REPORT

Fourth Quarter 2022 Monitoring Report

Smiths Creek Landfill

Submitted to:

Michigan Department of Environmental Quality
Southeast Michigan District
27700 Donald Court
Warren, Michigan 48092-2793

Submitted by:

WSP USA Inc.
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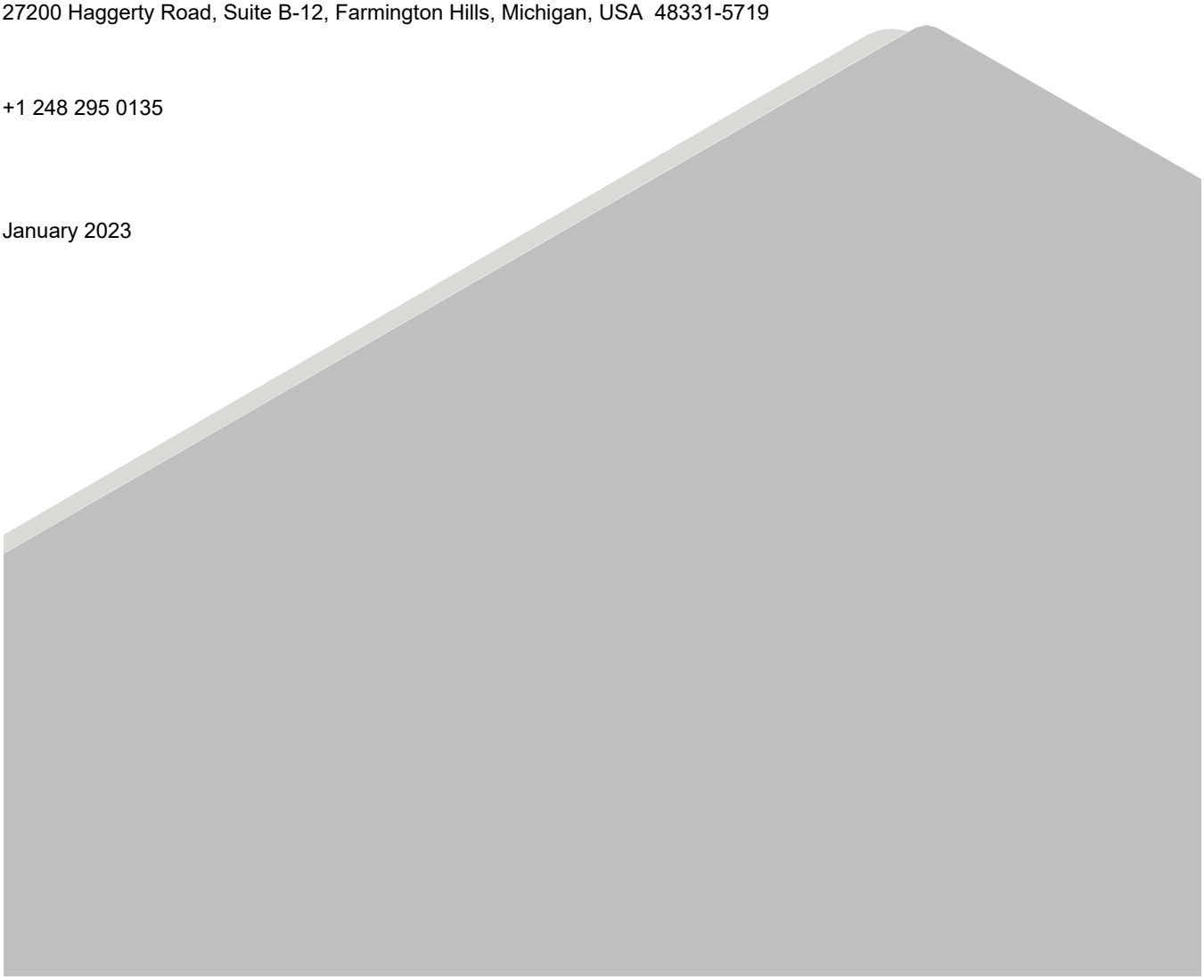
January 2023



January 24, 2023 Project No. 31405076.000

Mary Carnagie
Michigan Department of Environment, Great Lakes, and Energy
27700 Donald Court
Warren, Michigan 48092-2793

FOURTH QUARTER 2022 ENVIRONMENTAL MONITORING REPORT
SMITHS CREEK LANDFILL, WDS #452546
ST. CLAIR COUNTY, MICHIGAN

Dear Ms. Carnagie:

WSP USA Inc., (WSP) is providing this report to summarize monitoring efforts from the above referenced sampling event. This report is submitted on behalf of St. Clair County, Michigan under the direction of Mr. Matt Williams.

1.0 INTRODUCTION

The Smiths Creek Landfill (SCL) is a Type II landfill located at 6779 Smiths Creek Road in Kimball Township, St. Clair County, Michigan. The SCL occupies approximately 264.5 acres, and is bordered on the north by residential and agricultural properties, on the south by undeveloped private and county owned property, on the east by the Wolvin Drain, and on the west by Smiths Creek and undeveloped and residential properties.

Groundwater monitoring and reporting were performed in accordance with the Michigan Department of Environmental Quality (MDEQ, now Environment, Great Lakes and Energy [EGLE]) approved Hydrogeologic Monitoring Plan (HMP) dated December 2014, which included a reduction in sampling frequency from quarterly to semiannually (during the second and fourth quarters of each calendar year). Leachate and surface water continue to be sampled on a quarterly basis. **Table 1, Monitoring Well Network Summary**, includes a summary of the monitoring well network. Designated sampling parameters, test methods, reporting limits, and corresponding containers, preservatives, and holding times are summarized in the HMP. Water level measurement procedures, groundwater and surface water sample collection methods, decontamination procedures, and leachate sample collection procedures were performed in accordance with the HMP and applicable Public Act 451, Part 115 Rules.

2.0 MONITORING RESULTS

Samples were collected by WSP personnel from 15 monitoring wells, three surface water locations and one leachate sampling location between October 24 and 25, 2022. Copies of the field data forms are included in **Appendix A, Field Data Sheets**. Table 1 identifies the monitoring wells included in the monitoring program. Copies of laboratory reports are included in **Appendix B, Laboratory Results**.

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The analytical data for the one leachate sample and three of the four surface water samples is included in **Appendix B, Laboratory Analytical Report**. Surface water location SW-D2 was observed to be dry with no flow, therefore no sample was collected. A review of the report indicates that the leachate and remaining surface water results are similar to historical results. In addition, upstream and downstream surface water locations were compared and were found to be generally similar, as well as consistent with historically reported results. As such, there is no evidence of surface water impact as a result of the landfill.

3.0 GROUNDWATER SEEPAGE CHARACTERISTICS

Prior to well purging, WSP field personnel collected depth to groundwater measurements from each of the monitoring wells sampled, and groundwater elevations were calculated. The elevations are presented on **Table 2, Historical Groundwater Elevations** and **Figure 1, Groundwater Elevation Contour Map – October 2022**. Review of the map indicates that groundwater flow is toward the east, which is consistent with past determinations.

In accordance with Rule 299.4907(5), the groundwater seepage velocity was determined based on groundwater elevations. As presented in the HMP, Darcy's equation was used to calculate the horizontal seepage velocity, as shown below:

$$V = K\frac{i}{n}$$

Where,

V = seepage velocity
K = hydraulic conductivity
i = hydraulic gradient
n = effective porosity

Table 3, Groundwater Seepage Velocity Calculations, presents values taken from the HMP and used in the calculations, the calculated flow gradients, and the velocity across the site. As shown on Table 3, the calculated average groundwater seepage velocity was 0.0047 feet per day (ft/day) (1.7 feet per year (ft/year)), which is consistent with historical determinations.

4.0 STATISTICAL ANALYSIS RESULTS

WSP completed statistical analyses in accordance with the approved statistical analysis plan, entitled, "Statistical Analysis of Background Groundwater Monitoring Data (SABGMD)", that was prepared in accordance with R299.4908, and last updated in August 2014. **Table 4, Fourth Quarter 2022 Monitoring Results**, includes the comparisons of the current and previous semiannual event with the updated tolerance limits.

4.1 Exceedances

Based on a review of Table 4, one (1) initial and three (3) confirmed exceedances were reported during the fourth quarter 2022 monitoring event:

- Potassium and sodium in monitoring well MW-203B – Verified
- Sodium in monitoring well MW-210 – Verified
- Sodium in monitoring well MW-305 – Initial

4.2 Statistically Significant Increases

As shown in **Table 5, Summary of Statistical Exceedances** (required by MDEQ RMD-115-29), four (4) total exceedances (one initial and three verified) were reported during the fourth quarter 2022 monitoring event. An ASD is provided below for each of the exceedances.

4.2.1 Potassium and Sodium in Monitoring Well MW-203B

As discussed in a report from Golder (now known as WSP) to EGLE dated October 4, 2021, monitoring well MW-203B was installed on April 29, 2021 as a replacement well for monitoring well MW-203. Like monitoring well MW-203 before it, monitoring well MW-203B purges dry, and was thus only subject to limited well development following installation. As described in Golder's October 4, 2021 letter, additional purging of monitoring well MW-203B during continued sampling events may result in additional decreases in the concentrations of chloride, sodium, and potassium. As also proposed in the October 4, 2021 letter, if concentrations did not decrease with time, the limits would be recalculated once a minimum of eight new background values are available from the replacement well. Monitoring well MW-203B was installed immediately prior to the second quarter 2021 monitoring event and currently has a total of six (6) background monitoring observations per constituent. WSP proposes to collect two (2) additional samples over the next two monitoring periods and then recalculate the statistical limits for all constituents. The procedure to be used for recalculating the statistical limits for a replacement well is described in Section 6.5 of the HMP.

4.2.2 Sodium in Monitoring Well MW-210

As shown in Table 4, the exceedance for sodium in monitoring well MW-210 is a statistically significant increase (SSI).

