	--	--	--	--

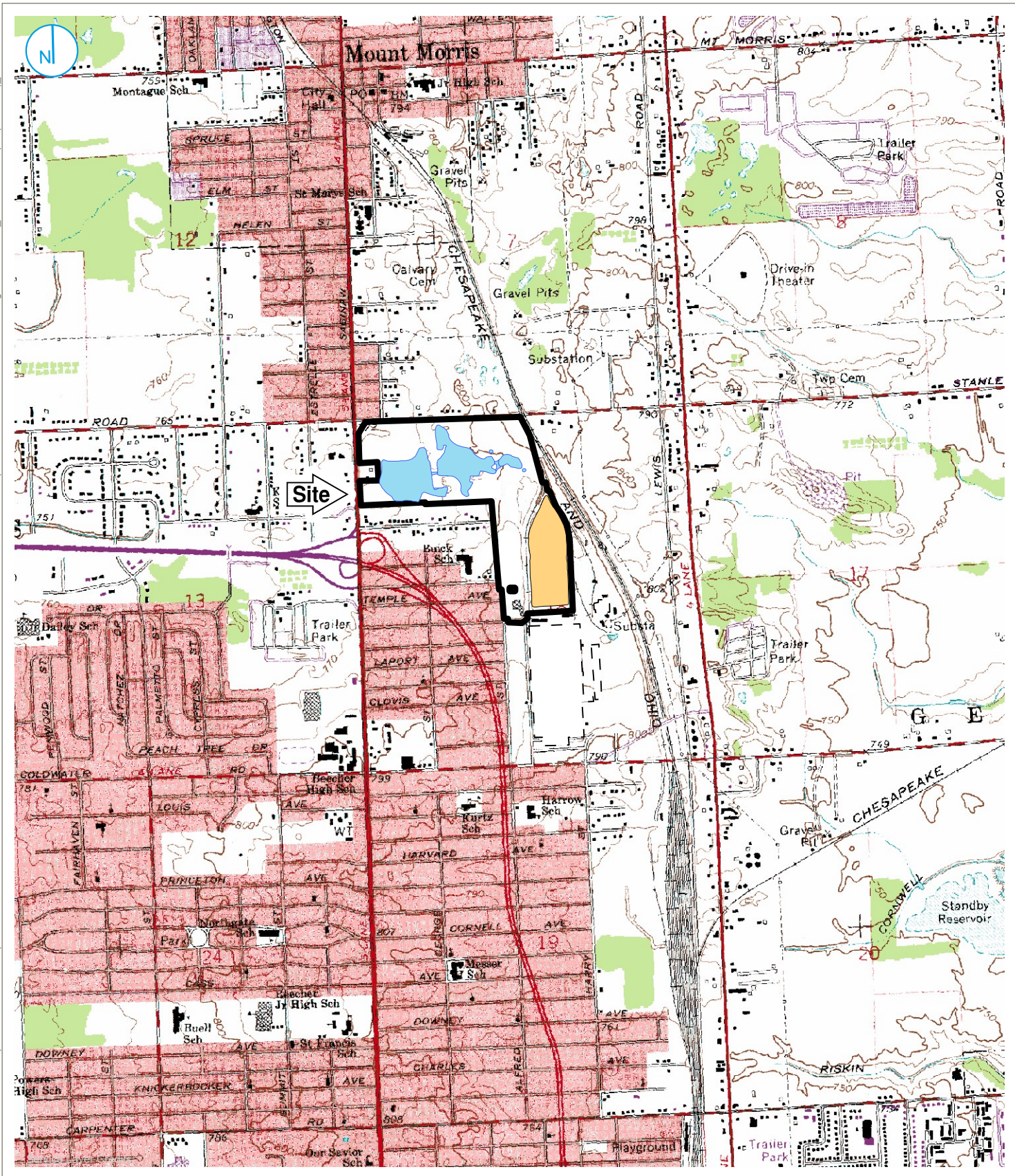
See notes on page 6.

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

Indicator Parameters							Dissolved Metals (µg/L)					Inorganics (mg/L)					
Vault	Sample Date	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) ,000 (E 100 (A) 2,400																	
Duplicate	11/21/2005	--	--	6.21	994	12.3	--	--	--	<5	--	--	--	--	--	--	--
	11/21/2005	--	--	6.21	--	12.3	--	--	--	7	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
Duplicate B-28	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	--	--	--	--	--	--	--
	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
Replicate	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
	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
Replicate	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
	11/7/2017	1.6	<30	7.11	859	12.5	<5	<5	<5	<5	--	--	--	--	--	--	--
Duplicate	11/7/2017	1.5	<30	7.11	867	12.5	<5	<5	<5	<5	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
Duplicate	11/7/2018	1.6	<150	7.37	880	11.8	<5	<5	<5	<5	--	--	--	--	--	--	--
	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	--	--	--	--	--	--	--
Duplicate	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	--	--	--	--	--	--	--
	6/9/2021	3.6	8.14 J	7.12	936	15.1	<5	<5	<5	<5	280	82	14,900	11	<0.004	<0.02	161
	11/5/2021	2.2	<10	7.26	674	12.2	<5	<5	<5	<5	--	--	--	--	--	--	--
	6/7/2022	5.1	9.16 J	6.97	936	11.09	<5	<5	<5	<5	810	93	20,100	12	<0.004	<0.02	166
	11/2/2022	3.1	6.34 J	6.90	936	15.15	<5	9	<5	6	--	--	--	11 L	--	--	--
Re-sample	12/21/2022	--	--	--	--	--	--	<5	--	--	--	--	--	--	--	--	--
	6/8/2023	1.6	<10	7.05	949	16.4	<5	<5	8	8	30	85	19,300	11	<0.004	<0.02	172
	11/8/2023	1.6	13.4	7.09	946	12.52	<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	--	<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	--	--	--	--	--	--	--
	6/10/2022	<1	<10	--	<1	--	<5	<5	<5	<5	<20	<5	<2,500	<2.5	<0.004	<0.02	<2.5

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.
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)
9) J = Value is estimated.
10) L = Elevated reporting limit due to low sample amount
11) Monitoring wells B-19 and B-24 were replaced on March 15, 2005.

FIGURES



Map Scale: 1:124,000;
Map Center: 83°41'9"W 43°5'51"N

- Wetlands
- Site Buildings
- Landfill-poly
- Former Powerhouse
- Former Plant
- Landfill Property

0 1,000 2,000 Feet

SITE LOCATION

FIGURE 01

RACER TRUST
Coldwater Road Landfill
Flint, Michigan

A RAMBOLL COMPANY

RAMBOLL



- DRIFT MONITORING WELL
- OTHER MONITORING WELL / PIEZOMETER
- PERCHED MONITORING WELL
- ABANDONED WELL
- LEACHATE COLLECTION SUMP
- ACCESS PORT FOR LEAK DETECTION VAULT
- PROPERTY BOUNDARY
- FORMER BUILDING

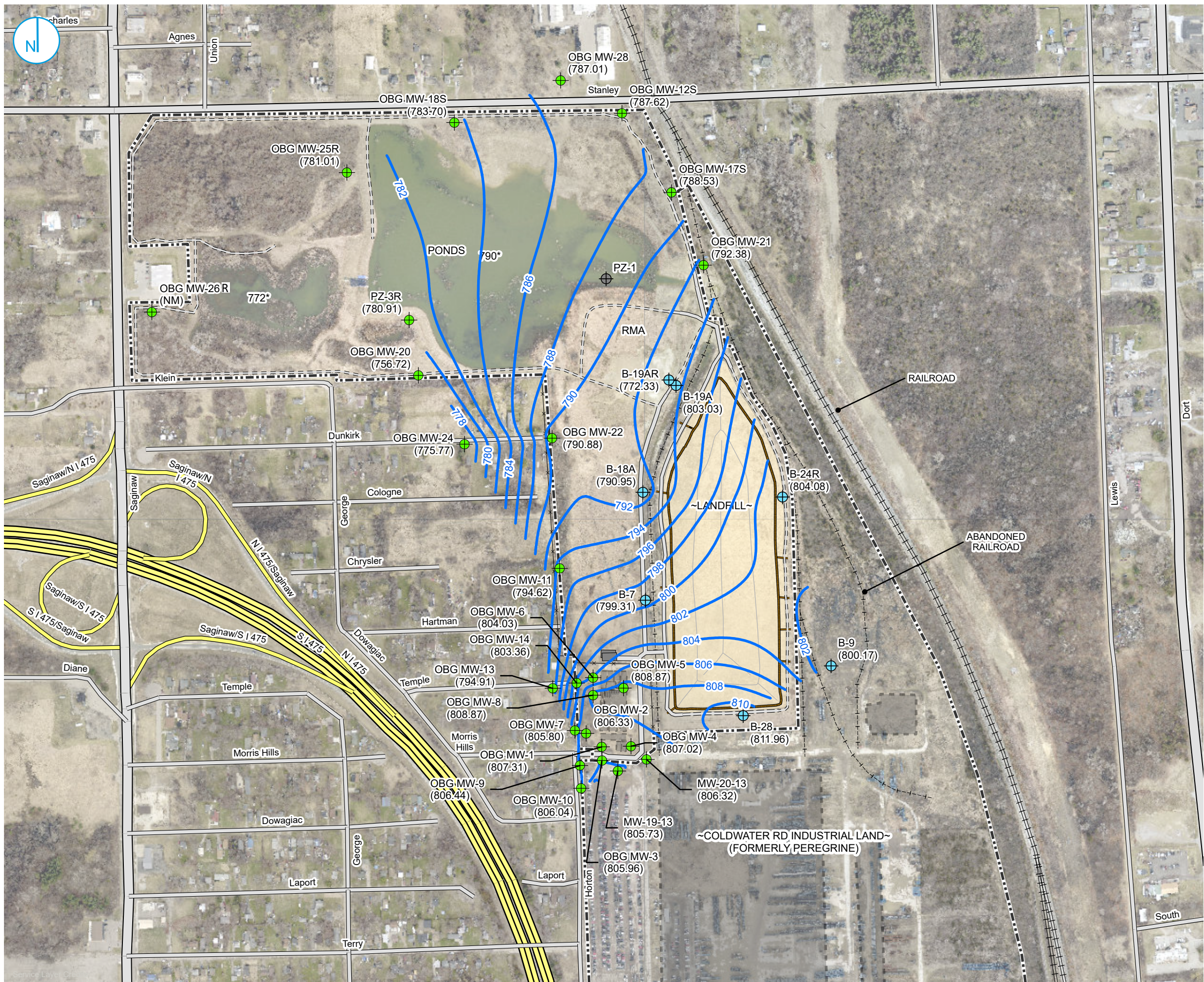
SITE LAYOUT

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY





- LANDFILL MONITORING WELL / PIEZOMETER
- OTHER MONITORING WELL / PIEZOMETER
- ABANDONED WELL;
- GROUNDWATER CONTOUR (NOVEMBER 6, 2023)
- PROPERTY BOUNDARY
- FORMER BUILDING
- (800.93) GROUNDWATER ELEVATION

NOTES

THE GROUNDWATER ELEVATION FOR MONITORING WELLS B-19A AND B-19AR WERE NOT USED IN DEVELOPING THE GROUNDWATER POTENTIOMETRIC SURFACE DUE TO THE DEPTH OF THESE WELLS AND VERTICAL GRADIENTS AT THE SITE.

MONITORING WELL OBG MW-20 WAS NOT USED IN DEVELOPING THE GROUNDWATER POTENTIOMETRIC SURFACE DUE TO ANOMOUS READING.

NM - DENOTES NOT MEASURED

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

772* - TRIGGER ELEVATION FOR POND DEWATERING.

0 225 450
Feet

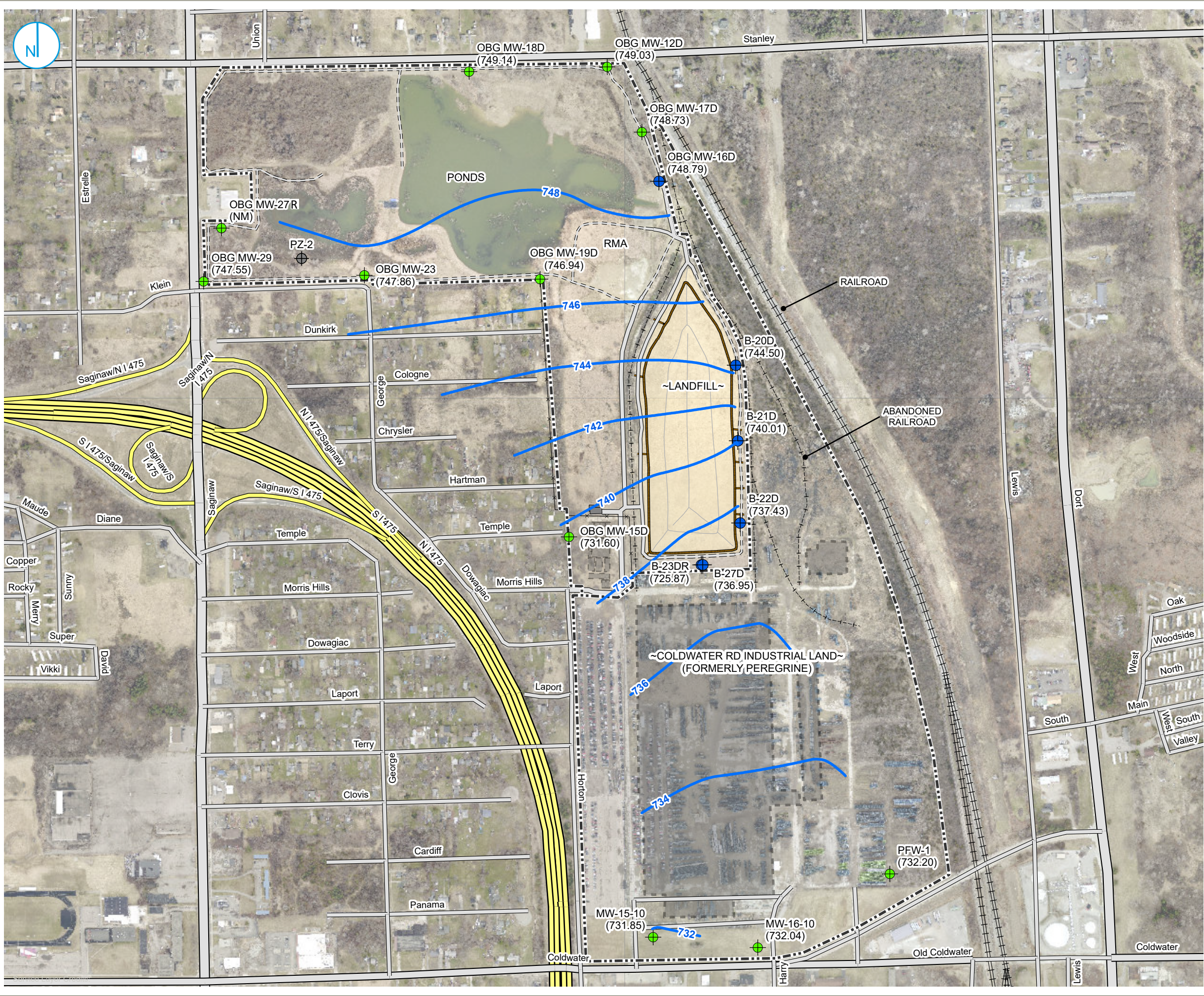
**PERCHED ZONE GROUNDWATER ELEVATION MAP
NOVEMBER 6, 2023**

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 3

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY





- LANDFILL MONITORING WELL / PIEZOMETER
- OTHER MONITORING WELL / PIEZOMETER
- ABANDONED WELL
- GROUNDWATER CONTOUR (NOVEMBER 6, 2023)
- 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 UNIT. NM - DENOTES NOT MEASURED

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 6, 2023

RACER TRUST
COLDWATER ROAD
FLINT, MICHIGAN

FIGURE 4

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY



APPENDIX A SAMPLING PROCEDURES

Table of Contents

<u>1 Introduction</u>	2
<u>2 Procedural Guidelines</u>	3
<u>2.1 Preparatory Requirements</u>	3
<u>2.2 Well Purging and Stabilization Monitoring (Low Stress/Low Flow Method)</u>	3
<u>2.3 Sample Preservation</u>	5
<u>2.4 Sample Management and Chain-of-Custody</u>	6
<u>2.5 Quality Assurance/Quality Control (QA/QC) Measures</u>	6
<u>3 References</u>	7

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

RAMBOLL		Standard Groundwater Sampling Log											
Date 11/6/2023 11/8/2023													
Site Name RACER Coldwater Rd		Weather 40-58 °F, cloudy, windy, rainy											
Location Flint, MI		Well # B-7											
Project No. 1940103462		Evacuation Method Whale Pump-Peristaltic											
Personnel KBS, SEH		Sampling Method Purged Dry											
Well Information:													
Depth of Well * 29.95 ft.		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											
Depth to Water * 13.85 20.25 ft.													
Length of Water Column 16.10 ft.													
Volume of Water in Well 2.62 gal.(s)													
3X Volume of Water in Well 7.88 gal.(s)		Volume removed before sampling 3.75 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 13.85		initial 12.79		initial 0.92		initial 5.83		initial 4.54		initial 72.1		initial 649	
5 min 24.92		13.81		0.90		6.98		4.76		30.8		108.0	
10 min Well purged dry - 27.96													
15 min													
20 min 11/8/2023													
25 min 20.25		6.8		0.84		12.18		7.07		107.7		54.9	
30 min 21.99		8.29		0.75		11.46		7.14		106.8		20.3	
35 min													
40 min													
45 min													
50 min													
55 min													
60 min													
65 min													
70 min													
75 min													
80 min													
85 min													
90 min													
Water Sample:													
Time Collected 15:36													
Physical Appearance at Start				Physical Appearance at Sampling									
Color Light Gray		Color Slightly Cloudy											
Odor None		Odor None											
Turbidity (> 100 NTU) 649		Turbidity (> 100 NTU) 20.3											
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		HNO3		yes					
TOC		2		40 ml Glass		H2SO4							
TOX		1		250 ml Plastic		H2SO4							
SpC		1		500 ml Plasic		None							
Notes:													
11/6/2023- Well ran dry 15:00													

RAMBOLL		Standard Groundwater Sampling Log											
Date11/7/2023 11/8/2023													
Site NameRACER Coldwater Rd		Weather42-56 °F Cold											
LocationFlint, MI		Well #B-9											
Project No.1940103462		Evacuation MethodWhale Pump-Peristaltic											
PersonnelKBS, SEH		Sampling MethodPurged Dry											
Well Information:													
Depth of Well *25.21ft.		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											
Depth to Water *1.70 4.32ft.													
Length of Water Column23.51ft.													
Volume of Water in Well3.83gal.(s)													
3X Volume of Water in Well11.50gal.(s)		Volume removed before sampling5.5gal.(s)											
		Did well go dry?yes											
* Measurements taken fromXWell CasingProtective Casing(Other, Specify)													
Instrument Calibration:Calibrated within range													
pHYes													
ORPYes													
ConductivityYes													
DOYes													
Water parameters:													
Drawdown measured0.3 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	
initial2.55		initial13.04		initial0.02		initial6.51		initial5.33		initial98.2		initial623	
5 min7.98		13.03		0.01		0.16		5.49		96.2		144	
10 min14.14		13.54		0.01		1.32		5.45		94.9		90	
15 min20.15		13.43		0.01		3.70		5.57		92.5		141	
20 min24.00		13.44		0.01		2.55		5.62		90.2		747	
25 minWell Purged Dry													
30 min													
35 min11/8/2023													
40 min4.82		7.93		2.11		5.87		6.92		75.4			
45 min5.41		8.98		2.18		5.74		6.78		17.6		1050	
50 min5.82		9.15		2.20		5.12		6.72		13.2		82.4	
55 min6.35		9.41		2.17		4.13		6.66		13.5		205	
60 min6.85		9.89		2.15		4.00		6.66		14.3		38.3	
65 min													
70 min													
75 min													
80 min													
85 min													
90 min													
Water Sample:													
Time Collected12:20													
Physical Appearance at Start				Physical Appearance at Sampling									
ColorBrown/ Light Brown		ColorBrown/ Slightly Cloudy											
OdorNone		OdorNone											
Turbidity (> 100 NTU)623		Turbidity (> 100 NTU)38.3											
Sheen/Free ProductNone		Sheen/Free ProductNone											
Samples collected:													
Analyses		# Bottles	Bottle size/type	Preservative	Field Filtered								
Dissolved Metals - Cu, Cr, Ni, Zn		1	125 ml Plastic	HNO3	yes								
TOC		2	40 ml Glass	H2SO4									
TOX		1	250 ml Plastic	H2SO4									
SpC		1	500 ml Plasic	None									
Notes:													
11/7/2023 - 9:53 well ran dry													
Turbidity 32.5 before filter 5.07 after filter.													

RAMBOLL		Standard Groundwater Sampling Log				
Date11/6/2023 11/8/2023		Weather42-56 °F Cold				
Site NameRACER Coldwater Rd		Well #B-18A				
LocationFlint, MI		Evacuation MethodWhale Pump-Peristaltic				
Project No.1940103462		Sampling MethodPurge Dry				
PersonnelKBS, SEH						
Well Information:						
Depth of Well *43.58 ft.		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				
Depth to Water *19.41 28.40 ft.						
Length of Water Column24.17 ft.						
Volume of Water in Well3.94 gal.(s)						
3X Volume of Water in Well11.82 gal.(s)		Volume removed before sampling5.75 gal.(s)				
		Did well go dry?yes				
* Measurements taken fromX Well CasingProtective Casing(Other, Specify)						
Instrument Calibration:Calibrated within range						
pHYes						
ORPYes						
ConductivityYes						
DOYes						
Water parameters:						
Drawdown measured0.3 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
initial19.85	initial13.60	initial0.79	initial3.51	initial7.24	initial86.9	initial234
5 min26.90	11.76	0.68	0.23	6.57	76.1	75.8
10 min32.98	12.08	0.69	0.23	6.62	81.0	39.2
15 min39.29	12.52	0.68	0.63	6.89	70.9	83.5
20 minWell Purged Dry						
25 min						
30 min11/8/2023						
35 min28.45	8.41	0.83	9.54	6.89	92.3	261
40 min28.92	8.19	0.85	3.21	6.86	66.6	179
45 min						
50 min						
55 min						
60 min						
65 min						
70 min						
75 min						
80 min						
85 min						
90 min						
95 min						
Water Sample:						
Time Collected11:04						
Physical Appearance at Start			Physical Appearance at Sampling			
ColorLight Gray			ColorLight Gray			
OdorNone			OdorNone			
Turbidity (> 100 NTU)234			Turbidity (> 100 NTU)179			
Sheen/Free ProductNone			Sheen/Free ProductNone			
Samples collected:						
Analyses	# Bottles	Bottle size/type	Preservative	Field Filtered		
Dissolved Metals - Cu, Cr, Ni, Zn	1	125 ml Plastic	HNO3	yes		
TOC	2	40 ml Glass	H2SO4			
TOX	1	250 ml Plastic	H2SO4			
SpC	1	500 ml Plasic	None			
Notes:						
11/6/2023 - 15:45 well ran dry						
Turbidity before filter 65.8 and after 32.3.						

V:\files\Projects\IREH2023\N011\XX\IREH2023\N01151\Document\Reports\GW Monitoring\Annual 2023\Appendix\Coldwater GW Sampling log - November 2023.xlsx

RAMBOLL		Standard Groundwater Sampling Log				
Date	11/6/2023 11/8/2023					
Site Name	RACER Coldwater Rd					
Location	Flint, MI					
Project No.	1940103462					
Personnel	KBS, SEH					
Weather	44-58 °F, cloudy,sunny, rainy					
Well #	B-19AR					
Evacuation Method	Whale Pump					
Sampling Method	Purge Dry					
Well Information:						
Depth of Well *	47.14	ft.	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			
Depth to Water *	39.05 39.82	ft.				
Length of Water Column	8.09	ft.				
Volume of Water in Well	1.32	gal.(s)				
3X Volume of Water in Well	3.96	gal.(s)	Volume removed before sampling 3.5 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 39.89	initial 15.42	initial PNW	initial 9.49	initial 7.33	initial 70.6	initial 631
5 min 41.72	12.30	0.84	10.97	7.04	17.1	102
10 min 43.59	12.24	0.82	10.78	7.05	7.9	89.4
15 min 46.61	12.29	0.34	10.06	7.11	4.7	
20 min Well Purged Dry- 16:27						
25 min						
30 min						
35 min 11/8/2023						
40 min 39.82	8.90	0.88	11.48	7.16	125.4	247
45 min 40.23	10.52	0.89	10.92	7.30	120.1	161
50 min 41.42	11.05	0.86	10.71	7.22	120.2	63.2
55 min						
60 min						
65 min						
70 min						
75 min						
80 min						
85 min						
90 min						
Water Sample:						
Time Collected	15:10					
Physical Appearance at Start	Physical Appearance at Sampling					
Color	Light Gray	Color	Cloudy			
Odor	None	Odor	None			
Turbidity (> 100 NTU)	631	Turbidity (> 100 NTU)	63.2			
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	HNO3	yes		
TOC	2	40 ml Glass	H2SO4			
TOX	1	250 ml Plastic	H2SO4			
SpC	1	500 ml Plastic	None			
Notes: Duplicate collected turbidity after filtration 0.02.						

RAMBOLL		Standard Groundwater Sampling Log											
Date 11/6/2023 11/8/2023													
Site Name RACER Coldwater Rd		Weather 44-58 °F, cloudy, cold											
Location Flint, MI		Well # B-24R											
Project No. 1940103462		Evacuation Method Whale Pump-Peristaltic											
Personnel KBS, SEH		Sampling Method Purge Dry											
Well Information:													
Depth of Well * 30.41 ft.		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											
Depth to Water * 12.23 12.20 ft.													
Length of Water Column 18.18 ft.													
Volume of Water in Well 2.96 gal.(s)		Volume removed before sampling 10 gal.(s)											
3X Volume of Water in Well 8.89 gal.(s)		Did well go dry? yes											
* Measurements taken from X 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 12.62		initial 11.59		initial 1.13		initial 9.63		initial 7.07		initial 46.1		initial 199	
5 min 16.13		11.82		1.17		10.44		7.03		37.4		105	
10 min 20.56		12.76		1.15		9.85		7.05		28.4		48.2	
15 min 22.03		12.78		1.15		9.71		7.07		25.2		133	
20 min 27.53		12.17		1.13		9.51		7.06		17.9		187	
25 min 28.13		12.04		1.12		9.42		7.06		16.6		181	
30 min Water level hitting top of pump 12.48		1.09		8.24		7.06		19.3		565			
35 min 12.57		1.08		8.21		7.15		20.3		448			
40 min Well purged dry - 28.31													
45 min													
50 min 11/8/2023													
55 min 12.88		6.56		0.00		12.46		7.19		46.3		53.3	
60 min 13.05		7.88		0.00		12.01		7.29		34.2		36.1	
65 min		7.94		0.00		11.98		7.29		32.9		28.2	
70 min													
75 min													
80 min													
85 min													
90 min													
Water Sample:													
Time Collected 10:04													
Physical Appearance at Start						Physical Appearance at Sampling							
Color						Clear							
Odor None						None							
Turbidity (> 100 NTU) 199						28.2							
Sheen/Free Product None						None							
Samples collected:													
Analyses		# Bottles		Bottle size/type		Preservative		Field Filtered					
Dissolved Metals - Cu, Cr, Ni, Zn		1		125 ml Plastic		HNO3		yes					
TOC		2		40 ml Glass		H2SO4							
TOX		1		250 ml Plastic		H2SO4							
SpC		1		500 ml Plastic		None							
Notes:													
11/6/2023 - 14:43 well ran dry													

RAMBOLL		Standard Groundwater Sampling Log				
Date 11/7/23 11/8/23						
Site Name RACER Coldwater Rd		Weather 44-55 °F cold, cloudy				
Location Flint, MI		Well # B-28				
Project No. 1940103462		Evacuation Method Whale Pump-Peristaltic				
Personnel KBS, SEH		Sampling Method Purge Dry				
Well Information:						
Depth of Well * 33.02 ft.		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				
Depth to Water * 4.11 4.49 ft.						
Length of Water Column 28.91 ft.						
Volume of Water in Well 4.71 gal.(s)						
3X Volume of Water in Well 14.14 gal.(s)		Volume removed before sampling 35.75 gal.(s)				
		Did well go dry? no				
* Measurements taken from X 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 4.75	initial 11.96	initial 0.91	initial 0.56	initial 7.07	initial 8.3	initial 63.1
5 min 8.98	12.12	0.91	0.04	7.04	4.5	51.3
10 min 10.59	12.41	0.91	0.02	7.04	0.1	28.7
15 min 11.91	12.54	0.92	0.16	7.04	-2.8	21.0
20 min 12.80	12.52	0.92	0.50	7.08	-5.0	15.0
25 min 13.53	12.48	0.92	0.75	7.08	-6.2	9.0
30 min 14.11	12.46	0.92	0.77	7.09	-9.4	7.63
35 min 15.52	12.53	0.92	0.71	7.08	-11.4	17.4
40 min 19.71	12.73	0.91	1.66	7.13	-18.6	11.8
45 min 21.77	12.77	0.91	1.41	7.12	-19.2	18.9
50 min 22.59	12.72	0.91	1.01	7.11	-22.2	12.6
55 min 22.21	12.64	0.91	0.58	7.10	-23.1	9.63
60 min 23.49	12.63	0.92	0.44	7.09	-25.4	7.26
65 min 23.26	12.61	0.92	0.10	7.09	-35.8	5.58
70 min 22.55	12.93	0.92	0.47	7.07	-36.3	25.5
75 min 23.43	12.75	0.92	0.37	7.10	-39.6	22.0
80 min 23.72	12.79	0.92	0.51	7.11	-39.5	23.2
85 min 25.44	12.70	0.91	0.78	7.14	-40.4	140
90 min 27.65	12.59	0.90	0.72	7.13	-34.8	286
95 min 29.02	12.37	0.88	0.81	7.12	-24.2	299
100 min 30.16	12.28	0.87	0.50	7.11	-18.9	204
105 min 31.38	12.15	0.87	1.76	7.15	-18.0	396
110 min Water level hitting top of pump	12.33	0.89	2.01	7.16	-12.2	341
115 min	12.69	0.89	7.53	7.29	4.3	68.7
120 min	12.50	0.89	6.73	7.25	9.4	164
125 min	12.79	0.89	8.23	7.28	15.0	95.6
130 min	12.86	0.89	8.15	7.26	18.6	48.5
135 min	12.93	0.90	8.44	7.26	21.8	25.3
140 min	12.31	0.88	8.00	7.29	23.0	61.7
145 min	12.89	0.90	8.23	7.25	25.5	24.8
150 min	12.91	0.90	8.73	7.22	26.9	22.1
155 min	12.91	0.90	8.22	7.22	28.1	13.3
160 min	12.84	0.88	7.95	7.20	29.3	59.5
165 min	12.84	0.89	8.16	7.20	31.1	14.5
11/8/2023						
170 min 4.49	9.67	0.20	8.78	7.10	34.5	78.4
175 min 5.24	9.53	0.17	8.89	7.09	39.4	48.7
180 min 5.41	9.45	0.17	8.93	7.09	41.6	43.2
Water Sample:						
Time Collected 15:10						
Physical Appearance at Start Physical Appearance at Sampling						
Color Clear						
Odor None						
Turbidity (> 100 NTU) 63.1						
Turbidity (> 100 NTU) 43.2						
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 HNO3 yes						
TOC 2 40 ml Glass H2SO4						
TOX 1 250 ml Plastic H2SO4						
SpC 1 500 ml Plastic None						
Notes:						
11/6/2023 Well was purged at 100 ml/min for first 60 min due to low battery power on pump.						
11/8/2023 rate 100 ml/min total volume removed 0.5 gal. Drawdown at end of sampling 5.84 ft.						

APPENDIX C

ANALYTICAL LABORATORY RESULTS



Analytical Laboratory Report

Report ID: S55608.01(01)
Generated on 11/29/2023

Report to
Attention: Clifford Yantz
Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

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): S55608.01-S55608.07
Project: RACER Coldwater Road
Collected Date(s): 11/08/2023
Submitted Date/Time: 11/10/2023 08:15
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK001

Table of Contents

- Cover Page (Page 1)
- General Report Notes (Page 2)
- Report Narrative (Page 2)
- Laboratory Accreditations (Page 3)
- Qualifier Descriptions (Page 3)
- Glossary of Abbreviations (Page 3)
- Method Summary (Page 4)
- 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).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

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, and 2-chloroethylvinyl ether 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.

Starred (*) analytes are not NY 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.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

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
SW9020B	SW 846 Method 9020B Revision 2 September 1994



Analytical Laboratory Report

Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S55608.01	B-24R	Groundwater	11/08/23 10:04
S55608.02	B-18A	Groundwater	11/08/23 11:04
S55608.03	B-9	Groundwater	11/08/23 12:20
S55608.04	B-19AR	Groundwater	11/08/23 15:10
S55608.05	B-28	Groundwater	11/08/23 15:10
S55608.06	B-7	Groundwater	11/08/23 15:36
S55608.07	GW-DUP-110923	Groundwater	11/08/23 00:01



Analytical Laboratory Report

Lab Sample ID: S55608.01

Sample Tag: B-24R

Collected Date/Time: 11/08/2023 10:04

Matrix: Groundwater

COC Reference: 165444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	H2SO4	Yes	4.7	IR
1	8oz Glass	H2SO4	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
1	250ml Plastic	None	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/10/23 13:00	CCM	

Inorganics

Method: E120.1, Run Date: 11/15/23 16:23, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,330	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/13/23 17:53, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	3.2	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/10/23 14:19, 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	0.006	0.005		mg/L	5	7440-66-6	

Organics

Method: SW9020B, Run Date: 11/29/23 04:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOX*	Completed	3,000		ug/L	1		O

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



Analytical Laboratory Report

Lab Sample ID: S55608.02

Sample Tag: B-18A

Collected Date/Time: 11/08/2023 11:04

Matrix: Groundwater

COC Reference: 165444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	H2SO4	Yes	4.7	IR
1	8oz Glass	H2SO4	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
1	250ml Plastic	None	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/10/23 13:00	CCM	

Inorganics

Method: E120.1, Run Date: 11/15/23 16:28, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,080	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/13/23 18:09, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	1.4	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/10/23 14:21, 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	0.005	0.005		mg/L	5	7440-02-0	
Zinc, Dissolved	0.013	0.005		mg/L	5	7440-66-6	

Organics

Method: SW9020B, Run Date: 11/25/23 02:10, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOX*	Completed	3,000		ug/L	1		O

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



Analytical Laboratory Report

Lab Sample ID: S55608.03

Sample Tag: B-9

Collected Date/Time: 11/08/2023 12:20

Matrix: Groundwater

COC Reference: 165444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	H2SO4	Yes	4.7	IR
1	8oz Glass	H2SO4	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
1	250ml Plastic	None	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/10/23 13:00	CCM	

Inorganics

Method: E120.1, Run Date: 11/15/23 16:34, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	2,630	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/13/23 18:25, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	1.9	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/10/23 14:22, 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	Not detected	0.005		mg/L	5	7440-66-6	

Organics

Method: SW9020B, Run Date: 11/29/23 05:08, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOX*	Completed	3,000		ug/L	1		O

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



Analytical Laboratory Report

Lab Sample ID: S55608.04

Sample Tag: B-19AR

Collected Date/Time: 11/08/2023 15:10

Matrix: Groundwater

COC Reference: 165444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	H2SO4	Yes	4.7	IR
1	8oz Glass	H2SO4	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
1	250ml Plastic	None	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/10/23 13:00	CCM	

Inorganics

Method: E120.1, Run Date: 11/15/23 16:54, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,240	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/13/23 18:41, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	1.6	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/10/23 14:24, 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	

Organics

Method: SW9020B, Run Date: 11/25/23 03:25, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOX*	Completed	3,000		ug/L	1		O

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



Analytical Laboratory Report

Lab Sample ID: S55608.05

Sample Tag: B-28

Collected Date/Time: 11/08/2023 15:10

Matrix: Groundwater

COC Reference: 165444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	H2SO4	Yes	4.7	IR
1	8oz Glass	H2SO4	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
1	250ml Plastic	None	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/10/23 13:00	CCM	

Inorganics

Method: E120.1, Run Date: 11/15/23 16:55, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	946	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/13/23 18:57, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	1.6	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/10/23 14:25, 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	

Organics

Method: SW9020B, Run Date: 11/25/23 03:52, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOX*	Completed	3,000		ug/L	1		O

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



Analytical Laboratory Report

Lab Sample ID: S55608.06

Sample Tag: B-7

Collected Date/Time: 11/08/2023 15:36

Matrix: Groundwater

COC Reference: 165444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	H2SO4	Yes	4.7	IR
1	8oz Glass	H2SO4	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
1	250ml Plastic	None	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/10/23 13:00	CCM	

Inorganics

Method: E120.1, Run Date: 11/15/23 16:57, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,010	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/13/23 19:13, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	5.4	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/10/23 14:27, 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	

Organics

Method: SW9020B, Run Date: 11/29/23 06:05, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOX*	Completed	3,000		ug/L	1		O

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



Analytical Laboratory Report

Lab Sample ID: S55608.07

Sample Tag: GW-DUP-110923

Collected Date/Time: 11/08/2023 00:01

Matrix: Groundwater

COC Reference: 165444

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	H2SO4	Yes	4.7	IR
1	8oz Glass	H2SO4	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
1	250ml Plastic	None	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/10/23 13:00	CCM	

Inorganics

Method: E120.1, Run Date: 11/15/23 16:58, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Conductivity	1,230	1		umhos/cm	1		

Method: SM5310C, Run Date: 11/13/23 19:29, Analyst: PJH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	1.6	1		mg/L	1		

Metals

Method: E200.8, Run Date: 11/10/23 14:28, 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	0.005	0.005		mg/L	5	7440-66-6	

Organics

Method: SW9020B, Run Date: 11/29/23 06:38, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOX*	Completed	3,000		ug/L	1		O

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

Merit Laboratories Login Checklist

Lab Set ID:S55608

Client:RAMBOLL (Ramboll Americas)

Project: RACER Coldwater Road

Submitted: 11/10/2023 08:15 Login User: MMC

Attention: Clifford Yantz

Address: Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

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

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 4.7
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☒ Yes ☐ No ☐ N/A	Samples left in 24 hr. drop box
05.	☒ Yes ☐ No ☐ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☒ Yes ☐ No ☐ N/A	Subcontracting needed? Subcontacted to: GEL
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☒ Yes ☐ No ☐ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☒ No ☐ 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: S55608 Submitted: 11/10/2023 08:15

Client: RAMBOLL (Ramboll Americas)

Project: RACER Coldwater Road

Initial Preservation Check: 11/10/2023 08:33 MMC

Preservation Recheck (E200.8): N/A

Attention: Clifford Yantz

Address: Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

Phone: 313-333-0211

FAX:

Email: Clifford.Yantz@ramboll.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S55608.01	125ml Plastic HNO3	<2			
S55608.02	125ml Plastic HNO3	<2			
S55608.03	125ml Plastic HNO3	<2			
S55608.04	125ml Plastic HNO3	<2			
S55608.05	125ml Plastic HNO3	<2			
S55608.06	125ml Plastic HNO3	<2			
S55608.07	125ml Plastic HNO3	<2			

November 29, 2023

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

Re: Halogen Analysis
Work Order: 645214
SDG: S55608

Dear John Laverty:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 14, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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. 1614.

Sincerely,



Olivia Olsen for
Delaney Stone
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: S55608 GEL Work Order: 645214

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 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, Delaney Stone.

Reviewed by



GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: November 29, 2023

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

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

Client Sample ID: S55608.01 Project: MERI00220
Sample ID: 645214001 Client ID: MERI001
Matrix: Ground Water
Collect Date: 08-NOV-23 10:04
Receive Date: 14-NOV-23
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		11.1	3.33	10.0	ug/L		1	RMJ	11/29/23	0430	2531950	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 29, 2023

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

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

Client Sample ID: S55608.02 Project: MERI00220
Sample ID: 645214002 Client ID: MERI001
Matrix: Ground Water
Collect Date: 08-NOV-23 11:04
Receive Date: 14-NOV-23
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	9.98	3.33	10.0	ug/L		1	RMJ	11/25/23	0210	2530817	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 29, 2023

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

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

Client Sample ID: S55608.03 Project: MERI00220
Sample ID: 645214003 Client ID: MERI001
Matrix: Ground Water
Collect Date: 08-NOV-23 12:20
Receive Date: 14-NOV-23
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		16.7	3.33	10.0	ug/L		1	RMJ	11/29/23	0508	2531950	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 29, 2023

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

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

Client Sample ID: S55608.04 Project: MERI00220
Sample ID: 645214004 Client ID: MERI001
Matrix: Ground Water
Collect Date: 08-NOV-23 15:10
Receive Date: 14-NOV-23
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	4.90	3.33	10.0	ug/L		1	RMJ	11/25/23	0325	2530817	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 29, 2023

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

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

Client Sample ID: S55608.05 Project: MERI00220
Sample ID: 645214005 Client ID: MERI001
Matrix: Ground Water
Collect Date: 08-NOV-23 15:10
Receive Date: 14-NOV-23
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		13.4	3.33	10.0	ug/L		1	RMJ	11/25/23	0352	2530817	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 29, 2023

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

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

Client Sample ID: S55608.06 Project: MERI00220
Sample ID: 645214006 Client ID: MERI001
Matrix: Ground Water
Collect Date: 08-NOV-23 15:36
Receive Date: 14-NOV-23
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		24.7	3.33	10.0	ug/L		1	RMJ	11/29/23	0605	2531950	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 29, 2023

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

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

Client Sample ID: S55608.07 Project: MERI00220
Sample ID: 645214007 Client ID: MERI001
Matrix: Ground Water
Collect Date: 08-NOV-23 00:01
Receive Date: 14-NOV-23
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	7.40	3.33	10.0	ug/L		1	RMJ	11/29/23	0638	2531950	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

QC Summary

Report Date: November 29, 2023

Page 1 of 2

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

Contact:

645214

Workorder:

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Halogen Analysis											
Batch	2530817										
QC1205584162	643701005	DUP									
Total Organic Halogens			U	ND	ug/L	N/A		(+/-10.0)	RMJ	11/24/23	22:55
QC1205584161	LCS										
Total Organic Halogens	100			103	ug/L		103	(73%-117%)		11/24/23	22:28
QC1205584160	MB										
Total Organic Halogens			U	ND	ug/L					11/24/23	22:08
QC1205584163	643701005	MS									
Total Organic Halogens	100			91.4	ug/L		89	(55%-128%)		11/24/23	23:31
Batch	2531950										
QC1205586435	643869001	DUP									
Total Organic Halogens		U	ND	U	ND	ug/L	N/A		RMJ	11/29/23	03:22
QC1205586434	LCS										
Total Organic Halogens	100			95.2	ug/L		95.2	(73%-117%)		11/28/23	23:53
QC1205586433	MB										
Total Organic Halogens			U	ND	ug/L					11/28/23	23:32
QC1205586436	643869001	MS									
Total Organic Halogens	100	U	ND	84.3	ug/L		81.2	(55%-128%)		11/29/23	03:41

Notes:

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- H Analytical holding time was exceeded

GEL LABORATORIES LLC

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

QC Summary

Workorder: 645214

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
<	Result is less than value reported										
>	Result is greater than value reported										
h	Preparation or preservation holding time was exceeded										
R	Sample results are rejected										
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.										
d	5-day BOD--The 2:1 depletion requirement was not met for this sample										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
N/A	RPD or %Recovery limits do not apply.										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
N1	See case narrative										
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.										
B	The target analyte was detected in the associated blank.										
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes										
J	See case narrative for an explanation										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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 QC Summary.