It is WSP's opinion that the SSI reported for sodium in monitoring well MW-210 is not a result of landfill influence on the groundwater, but is rather a result of natural geochemical variability. As shown in **Appendix C, Time Series Plots**, the current concentration of sodium is within the range of historical values reported in monitoring well MW-210. In addition, sodium concentrations have been stable over the last three to four years. Further, the concentration of sodium in monitoring well MW-210 is within the range of sodium concentrations in upgradient monitoring wells at the SCL, particularly upgradient monitoring well MW-303A. Because the concentration in downgradient monitoring well MW-210 is similar to that in upgradient monitoring wells, it is likely that the concentration in the downgradient well is a result natural geochemical variability in the uppermost aquifer.

Finally, none of the other leachate indicator parameters in monitoring well MW-210 are showing exceedances or trends (as shown in Appendix C) and the reported concentrations for indicator parameters are within the range of concentrations for other monitoring wells at the SCL. Based on these observations, no additional response is necessary with respect to the recent exceedances for sodium in monitoring well MW-210. Continued detection monitoring is appropriate.

4.2.3 Sodium in Monitoring Well MW-305

An initial exceedance was identified for sodium in monitoring well MW-305 during the fourth quarter 2022 monitoring period. The sodium concentration in monitoring well MW-305 is within the range of historical sodium concentrations. Like sodium in monitoring well MW-210, none of the other leachate indicator parameters in monitoring well MW-305 are showing exceedances. As shown in Appendix C, no discernable upward trends in concentrations over time have been identified in monitoring well MW-305. The current concentrations reported for potassium, sodium, total inorganic nitrogen, and total organic carbon are within range (and on the low end) of

historical concentrations reported in MW-305. Further, the reported sodium concentration (97.6 mg/L) is below the DWC of 230 mg/L.

It is WSP's opinion that the SSI reported for sodium in monitoring well MW-305 is not a result of landfill influence on the groundwater, but rather a result of natural geochemical variability. Based on the above observations, no additional response is necessary with respect to the exceedance/SSI for sodium in monitoring well MW-305. It is WSP/Golder's opinion that continued detection monitoring is appropriate.

4.2.4 Statistical Summary

Rule 299.4440(9) of Part 115 allows a site 30 days to prepare an ASD which asserts that a SSI indicated by groundwater monitoring data is the result of a source other than a release from the site. As indicated above, a total of four exceedances (one initial and three verified) were reported for the fourth quarter 2022 monitoring event. However, none of the exceedances reported during the fourth quarter 2022 monitoring period are attributable to landfill influence on the groundwater; thus, other than the proposed actions described above, no additional response is necessary and continued detection monitoring is appropriate. Due to the relatively low seepage velocity for the SCL (1.7 feet per year), it is WSP's opinion that, where applicable, confirmation sampling during the next semiannual monitoring event is appropriate.

5.0 CHAIN OF CUSTODY INFORMATION & FIELD FORMS

All samples were submitted under standard chain-of custody protocol. Copies of the chains of custody for this event are included with the laboratory results in Appendix A. Field forms are prepared at each sampling location. Copies of the field forms are included in Appendix B.

CLOSING

This report is submitted as required by the site's approved HMP by the undersigned professionals. Please do not hesitate to contact either of us at 248-295-0135, if you have any questions.

Sincerely,

WSP USA INC.

Carolyn E. Powrozek, C.P.G.
Lead Consultant, Senior Geologist

Mary L. Siegan, P.E.
Lead Consultant, Senior Environmental Engineer

CEP/DLP

CC: Matt Williams, St. Clair County/Smiths Creek Landfill

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TABLES

TABLE 1.
MONITORING WELL NETWORK SUMMARY
Smiths Creek Landfill

Well ID	Gradient Direction	Northing	Easting	Top of Casing Elevation (ft msl)	Bottom of Screen Elevation (ft msl)	Total Well Depth (ft)	Well Screen and Riser Materials
MW-101	Up	18374.3	14719.3	634.76	557.9	76.9	PVC
MW-106A	Down	14643.2	17132.0	633.43	558.2	75.2	PVC
MW-201	Up	18488.1	15529.3	634.57	559.2	75.4	PVC
MW-202	Up	17786.6	14714.4	635.22	570.6	64.6	PVC
MW-203	Down	14644.5	16028.9	632.05	558.9	73.2	PVC
MW-203B	Down	14546.9	16027.9	633.00	631.3	72	PVC
MW-207A	Down	15225.7	17099.4	634.29	551.4	82.9	PVC
MW-208B	Down	15533.4	17136.7	633.91	NA	NA	PVC
MW-209	Down	16102.6	17180.1	630.58	551.4	79.2	PVC
MW-210	Down	16937.0	17218.1	628.38	556.5	71.9	PVC
MW-212	Down	17719.0	16985.5	628.16	563.0	65.2	PVC
MW-301	Down	15814.4	17134.8	635.10	550.8	84.3	PVC
MW-302	Down	16545.2	17191.4	626.75	546.4	80.4	PVC
MW-303A	Up	15709.1	14987.9	633.41	557.7	75.7	PVC
MW-304	Up	16769.8	14812.1	635.12	559.4	75.7	PVC
MW-305	Down	17269.0	17204.0	628.93	553.1	75.8	PVC

Notes:

NA - Not available

Information from CTI, 2010

MSL - Mean Sea Level

PVC - Polyvinyl Chloride

TABLE 2.
HISTORICAL GROUNDWATER ELEVATIONS
Smiths Creek Landfill

Well ID	Top of Casing Elevation	2016		2017		2018		2019		2020		2021		2022	
		4/1/2016	10/1/2016	6/1/2017	11/1/2017	5/1/2018	10/23/2018	5/14/2019	11/5/2019	5/29/2020	12/1/2020	5/4/2021	10/19/2021	6/15/2022	10/24/2022
MW-101	634.76	612.52	611.44	611.44	612.17	612.31	611.19	611.30	611.73	611.38	611.08	611.79	612.03	611.57	610.46
MW-106A	633.43	601.39	601.59	601.93	602.21	601.61	602.74	602.14	602.48	602.41	602.14	602.06	602.39	602.11	601.53
MW-201	634.57	611.97	610.87	611.04	611.99	611.78	610.79	610.68	611.13	611.39	610.73	611.38	611.49	611.34	610.20
MW-202	635.22	612.04	610.91	610.98	611.66	611.69	610.62	610.81	611.18	610.92	610.57	611.24	611.65	611.19	610.09
MW-203	632.05	607.33	606.87	607.54	608.18	607.71	606.39	606.02	607.28	607.66	607.62	n/a	n/a	n/a	n/a
MW-203B	633.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	609.02	608.77	608.45	608.18
MW-207A	634.29	598.46	598.43	598.84	598.99	598.61	597.95	597.78	598.38	598.59	598.11	598.45	598.92	598.47	597.42
MW-208B	633.91	599.78	599.62	599.89	600.31	599.93	599.13	598.96	599.58	599.87	599.41	599.80	600.21	599.80	598.76
MW-209	630.58	603.60	602.40	602.68	603.36	602.83	602.16	601.83	602.41	602.78	602.44	602.72	603.00	602.73	601.73
MW-210	628.38	600.62	600.36	600.60	601.23	600.55	600.07	599.70	600.39	600.83	600.62	600.84	601.02	600.85	599.89
MW-212	628.16	600.25	599.61	599.64	600.66	599.84	599.35	599.07	599.64	600.23	600.11	600.42	600.46	600.26	599.21
MW-301	635.10	601.38	601.14	601.51	601.94	601.54	600.76	600.49	601.20	601.40	601.01	601.36	601.74	601.38	600.39
MW-302	626.75	601.82	601.23	601.41	602.23	601.53	600.96	600.73	601.34	601.86	601.63	601.92	602.04	601.81	600.82
MW-303A	633.41	611.33	610.70	610.90	611.56	611.41	610.38	610.20	610.91	608.91	610.30	610.88	611.22	610.93	609.89
MW-304	635.12	610.49	609.74	609.84	610.46	610.36	609.47	609.42	609.89	612.34	609.27	609.93	610.21	609.86	608.81
MW-305	628.93	599.38	599.03	599.11	599.83	599.11	598.60	598.28	590.80	599.45	599.15	599.49	599.75	599.45	598.39

Notes:
All measurements recorded in feet above Mean Sea Level

TABLE 3.
GROUNDWATER SEEPAGE VELOCITY CALCULATIONS
Smiths Creek Landfill

Flow Paths	Δ h (feet)[2]	Δ l (feet)[3]	Hydraulic Gradient (Δ h/Δ l)	Average Permeability, K (feet per day)[1]	Assumed Effective Porosity (n_e)	Average Linear Groundwater Velocity (feet per day)[4]
A (MW-101/MW-212)	11.25	2356	0.0048	0.283	0.30	0.0045
B (MW-303A/MW-207A)	12.47	2168	0.0058			0.0054
C (MW-304/MW-305)	10.42	2443	0.0043			0.0040

Notes:

1. Average K values from CTI (2012).
2. Δ h = Change in groundwater elevation.
3. Δ l = Distance along flow paths.
4. Velocity = (Δ h /Δ l x K) / n_e.