**General Chemistry
Technical Case Narrative
Merit Laboratories, Inc.
SDG #: S55608
Work Order #: 645214**

Product: Total Organic Halogens (TOX)

Analytical Method: SW846 9020B

Analytical Procedure: GL-GC-E-007 REV# 17

Analytical Batch: 2530817

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
645214002	S55608.02
645214004	S55608.04
645214005	S55608.05
1205584160	Method Blank (MB)
1205584161	Laboratory Control Sample (LCS)
1205584162	643701005(NonSDG) Sample Duplicate (DUP)
1205584163	643701005(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.

Product: Total Organic Halogens (TOX)

Analytical Method: SW846 9020B

Analytical Procedure: GL-GC-E-007 REV# 17

Analytical Batch: 2531950

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
645214001	S55608.01
645214003	S55608.03
645214006	S55608.06
645214007	S55608.07
1205586433	Method Blank (MB)
1205586434	Laboratory Control Sample (LCS)
1205586435	643869001(NonSDG) Sample Duplicate (DUP)
1205586436	643869001(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.

Technical Information

Sample Re-analysis

Samples were re-analyzed to verify the results. The reanalysis data with passing instrument QC was reported. 645214001 (S55608.01) and 645214003 (S55608.03).

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.

RELINQUISHED BY:	☐ Sampler	DATE	TIME	RELINQUISHED BY:	DATE	TIME
SIGNATURE/ORGANIZATION		11/13/23	1700	SIGNATURE/ORGANIZATION		
RECEIVED BY:		DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE/ORGANIZATION		11/13/23	1700	SIGNATURE/ORGANIZATION		
RELINQUISHED BY:		DATE	TIME	SEAL NO.	SEAL INTACT	INITIALS
SIGNATURE/ORGANIZATION		11/14/23	1000	YES ☐	NO ☐	
RECEIVED BY:		DATE	TIME	SEAL NO.	SEAL INTACT	INITIALS
SIGNATURE/ORGANIZATION		11/14/23	1000	YES ☐	NO ☐	
				NOTES: TEMP. ON ARRIVAL _____		

BAC 5-18-12

SAMPLE RECEIPT & REVIEW FORM

Client: NERI		SDG/AR/COC/Work Order: 645214	D.S.
Received By: Thyasia Tatum		Date Received: 11-14-23	
Carrier and Tracking Number		FedEx Express FedEx Ground <u>UPS</u> Field Services Courier Other 12 4000 477 01 0340 9771	
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?	Yes ☒ No ☐	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?	Yes ☒ No ☐	COC notation or radioactive stickers on containers equal client designation.	
C) Did the RSO classify the samples as radioactive?	Yes ☒ No ☐	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?	Yes ☒ No ☐	COC notation or hazard labels on containers equal client designation.	
E) Did the RSO identify possible hazards?	Yes ☒ No ☐	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: _____	
Sample Receipt Criteria		Yes ☐ No ☒ NA ☒	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	☒	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	☒	Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	☒	Preservation Method: <u>0</u> Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 2°C
4	Daily check performed and passed on IR temperature gun?	☒	Temperature Device Serial #: <u>IR2-23</u> Secondary Temperature Device Serial # (If Applicable): _____
5	Sample containers intact and sealed?	☒	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	☒	Sample ID's and Containers Affected: _____ If Preservation added, Lot#: _____
7	Do any samples require Volatile Analysis?	☒	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?	☒	ID's and tests affected: _____
9	Sample ID's on COC match ID's on bottles?	☒	ID's and containers affected: _____
10	Date & time on COC match date & time on bottles?	☒	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?	☒	Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	☒	
13	COC form is properly signed in relinquished/received sections?	☒	Circle Applicable: Not relinquished Other (describe)
Comments (Use Continuation Form if needed):			

PM (or PMA) review: Initials **AM** Date **11/15/23** Page **1** of **1**

List of current GEL Certifications as of 29 November 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-00651
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	KY90129
Kentucky Wastewater	KY90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2023019
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122024-05
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	2023-152
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	T104704235-23-21
Utah NELAP	SC000122023-38
Vermont	VT87156
Virginia NELAP	460202
Washington	C780



Quality Control Report

Report ID: QC-S55608-01
Generated on 11/30/2023

Report to

Attention: Clifford Yantz
Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

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): S55608.01-S55608.07
Project: RACER Coldwater Road
Submitted Date/Time: 11/10/2023 08:15
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK001

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-8)
Prep Batch Summary (Page 9)
Batch QC Results (Pages 10-12)

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: S55608.01

Sample Tag: B-24R

Collected Date/Time: 11/08/2023 10:04

Matrix: Groundwater

COC Reference: 165444

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/15/23 16:23	COND2311115-W1	COND2311115-W1	No	BLK/LCS/DUP
TOC	SM5310C	11/13/23 17:53	TOC2311113-W1	TOC2311113-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/10/23 14:19	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/10/23 14:19	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/10/23 14:19	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/10/23 14:19	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S55608.02

Sample Tag: B-18A

Collected Date/Time: 11/08/2023 11:04

Matrix: Groundwater

COC Reference: 165444

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/15/23 16:28	COND2311115-W1	COND2311115-W1	No	BLK/LCS/DUP
TOC	SM5310C	11/13/23 18:09	TOC2311113-W1	TOC2311113-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/10/23 14:21	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/10/23 14:21	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/10/23 14:21	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/10/23 14:21	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S55608.03

Sample Tag: B-9

Collected Date/Time: 11/08/2023 12:20

Matrix: Groundwater

COC Reference: 165444

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/15/23 16:34	COND2311115-W1	COND2311115-W1	No	BLK/LCS/DUP
TOC	SM5310C	11/13/23 18:25	TOC2311113-W1	TOC2311113-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/10/23 14:22	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/10/23 14:22	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/10/23 14:22	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/10/23 14:22	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S55608.04

Sample Tag: B-19AR

Collected Date/Time: 11/08/2023 15:10

Matrix: Groundwater

COC Reference: 165444

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/15/23 16:54	COND2311115-W1	COND2311115-W1	No	BLK/LCS/DUP
TOC	SM5310C	11/13/23 18:41	TOC2311113-W1	TOC2311113-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/10/23 14:24	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/10/23 14:24	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/10/23 14:24	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/10/23 14:24	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S55608.05

Sample Tag: B-28

Collected Date/Time: 11/08/2023 15:10

Matrix: Groundwater

COC Reference: 165444

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/15/23 16:55	COND2311115-W1	COND2311115-W1	No	BLK/LCS/DUP
TOC	SM5310C	11/13/23 18:57	TOC2311113-W1	TOC2311113-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/10/23 14:25	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/10/23 14:25	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/10/23 14:25	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/10/23 14:25	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S55608.06

Sample Tag: B-7

Collected Date/Time: 11/08/2023 15:36

Matrix: Groundwater

COC Reference: 165444

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/15/23 16:57	COND2311115-W1	COND2311115-W1	No	BLK/LCS/DUP
TOC	SM5310C	11/13/23 19:13	TOC2311113-W1	TOC2311113-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/10/23 14:27	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/10/23 14:27	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/10/23 14:27	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/10/23 14:27	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD

QC Report - Analysis Summary

Lab Sample ID: S55608.07

Sample Tag: GW-DUP-110923

Collected Date/Time: 11/08/2023 00:01

Matrix: Groundwater

COC Reference: 165444

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Conductivity	E120.1	11/15/23 16:58	COND2311115-W1	COND2311115-W1	No	BLK/LCS/DUP
TOC	SM5310C	11/13/23 19:29	TOC2311113-W1	TOC2311113-W1	No	BLK/LCS/MS/MSD/DU
<i>Metals</i>						
Chromium, Dissolved	E200.8	11/10/23 14:28	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	11/10/23 14:28	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	11/10/23 14:28	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	11/10/23 14:28	MT4-23-1110B	MTD-111023-4	No	BLK/LCS/MS/MSD

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: COND231115-W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S55608.01	Conductivity	E120.1	11/15/23 16:23	COND231115-W1
S55608.02	Conductivity	E120.1	11/15/23 16:28	COND231115-W1
S55608.03	Conductivity	E120.1	11/15/23 16:34	COND231115-W1
S55608.04	Conductivity	E120.1	11/15/23 16:54	COND231115-W1
S55608.05	Conductivity	E120.1	11/15/23 16:55	COND231115-W1
S55608.06	Conductivity	E120.1	11/15/23 16:57	COND231115-W1
S55608.07	Conductivity	E120.1	11/15/23 16:58	COND231115-W1

Inorganics, Prep Batch ID: TOC231113-W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S55608.01	TOC	SM5310C	11/13/23 17:53	TOC231113-W1
S55608.02	TOC	SM5310C	11/13/23 18:09	TOC231113-W1
S55608.03	TOC	SM5310C	11/13/23 18:25	TOC231113-W1
S55608.04	TOC	SM5310C	11/13/23 18:41	TOC231113-W1
S55608.05	TOC	SM5310C	11/13/23 18:57	TOC231113-W1
S55608.06	TOC	SM5310C	11/13/23 19:13	TOC231113-W1
S55608.07	TOC	SM5310C	11/13/23 19:29	TOC231113-W1

Metals, Prep Batch ID: MTD-111023-4

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S55608.01	Chromium, Dissolved	E200.8	11/10/23 14:19	MT4-23-1110B
S55608.01	Copper, Dissolved	E200.8	11/10/23 14:19	MT4-23-1110B
S55608.01	Nickel, Dissolved	E200.8	11/10/23 14:19	MT4-23-1110B
S55608.01	Zinc, Dissolved	E200.8	11/10/23 14:19	MT4-23-1110B
S55608.02	Chromium, Dissolved	E200.8	11/10/23 14:21	MT4-23-1110B
S55608.02	Copper, Dissolved	E200.8	11/10/23 14:21	MT4-23-1110B
S55608.02	Nickel, Dissolved	E200.8	11/10/23 14:21	MT4-23-1110B
S55608.02	Zinc, Dissolved	E200.8	11/10/23 14:21	MT4-23-1110B
S55608.03	Chromium, Dissolved	E200.8	11/10/23 14:22	MT4-23-1110B
S55608.03	Copper, Dissolved	E200.8	11/10/23 14:22	MT4-23-1110B
S55608.03	Nickel, Dissolved	E200.8	11/10/23 14:22	MT4-23-1110B
S55608.03	Zinc, Dissolved	E200.8	11/10/23 14:22	MT4-23-1110B
S55608.04	Chromium, Dissolved	E200.8	11/10/23 14:24	MT4-23-1110B
S55608.04	Copper, Dissolved	E200.8	11/10/23 14:24	MT4-23-1110B
S55608.04	Nickel, Dissolved	E200.8	11/10/23 14:24	MT4-23-1110B
S55608.04	Zinc, Dissolved	E200.8	11/10/23 14:24	MT4-23-1110B
S55608.05	Chromium, Dissolved	E200.8	11/10/23 14:25	MT4-23-1110B
S55608.05	Copper, Dissolved	E200.8	11/10/23 14:25	MT4-23-1110B
S55608.05	Nickel, Dissolved	E200.8	11/10/23 14:25	MT4-23-1110B
S55608.05	Zinc, Dissolved	E200.8	11/10/23 14:25	MT4-23-1110B
S55608.06	Chromium, Dissolved	E200.8	11/10/23 14:27	MT4-23-1110B
S55608.06	Copper, Dissolved	E200.8	11/10/23 14:27	MT4-23-1110B
S55608.06	Nickel, Dissolved	E200.8	11/10/23 14:27	MT4-23-1110B
S55608.06	Zinc, Dissolved	E200.8	11/10/23 14:27	MT4-23-1110B
S55608.07	Chromium, Dissolved	E200.8	11/10/23 14:28	MT4-23-1110B
S55608.07	Copper, Dissolved	E200.8	11/10/23 14:28	MT4-23-1110B
S55608.07	Nickel, Dissolved	E200.8	11/10/23 14:28	MT4-23-1110B
S55608.07	Zinc, Dissolved	E200.8	11/10/23 14:28	MT4-23-1110B

QC Report - Batch QC Results

Inorganics, Prep Batch ID: COND231115-W1

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

Blank (BLK)

Lab Sample ID: COND231115-W1.LRB1

Run in Batch: COND231115-W1, Run Date: 11/15/2023 15:58, Prep Date: 11/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Conductivity		ND	1	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: COND231115-W1.LCS1

Run in Batch: COND231115-W1, Run Date: 11/15/2023 16:04, Prep Date: 11/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Conductivity		99.5	90	110

Laboratory Control Sample (LCS)

Lab Sample ID: COND231115-W1.LCS2

Run in Batch: COND231115-W1, Run Date: 11/15/2023 16:06, Prep Date: 11/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Conductivity		93.3	90	110

Duplicate (DUP)

Lab Sample ID: COND231115-W1.DP1, Parent Sample ID: S55632.01

Run in Batch: COND231115-W1, Run Date: 11/15/2023 17:01, Prep Date: 11/15/2023, Matrix: Liquid, Dilution: 6

Analyte	Flags	RPD	RPD CL
Conductivity		0.2	15

QC Report - Batch QC Results

Inorganics, Prep Batch ID: TOC231113-W1

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

Blank (BLK)

Lab Sample ID: TOC231113-W1.LRB1

Run in Batch: TOC231113-W1, Run Date: 11/13/2023 13:46, Prep Date: 11/13/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
TOC		ND	1	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: TOC231113-W1.LCS1

Run in Batch: TOC231113-W1, Run Date: 11/13/2023 14:22, Prep Date: 11/13/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
TOC		101.6	90	110

Matrix Spike (MS)

Lab Sample ID: TOC231113-W1.MS1, Parent Sample ID: S55537.01

Run in Batch: TOC231113-W1, Run Date: 11/13/2023 15:13, Prep Date: 11/13/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
TOC		100.5	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: TOC231113-W1.MSD1, Parent Sample ID: TOC231113-W1.MS1

Run in Batch: TOC231113-W1, Run Date: 11/13/2023 15:29, Prep Date: 11/13/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
TOC		100.5	80	120	0	15

Duplicate (DUP)

Lab Sample ID: TOC231113-W1.DP1, Parent Sample ID: S55537.01

Run in Batch: TOC231113-W1, Run Date: 11/13/2023 14:57, Prep Date: 11/13/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
TOC		1.7	15

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-111023-4

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

Blank (BLK)

Lab Sample ID: MT4-23-1110B.050.LRB

Run in Batch: MT4-23-1110B, Run Date: 11/10/2023 14:14, Prep Date: 11/10/2023, 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: MT4-23-1110B.049.LCS

Run in Batch: MT4-23-1110B, Run Date: 11/10/2023 14:13, Prep Date: 11/10/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium		101	85	115
Copper		103	85	115
Nickel		100	85	115
Zinc		102	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-23-1110B.062.MS, Parent Sample ID: S55587.05

Run in Batch: MT4-23-1110B, Run Date: 11/10/2023 14:33, Prep Date: 11/10/2023, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Chromium		102	75	125
Copper		101	75	125
Nickel		101	75	125
Zinc		100	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-23-1110B.063.MSD, Parent Sample ID: MT4-23-1110B.062.MS

Run in Batch: MT4-23-1110B, Run Date: 11/10/2023 14:35, Prep Date: 11/10/2023, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium		101	75	125	1	20
Copper		100	75	125	1	20
Nickel		103	75	125	2	20
Zinc		102	75	125	1	20



2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE #

OF

165444

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Clifford Yantz / Kevin Schneider			
COMPANY Ramboll			
ADDRESS 2090 Commonwealth Blvd			
CITY Ann Arbor		STATE MI	ZIP CODE 48105
PHONE NO.	CELL NO. 313-333-0201	P.O. NO. 1940006516 Task 601	
E-MAIL ADDRESS Kevin.Schneider@Ramboll.com		QUOTE NO.	

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

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	Dissolved Metals TOC Specific Conductivity TOX	Certifications ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES Project Locations ☐ Detroit ☐ New York ☐ Other Special Instructions
	DATE	TIME												
55608.01	11/8/23	1004	B-24R	GW	5	1	1	3					X X X X	Dissolved Metals, not field filtered Metals ACE: Cu, Cr, Ni, Zn
.02		1104	B-18A										X X X X	
.03		1220	B-9										X X X X	
.04		1510	B-19AR										X X X X	
.05		1510	B-28										X X X X	
.06		1536	B-7										X X X X	
.07			GW-DUP-110923										X X X X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION K SLL	☒ Sampler	DATE 11/9/23	TIME 1735
RECEIVED BY: SIGNATURE/ORGANIZATION Merit Secure Locker		DATE 11/9/23	TIME 1735
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION Merit Drop Box	DATE 11/10/23	TIME 0815	
RECEIVED BY: SIGNATURE/ORGANIZATION M. Calabro	DATE 11/10/23	TIME 0815	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL ICE 4.7
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

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

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 2023 annual groundwater sampling event conducted in November 2023. Data verification was utilized to confirm the quality of the field and laboratory (Merit Laboratories, Inc. (Merit) of East Lansing, Michigan and GEL Laboratories, LLC (GEL) subcontract for total organic halides (TOX) analysis 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. Elevated RLs were only associated with samples requiring dilution prior to analysis.
- No breakthroughs exceeding 25% for TOX samples were reported.

The relative percent difference (RPD) for the duplicate sample results for B-19AR and GW-DUP-110923 (B-19AR) were within acceptable limits.

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

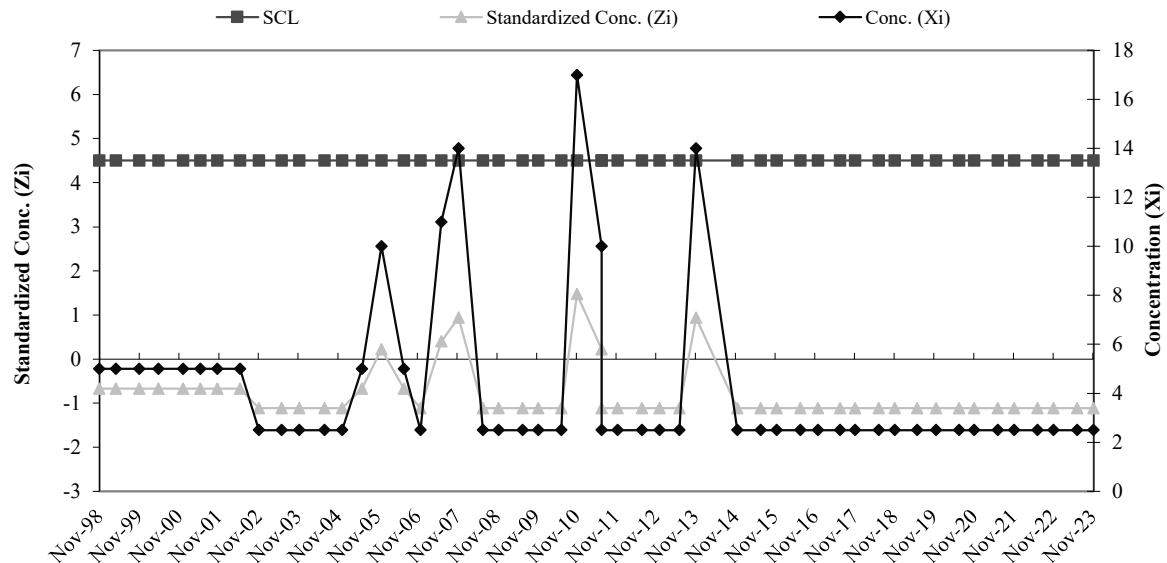
MONITORING WELL CONTROL CHARTS

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	54	Jun-21	4.5	2.5	-1.12
28	Jun-08	4.5	2.5	-1.12	55	Nov-21	4.5	2.5	-1.12
29	Nov-08	4.5	2.5	-1.12	56	Jun-22	4.5	2.5	-1.12
30	Jun-09	4.5	2.5	-1.12	57	Nov-22	4.5	2.5	-1.12
31	Nov-09	4.5	2.5	-1.12	58	Jun-23	4.5	2.5	-1.12
32	Jun-10	4.5	2.5	-1.12	59	Nov-23	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



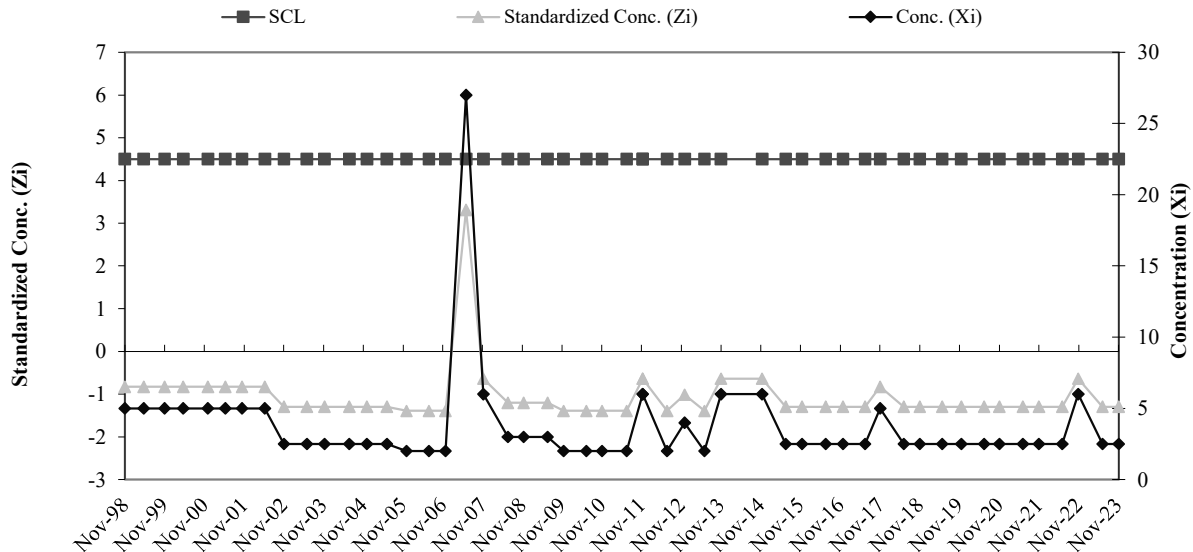
COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART

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	53	Jun-21	4.5	2.5	-1.30
28	Jun-08	4.5	3	-1.20	54	Nov-21	4.5	2.5	-1.30
29	Nov-08	4.5	3	-1.20	55	Jun-22	4.5	2.5	-1.30
30	Jun-09	4.5	3	-1.20	56	Nov-22	4.5	6	-0.64
31	Nov-09	4.5	2	-1.39	57	Jun-23	4.5	2.5	-1.30
32	Jun-10	4.5	2	-1.39	58	Nov-23	4.5	2.5	-1.30
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



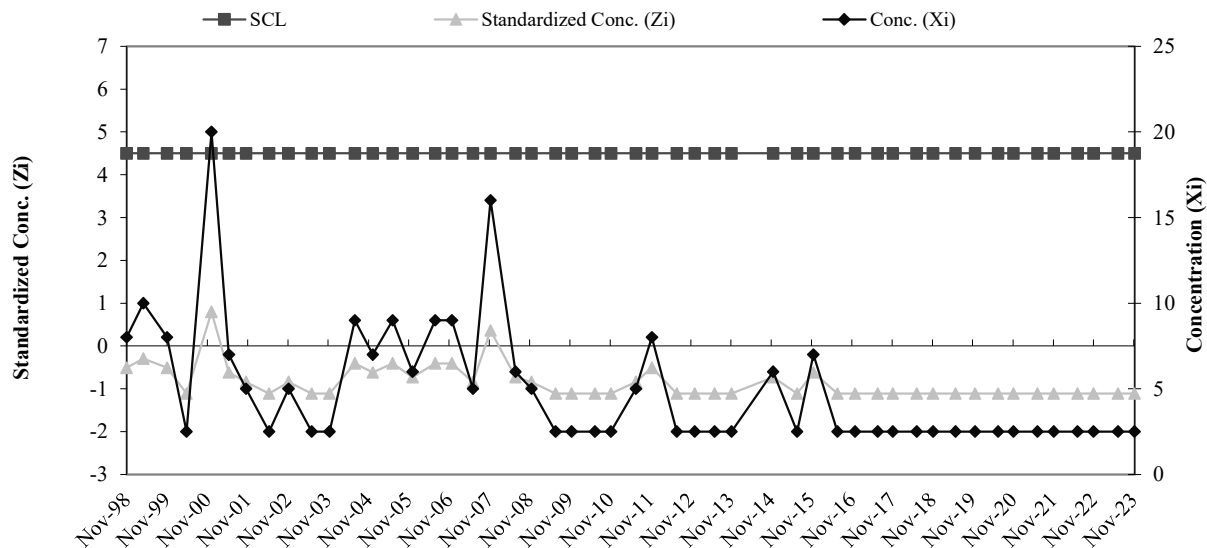
COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART

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	53	Jun-21	4.5	2.5	-1.11
28	Jun-08	4.5	6	-0.73	54	Nov-21	4.5	2.5	-1.11
29	Nov-08	4.5	5	-0.84	55	Jun-22	4.5	2.5	-1.11
30	Jun-09	4.5	2.5	-1.11	56	Nov-22	4.5	2.5	-1.11
31	Nov-09	4.5	2.5	-1.11	57	Jun-23	4.5	2.5	-1.11
32	Jun-10	4.5	2.5	-1.11	58	Nov-23	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



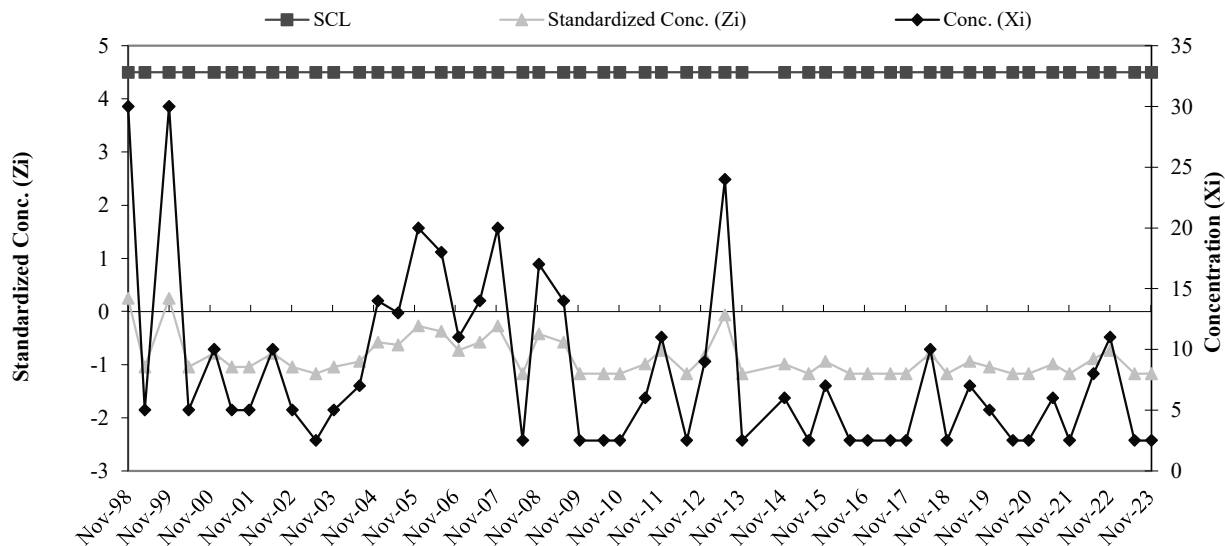
**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART**

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	53	Jun-21	4.5	6	-0.99
28	Jun-08	4.5	2.5	-1.17	54	Nov-21	4.5	2.5	-1.17
29	Nov-08	4.5	17	-0.43	55	Jun-22	4.5	8	-0.89
30	Jun-09	4.5	14	-0.58	56	Nov-22	4.5	11	-0.73
31	Nov-09	4.5	2.5	-1.17	57	Jun-23	4.5	2.5	-1.17
32	Jun-10	4.5	2.5	-1.17	58	Nov-23	4.5	2.5	-1.17
33	Nov-10	4.5	2.5	-1.17			4.5		
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

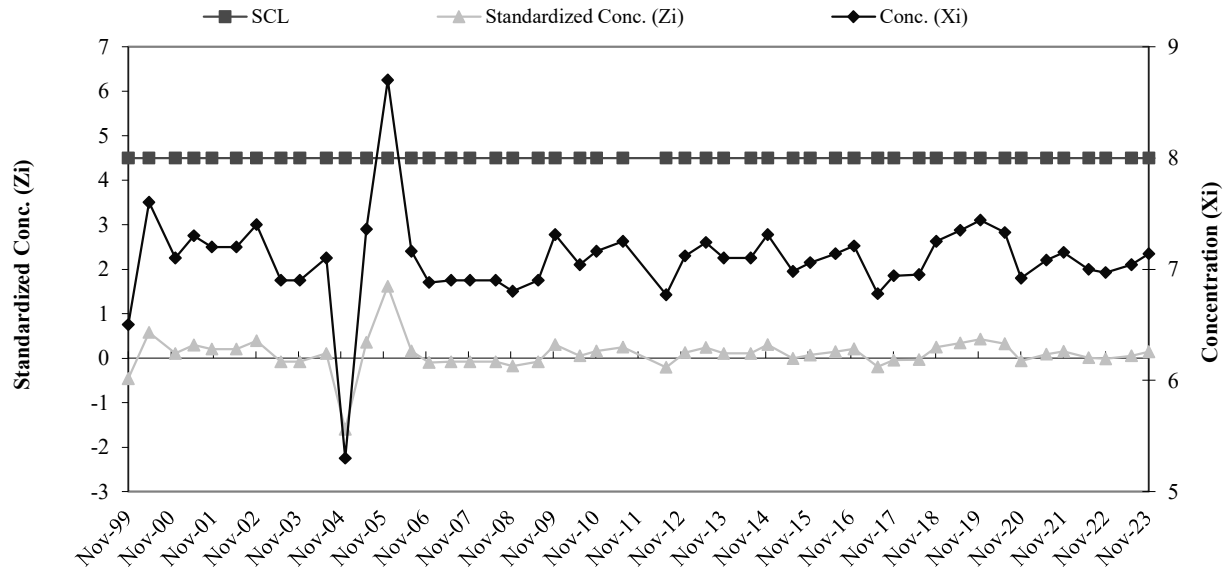


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-7 pH

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	34	Jun-12	4.5	6.8	-0.21
10	Apr-00	4.5	7.6	0.58	35	Dec-12	4.5	7.1	0.13
11	Dec-00	4.5	7.1	0.11	36	Jun-13	4.5	7.2	0.24
12	May-01	4.5	7.3	0.30	37	Nov-13	4.5	7.1	0.11
13	Oct-01	4.5	7.2	0.20	38	Jun-14	4.5	7.1	0.11
14	May-02	4.5	7.2	0.20	39	Nov-14	4.5	7.3	0.30
15	Nov-02	4.5	7.4	0.39	40	Jun-15	4.5	7.0	-0.01
16	Jun-03	4.5	6.9	-0.08	41	Nov-15	4.5	7.1	0.07
17	Nov-03	4.5	6.9	-0.08	42	Jun-16	4.5	7.1	0.14
18	Jun-04	4.5	7.1	0.11	43	Nov-16	4.5	7.2	0.21
19	Dec-04	4.5	5.3	-1.60	44	Jun-17	4.5	6.8	-0.20
20	Jun-05	4.5	7.4	0.35	45	Nov-17	4.5	6.9	-0.04
21	Dec-05	4.5	8.7	1.62	46	Jun-18	4.5	7.0	-0.04
22	Jun-06	4.5	7.2	0.16	47	Nov-18	4.5	7.3	0.25
23	Nov-06	4.5	6.9	-0.10	48	May-19	4.5	7.4	0.34
24	Jun-07	4.5	6.9	-0.08	49	Nov-19	4.5	7.4	0.43
25	Nov-07	4.5	6.9	-0.08	50	Jun-20	4.5	7.3	0.32
26	Jun-08	4.5	6.9	-0.08	51	Nov-20	4.5	6.9	-0.06
27	Nov-08	4.5	6.8	-0.18	52	Jun-21	4.5	7.1	0.09
28	Jun-09	4.5	6.9	-0.08	53	Nov-21	4.5	7.2	0.15
29	Nov-09	4.5	7.3	0.30	54	Jun-22	4.5	7.0	0.01
30	Jun-10	4.5	7.0	0.05	55	Nov-22	4.5	7.0	-0.02
31	Nov-10	4.5	7.2	0.16	56	Jun-23	4.5	7.0	0.05
32	Jun-11	4.5	7.3	0.25	57	Nov-23	4.5	7.1	0.14
33	Nov-11	4.5	7.0	0.05	58				

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

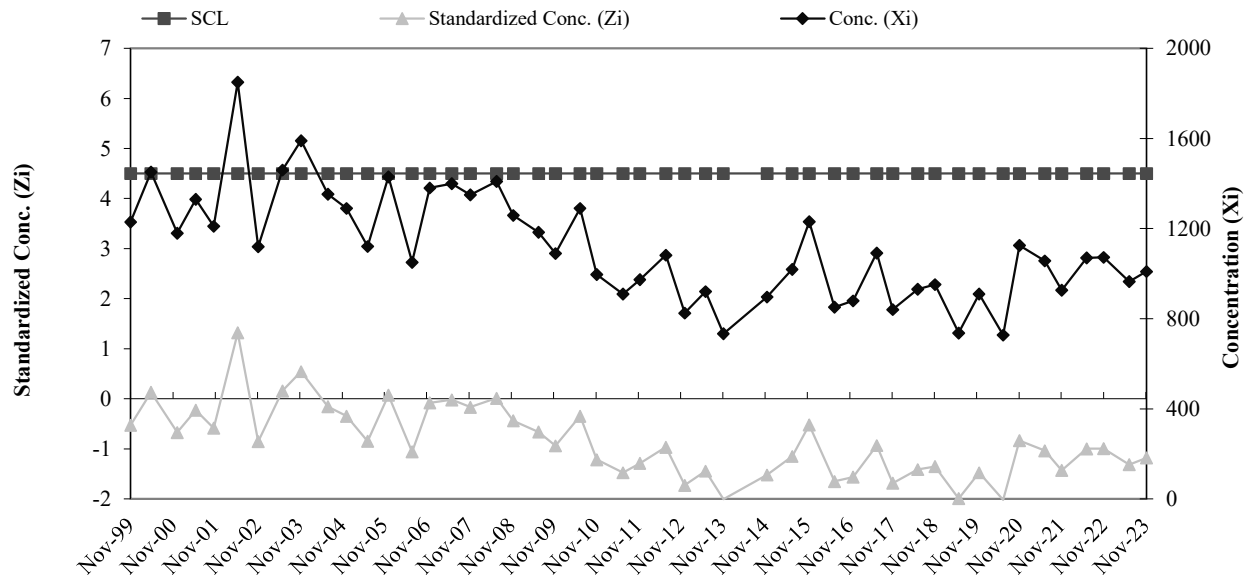


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-7 SpC

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	-0.52	33	Nov-11	4.5	974	-1.28
10	Apr-00	4.5	1450	0.13	34	Jun-12	4.5	1082	-0.96
11	Dec-00	4.5	1180	-0.67	35	Dec-12	4.5	825	-1.73
12	May-01	4.5	1330	-0.23	36	Jun-13	4.5	921	-1.44
13	Oct-01	4.5	1210	-0.58	37	Nov-13	4.5	733	-2.00
14	May-02	4.5	1850	1.32	38	Nov-14	4.5	896	-1.52
15	Nov-02	4.5	1120	-0.85	39	Jun-15	4.5	1019	-1.15
16	Jun-03	4.5	1460	0.16	40	Nov-15	4.5	1231	-0.52
17	Nov-03	4.5	1590	0.55	41	Jun-16	4.5	852	-1.65
18	Jun-04	4.5	1353	-0.16	42	Nov-16	4.5	880	-1.56
19	Dec-04	4.5	1290	-0.34	43	Jun-17	4.5	1092	-0.93
20	Jun-05	4.5	1121	-0.85	44	Nov-17	4.5	841	-1.68
21	Dec-05	4.5	1430	0.07	45	Jun-18	4.5	932	-1.41
22	Jun-06	4.5	1051	-1.06	46	Nov-18	4.5	952	-1.35
23	Nov-06	4.5	1380	-0.08	47	May-19	4.5	737	-1.99
24	Jun-07	4.5	1400	-0.02	48	Nov-19	4.5	910	-1.47
25	Nov-07	4.5	1350	-0.17	49	Jun-20	4.5	728	-2.02
26	Jun-08	4.5	1410	0.01	50	Nov-20	4.5	1126	-0.83
27	Nov-08	4.5	1258	-0.44	51	Jun-21	4.5	1057	-1.04
28	Jun-09	4.5	1184	-0.66	52	Nov-21	4.5	927	-1.42
29	Nov-09	4.5	1090	-0.94	53	Jun-22	4.5	1070	-1.00
30	Jun-10	4.5	1290	-0.34	54	Nov-22	4.5	1073	-0.99
31	Nov-10	4.5	997	-1.22	55	Jun-23	4.5	965	-1.31
32	Jun-11	4.5	910	-1.47	56	Nov-23	4.5	1010	-1.18

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

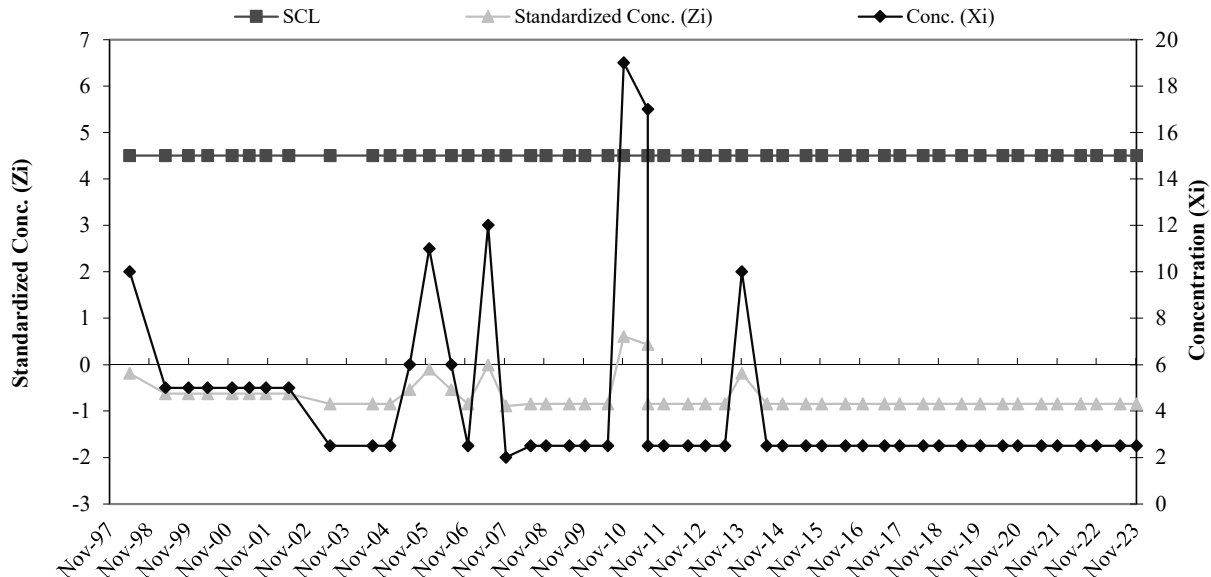


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 Cr

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	53	Jun-21	4.5	2.5	-0.85
29	Nov-09	4.5	2.5	-0.85	54	Nov-21	4.5	2.5	-0.85
30	Jun-10	4.5	2.5	-0.85	55	Jun-22	4.5	2.5	-0.85
31	Nov-10	4.5	19	0.61	56	Nov-22	4.5	2.5	-0.85
32	Jun-11	4.5	17	0.43	57	Jun-23	4.5	2.5	-0.85
33	Jun-11	4.5	2.5	-0.85	58	Nov-23	4.5	2.5	-0.85