TABLE 4.
SMITHS CREEK LANDFILL
Fourth Quarter 2022 Monitoring Results

Constituent Name	Units	Prediction Limit	Previous Quarterly Result	Current Quarterly Result
MW-101			**6/15/2022**	**10/24/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	30.1	25.1	24.8
Potassium	mg/L	2.4	1.82	1.66
Sodium	mg/L	75.3	64.4	71.8
Total Inorganic Nitrogen	mg/L	0.72	0.126	0.145
Total Organic Carbon	mg/L	9.1	1.24	1.14
MW-106A			**6/15/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	39.8	35.7	34.7
Potassium	mg/L	3.7	1.27	1.2
Sodium	mg/L	89.1	74.3	81.5
Total Inorganic Nitrogen	mg/L	0.48	<0.2	0.171
Total Organic Carbon	mg/L	5.1	1.64	1.56
MW-201			**6/14/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	30.2	15.9	16.2
Potassium	mg/L	2.6	1.45	1.36
Sodium	mg/L	75.2	66.4	71.1
Total Organic Carbon	mg/L	7.2	1.14	1.19
Total Inorganic Nitrogen	mg/L	5.07	0.0601	0.107
MW-202			**6/15/2022**	**10/24/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	40	29.3	30.1
Potassium	mg/L	2.1	1.41	1.34
Sodium	mg/L	79	69.9	74
Total Organic Carbon	mg/L	8.2	1.15	1.11
Total Inorganic Nitrogen	mg/L	0.64	0.133	0.136

Notes:

Shaded values represent exceedance of statistical prediction limit

mg/L = milligrams per liter; ug/L = micrograms per liter.

TABLE 4.
SMITHS CREEK LANDFILL
Fourth Quarter 2022 Monitoring Results

Constituent Name	Units	Prediction Limit	Previous Quarterly Result	Current Quarterly Result
MW-203B			**6/15/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	39.9*	37.7	37.5
Potassium	mg/L	1.5*	7.88	5.05
Sodium	mg/L	87.5*	90.3	97.7
Total Inorganic Nitrogen	mg/L	1.05*	0.211	0.224
Total Organic Carbon	mg/L	5.1*	1.66	1.58
MW-207A			**6/15/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	33.5	17.2	22.5
Potassium	mg/L	3.5	2.2	2.66
Sodium	mg/L	94.2	68.6	84
Total Inorganic Nitrogen	mg/L	1.62	0.0484	0.0975
Total Organic Carbon	mg/L	4.2	7.74	2.41
MW-208B			**6/15/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	36.8	30.2	30.1
Potassium	mg/L	2.4	1.14	1.18
Sodium	mg/L	117.3	83.6	88
Total Inorganic Nitrogen	mg/L	4.4	<0.2	0.217
Total Organic Carbon	mg/L	6.2	1.32	1.16
MW-209			**6/15/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	44.5	33	32.6
Potassium	mg/L	1.5	1.25	1.16
Sodium	mg/L	99.8	91.4	98.8
Total Organic Carbon	mg/L	7.8	1.07	1.05
Total Inorganic Nitrogen	mg/L	5.72	0.0415	0.123

Notes:

Shaded values represent exceedance of statistical prediction limit

mg/L = milligrams per liter; ug/L = micrograms per liter.

* = limits shown are from MW-203; additional data being gathered to determine whether revised limits are required for MW-203B

TABLE 4.
SMITHS CREEK LANDFILL
Fourth Quarter 2022 Monitoring Results

Constituent Name	Units	Prediction Limit	Previous Quarterly Result	Current Quarterly Result
MW-210			**6/14/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	40.1	28.3	28.3
Potassium	mg/L	2.45	2.46	1.42
Sodium	mg/L	90.6	142	101
Total Organic Carbon	mg/L	10.6	1.41	1.31
Total Inorganic Nitrogen	mg/L	1.71	0.148	0.118
MW-212			**6/14/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	41.4	30.6	30.4
Potassium	mg/L	1.8	1.06	0.994
Sodium	mg/L	101.2	87	95.8
Total Inorganic Nitrogen	mg/L	0.72	<0.02	0.0277
Total Organic Carbon	mg/L	7.1	1.52	1.51
MW-301			**6/14/2022**	**10/24/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	54.3	39.9	38.6
Potassium	mg/L	11.8	1.29	1.24
Sodium	mg/L	110.4	95	106
Total Organic Carbon	mg/L	12.3	1.09	1.04
Total Inorganic Nitrogen	mg/L	1.13	0.199	0.207
MW-302			**6/13/2022**	**10/24/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	67	36.9	35.3
Potassium	mg/L	7.9	1.55	1.57
Sodium	mg/L	111.9	92.5	100
Total Organic Carbon	mg/L	11.9	1.16	1.11
Total Inorganic Nitrogen	mg/L	0.92	0.184	0.252

Notes:

Shaded values represent exceedance of statistical prediction limit

mg/L = milligrams per liter; ug/L = micrograms per liter.

TABLE 4.
SMITHS CREEK LANDFILL
Fourth Quarter 2022 Monitoring Results

Constituent Name	Units	Prediction Limit	Previous Quarterly Result	Current Quarterly Result
MW-303A			**6/15/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	48.6	41.3	40.7
Potassium	mg/L	2.2	1.03	1.02
Sodium	mg/L	157.6	97.8	110
Total Organic Carbon	mg/L	1.89	1.14	1.21
Total Inorganic Nitrogen	mg/L	0.21	<0.2	0.115
MW-304			**6/16/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	40.2	30.7	30.2
Potassium	mg/L	4.2	1.6	1.53
Sodium	mg/L	90	77.8	83.6
Total Inorganic Nitrogen	mg/L	1.3	0.166	0.163
Total Organic Carbon	mg/L	3.1	1	1.05
MW-305			**6/14/2022**	**10/25/2022**
Inorganic Indicators - Semiannual				
Chloride	mg/L	49.2	32.4	32.2
Potassium	mg/L	11.1	1.57	1.54
Sodium	mg/L	96.1	87.8	97.6
Total Organic Carbon	mg/L	11.9	1.52	1.53
Total Inorganic Nitrogen	mg/L	2.16	0.0649	0.0999

Notes:

Shaded values represent exceedance of statistical prediction limit

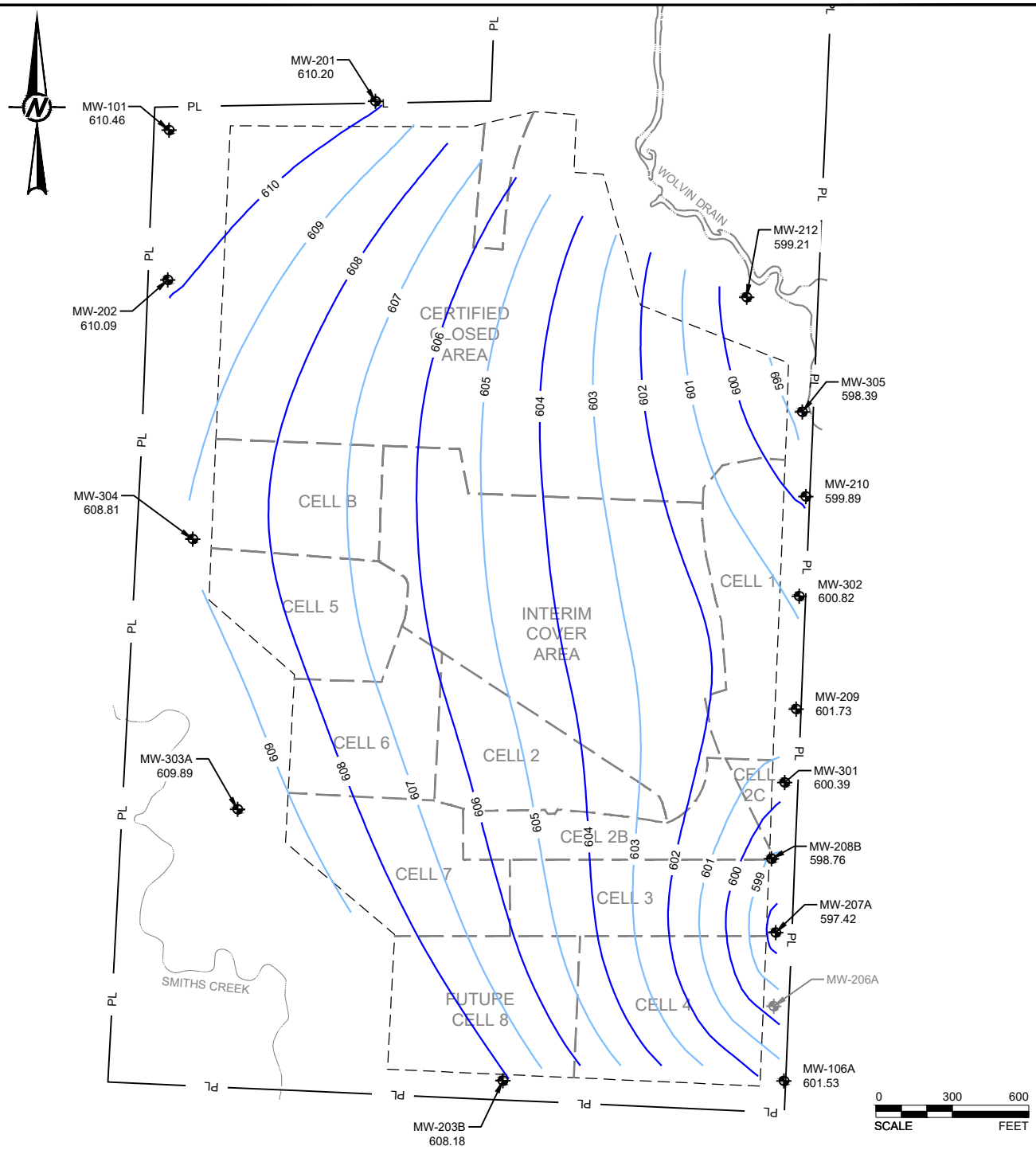
mg/L = milligrams per liter; ug/L = micrograms per liter.