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



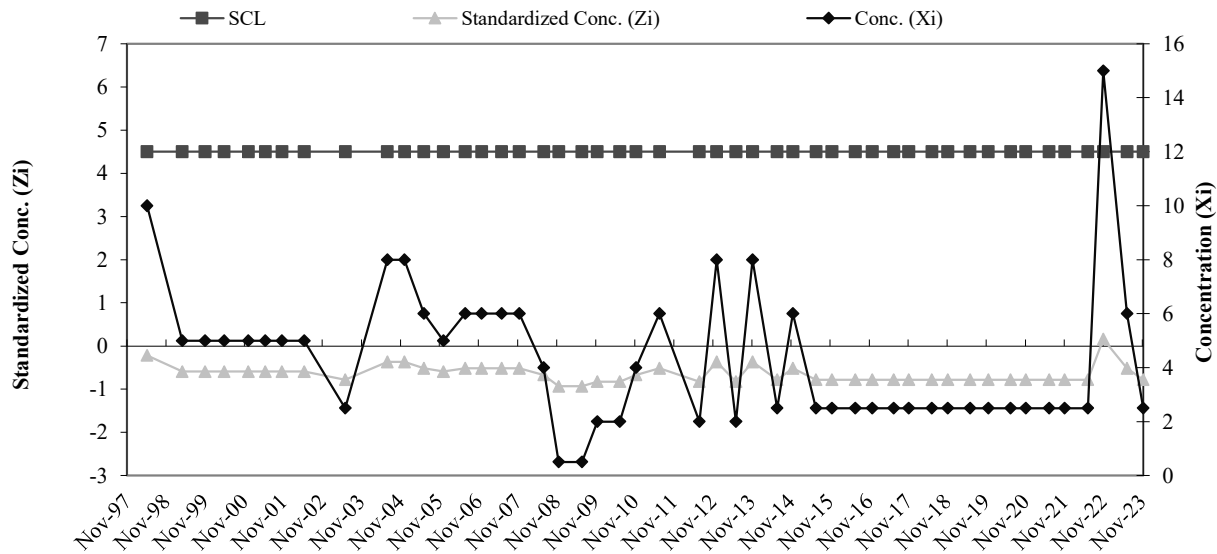
**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART**

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	34	Jun-12	4.5	2	-0.82
10	Apr-99	4.5	5	-0.59	35	Dec-12	4.5	8	-0.37
11	Nov-99	4.5	5	-0.59	36	Jun-13	4.5	2	-0.82
12	Apr-00	4.5	5	-0.59	37	Nov-13	4.5	8	-0.37
13	Dec-00	4.5	5	-0.59	38	Jun-14	4.5	2.5	-0.78
14	May-01	4.5	5	-0.59	39	Nov-14	4.5	6	-0.52
15	Oct-01	4.5	5	-0.59	40	Jun-15	4.5	2.5	-0.78
16	May-02	4.5	5	-0.59	41	Nov-15	4.5	2.5	-0.78
17	Jun-03	4.5	2.5	-0.78	42	Jun-16	4.5	2.5	-0.78
18	Jun-04	4.5	8	-0.37	43	Nov-16	4.5	2.5	-0.78
19	Dec-04	4.5	8	-0.37	44	Jun-17	4.5	2.5	-0.78
20	Jun-05	4.5	6	-0.52	45	Nov-17	4.5	2.5	-0.78
21	Dec-05	4.5	5	-0.59	46	Jun-18	4.5	2.5	-0.78
22	Jun-06	4.5	6	-0.52	47	Nov-18	4.5	2.5	-0.78
23	Nov-06	4.5	6	-0.52	48	Jun-19	4.5	2.5	-0.78
24	Jun-07	4.5	6	-0.52	49	Nov-19	4.5	2.5	-0.78
25	Nov-07	4.5	6	-0.52	50	Jun-20	4.5	2.5	-0.78
26	Jul-08	4.5	4	-0.67	51	Nov-20	4.5	2.5	-0.78
27	Nov-08	4.5	0.5	-0.93	52	Jun-21	4.5	2.5	-0.78
28	Jun-09	4.5	0.5	-0.93	53	Nov-21	4.5	2.5	-0.78
29	Nov-09	4.5	2	-0.82	54	Jun-22	4.5	2.5	-0.78
30	Jun-10	4.5	2	-0.82	55	Nov-22	4.5	15	0.16
31	Nov-10	4.5	4	-0.67	56	Jun-23	4.5	6	-0.52
32	Jun-11	4.5	6	-0.52	57	Nov-23	4.5	2.5	-0.78
33	Nov-11	4.5	2	-0.82	58				

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



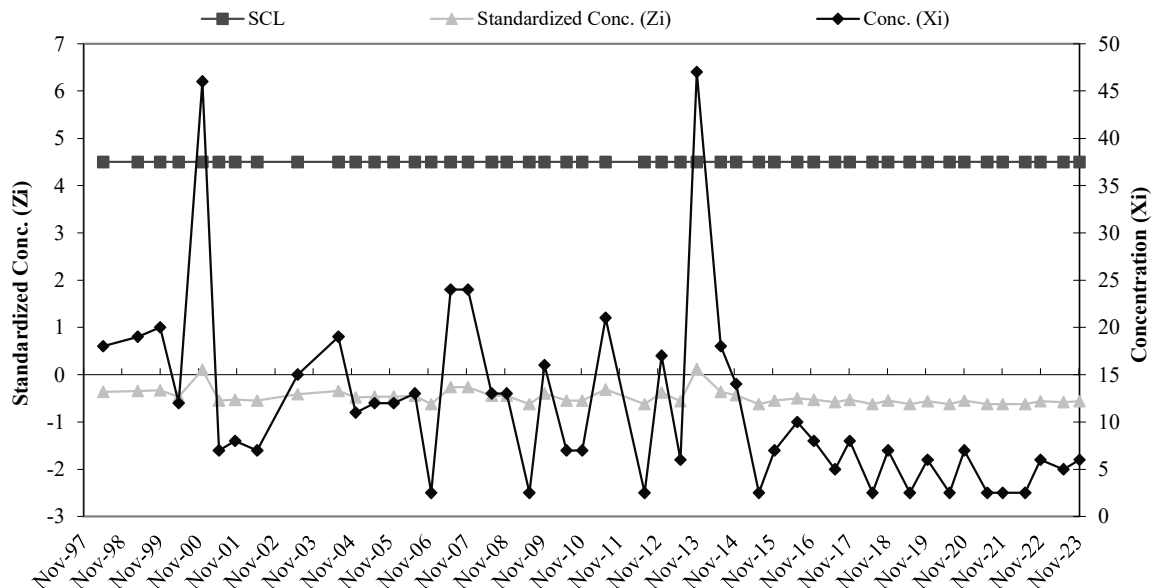
COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART

B-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	34	Jun-12	4.5	2.5	-0.62
10	Apr-99	4.5	19	-0.35	35	Dec-12	4.5	17	-0.38
11	Nov-99	4.5	20	-0.33	36	Jun-13	4.5	6	-0.57
12	Apr-00	4.5	12	-0.46	37	Nov-13	4.5	47	0.12
13	Dec-00	4.5	46	0.10	38	Jun-14	4.5	18	-0.36
14	May-01	4.5	7	-0.55	39	Nov-14	4.5	14	-0.43
15	Oct-01	4.5	8	-0.53	40	Jun-15	4.5	2.5	-0.62
16	May-02	4.5	7	-0.55	41	Nov-15	4.5	7	-0.55
17	Jun-03	4.5	15	-0.41	42	Jun-16	4.5	10	-0.50
18	Jun-04	4.5	19	-0.35	43	Nov-16	4.5	8	-0.53
19	Dec-04	4.5	11	-0.48	44	Jun-17	4.5	5	-0.58
20	Jun-05	4.5	12	-0.46	45	Nov-17	4.5	8	-0.53
21	Dec-05	4.5	12	-0.46	46	Jun-18	4.5	2.5	-0.62
22	Jun-06	4.5	13	-0.45	47	Nov-18	4.5	7	-0.55
23	Nov-06	4.5	2.5	-0.62	48	Jun-19	4.5	2.5	-0.62
24	Jun-07	4.5	24	-0.26	49	Nov-19	4.5	6	-0.57
25	Nov-07	4.5	24	-0.26	50	Jun-20	4.5	2.5	-0.62
26	Jul-08	4.5	13	-0.45	51	Nov-20	4.5	7	-0.55
27	Nov-08	4.5	13	-0.45	52	Jun-21	4.5	2.5	-0.62
28	Jun-09	4.5	2.5	-0.62	53	Nov-21	4.5	2.5	-0.62
29	Nov-09	4.5	16	-0.40	54	Jun-22	4.5	2.5	-0.62
30	Jun-10	4.5	7	-0.55	55	Nov-22	4.5	6	-0.57
31	Nov-10	4.5	7	-0.55	56	Jun-23	4.5	5	-0.58
32	Jun-11	4.5	21	-0.31	57	Nov-23	4.5	6	-0.57
33	Nov-11	4.5	7	-0.55	58				

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



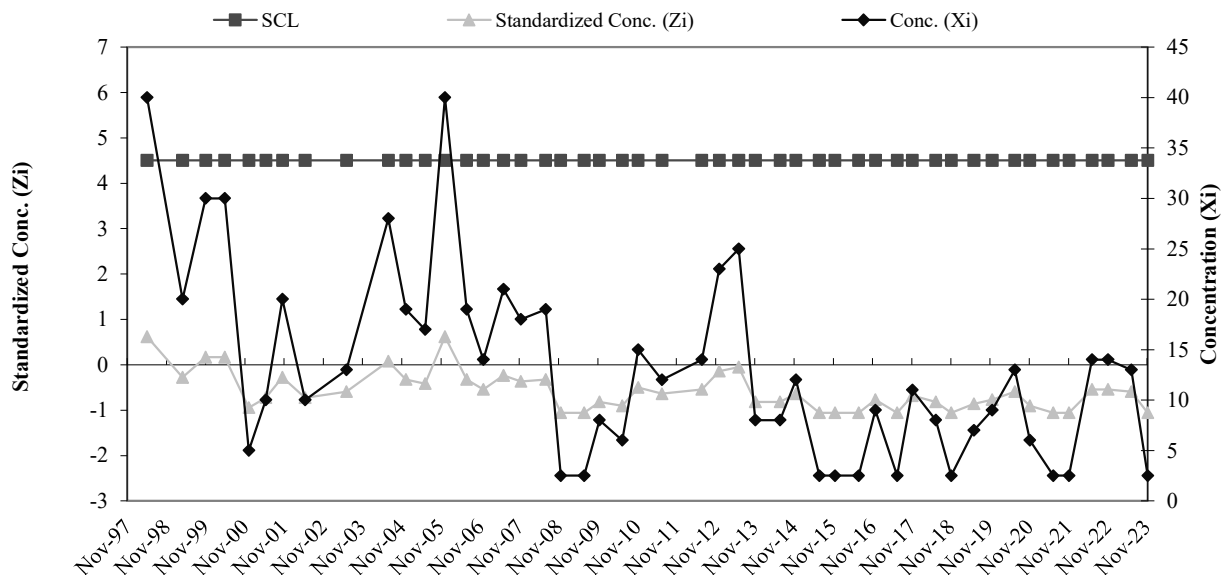
**COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART**

B-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	34	Jun-12	4.5	14	-0.55
10	Apr-99	4.5	20	-0.28	35	Dec-12	4.5	23	-0.14
11	Nov-99	4.5	30	0.17	36	Jun-13	4.5	25	-0.06
12	Apr-00	4.5	30	0.17	37	Nov-13	4.5	8	-0.82
13	Dec-00	4.5	5	-0.95	38	Jun-14	4.5	8	-0.82
14	May-01	4.5	10	-0.73	39	Nov-14	4.5	12	-0.64
15	Oct-01	4.5	20	-0.28	40	Jun-15	4.5	2.5	-1.06
16	May-02	4.5	10	-0.73	41	Nov-15	4.5	2.5	-1.06
17	Jun-03	4.5	13	-0.59	42	Jun-16	4.5	2.5	-1.06
18	Jun-04	4.5	28	0.08	43	Nov-16	4.5	9	-0.77
19	Dec-04	4.5	19	-0.32	44	Jun-17	4.5	2.5	-1.06
20	Jun-05	4.5	17	-0.41	45	Nov-17	4.5	11	-0.68
21	Dec-05	4.5	40	0.62	46	Jun-18	4.5	8	-0.82
22	Jun-06	4.5	19	-0.32	47	Nov-18	4.5	2.5	-1.06
23	Nov-06	4.5	14	-0.55	48	Jun-19	4.5	7	-0.86
24	Jun-07	4.5	21	-0.23	49	Nov-19	4.5	9	-0.77
25	Nov-07	4.5	18	-0.37	50	Jun-20	4.5	13	-0.59
26	Jul-08	4.5	19	-0.32	51	Nov-20	4.5	6	-0.90
27	Nov-08	4.5	2.5	-1.06	52	Jun-21	4.5	2.5	-1.06
28	Jun-09	4.5	2.5	-1.06	53	Nov-21	4.5	2.5	-1.06
29	Nov-09	4.5	8	-0.82	54	Jun-22	4.5	14	-0.55
30	Jun-10	4.5	6	-0.90	55	Nov-22	4.5	14	-0.55
31	Nov-10	4.5	15	-0.50	56	Jun-23	4.5	13	-0.59
32	Jun-11	4.5	12	-0.64	57	Nov-23	4.5	2.5	-1.06
33	Nov-11	4.5	2.5	-1.06	58				

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

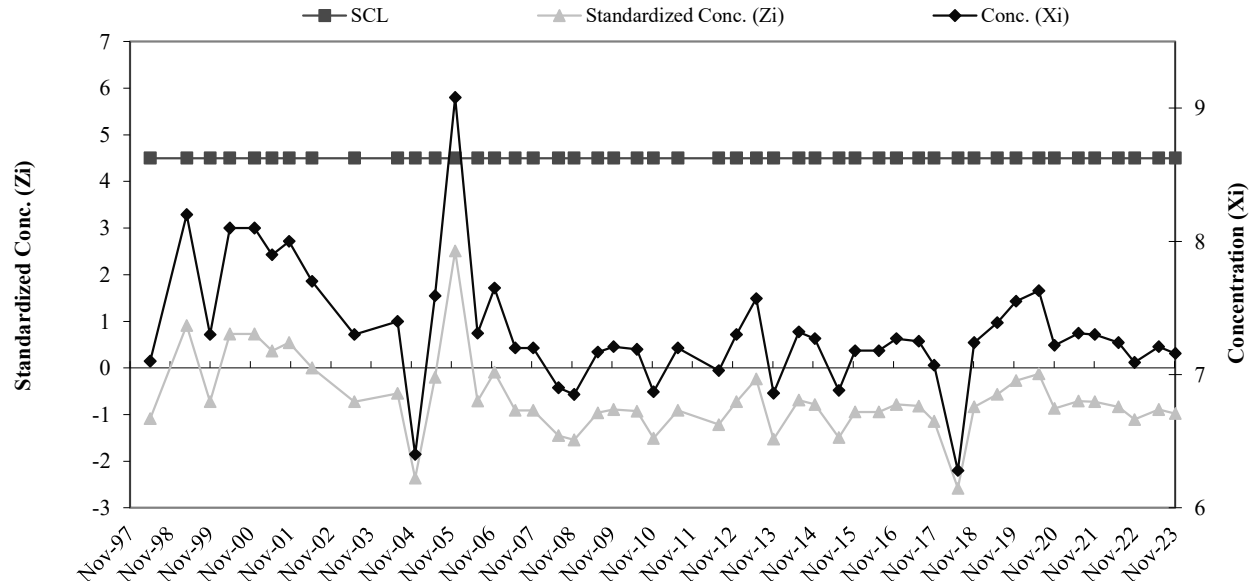


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 pH

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	34	Jun-12	4.5	6.5	-1.22
10	Apr-99	4.5	7.7	0.91	35	Dec-12	4.5	6.8	-0.73
11	Nov-99	4.5	6.8	-0.73	36	Jun-13	4.5	7.1	-0.24
12	Apr-00	4.5	7.6	0.73	37	Nov-13	4.5	6.4	-1.53
13	Dec-00	4.5	7.6	0.73	38	Jun-14	4.5	6.8	-0.69
14	May-01	4.5	7.4	0.36	39	Nov-14	4.5	6.8	-0.78
15	Oct-01	4.5	7.5	0.55	40	Jun-15	4.5	6.4	-1.49
16	May-02	4.5	7.2	0.00	41	Nov-15	4.5	6.7	-0.94
17	Jun-03	4.5	6.8	-0.73	42	Jun-16	4.5	6.7	-0.94
18	Jun-04	4.5	6.9	-0.55	43	Nov-16	4.5	6.8	-0.78
19	Dec-04	4.5	5.9	-2.36	44	Jun-17	4.5	6.8	-0.82
20	Jun-05	4.5	7.1	-0.20	45	Nov-17	4.5	6.6	-1.14
21	Dec-05	4.5	8.6	2.51	46	Jun-18	4.5	5.8	-2.58
22	Jun-06	4.5	6.8	-0.71	47	Nov-18	4.5	6.7	-0.84
23	Nov-06	4.5	7.2	-0.09	48	Jun-19	4.5	6.9	-0.56
24	Jun-07	4.5	6.7	-0.91	49	Nov-19	4.5	7.1	-0.27
25	Nov-07	4.5	6.7	-0.91	50	Jun-20	4.5	7.1	-0.13
26	Jul-08	4.5	6.4	-1.45	51	Nov-20	4.5	6.7	-0.87
27	Nov-08	4.5	6.4	-1.54	52	Jun-21	4.5	6.8	-0.71
28	Jun-09	4.5	6.7	-0.96	53	Nov-21	4.5	6.8	-0.73
29	Nov-09	4.5	6.7	-0.89	54	Jun-22	4.5	6.7	-0.84
30	Jun-10	4.5	6.7	-0.93	55	Nov-22	4.5	6.6	-1.11
31	Nov-10	4.5	6.4	-1.51	56	Jun-23	4.5	6.7	-0.89
32	Jun-11	4.5	6.7	-0.91	57	Nov-23	4.5	6.7	-0.98
33	Nov-11	4.5	7.2	-0.04	58				

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

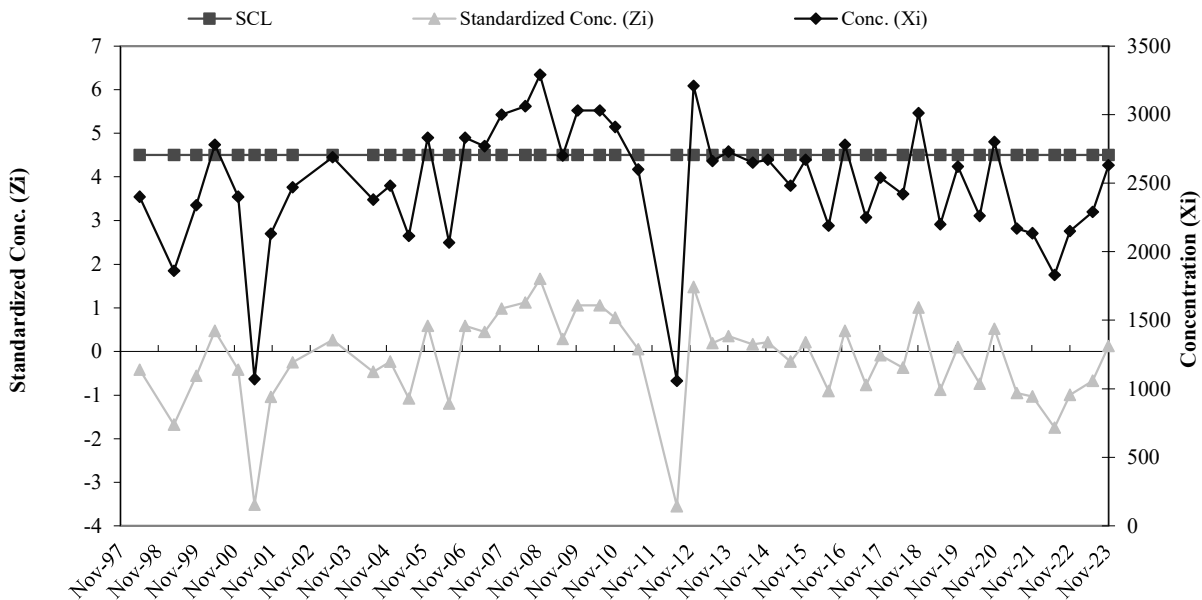


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-9 SpC

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	34	Jun-12	4.5	1057	-3.55
10	Apr-99	4.5	1860	-1.68	35	Dec-12	4.5	3210	1.47
11	Nov-99	4.5	2340	-0.56	36	Jun-13	4.5	2660	0.19
12	Apr-00	4.5	2780	0.47	37	Nov-13	4.5	2730	0.35
13	Dec-00	4.5	2400	-0.42	38	Jun-14	4.5	2650	0.17
14	May-01	4.5	1070	-3.52	39	Nov-14	4.5	2670	0.21
15	Oct-01	4.5	2130	-1.05	40	Jun-15	4.5	2480	-0.23
16	May-02	4.5	2470	-0.25	41	Nov-15	4.5	2670	0.21
17	Jun-03	4.5	2690	0.26	42	Jun-16	4.5	2190	-0.91
18	Jun-04	4.5	2379	-0.47	43	Nov-16	4.5	2780	0.47
19	Dec-04	4.5	2480	-0.23	44	Jun-17	4.5	2250	-0.77
20	Jun-05	4.5	2116	-1.08	45	Nov-17	4.5	2540	-0.09
21	Dec-05	4.5	2830	0.59	46	Jun-18	4.5	2420	-0.37
22	Jun-06	4.5	2065	-1.20	47	Nov-18	4.5	3010	1.01
23	Nov-06	4.5	2830	0.59	48	Jun-19	4.5	2200	-0.88
24	Jun-07	4.5	2770	0.45	49	Nov-19	4.5	2620	0.10
25	Nov-07	4.5	3000	0.98	50	Jun-20	4.5	2260	-0.74
26	Jul-08	4.5	3060	1.12	51	Nov-20	4.5	2800	0.52
27	Nov-08	4.5	3290	1.66	52	Jun-21	4.5	2168	-0.96
28	Jun-09	4.5	2700	0.28	53	Nov-21	4.5	2135	-1.03
29	Nov-09	4.5	3030	1.05	54	Jun-22	4.5	1830	-1.75
30	Jun-10	4.5	3030	1.05	55	Nov-22	4.5	2150	-1.00
31	Nov-10	4.5	2910	0.77	56	Jun-23	4.5	2290	-0.67
32	Jun-11	4.5	2600	0.05	57	Nov-23	4.5	2630	0.12
33	Nov-11	4.5	3060	1.12	58				