TABLE 5.
SUMMARY OF STATISTICAL EXCEEDANCES
Fourth Quarter 2022 Monitoring Event
Smiths Creek Landfill

Parameter	Well #	Location (U/D/S)	Part 201 GRCC DWC	Statistical Limit	4Q2022 (bold>201)	3Q2022 (verification) (bold>201)	2Q2022 (bold>201)	4Q2021 (bold>201)	2Q2021 (bold>201)
Chloride (mg/L)	MW-203B	S	250	39.9	37.7	38.6	37.7	40.0	38.7
Potassium (mg/l)	MW-203B	S	n/a	1.5	5.05	6.41	7.88	5.94	5.88
Sodium (mg/L)	MW-203B	S	230	87.5	97.7	95.4	90.3	86.7	83.8
Total Organic Carbon (mg/L)	MW-207A	D	NC	4.2	2.41	5.6	7.74	11.4	0.509
Potassium (ug/L)	MW-210	D	n/a	2.45	1.42	n/a	2.46	1.69	1.41
Sodium (mg/L)	MW-210	D	230	90.6	101	n/a	142	114	106
Arsenic (ug/L)	MW-303A	U	10	1.0	n/a	n/a	2.6	n/a	2.3
Sodium (mg/L)	MW-305	D	230	96.1	97.6	n/a	87.8	89.7	93.6

COMMENTS: Shaded values exceed the statistical limit.
n/a = not applicable, not required during specified sampling event
n/s = not sampled, recently installed replacement well
NL=No Limit, NC=Not Calculated
U=upgradient, D=downgradient, S=sidegradient
GRCC = generic residential cleanup criteria; DWC = drinking water criteria

FIGURES



LEGEND

- PROPERTY BOUNDARY
- SOLID WASTE BOUNDARY
- CELL BOUNDARY
- 600 — GROUNDWATER ELEVATION CONTOUR
- MW-XXX XXX.XX — MONITORING WELL LOCATION AND GROUNDWATER ELEVATION
- MW-XXX — WELL ABANDONED

CLIENT
SMITHS CREEK LANDFILL
6779 SMITHS CREEK ROAD
SMITHS CREEK, MICHIGAN

PROJECT
2022 GROUNDWATER MONITORING

TITLE
GROUNDWATER ELEVATION CONTOUR MAP
OCTOBER 24, 2022

CONSULTANT

YYYY-MM-DD	2023-01-19
PREPARED	DJC
DESIGN	CEP
REVIEW	CEP
APPROVED	MLS

PROJECT No.	CONTROL	Rev.	FIGURE
31405076.000	31405076.000A003.dwg	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

Path: \\golder.gds\complex\data\office\Detroit\Cad\Projects\31x-Projects\31405076.000-Smiths Creek LF\PRODUCTION\A-2022 QUARTERLY MONITORING\ | File Name: 31405076.000A003.dwg

APPENDIX A

Field Data Sheets

Well ID MW-203B

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Cloudy
GROUND: dry
AIR TEMPERATURE (°F): 71°
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: Good Condition
BUMPER POSTS: None
EXTERNAL WELL ID: None
LOCK: Rusty
WELL DIAMETER: 2"
CONCRETE PAD: Good Condition

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 25.04
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 73.21
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.86

PURGING

INITIAL PURGE DATE: 8/11/2022
INITIAL PURGE TIME: 11:28

STABILIZATION READINGS

	1	2 1209	3	4	5	6	Final
Time	1130	1200	1202				1410
Volume Removed (gal)	0.25	7.5	0.25				0.01
pH (s.u.)	8.92	8.94	well				8.97
Conductivity. (µmho/cm)	1287	486	went				484
Temperature (°C)	11.8	12.0	dry				12.3

SAMPLING

SAMPLE DATE: 8/11/2022
SAMPLE TIME: 1410
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: NJK

EQUIPMENT

FIELD METER USED:
CALIBRATION TIME:
PH CALIBRATION STANDARDS (s.u.):
CONDUCTIVITY STANDARD (µmho/cm):
PURIFIED WATER SUPPLIED BY:
PUMP/BAILER TYP

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 8/11/22 FORM COMPLETED BY (signature): Nancy Kessler

Well ID MW-207A

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: cloudy
GROUND: dry
AIR TEMPERATURE (°F): 72
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: Good condition
BUMPER POSTS: none
EXTERNAL WELL ID: Good
LOCK: Good
WELL DIAMETER: 2"
CONCRETE PAD: Good

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT):
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 82.9
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS):

PURGING

INITIAL PURGE DATE: 8/11/2022
INITIAL PURGE TIME: 10:35

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1100	1215					1525
Volume Removed (gal)	8.0	1.0					—
pH (s.u.)	—						7.95
Conductivity. (µmho/cm)	—						1224
Temperature (°C)	—						25.5

SAMPLING

SAMPLE DATE: 8/11/22
SAMPLE TIME: 1525
TOTAL BOTTLES COLLECTED: 1
FILTERED FOR METALS: NO
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: NJF

EQUIPMENT

FIELD METER USED:
CALIBRATION TIME:
PH CALIBRATION STANDARDS (s.u.):
CONDUCTIVITY STANDARD (µmho/cm):
PURIFIED WATER SUPPLIED BY:
PUMP/BAILER TYP

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS: Pull pump from well, insert surge block, surge screen, remove ~~Went dry on 11/17~~ surge block, purge well dry via bailer (8 gallons removed @ 11:00Am), returned - DTW = 79.83 fbtoc, purge dry = 1gal (turbid)

DATE FORM COMPLETED: 8/11/22 FORM COMPLETED BY (signature): Nancy Koosa

Well ID MW-101

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear
GROUND: Dry
AIR TEMPERATURE (°F): 70
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: None
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 24.30
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 76.9
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.6

PURGING

INITIAL PURGE DATE: 10-24-22
INITIAL PURGE TIME: 15[illegible]30

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1600	1630					1700
Volume Removed (gal)	8.6	17.2					25.8
pH (s.u.)	8.16	8.19					8.24
Conductivity. (µmho/cm)	416	408					409
Temperature (°C)	12.1	12.5					12.4

SAMPLING

SAMPLE DATE: 10-24-22
SAMPLE TIME: 1700
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Y
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): clear
COLOR (yellow, brown, rust, grey, white, colorless): colorless
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): no odor
SAMPLE COLLECTED BY: AOR

EQUIPMENT

FIELD METER USED: Horiba U-52
CALIBRATION TIME: 0910
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: mp-50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10-24-22 FORM COMPLETED BY (signature): [signature]

Well ID MW-106A

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Partly cloudy
GROUND: dry
AIR TEMPERATURE (°F): 54
PRECIPITATION (LAST 24 HRS): no

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: N/A
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL): ~~[illegible]~~ CL
DEPTH TO WATER (FT): 31.90
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.2
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.1

PURGING

INITIAL PURGE DATE: 10/24/22
INITIAL PURGE TIME: 0935

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	10:26	14:10					1410
Volume Removed (gal)	7.1						
pH (s.u.)	8.47	8.29					8.29
Conductivity. (µmho/cm)	540	404					404
Temperature (°C)	12.7	13.3					13.3

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 1358
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): sl. turbid ~~clear~~ CL
COLOR (yellow, brown, rust, grey, white, colorless): grey / colorless
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): no odor
SAMPLE COLLECTED BY: Christian Lunt

EQUIPMENT

FIELD METER USED: Horiba U07
CALIBRATION TIME: 1108
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Went dry on 11/17

DATE FORM COMPLETED: 10/25/22
FORM COMPLETED BY (signature): [signature]

Well ID MW-201

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear
GROUND: moist
AIR TEMPERATURE (°F): 55
PRECIPITATION (LAST 24 HRS): No-R

WELL SECURITY

PROTECTIVE COVER: OR
BUMPER POSTS: none
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 24.37
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.4
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.3

PURGING

INITIAL PURGE DATE: 10-24-22
INITIAL PURGE TIME: 0906

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	0923	0925					0915
Volume Removed (gal)	8.3	8.4					8.4
pH (s.u.)	7.63	Well					8.42
Conductivity. (µmho/cm)	339	went					346
Temperature (°C)	11.6	Dry					11.7

SAMPLING

SAMPLE DATE: 10-25-22
SAMPLE TIME: 0915
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Y
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: AOR

EQUIPMENT

FIELD METER USED: Horiba 005
CALIBRATION TIME: 0910
PH CALIBRATION STANDARDS (s.u.): 4,7,10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: Lab
PUMP/BAILER TYP: mp-50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Went dry on 11/17

DATE FORM COMPLETED: 10-25-22 FORM COMPLETED BY (signature):

Well ID MW-202

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear
GROUND: Dry
AIR TEMPERATURE (°F): 70
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: none
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 25.13
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 64.6
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 6.4

PURGING

INITIAL PURGE DATE: 10-24-22
INITIAL PURGE TIME: 1340

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1357	1429					1515
Volume Removed (gal)	6.4	12.9					19.3
pH (s.u.)	8.08	8.25					8.31
Conductivity. (µmho/cm)	368	362					362
Temperature (°C)	13.4	12.8					12.9

SAMPLING

SAMPLE DATE: 10-24-22
SAMPLE TIME: 1515
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Y
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: AOO

EQUIPMENT

FIELD METER USED: Horiba 005
CALIBRATION TIME: 0910
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: mp-50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10-24-22
FORM COMPLETED BY (signature):

Well ID MW-203B

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear
GROUND: moist
AIR TEMPERATURE (°F): 56
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: none
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 24.82
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 73.21
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.9

PURGING

INITIAL PURGE DATE: 10-26-22
INITIAL PURGE TIME: 0800

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	0920	0930					1340
Volume Removed (gal)	7.9	8.0					8.0
pH (s.u.)	7.99	well					8.62
Conductivity. (µmho/cm)	433	went					428
Temperature (°C)	12.3	Dry					11.6

SAMPLING

SAMPLE DATE: 10-25-22
SAMPLE TIME: 1340
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Y
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: AOR

EQUIPMENT

FIELD METER USED: Horiba 005
CALIBRATION TIME: 0810
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1412
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: mp 50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10.25.22
FORM COMPLETED BY (signature):

Well ID MW-207A

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear / Partly Cloudy
GROUND: dry
AIR TEMPERATURE (°F): 75
PRECIPITATION (LAST 24 HRS): ND

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: N/A
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: ~~OK~~ 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 36.87
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 82.9
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.5