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

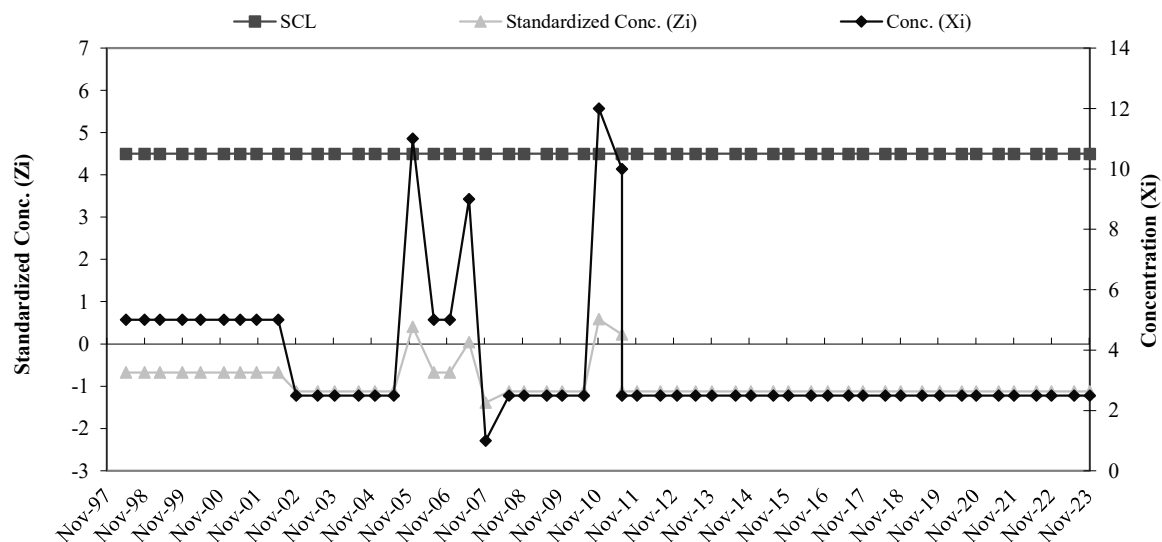


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHewart CONTROL CHART
B-18A Cr

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	56	Jun-21	4.5	2.5	-1.12
29	Jun-08	4.5	2.5	-1.12	57	Nov-21	4.5	2.5	-1.12
30	Nov-08	4.5	2.5	-1.12	58	Jun-22	4.5	2.5	-1.12
31	Jun-09	4.5	2.5	-1.12	59	Nov-22	4.5	2.5	-1.12
32	Nov-09	4.5	2.5	-1.12	60	Jun-23	4.5	2.5	-1.12
33	Jun-10	4.5	2.5	-1.12	61	Nov-23	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

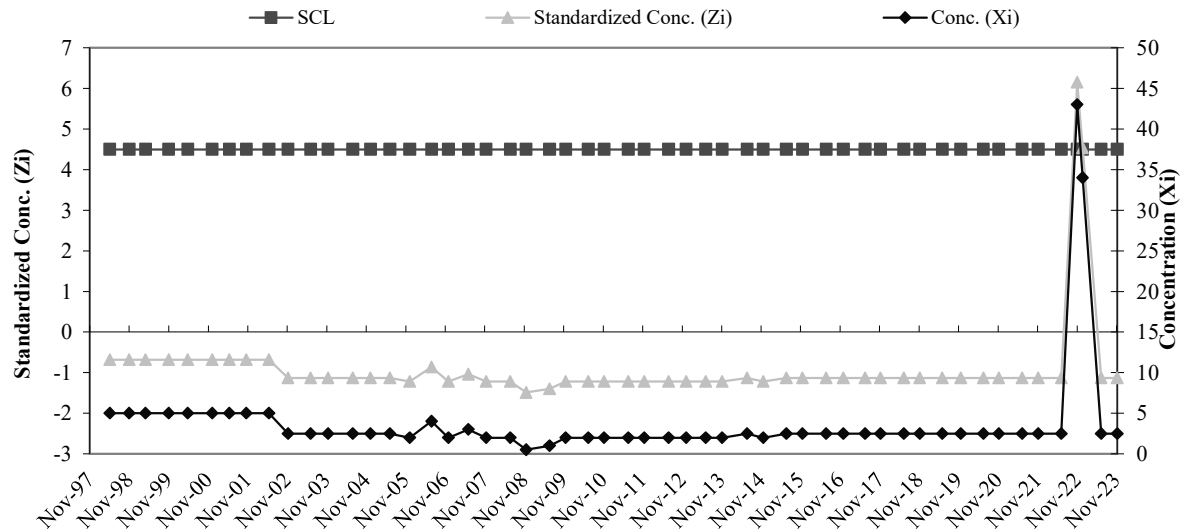


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18A Cu

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	8.78	5.56
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	55	Jun-21	4.5	2.5	-1.13
29	Jun-08	4.5	2	-1.22	56	Nov-21	4.5	2.5	-1.13
30	Nov-08	4.5	0.5	-1.49	57	Jun-22	4.5	2.5	-1.13
31	Jun-09	4.5	1	-1.40	58	Nov-22	4.5	43	6.15
32	Nov-09	4.5	2	-1.22	59	Dec-22	4.5	34	4.54
33	Jun-10	4.5	2	-1.22	60	Jun-23	4.5	2.5	-1.13
34	Nov-10	4.5	2	-1.22	61	Nov-23	4.5	2.5	-1.13
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

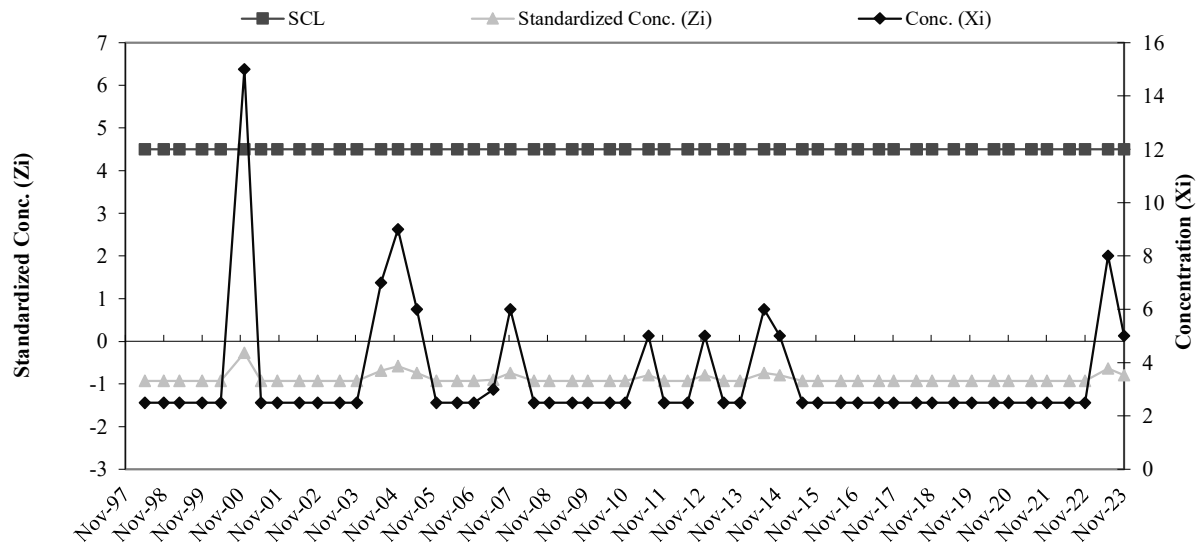


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18A Ni

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	55	Jun-21	4.5	2.5	-0.92
29	Jun-08	4.5	2.5	-0.92	56	Nov-21	4.5	2.5	-0.92
30	Nov-08	4.5	2.5	-0.92	57	Jun-22	4.5	2.5	-0.92
31	Jun-09	4.5	2.5	-0.92	58	Nov-22	4.5	2.5	-0.92
32	Nov-09	4.5	2.5	-0.92	59	Jun-23	4.5	8	-0.63
33	Jun-10	4.5	2.5	-0.92	60	Nov-23	4.5	5	-0.79
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

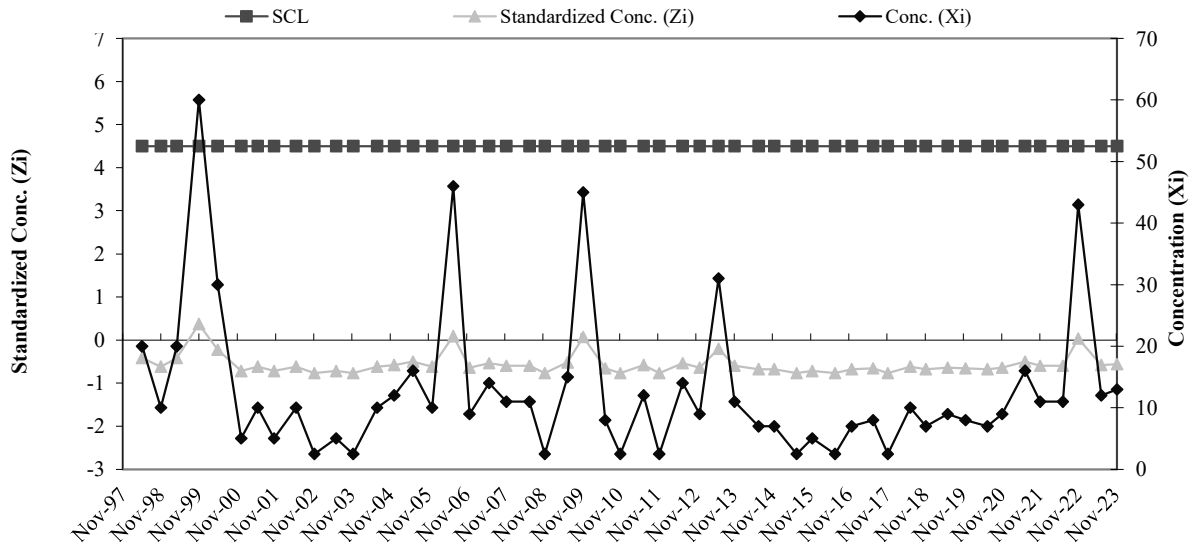


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18A Zn

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	55	Jun-21	4.5	16	-0.50
29	Jun-08	4.5	11	-0.60	56	Nov-21	4.5	11	-0.60
30	Nov-08	4.5	2.5	-0.76	57	Jun-22	4.5	11	-0.60
31	Jun-09	4.5	15	-0.52	58	Nov-22	4.5	43	0.03
32	Nov-09	4.5	45	0.07	59	Jun-23	4.5	12	-0.58
33	Jun-10	4.5	8	-0.66	60	Nov-23	4.5	13	-0.56
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

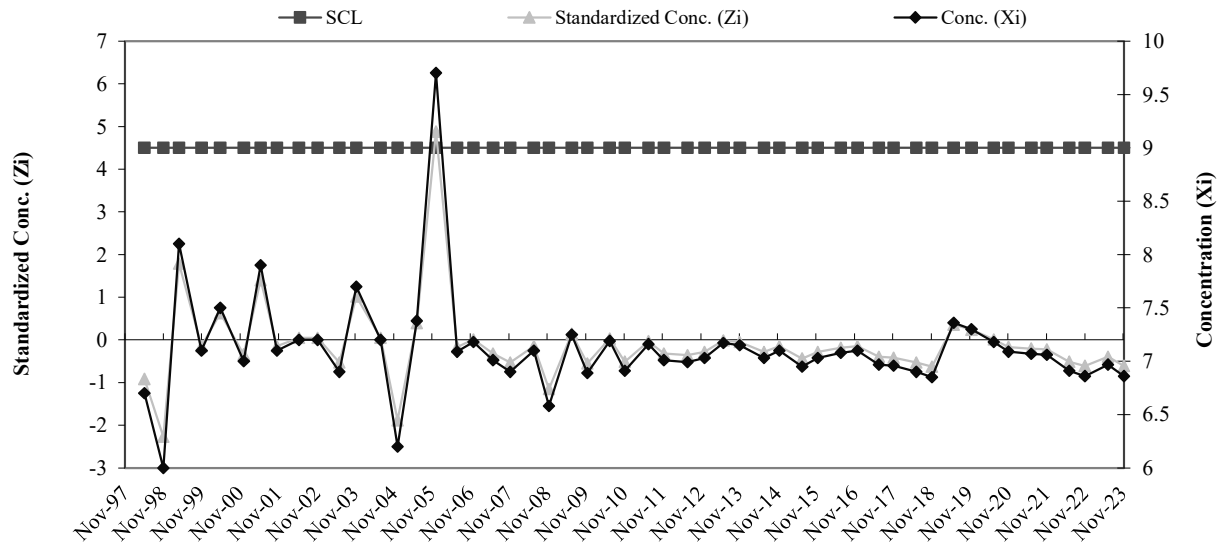


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18A pH

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	55	Jun-21	4.5	7.1	-0.20
29	Jun-08	4.5	7.1	-0.14	56	Nov-21	4.5	7.1	-0.22
30	Nov-08	4.5	6.6	-1.15	57	Jun-22	4.5	6.9	-0.51
31	Jun-09	4.5	7.3	0.14	58	Nov-22	4.5	6.9	-0.61
32	Nov-09	4.5	6.9	-0.55	59	Jun-23	4.5	7.0	-0.40
33	Jun-10	4.5	7.2	0.03	60	Nov-23	4.5	6.9	-0.61
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

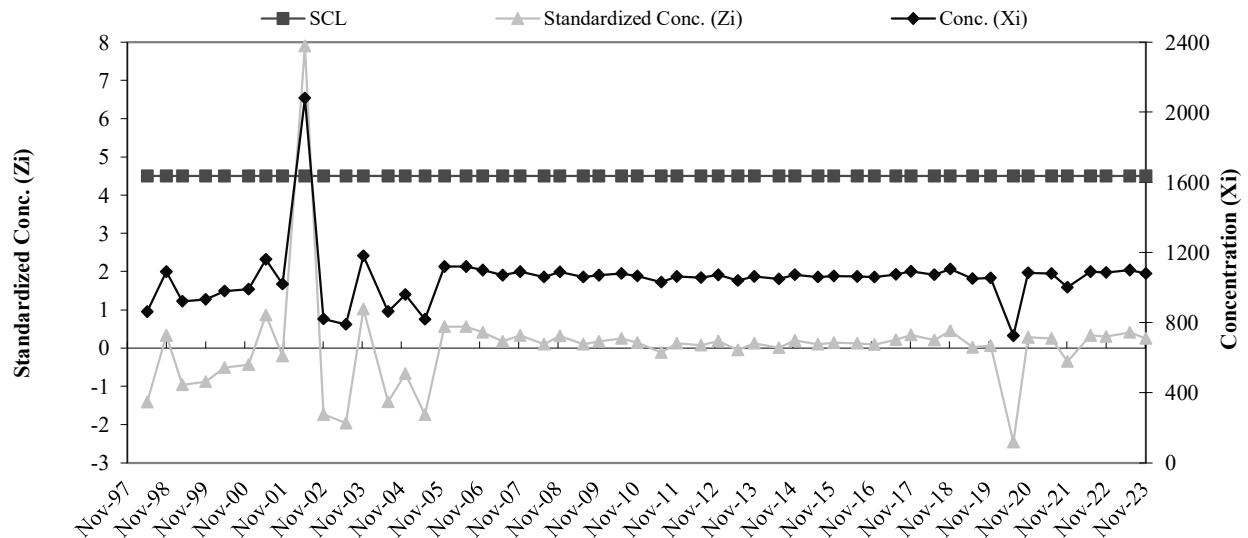


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-18A SpC

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	55	Jun-21	4.5	1080	0.25
29	Jun-08	4.5	1060	0.10	56	Nov-21	4.5	1001	-0.35
30	Nov-08	4.5	1088	0.32	57	Jun-22	4.5	1090	0.33
31	Jun-09	4.5	1060	0.10	58	Nov-22	4.5	1086	0.30
32	Nov-09	4.5	1070	0.18	59	Jun-23	4.5	1100	0.41
33	Jun-10	4.5	1080	0.25	60	Nov-23	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

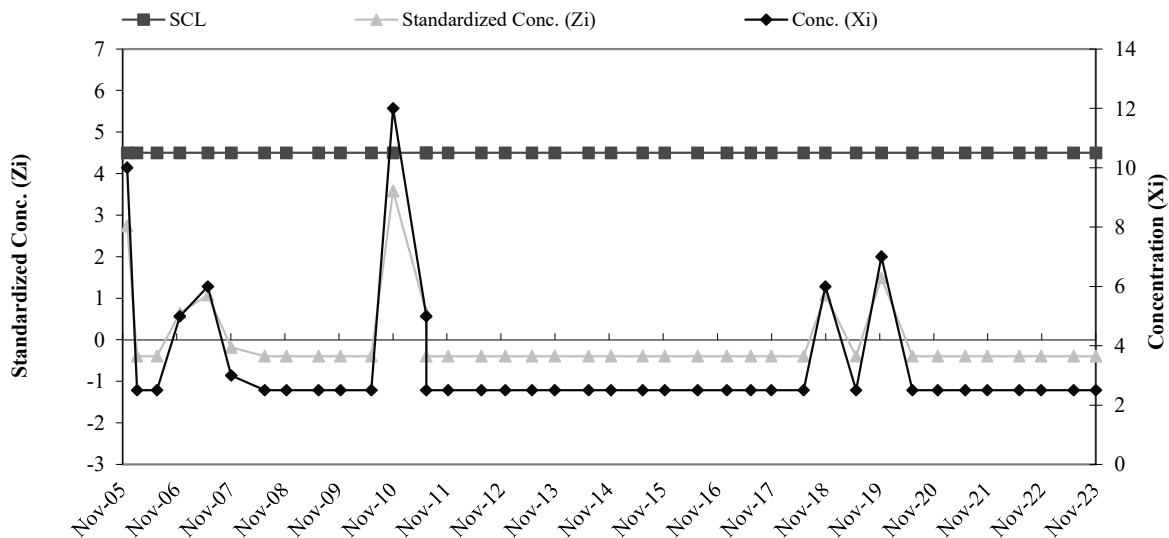


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19AR Cr

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	42	Jun-21	4.5	2.5	-0.39
15	Jun-08	4.5	2.5	-0.39	43	Nov-21	4.5	2.5	-0.39
16	Nov-08	4.5	2.5	-0.39	44	Jun-22	4.5	2.5	-0.39
17	Jun-09	4.5	2.5	-0.39	45	Nov-22	4.5	2.5	-0.39
18	Nov-09	4.5	2.5	-0.39	46	Jun-23	4.5	2.5	-0.39
19	Jun-10	4.5	2.5	-0.39	47	Nov-23	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

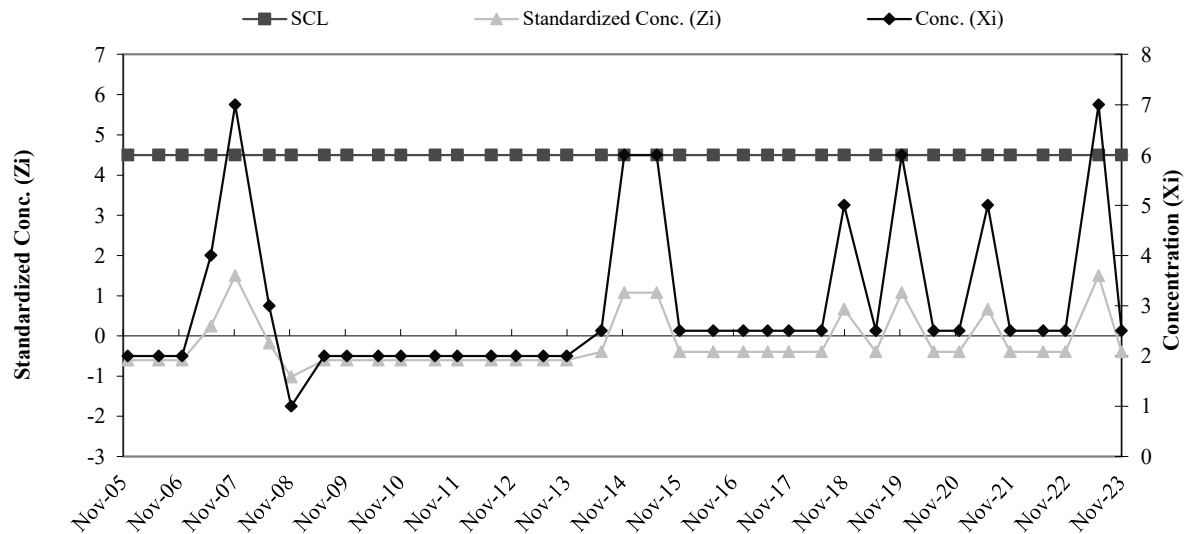


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19AR Cu

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	40	Jun-21	4.5	5	0.66
14	Jun-08	4.5	3	-0.18	41	Nov-21	4.5	2.5	-0.39
15	Nov-08	4.5	1	-1.02	42	Jun-22	4.5	2.5	-0.39
16	Jun-09	4.5	2	-0.60	43	Nov-22	4.5	2.5	-0.39
17	Nov-09	4.5	2	-0.60	44	Jun-23	4.5	7	1.50
18	Jun-10	4.5	2	-0.60	45	Nov-23	4.5	2.5	-0.39
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