PURGING

INITIAL PURGE DATE: 10/24/22
INITIAL PURGE TIME: 16:20

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1648	1258					1258
Volume Removed (gal)	7.5						
pH (s.u.)	7.84	8.06					8.06
Conductivity. (µmho/cm)	590	499					499
Temperature (°C)	13.4	12.2					12.2

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 1225
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: YES
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): Clear
COLOR (yellow, brown, rust, grey, white, colorless): Colorless
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): no odor
SAMPLE COLLECTED BY: Christian Lundy

EQUIPMENT

FIELD METER USED: Horiba 007
CALIBRATION TIME: 11:03
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP 50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Went dry on 11/17

DATE FORM COMPLETED: 10/25/22 FORM COMPLETED BY (signature): Christian Lundy

Well ID MW-208B

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Partly cloudy
GROUND: dry
AIR TEMPERATURE (°F): 50
PRECIPITATION (LAST 24 HRS): No

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: N/A
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 35.15
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): NA
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS):

PURGING

INITIAL PURGE DATE: 10/24/22
INITIAL PURGE TIME: 08:40

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	0908	1333					1333
Volume Removed (gal)	8.2						
pH (s.u.)	8.51	8.52					8.52
Conductivity. (µmho/cm)	413	405					405
Temperature (°C)	13.2	13.5					13.5

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 1320
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): V. turbid
COLOR (yellow, brown, rust, grey, white, colorless): grey
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): Sulfur
SAMPLE COLLECTED BY: Christian Lindy

EQUIPMENT

FIELD METER USED: Horiba 007
CALIBRATION TIME: 1103
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP 50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Went dry on 11/17

DATE FORM COMPLETED: 10/25/22 FORM COMPLETED BY (signature): C Christian Lindy

Well ID MW-209

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: clear
GROUND: dry
AIR TEMPERATURE (°F): 76
PRECIPITATION (LAST 24 HRS): no

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: N/A
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 28.85
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 79.2
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.2

PURGING

INITIAL PURGE DATE: 10/24/22
INITIAL PURGE TIME: ~~1600~~ 15:20

STABILIZATION READINGS

	~~1~~ 1600	2	3	4	5	6	Final
Time	~~1603~~	1203					1203
Volume Removed (gal)	8.2						
pH (s.u.)	8.47	8.56					8.56
Conductivity. (µmho/cm)	521	522					522
Temperature (°C)	13.4	12.6					12.6

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 11:20
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): Clear
COLOR (yellow, brown, rust, grey, white, colorless): Colorless
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): no odor
SAMPLE COLLECTED BY: Christian Lundy

EQUIPMENT

FIELD METER USED: Horiba U-52
CALIBRATION TIME: 1103
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP 50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Went dry on 11/17

DATE FORM COMPLETED: 10/25/22 FORM COMPLETED BY (signature): Christian Lundy

Well ID MW-210

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear
GROUND: dry
AIR TEMPERATURE (°F): 69
PRECIPITATION (LAST 24 HRS): NC

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: N/A
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: ok

WC
X 0.163

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 28.49
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 71.9
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.1

PURGING

INITIAL PURGE DATE: 10/24/22
INITIAL PURGE TIME: 12:14

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time							1052
Volume Removed (gal)	7.1						
pH (s.u.)	7.12	8.15					8.15
Conductivity. (µmho/cm)	7.05	652					652
Temperature (°C)	13.4	13.5					13.5

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 10:48
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): Clear
COLOR (yellow, brown, rust, grey, white, colorless): Colorless
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): NO odor
SAMPLE COLLECTED BY: Christian Lundy

EQUIPMENT

FIELD METER USED: Horiba 007
CALIBRATION TIME: 1103
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP 50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Went dry on 11/17

DATE FORM COMPLETED: 10/25/22 FORM COMPLETED BY (signature): Christian Lundy

Well ID MW-212

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear
GROUND: moist
AIR TEMPERATURE (°F): 57
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: none
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 28.95
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 65.2
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 5.9

PURGING

INITIAL PURGE DATE: 10-24-22
INITIAL PURGE TIME: 1008

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1030	1033					1000
Volume Removed (gal)	5.9	6.1					6.1
pH (s.u.)	808	well					8.16
Conductivity (µmho/cm)	420	went					409
Temperature (°C)	11.8	Dry					11.9

SAMPLING

SAMPLE DATE: 10-25-22
SAMPLE TIME: 1000
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Y
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: AOR

EQUIPMENT

FIELD METER USED: Horiba 005
CALIBRATION TIME: 0910
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: mp-50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Went dry on 11/17

DATE FORM COMPLETED: 10-25-22 FORM COMPLETED BY (signature):

Well ID MW-301

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Partly Cloudy
GROUND: dry
AIR TEMPERATURE (°F): 72
PRECIPITATION (LAST 24 HRS): no

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: N/A
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 34.71
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 84.3
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.1

PURGING

INITIAL PURGE DATE: 10/24/22
INITIAL PURGE TIME: 17:02

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	17:33	17:57	18:22				18:22
Volume Removed (gal)	8.1	16.2	24.3				24.3
pH (s.u.)	8.42	8.43	8.57				8.57
Conductivity, (µmho/cm)	538	562	449				449
Temperature (°C)	12.1	12.2	12.1				12.1

SAMPLING

SAMPLE DATE: 10/24/22
SAMPLE TIME: 18:28
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): Clear
COLOR (yellow, brown, rust, grey, white, colorless): Colorless
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): No odor
SAMPLE COLLECTED BY: Christian Lundy

EQUIPMENT

FIELD METER USED: Horiba 007
CALIBRATION TIME: 1102
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP 50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10/24/22 FORM COMPLETED BY (signature): Christian Lundy

Well ID MW-302

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear
GROUND: dry
AIR TEMPERATURE (°F): 72
PRECIPITATION (LAST 24 HRS): No

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: N/A
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 25.93
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 80.4
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.9

PURGING

INITIAL PURGE DATE: 10/24/22
INITIAL PURGE TIME: 1302 PM

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	8.9		15:01				15:01
Volume Removed (gal)	↓	17.8	26.7				26.7
pH (s.u.)	7.73	7.72	7.95				7.95
Conductivity (µmho/cm)	565	527	506				506
Temperature (°C)	13.4	13.8	13.3				13.3

SAMPLING

SAMPLE DATE: 10/24/22
SAMPLE TIME: 15:05
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): Clear
COLOR (yellow, brown, rust, grey, white, colorless): Colorless
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): no odor
SAMPLE COLLECTED BY: Christian Lundy

EQUIPMENT

FIELD METER USED: Horiba 007
CALIBRATION TIME: 11:03
PH CALIBRATION STANDARDS (s.u.): 4,7,10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP SD

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10/24/22 FORM COMPLETED BY (signature): Christian Lundy

Well ID MW-303A

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: p c loudy
GROUND: Dry
AIR TEMPERATURE (°F): 64
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: none
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 23.52
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.7
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.5

PURGING

INITIAL PURGE DATE: 10-25-22
INITIAL PURGE TIME: 1205

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1230	1255					1320
Volume Removed (gal)	8.5	17.0					25.5
pH (s.u.)	8.53	8.60					8.65
Conductivity. (µmho/cm)	454	449					448
Temperature (°C)	11.6	11.4					11.5

SAMPLING

SAMPLE DATE: 10-25-22
SAMPLE TIME: 1320
TOTAL BOTTLES COLLECTED: 8
FILTERED FOR METALS: Y
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: AOQ

EQUIPMENT

FIELD METER USED: Horiba 005
CALIBRATION TIME: 0910
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: mp-50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Dup AKA MW-213 taken here

DATE FORM COMPLETED: 10-25-22
FORM COMPLETED BY (signature):

Well ID MW-304

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: p. Cloudy
GROUND: Dry
AIR TEMPERATURE (°F): 61
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: none
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 26.31
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.7
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.1

PURGING

INITIAL PURGE DATE: 10.25-22
INITIAL PURGE TIME: 1030

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1050	1110					1130
Volume Removed (gal)	8.1	16.1					24.2
pH (s.u.)	8.38	8.42					8.44
Conductivity. (µmho/cm)	394	399					399
Temperature (°C)	12.5	12.4					11.8

SAMPLING

SAMPLE DATE: 10-25-22
SAMPLE TIME: 1130
TOTAL BOTTLES COLLECTED: 12
FILTERED FOR METALS: Y
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: AOR

EQUIPMENT

FIELD METER USED: Horiba U05
CALIBRATION TIME: 0910
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: mp-50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

MS/MSD taken here

DATE FORM COMPLETED: 10-25-22
FORM COMPLETED BY (signature):

Well ID MW-305

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Clear
GROUND: Dry
AIR TEMPERATURE (°F): 63
PRECIPITATION (LAST 24 HRS): non

WELL SECURITY

PROTECTIVE COVER: OK
BUMPER POSTS: none
EXTERNAL WELL ID: OK
LOCK: OK
WELL DIAMETER: 2"
CONCRETE PAD: OK

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 30.54
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.8
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.4

PURGING

INITIAL PURGE DATE: 10-24-22
INITIAL PURGE TIME: 1126

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1147	1150					1020
Volume Removed (gal)	7.4	7.6					7.6
pH (s.u.)	7.92	well					8.10
Conductivity. (µmho/cm)	426	well					417
Temperature (°C)	13.0	Dry					11.9

SAMPLING

SAMPLE DATE: 10-25-22
SAMPLE TIME: 1020
TOTAL BOTTLES COLLECTED: 4
FILTERED FOR METALS: Y
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid):
COLOR (yellow, brown, rust, grey, white, colorless):
ODOR (sulfur, LFG, musty, solvent, petrol, no odor):
SAMPLE COLLECTED BY: AOR

EQUIPMENT

FIELD METER USED: Horiba 005
CALIBRATION TIME: 0910
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP-50

SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Went dry on 11/17

DATE FORM COMPLETED: 10-25-22
FORM COMPLETED BY (signature):

Sample ID SW-U1

SURFACE WATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 20141318
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS DURING SAMPLING

SKY: Partly cloudy
WIND (mph): 10-15
AIR TEMPERATURE (°F): 68

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 1430
TOTAL BOTTLES COLLECTED: 6
FILTERED FOR METALS: NO
SAMPLE CLARIT: slightly turbid
SAMPLE COLOR: Colorless/grey
SAMPLE ODOR: No odor

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 1430
FINAL pH (S.U.): 8.14
FINAL CONDUCTIVITY (µMHO/CM): 1250
SAMPLE TEMPERATURE (°C): 17.4
DISSOLVED OXYGEN (mg/L): 17.33

EQUIPMENT

FIELD METER USED: Horiba 007
CALIBRATION TIME: 11:03
FINAL CALIBRATION pH: 7
FINAL CALIBRATION SC: 1413
DEIONIZED WATER SUPPLIED BY: lab

SAMPLE COLLECTED BY: ADR
SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10-25-22
FORM COMPLETED BY (signature): Christina Lundy

Sample ID SW-U2

SURFACE WATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 20141318
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS DURING SAMPLING

SKY: Partly Cloudly
WIND (mph): 10-15
AIR TEMPERATURE (°F): 72

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 1450
TOTAL BOTTLES COLLECTED: 6
FILTERED FOR METALS: No
SAMPLE CLARIT: Clear / Sl. turbid
SAMPLE COLOR: ~~Clear~~ / lt. brown
SAMPLE ODOR: no odor

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 1450
FINAL pH (S.U.): 8.24
FINAL CONDUCTIVITY (µMHO/CM): 524
SAMPLE TEMPERATURE (°C): 14.7
DISSOLVED OXYGEN (mg/L): 4.02 ppm

EQUIPMENT

FIELD METER USED: Hariba 007
CALIBRATION TIME: 11:03
FINAL CALIBRATION pH: 7
FINAL CALIBRATION SC: 1413
DEIONIZED WATER SUPPLIED BY: lab

SAMPLE COLLECTED BY: ADR
SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10-25-22 FORM COMPLETED BY (signature): Christian Lowney

CL

Sample ID SW-D1A

SURFACE WATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS DURING SAMPLING

SKY: Partly Cloudy
WIND (mph): 10-15
AIR TEMPERATURE (°F): 73

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 1510
TOTAL BOTTLES COLLECTED: 6
FILTERED FOR METALS: No
SAMPLE CLARIT: sl turbid
SAMPLE COLOR: grey
SAMPLE ODOR: no odor

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 1510
FINAL pH (S.U.): 8.12
FINAL CONDUCTIVITY (µMHO/CM): 511
SAMPLE TEMPERATURE (°C): 17.4
DISSOLVED OXYGEN (mg/L): 6.60

EQUIPMENT

FIELD METER USED: Hariba 007
CALIBRATION TIME: 11:03
FINAL CALIBRATION pH: 7
FINAL CALIBRATION SC: 1413
DEIONIZED WATER SUPPLIED BY: lab

SAMPLE COLLECTED BY: ADR
SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10-25-22
FORM COMPLETED BY (signature): Christina Lounsbury

CL

Sample ID SW-D2

SURFACE WATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS DURING SAMPLING

SKY: N/A
WIND (mph): N/A
AIR TEMPERATURE (°F): N/A

SAMPLING

SAMPLE DATE: N/A
SAMPLE TIME: N/A
TOTAL BOTTLES COLLECTED: N/A
FILTERED FOR METALS: N/A
SAMPLE CLARIT N/A
SAMPLE COLOR: N/A
SAMPLE ODOR: N/A

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: N/A
FINAL pH (S.U.): N/A
FINAL CONDUCTIVITY (µMHO/CM): N/A
SAMPLE TEMPERATURE (°C): N/A
DISSOLVED OXYGEN (mg/L): N/A

EQUIPMENT

FIELD METER USED: N/A
CALIBRATION TIME: N/A
FINAL CALIBRATION pH: N/A
FINAL CALIBRATION SC: N/A
DEIONIZED WATER SUPPLIED BY: N/A

SAMPLE COLLECTED BY: Christian Landy
SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

NO flow; dry

DATE FORM COMPLETED: 10/25/22 FORM COMPLETED BY (signature): Christian Landy

SAMPLE ID: Leachate

LEACHATE SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 21459140
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS DURING SAMPLING

SKY: cloudy
WIND (mph): 10-15 mph
AIR TEMPERATURE (°F): 74

SAMPLING

SAMPLE DATE: 10/25/22
SAMPLE TIME: 1550
TOTAL BOTTLES COLLECTED: 6
FILTERED FOR METALS: ND
SAMPLE CLARITY: V. turbid
SAMPLE COLOR: grey
SAMPLE ODOR: LFG

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 1550 ea
FINAL pH (S.U.): 8.31
FINAL CONDUCTIVITY (µMHO/CM): 229
SAMPLE TEMPERATURE (°C): 19.8

EQUIPMENT

FIELD METER USED: Horiba 007
CALIBRATION TIME: 11:02
FINAL CALIBRATION pH: 7
FINAL CALIBRATION SC: 1413
FILTER TYPE USED: N/A
PUMP OR BAILER USED: 4' bailer

SAMPLE COLLECTED BY: ADR
SAMPLING COMPANY: Golder Associates Inc.
SAMPLER'S PHONE: 248-295-0135
SAMPLER'S ADDRESS: 27200 Haggerty Road, Suite B-12 Farmington Hills, Michigan, USA 48331
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 10-25-22
FORM COMPLETED BY (signature): Christina Lundy

APPENDIX B

Laboratory Results

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

August 29, 2022

Carolyn Powrozek
WSP / Golder
27200 Haggerty Road
Suite B-12
Farmington, MI 48331

RE: Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

Dear Carolyn Powrozek:

Enclosed are the analytical results for sample(s) received by the laboratory on August 12, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Indianapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Rice
jennifer.rice@pacelabs.com
(616)975-4500
Project Manager

Enclosures

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

CERTIFICATIONS

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

Pace Analytical Services Indianapolis

7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050
Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Wisconsin Laboratory #: 999788130
USDA Soil Permit #: P330-19-00257

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

SAMPLE SUMMARY

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50323381001	**MW-203B**	Water	08/11/22 14:10	08/12/22 06:50
50323381002	**MW-207A**	Water	08/11/22 15:25	08/12/22 06:50

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SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50323381001	**MW-203B**	EPA 6010	DJS	2	PASI-I
		EPA 6020	CAW	3	PASI-I
		NO2+NO3+NH3 Calculation	SEP	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50323381002	**MW-207A**	SM 5310C	ATS	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

Sample: MW-203B **Lab ID: 50323381001** Collected: 08/11/22 14:10 Received: 08/12/22 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**6410**	ug/L	500	1	08/24/22 12:28	08/24/22 15:41	7440-09-7	
Sodium, Dissolved	**95400**	ug/L	1000	1	08/24/22 12:28	08/24/22 15:41	7440-23-5	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020 Preparation Method: EPA 200.2 Pace Analytical Services - Indianapolis							
Arsenic, Dissolved	**7.3**	ug/L	1.0	1	08/15/22 15:35	08/17/22 01:24	7440-38-2	
Barium, Dissolved	**62.1**	ug/L	5.0	1	08/15/22 15:35	08/17/22 01:24	7440-39-3	
Zinc, Dissolved	**<10.0**	ug/L	10.0	1	08/15/22 15:35	08/17/22 01:24	7440-66-6	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**230**	ug/L	20.0	1		08/26/22 11:18		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		08/19/22 17:13		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**38600**	ug/L	1000	1		08/20/22 13:44	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**230**	ug/L	20.0	1		08/25/22 09:58	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1730**	ug/L	500	1		08/26/22 15:42	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

Sample: MW-207A **Lab ID: 50323381002** Collected: 08/11/22 15:25 Received: 08/12/22 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**5600**	ug/L	500	1		08/26/22 16:02	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

QC Batch: 692585
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50323381001

METHOD BLANK: 3184784 Matrix: Water
Associated Lab Samples: 50323381001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Potassium, Dissolved	ug/L	<500	500	08/24/22 15:24	
Sodium, Dissolved	ug/L	<1000	1000	08/24/22 15:24	

LABORATORY CONTROL SAMPLE: 3184785

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Potassium, Dissolved	ug/L	10000	9980	100	80-120	
Sodium, Dissolved	ug/L	10000	9910	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3184786 3184787

Parameter	Units	50323314001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Potassium, Dissolved	ug/L	1390	10000	10000	11900	11900	105	105	75-125	0	20	
Sodium, Dissolved	ug/L	6160	10000	10000	16400	16400	102	103	75-125	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

QC Batch: 690855
QC Batch Method: EPA 200.2
Analysis Method: EPA 6020
Analysis Description: 6020 MET Dissolved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50323381001

METHOD BLANK: 3177375 Matrix: Water
Associated Lab Samples: 50323381001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<1.0	1.0	08/16/22 17:24	
Barium, Dissolved	ug/L	<5.0	5.0	08/16/22 17:24	
Zinc, Dissolved	ug/L	<10.0	10.0	08/16/22 17:24	

LABORATORY CONTROL SAMPLE: 3177376

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	40	39.9	100	80-120	
Barium, Dissolved	ug/L	40	40.3	101	80-120	
Zinc, Dissolved	ug/L	40	39.6	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3177377 3177378

Parameter	Units	50323397002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	ND	40	40	41.8	42.8	97	100	75-125	2	20	
Barium, Dissolved	ug/L	115	40	40	158	159	107	111	75-125	1	20	
Zinc, Dissolved	ug/L	ND	40	40	<50.0	<50.0	98	102	75-125	4	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

QC Batch: 691918
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50323381001

METHOD BLANK: 3181997 Matrix: Water
Associated Lab Samples: 50323381001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	20.0	08/19/22 16:48	

LABORATORY CONTROL SAMPLE: 3181998

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	2000	1920	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3181999 3182000