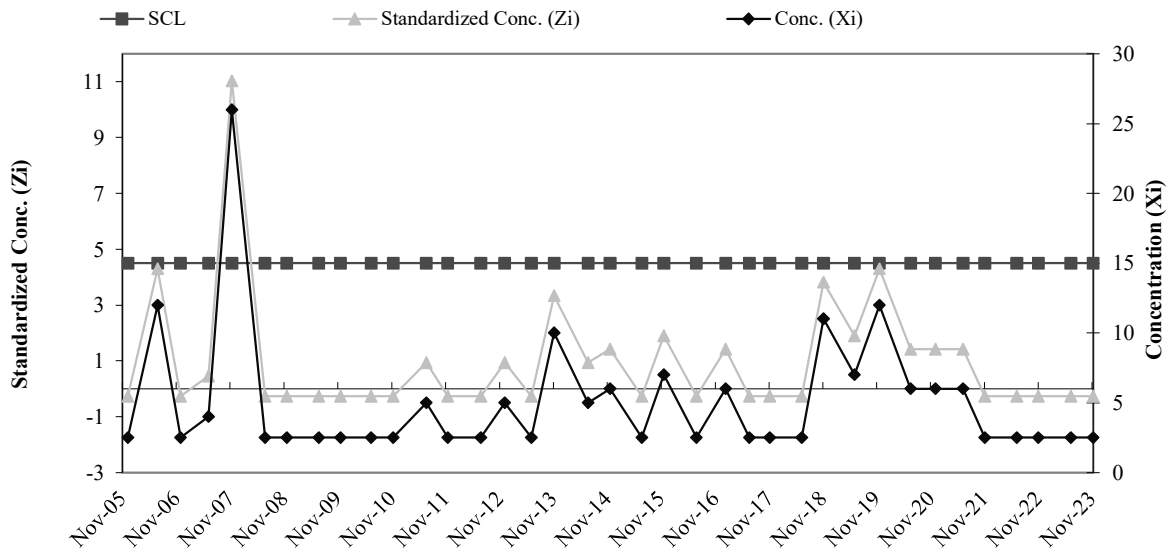


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19AR Ni

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	41	Jun-21	4.5	6	1.41
14	Jun-08	4.5	2.5	-0.27	42	Nov-21	4.5	2.5	-0.27
15	Nov-08	4.5	2.5	-0.27	43	Jun-22	4.5	2.5	-0.27
16	Jun-09	4.5	2.5	-0.27	44	Nov-22	4.5	2.5	-0.27
17	Nov-09	4.5	2.5	-0.27	45	Jun-23	4.5	2.5	-0.27
19	Jun-10	4.5	2.5	-0.27	46	Nov-23	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

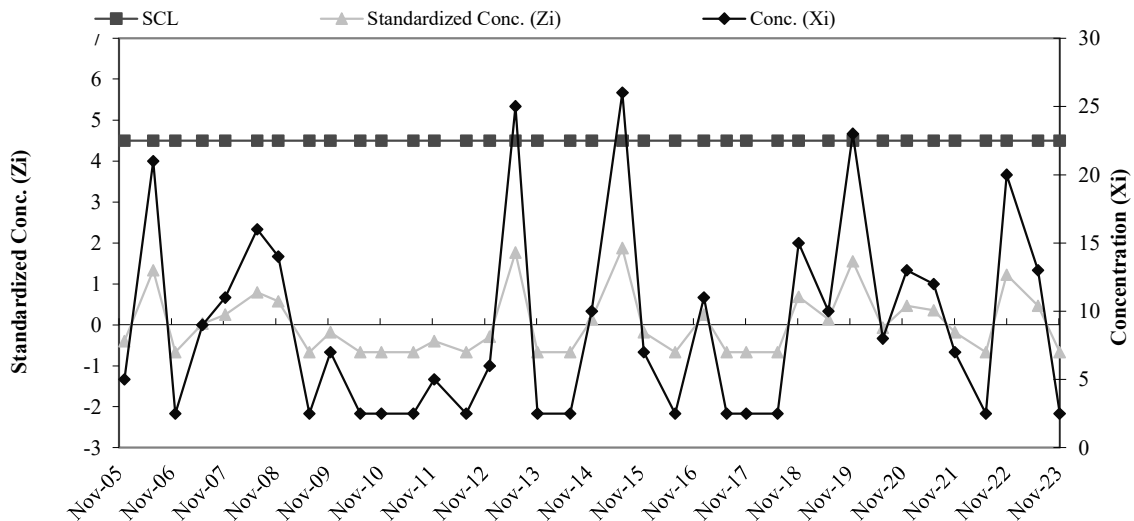


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19AR Zn

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	40	Jun-21	4.5	12	0.36
13	Nov-07	4.5	11	0.25	41	Nov-21	4.5	7	-0.18
14	Jun-08	4.5	16	0.79	42	Jun-22	4.5	2.5	-0.67
15	Nov-08	4.5	14	0.57	43	Nov-22	4.5	20	1.22
16	Jun-09	4.5	2.5	-0.67	44	Jun-23	4.5	13	0.47
17	Nov-09	4.5	7	-0.18	45	Nov-23	4.5	2.5	-0.67
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

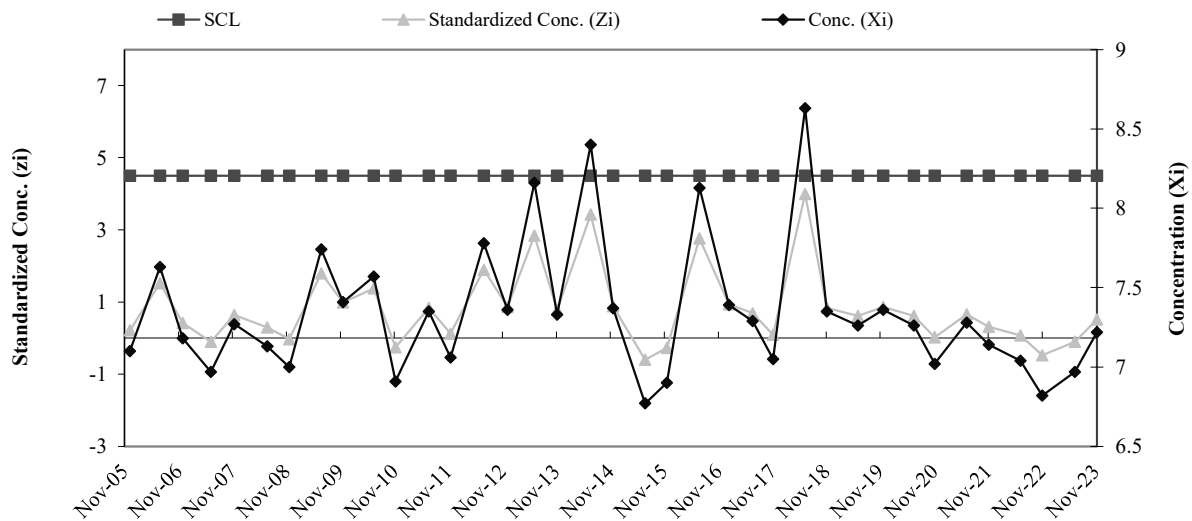


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19AR pH

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	40	Jun-21	4.5	7.3	0.66
12	Jun-07	4.5	7.0	-0.10	41	Nov-21	4.5	7.1	0.32
13	Nov-07	4.5	7.3	0.64	42	Jun-22	4.5	7.0	0.07
14	Jun-08	4.5	7.1	0.29	43	Nov-22	4.5	6.8	-0.47
15	Nov-08	4.5	7.0	-0.03	44	Jun-23	4.5	7.0	-0.10
16	Jun-09	4.5	7.7	1.80	45	Nov-23	4.5	7.2	0.52
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

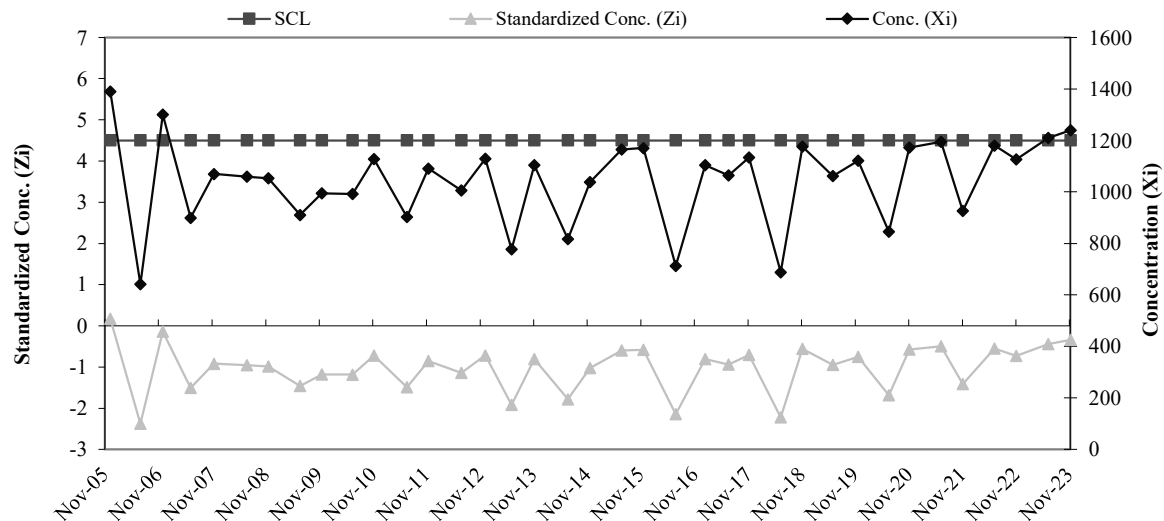


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-19AR SpC

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	40	Jun-21	4.5	1194	-0.50
12	Jun-07	4.5	899	-1.50	41	Nov-21	4.5	926	-1.41
13	Nov-07	4.5	1070	-0.92	42	Jun-22	4.5	1180	-0.55
14	Jun-08	4.5	1060	-0.96	43	Nov-22	4.5	1126	-0.73
15	Nov-08	4.5	1052	-0.98	44	Jun-23	4.5	1210	-0.44
16	Jun-09	4.5	911	-1.46	45	Nov-23	4.5	1240	-0.34
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

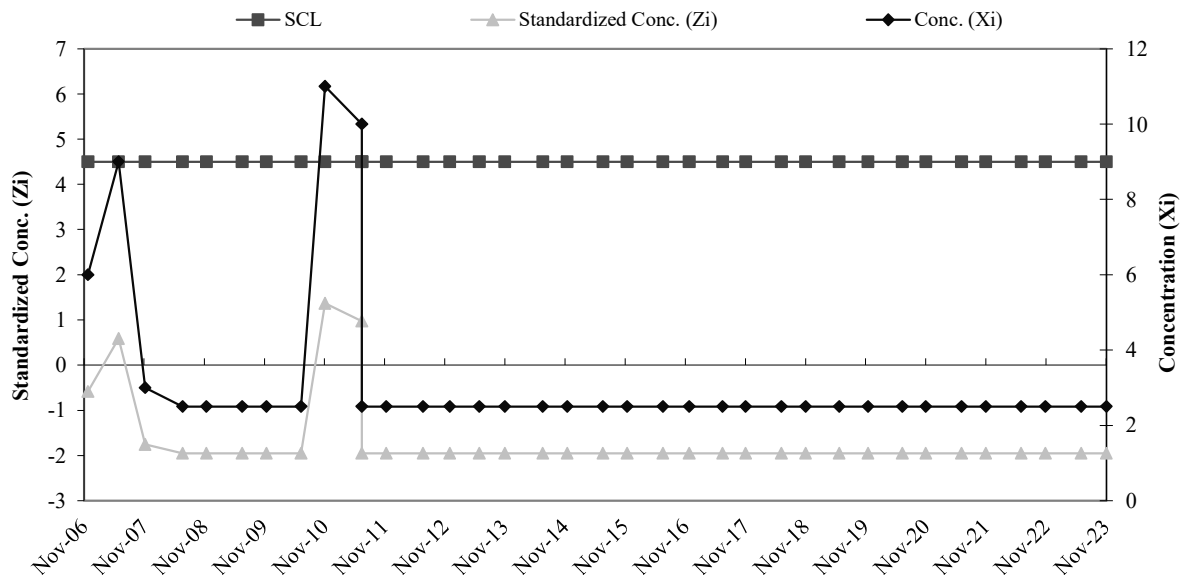


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24R Cr

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	39	Jun-21	4.5	2.5	-1.95
14	Jun-09	4.5	2.5	-1.95	40	Nov-21	4.5	2.5	-1.95
15	Nov-09	4.5	2.5	-1.95	41	Jun-22	4.5	2.5	-1.95
16	Jun-10	4.5	2.5	-1.95	42	Nov-22	4.5	2.5	-1.95
17	Nov-10	4.5	11	1.37	43	Jun-23	4.5	2.5	-1.95
18	Jun-11	4.5	10	0.98	44	Nov-23	4.5	2.5	-1.95
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

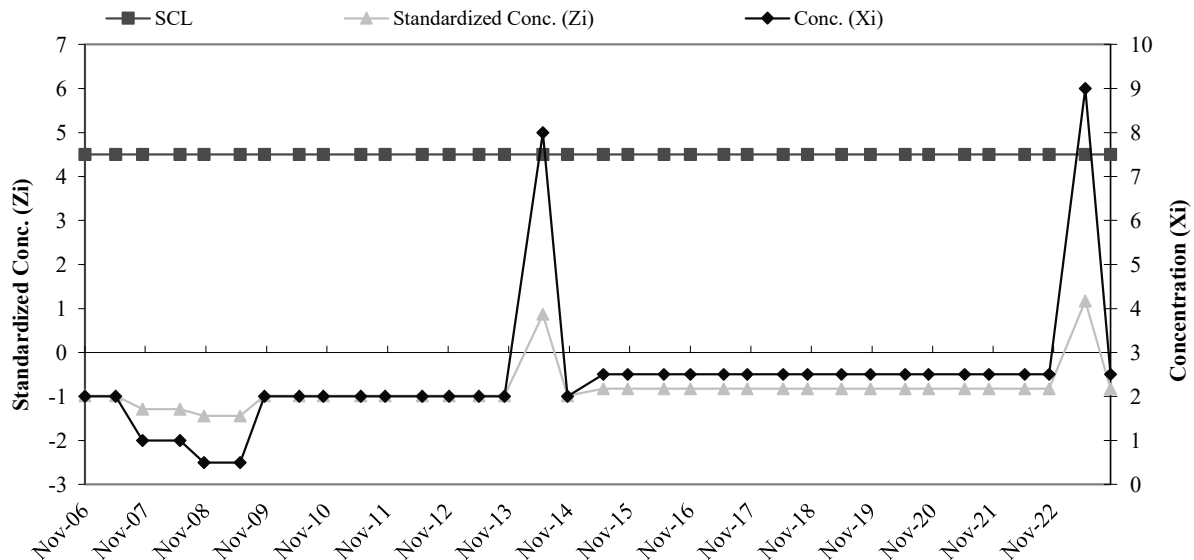


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24R Cu

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	38	Jun-21	4.5	2.5	-0.83
13	Nov-08	4.5	0.5	-1.44	39	Nov-21	4.5	2.5	-0.83
14	Jun-09	4.5	0.5	-1.44	40	Jun-22	4.5	2.5	-0.83
15	Nov-09	4.5	2	-0.98	41	Nov-22	4.5	2.5	-0.83
16	Jun-10	4.5	2	-0.98	42	Jun-23	4.5	9	1.17
17	Nov-10	4.5	2	-0.98	43	Nov-23	4.5	2.5	-0.83
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

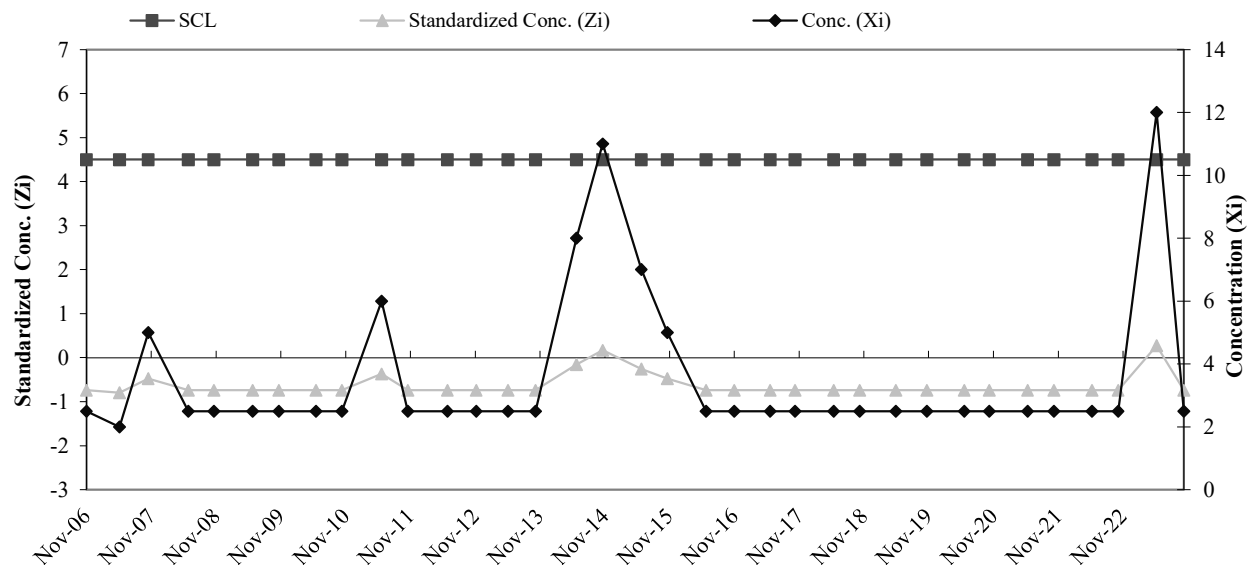


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24R Ni

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	38	Jun-21	4.5	2.5	-0.74
13	Nov-08	4.5	2.5	-0.74	39	Nov-21	4.5	2.5	-0.74
14	Jun-09	4.5	2.5	-0.74	40	Jun-22	4.5	2.5	-0.74
15	Nov-09	4.5	2.5	-0.74	41	Nov-22	4.5	2.5	-0.74
16	Jun-10	4.5	2.5	-0.74	42	Jun-23	4.5	12	0.27
17	Nov-10	4.5	2.5	-0.74	43	Nov-23	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

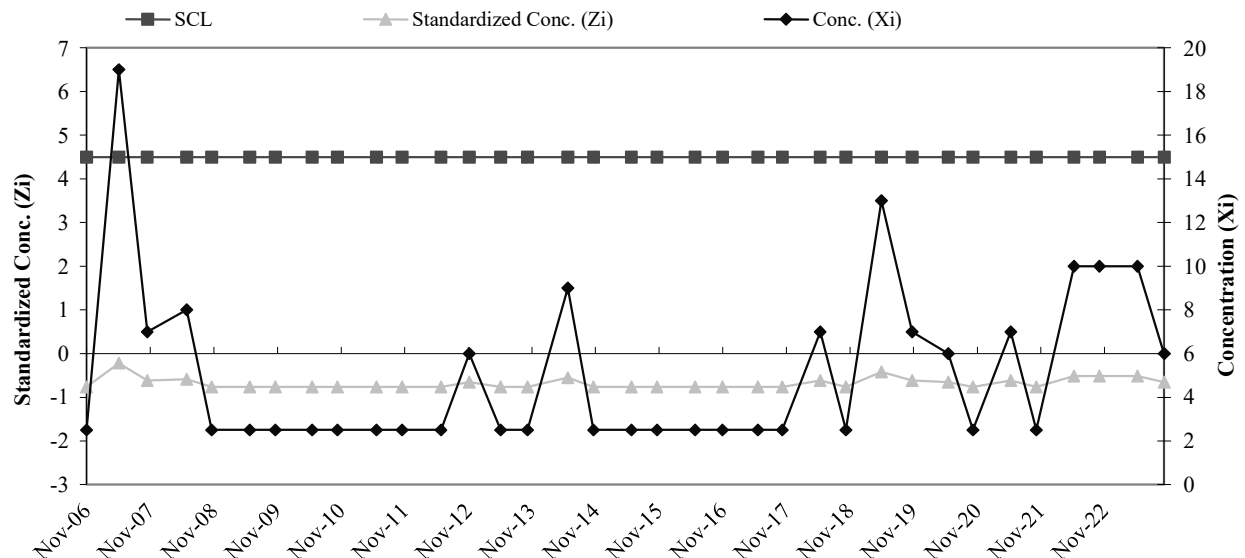


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24R Zn

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	38	Jun-21	4.5	7	-0.62
13	Nov-08	4.5	2.5	-0.77	39	Nov-21	4.5	2.5	-0.77
14	Jun-09	4.5	2.5	-0.77	40	Jun-22	4.5	10	-0.52
15	Nov-09	4.5	2.5	-0.77	41	Nov-22	4.5	10	-0.52
16	Jun-10	4.5	2.5	-0.77	42	Jun-23	4.5	10	-0.52
17	Nov-10	4.5	2.5	-0.77	43	Nov-23	4.5	6	-0.65
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

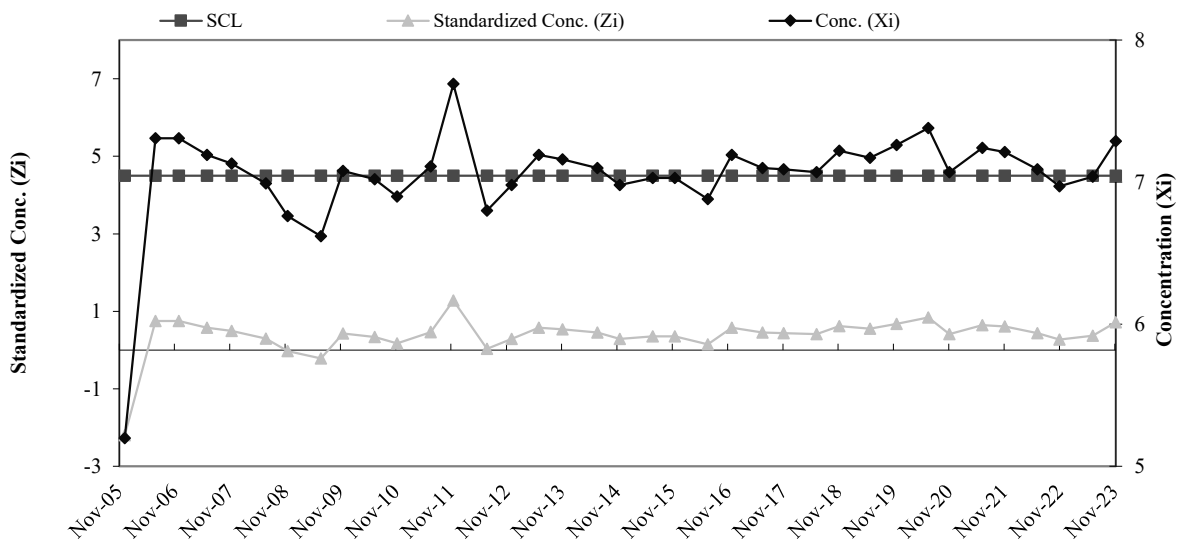


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24R pH

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	38	Jun-21	4.5	7.2	0.65
13	Nov-07	4.5	7.1	0.50	39	Nov-21	4.5	7.2	0.61
14	Jun-08	4.5	7.0	0.30	40	Jun-22	4.5	7.1	0.44
15	Nov-08	4.5	6.8	-0.02	41	Nov-22	4.5	7.0	0.27
14	Jun-09	4.5	6.6	-0.22	42	Jun-23	4.5	7.0	0.37
15	Nov-09	4.5	7.1	0.43	43	Nov-23	4.5	7.3	0.72
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

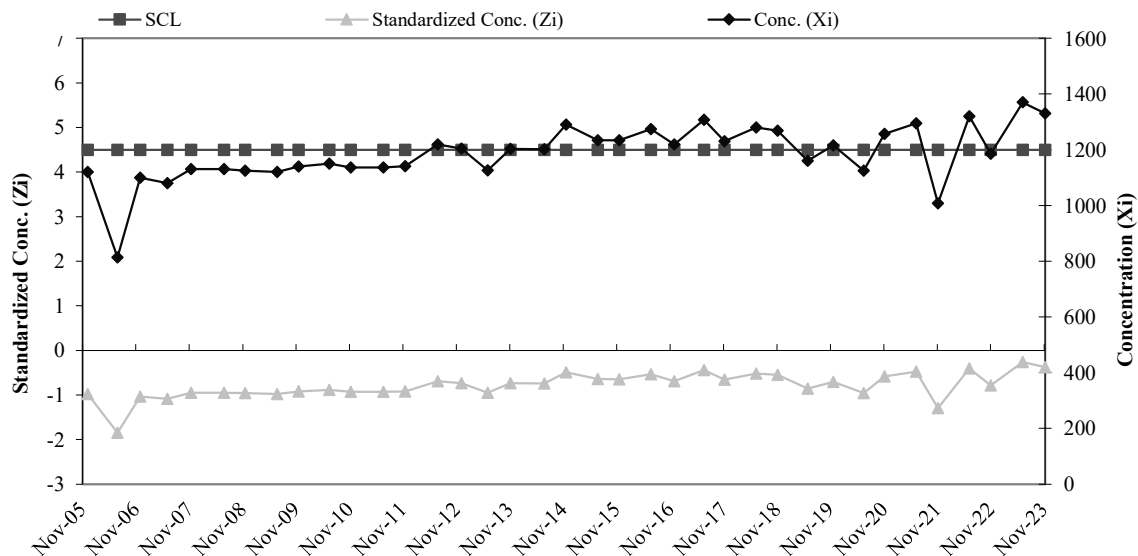


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-24R SpC

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	40	Jun-21	4.5	1295	-0.48
13	Nov-07	4.5	1130	-0.95	41	Nov-21	4.5	1008	-1.29
14	Jun-08	4.5	1130	-0.95	42	Jun-22	4.5	1320	-0.40
15	Nov-08	4.5	1125	-0.96	43	Nov-22	4.5	1186	-0.79
16	Jun-09	4.5	1120	-0.97	44	Jun-23	4.5	1370	-0.26
17	Nov-09	4.5	1140	-0.92	45	Nov-23	4.5	1330	-0.38
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

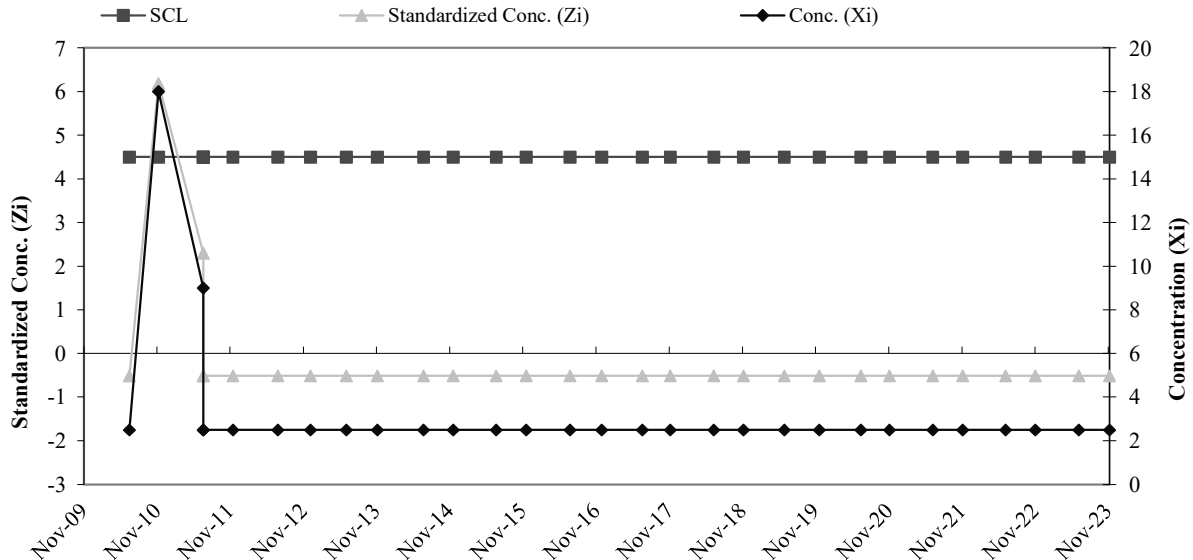


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 Cr

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)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Jun-10	4.5	2.5	-0.51	34	Nov-21	4.5	2.5	-0.51
10	Nov-10	4.5	18	6.19	35	Jun-22	4.5	2.5	-0.51
11	Jun-11	4.5	9	2.30	36	Nov-22	4.5	2.5	-0.51
12	Jun-11	4.5	2.5	-0.51	37	Jun-23	4.5	2.5	-0.51
13	Jun-11	4.5	2.5	-0.51	38	Nov-23	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					
33	Jun-21	4.5	2.5	-0.51					

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

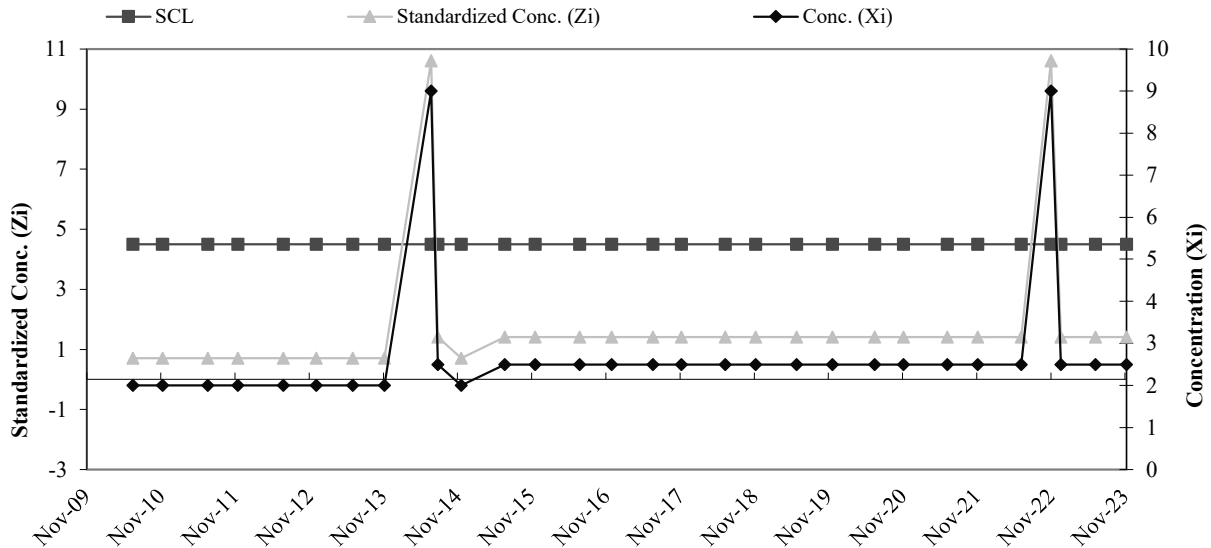


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 Cu

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)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Jun-10	4.5	2	0.71	33	Nov-21	4.5	2.5	1.41
10	Nov-10	4.5	2	0.71	34	Jun-22	4.5	2.5	1.41
11	Jun-11	4.5	2	0.71	35	Nov-22	4.5	9	10.61
12	Nov-11	4.5	2	0.71	36	Dec-22	4.5	2.5	1.41
13	Jun-12	4.5	2	0.71	37	Jun-23	4.5	2.5	1.41
14	Dec-12	4.5	2	0.71	38	Nov-23	4.5	2.5	1.41
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					
32	Jun-21	4.5	2.5	1.41					

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

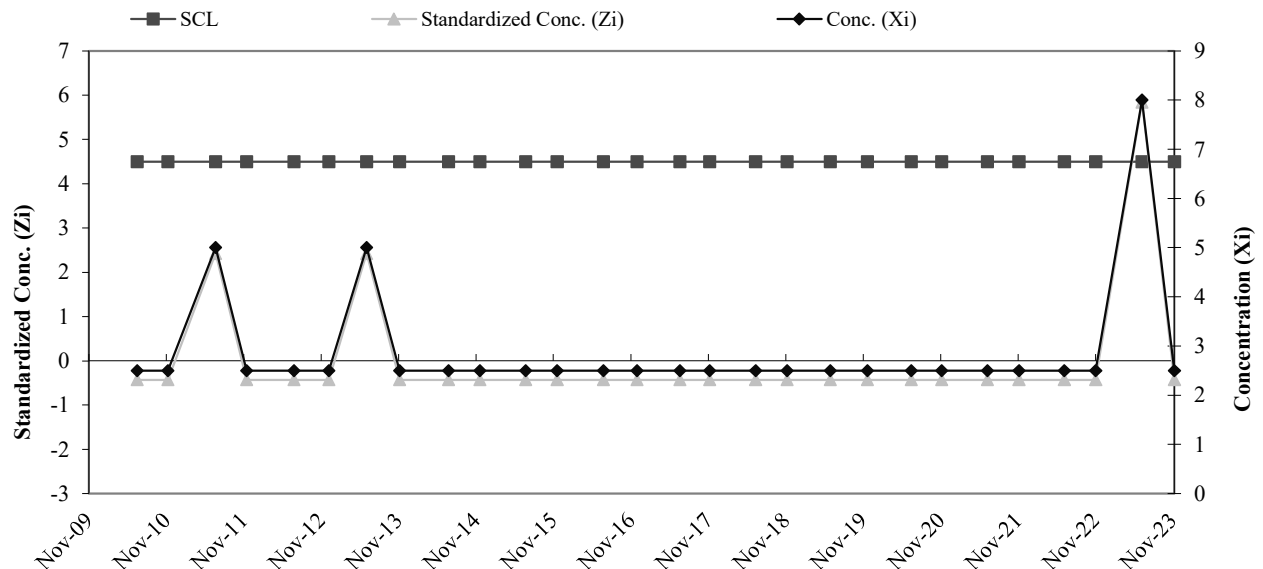


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 Ni

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)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Jun-10	4.5	2.5	-0.43	32	Jun-22	4.5	2.5	-0.43
10	Nov-10	4.5	2.5	-0.43	33	Nov-22	4.5	2.5	-0.43
9	Jun-11	4.5	5	2.43	34	Jun-23	4.5	8	5.85
10	Nov-11	4.5	2.5	-0.43	35	Nov-23	4.5	2.5	-0.43
11	Jun-12	4.5	2.5	-0.43	36				
12	Dec-12	4.5	2.5	-0.43	36				
13	Jun-13	4.5	5	2.43	37				
14	Nov-13	4.5	2.5	-0.43	38				
15	Jun-14	4.5	2.5	-0.43	39				
16	Nov-14	4.5	2.5	-0.43	40				
17	Jun-15	4.5	2.5	-0.43	41				
18	Nov-15	4.5	2.5	-0.43	42				
19	Jun-16	4.5	2.5	-0.43	43				
20	Nov-16	4.5	2.5	-0.43	44				
21	Jun-17	4.5	2.5	-0.43	45				
22	Nov-17	4.5	2.5	-0.43	46				
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					
29	Jun-21	4.5	2.5	-0.43					
30	Nov-21	4.5	2.5	-0.43					

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

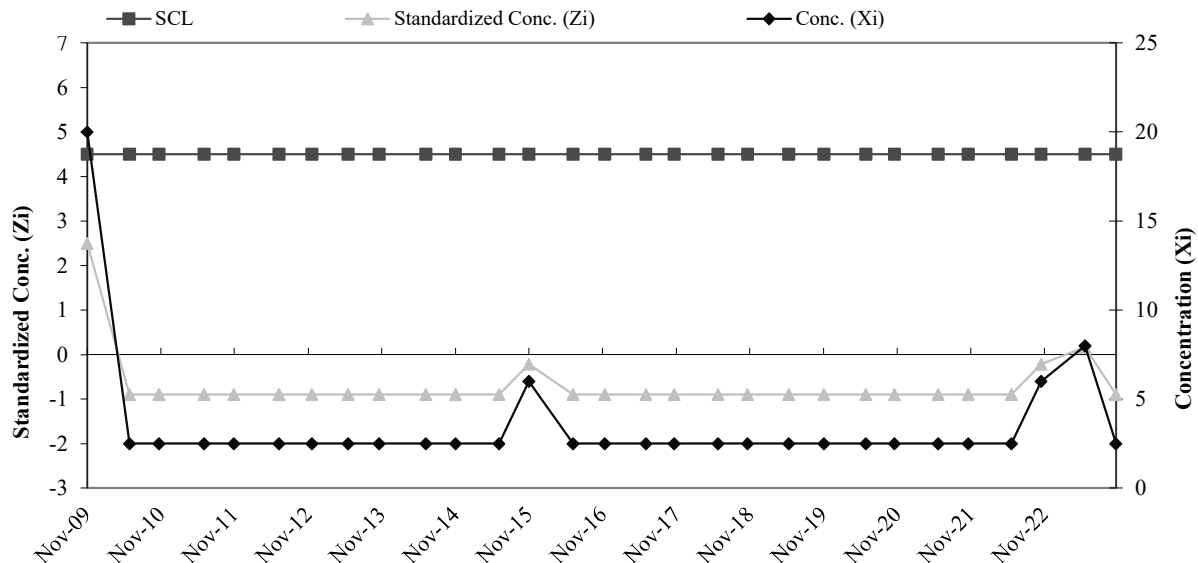


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 Zn

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)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-09	4.5	20	2.50	34	Jun-22	4.5	2.5	-0.90
10	Jun-10	4.5	2.5	-0.90	35	Nov-22	4.5	6	-0.22
11	Nov-10	4.5	2.5	-0.90	36	Jun-23	4.5	8	0.17
12	Jun-11	4.5	2.5	-0.90	37	Nov-23	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					
32	Jun-21	4.5	2.5	-0.90					
33	Nov-21	4.5	2.5	-0.90					

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

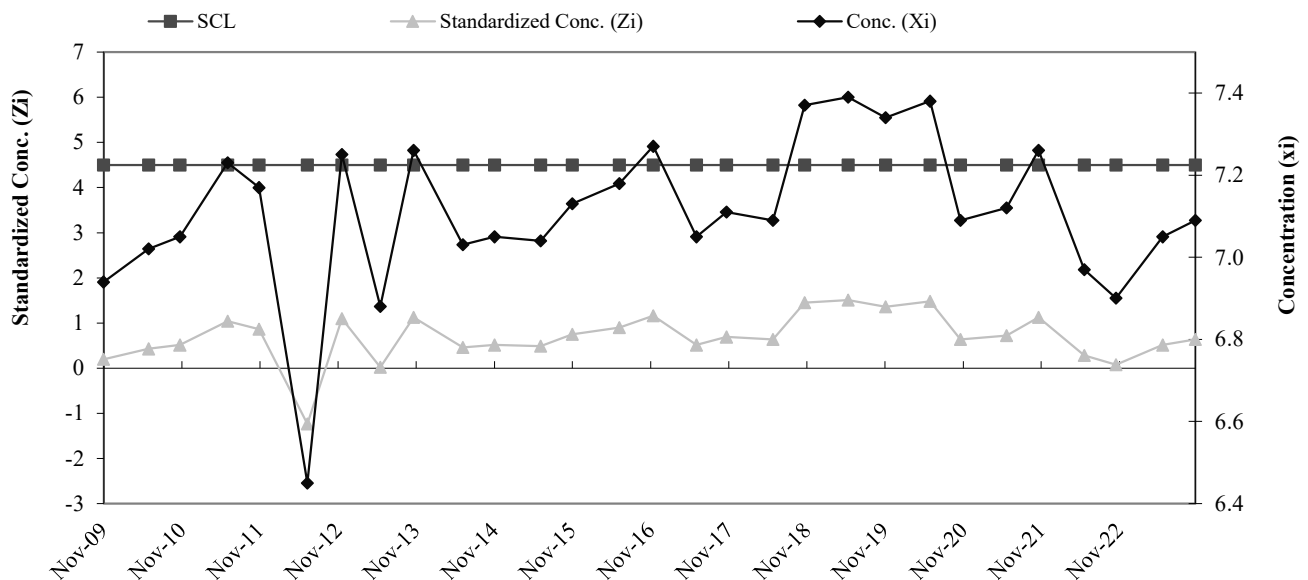


COLDWATER ROAD LANDFILL FACILITY
RCRA GROUND WATER DETECTION MONITORING SYSTEM
SHEWART CONTROL CHART
B-28 pH

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)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-09	4.5	6.9	0.19	33	Nov-21	4.5	7.3	1.13
10	Jun-10	4.5	7.0	0.43	34	Jun-22	4.5	7.0	0.28
11	Nov-10	4.5	7.1	0.51	35	Nov-22	4.5	6.9	0.08
12	Jun-11	4.5	7.2	1.04	36	Jun-23	4.5	7.1	0.51
13	Nov-11	4.5	7.2	0.87	37	Nov-23	4.5	7.1	0.63
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					
32	Jun-21	4.5	7.1	0.72					

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)	Ti	Date	SCL	Conc. (Xi)	Standardized Conc. (Zi)
9	Nov-09	4.5	814	-0.50	33	Nov-21	4.5	674	-2.77
10	Jun-10	4.5	841	-0.07	34	Jun-22	4.5	936	1.47
11	Nov-10	4.5	813	-0.52	35	Nov-22	4.5	936	1.47
12	Jun-11	4.5	837	-0.13	36	Jun-23	4.5	949	1.68
13	Nov-11	4.5	823	-0.36	37	Nov-23	4.5	946	1.63
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					
32	Jun-21	4.5	936	1.47					

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