Parameter	Units	50323312008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	ug/L	ND	20000	20000	16200	15900	81	80	90-110	2	20	D3

MATRIX SPIKE SAMPLE: 3182001

Parameter	Units	50323381001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	1920	96	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

QC Batch: 691977
QC Batch Method: SM 4500-Cl-E
Analysis Method: SM 4500-Cl-E
Analysis Description: 4500 Chloride
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50323381001

METHOD BLANK: 3182409 Matrix: Water
Associated Lab Samples: 50323381001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	08/20/22 13:29	

LABORATORY CONTROL SAMPLE: 3182410

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	20000	20100	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3182411 3182412

Parameter	Units	50323326001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	4.9 mg/L	20000	20000	26200	26300	106	107	90-110	1	20	

MATRIX SPIKE SAMPLE: 3182413

Parameter	Units	50323326002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	9.0 mg/L	20000	30800	109	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

QC Batch: 692752
QC Batch Method: SM-4500-NH3 G
Analysis Method: SM-4500-NH3 G
Analysis Description: 4500 Ammonia Low Level
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50323381001

METHOD BLANK: 3185600 Matrix: Water
Associated Lab Samples: 50323381001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<20.0	20.0	08/25/22 09:55	

LABORATORY CONTROL SAMPLE: 3185601

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1000	1030	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3185602 3185603

Parameter	Units	50324046003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	ug/L	0.72 mg/L	1000	1000	1650	1640	92	91	90-110	1	20	

MATRIX SPIKE SAMPLE: 3185604

Parameter	Units	50324067006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	<25.0	1000	1120	112	90-110	M0

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

QC Batch: 692754
QC Batch Method: SM 5310C
Analysis Method: SM 5310C
Analysis Description: 5310C Total Organic Carbon
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50323381001, 50323381002

METHOD BLANK: 3185614 Matrix: Water
Associated Lab Samples: 50323381001, 50323381002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	ug/L	<500	500	08/26/22 14:39	

LABORATORY CONTROL SAMPLE: 3185615

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	10000	10300	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3185616 3185617

Parameter	Units	50323399002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	ug/L	1.9J mg/L	10000	10000	12200	12100	103	102	80-120	0	20	

MATRIX SPIKE SAMPLE: 3185618

Parameter	Units	50323399003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	2.3 mg/L	10000	12500	102	80-120	

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REPORT OF LABORATORY ANALYSIS

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Grand Rapids, MI 49512
(616)975-4500

QUALIFIERS

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Smith's Creek Landfill GW
Pace Project No.: 50323381

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50323381001	**MW-203B**	EPA 3010	692585	EPA 6010	692589
50323381001	**MW-203B**	EPA 200.2	690855	EPA 6020	691044
50323381001	**MW-203B**	NO2+NO3+NH3 Calculation	692994		
50323381001	**MW-203B**	EPA 353.2	691918		
50323381001	**MW-203B**	SM 4500-Cl-E	691977		
50323381001	**MW-203B**	SM-4500-NH3 G	692752		
50323381001	**MW-203B**	SM 5310C	692754		
50323381002	**MW-207A**	SM 5310C	692754		

Pace

CHAIN-OF-CUSTODY / Analytical Request Document

50323381

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at https://info.pacelabs.com/hubfs/pas-standard-terms.pdf.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates, Inc. - MI	Report To:	Sean Paulsen	Attention:	
Address:	27200 Haggerty Rd. Suite B-12	Copy To:		Company Name:	
Farmington, MI 48331				Address:	
Email:	sean.paulsen@wsp.com	Purchase Order #:		Pace Quote:	
Phone:	NONE Fax:	Project Name:	Smith's Creek GW	Pace Project Manager:	jennifer.rice@pacelabs.com
Requested Due Date:		Project #:	31405076.000	Pace Profile #:	8284

Regulatory Agency: | State / Location: MI

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analyses Test: TOC	Chloride	Dissolved Metals	NH3, NPN, TIN	Residual Chlorine (Y/N)	
1	MW-203B	WT	G			8/11	1410	25.5	4	X	X	X							X	X	X	X		001
2	MW-207A	WT	G			8/11	1525	25.5	1		X								X					002
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Nancy Kessler / sampler	8/11/22	1625	FedEx						
	FedEx			J C	8/12/22	0650	3.0	y	y	y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nancy Kessler

SIGNATURE of SAMPLER: Nancy Kessler DATE Signed: 8/11/22

F-IN-Q-290-rev.22, 22Apr2022

SAMPLE CONDITION UPON RECEIPT FORM

Date/Time and Initials of person examining contents: JC 1430 8/12/22

1. **Courier:** ☑ FED EX ☐ UPS ☐ CLIENT ☐ PACE ☐ USPS ☐ OTHER _____
2. **Custody Seal on Cooler/Box Present:** ☑ Yes ☐ No
   (If yes)Seals Intact: ☑ Yes ☐ No **(leave blank if no seals were present)**
3. **Thermometer:** 1 2 3 4 5 6 A B C D E F
4. **Cooler Temperature(s):** 3.1/3.0 | | | |
   (Initial/Corrected) RECORD TEMPS OF ALL COOLERS RECEIVED (use Comments below to add more)
5. **Packing Material:** ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____
6. **Ice Type:** ☑ Wet ☐ Blue ☐ None
7. **If temp. is over 6°C or under 0°C, was the PM notified?:** ☐ Yes ☐ No
   Cooler temp should be above freezing to 6°C

All discrepancies will be written out in the comments section below.

	Yes	No
USDA Regulated Soils? (HI, ID, NY, WA, OR,CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		✓
Short Hold Time Analysis (48 hours or less)? Analysis:		✓
Time 5035A TC placed in Freezer or Short Holds To Lab	Time:	✓
Rush TAT Requested (4 days or less):		✓
Custody Signatures Present?	✓	
Containers Intact?:	✓	
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID		✓
Extra labels on Terracore Vials? (soils only)		

	Yes	No	N/A
All containers needing acid/base preservation have been pH CHECKED?: **Exceptions: VOA, coliform, LLHg, O&G, RAD CHEM, and any container with a septum cap or preserved with HCl.** Circle: **HNO3 (<2) H2SO4 (<2) NaOH (>10) NaOH/ZnAc (>9)** Any non-conformance to pH recommendations will be noted on the container count form	✓		
	Present	Absent	N/A
Residual Chlorine Check (SVOC 625 Pest/PCB 608)			✓
Residual Chlorine Check (Total/Amenable/Free Cyanide)			✓
Headspace Wisconsin Sulfide?			✓
Headspace in VOA Vials (>6mm): See Containter Count form for details			No VOA Vials Sent ✓
Trip Blank Present?		✓	
Trip Blank Custody Seals?:			✓

COMMENTS: ~~RD JC 8/12/22~~ RCVD 1 BP3U with no date/time on container, was in a bag labeled "MW-203B" with other "MW-203B" samples. — JC 8/12/22

COC PAGE ____ of ____

Sample Container Count

** Place a RED dot on containers that are out of conformance **

		MeOH (only)		VIALS					AMBER GLASS							PLASTIC									OTHER				
		SBS																										
		DI																										
COC Line Item	WGFU	R	DG9H VG9H	VOA VIAL HS (>6mm)	VG9U	DG9U	VG9T	AG0U	AG1H	AG1U	AG2U	AG3S	AG3SF	AG3C	BP1U	BP1N	BP2U	BP3U	BP3N	BP3F	BP3S	BP3B	BP3Z	CG3H	Syringe Kit			Matrix
1																											WT
2																											WT
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

Nitric	Sulfuric	Sodium Hydroxide	Sodium Hydroxide/ ZnAc
Red	Yellow	Green	Black
HNO3 <2	H2SO4 <2	NaOH >10	NaOH/Zn Ac >9
✓	✓		
	✓		

Container Codes

Glass

DG9H	40mL HCl amber voa vial	BG1T	1L Na Thiosulfate clear glass
DG9P	40mL TSP amber vial	BG1U	1L unpreserved glass
DG9S	40mL H2SO4 amber vial	BG3H	250mL HCl Clear Glass
DG9T	40mL Na Thio amber vial	BG3U	250mL Unpres Clear Glass
DG9U	40mL unpreserved amber vial	AG0U	100mL unpres amber glass
VG9H	40mL HCl clear vial	AG1H	1L HCl amber glass
VG9T	40mL Na Thio. clear vial	AG1S	1L H2SO4 amber glass
VG9U	40mL unpreserved clear vial	AG1T	1L Na Thiosulfate amber glass
I	40mL w/hexane wipe vial	AG1U	1liter unpres amber glass
WGKU	8oz unpreserved clear jar	AG2N	500mL HNO3 amber glass
WGFU	4oz clear soil jar	AG2S	500mL H2SO4 amber glass
JGFU	4oz unpreserved amber wide	AG2U	500mL unpres amber glass
CG3H	250mL clear glass HCl	AG3S	250mL H2SO4 amber glass
BG1H	1L HCl clear glass	AG3SF	250mL H2SO4 amb glass -field filtered
BG1S	1L H2SO4 clear glass	AG3U	250mL unpres amber glass
GN	General	AG3C	250mL NaOH amber glass

Plastic

BP1B	1L NaOH plastic
BP1N	1L HNO3 plastic
BP1S	1L H2SO4 plastic
BP1U	1L unpreserved plastic
BP1Z	1L NaOH, Zn, Ac
BP2N	500mL HNO3 plastic
BP2C	500mL NaOH plastic
BP2S	500mL H2SO4 plastic
BP2U	500mL unpreserved plastic
BP2Z	500mL NaOH, Zn Ac
BP3B	250mL NaOH plastic
BP3N	250mL HNO3 plastic
BP3F	250mL HNO3 plastic-field filtered
BP3U	250mL unpreserved plastic
BP3S	250mL H2SO4 plastic
BP3Z	250mL NaOH, ZnAc plastic
BP4U	125mL unpreserved plastic
BP4N	125mL HNO3 plastic
BP4S	125mL H2SO4 plastic

Miscellaneous

Syringe Kit	LL Cr+6 sampling kit
ZPLC	Ziploc Bag
R	Terracore Kit
SP5T	120mL Coliform Sodium Thiosulfate
T	Tedlar Bag (air sample)
U	Summa Can (air sample)
WT	Water
SL	Solid Solid
OL	Oil
NAL	Non-aqueous liquid
WP	Wipe

Pace Container Order #981747

Addresses

Order By :		Ship To :		Return To:	
Company	Golder Associates, Inc. - MI	Company	Golder Associates, Inc. - MI	Company	Pace Analytical Grand Rapids
Contact	Paulsen, Sean	Contact	Nancy Kessler	Contact	Rice, Jennifer
Email	sean.paulsen@wsp.com	Email	sean_paulsen@golder.com	Email	jennifer.rice@pacelabs.com
Address	27200 Haggerty Rd. Suite B-12	Address	27200 Haggerty Rd. Suite B-12	Address	4171 40th Street SE
Address 2		Address 2		Address 2	
City	Farmington	City	Farmington	City	Grand Rapids
State	MI Zip 48331	State	MI Zip 48331	State	MI Zip 49512
Phone	NONE	Phone	(248) 295-0135	Phone	(616)975-4500

Info

Project Name	Smith's Creek Leachate	**Due Date**	08/09/2022	**Profile**	8219	**Quote**	
Project Manager	Rice, Jennifer	**Return Date**		**Carrier**	FedEx Standard Overnight	**Location**	MI

Trip Blanks

- [X] Include Trip Blanks

Bottle Labels

- [X] Blank
- [ ] Pre-Printed No Sample IDs
- [ ] Pre-Printed With Sample IDs

Bottles

- [ ] Boxed Cases
- [X] Individually Wrapped
- [ ] Grouped By Sample ID/Matrix

Return Shipping Labels

- [ ] No Shipper
- [ ] With Shipper

COC Options

- [ ] Number of Blanks
- [X] Pre-Printed 1

Misc

- [ ] Sampling Instructions
- [ ] Custody Seal
- [X] Temp. Blanks
- [X] Coolers
- [ ] Syringes
- [ ] Extra Bubble Wrap
- [ ] Short Hold/Rush Stickers
- [ ] DI Water Liter(s)
- [ ] USDA Regulated Soils

# of Samples	Matrix	Test	Container	Total	# of	Lot #	Notes
1	WT	VOC - 8260	3 - 40 mL vials w/HCl	3	0		
1	WT	Cl, SO4	250 mL plastic, unpres	1	0		
1	WT	TDS	250 ml plastic	1	0		
1	WT	NH3,N+N,TIN	250mL plastic, H2SO4	1	0		
1	WT	Metals, Total	250mL plastic, HNO3	1	0		

Hazard Shipping Placard In Place : NO

*Sample receiving hours are typically 8am-5pm, but may differ by location. Please check with your Pace Project Manager.

*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.

*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage/disposal.

*Payment term are net 30 days.

*Please include the proposal number on the chain of custody to insure proper billing.

LAB USE:

Ship Date :

Prepared By:

Verified By:

Sample

CLIENT USE (Optional):

Date Rec'd:

Received By:

Verified By:

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

November 14, 2022

Carolyn Powrozek
WSP / Golder
27200 Haggerty Road
Suite B-12
Farmington, MI 48331

RE: Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Dear Carolyn Powrozek:

Enclosed are the analytical results for sample(s) received by the laboratory on October 27, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Indianapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Rice
jennifer.rice@pacelabs.com
(616)975-4500
Project Manager

Enclosures

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

CERTIFICATIONS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Pace Analytical Services Indianapolis

7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050
Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Wisconsin Laboratory #: 999788130
USDA Soil Permit #: P330-19-00257

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

SAMPLE SUMMARY

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50329515001	**MW-101**	Water	10/24/22 17:00	10/27/22 15:35
50329515002	**MW-106A**	Water	10/25/22 13:58	10/27/22 15:35
50329515003	**MW-201**	Water	10/25/22 09:15	10/27/22 15:35
50329515004	**MW-202**	Water	10/24/22 15:15	10/27/22 15:35
50329515005	**MW-203B**	Water	10/25/22 13:40	10/27/22 15:35
50329515006	**MW-207A**	Water	10/25/22 12:25	10/27/22 15:35
50329515007	**MW-208B**	Water	10/25/22 13:20	10/27/22 15:35
50329515008	**MW-209**	Water	10/25/22 11:20	10/27/22 15:35
50329515009	**MW-210**	Water	10/25/22 10:48	10/27/22 15:35
50329515010	**MW-212**	Water	10/25/22 10:00	10/27/22 15:35
50329515011	**MW-213**	Water	10/25/22 13:20	10/27/22 15:35
50329515012	**MW-301**	Water	10/24/22 18:28	10/27/22 15:35
50329515013	**MW-303A**	Water	10/25/22 13:20	10/27/22 15:35
50329515014	**MW-304**	Water	10/25/22 11:30	10/27/22 15:35
50329515015	**MW-305**	Water	10/25/22 10:20	10/27/22 15:35
50329515016	**MW-302**	Water	10/24/22 15:05	10/27/22 15:35

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SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50329515001	**MW-101**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515002	**MW-106A**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515003	**MW-201**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515004	**MW-202**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515005	**MW-203B**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515006	**MW-207A**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515007	**MW-208B**	EPA 6010	DJS	2	PASI-I

Pace Analytical Services, LLC
4171 40th St. SE
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SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515008	**MW-209**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515009	**MW-210**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515010	**MW-212**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515011	**MW-213**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515012	**MW-301**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515013	**MW-303A**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I

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SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515014	**MW-304**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515015	**MW-305**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I
50329515016	**MW-302**	EPA 6010	DJS	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	MMS	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-101 **Lab ID: 50329515001** Collected: 10/24/22 17:00 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1660**	ug/L	500	1	11/02/22 10:17	11/02/22 15:15	7440-09-7	
Sodium, Dissolved	**71800**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:15	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**145**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/09/22 17:02		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**24800**	ug/L	1000	1		10/31/22 16:56	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**145**	ug/L	20.0	1		11/01/22 11:16	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1140**	ug/L	500	1		11/04/22 22:54	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-106A **Lab ID: 50329515002** Collected: 10/25/22 13:58 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1200**	ug/L	500	1	11/02/22 10:17	11/02/22 15:18	7440-09-7	
Sodium, Dissolved	**81500**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:18	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**171**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/09/22 17:07		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**34700**	ug/L	1000	1		10/31/22 16:58	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**171**	ug/L	20.0	1		11/01/22 11:39	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1560**	ug/L	500	1		11/04/22 23:13	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-201 **Lab ID: 50329515003** Collected: 10/25/22 09:15 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1360**	ug/L	500	1	11/02/22 10:17	11/02/22 15:21	7440-09-7	
Sodium, Dissolved	**71100**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:21	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**107**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**107**	ug/L	20.0	1		11/09/22 17:11		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**16200**	ug/L	1000	1		10/31/22 16:59	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**<20.0**	ug/L	20.0	1		11/01/22 11:40	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1190**	ug/L	500	1		11/04/22 23:32	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-202 **Lab ID: 50329515004** Collected: 10/24/22 15:15 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1340**	ug/L	500	1	11/02/22 10:17	11/02/22 15:23	7440-09-7	
Sodium, Dissolved	**74000**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:23	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**136**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/09/22 17:12		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**30100**	ug/L	1000	1		10/31/22 17:00	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**136**	ug/L	20.0	1		11/01/22 11:42	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1110**	ug/L	500	1		11/04/22 23:52	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-203B **Lab ID: 50329515005** Collected: 10/25/22 13:40 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**5050**	ug/L	500	1	11/02/22 10:17	11/02/22 15:26	7440-09-7	
Sodium, Dissolved	**97700**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:26	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**224**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/09/22 17:14		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**37500**	ug/L	1000	1		10/31/22 17:01	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**224**	ug/L	20.0	1		11/01/22 11:43	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1580**	ug/L	500	1		11/05/22 00:11	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-207A **Lab ID: 50329515006** Collected: 10/25/22 12:25 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**2660**	ug/L	500	1	11/02/22 10:17	11/02/22 15:34	7440-09-7	
Sodium, Dissolved	**84000**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:34	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**97.5**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/09/22 17:16		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**22500**	ug/L	1000	1		10/31/22 17:02	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**97.5**	ug/L	20.0	1		11/01/22 11:44	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**2410**	ug/L	500	1		11/05/22 00:30	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-208B **Lab ID: 50329515007** Collected: 10/25/22 13:20 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1180**	ug/L	500	1	11/02/22 10:17	11/02/22 15:36	7440-09-7	
Sodium, Dissolved	**88000**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:36	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**217**	ug/L	200	10		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<200**	ug/L	200	10		11/09/22 17:21		D3
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**30100**	ug/L	1000	1		10/31/22 17:06	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**217**	ug/L	20.0	1		11/01/22 11:45	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1160**	ug/L	500	1		11/05/22 00:50	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-209 **Lab ID: 50329515008** Collected: 10/25/22 11:20 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1160**	ug/L	500	1	11/02/22 10:17	11/02/22 15:39	7440-09-7	
Sodium, Dissolved	**98800**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:39	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**123**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**36.7**	ug/L	20.0	1		11/09/22 17:23		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**32600**	ug/L	1000	1		10/31/22 17:07	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**86.6**	ug/L	20.0	1		11/01/22 11:47	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1050**	ug/L	500	1		11/05/22 01:09	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-210 **Lab ID: 50329515009** Collected: 10/25/22 10:48 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1420**	ug/L	500	1	11/02/22 10:17	11/02/22 15:42	7440-09-7	
Sodium, Dissolved	**101000**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:42	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**118**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/09/22 17:25		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**28300**	ug/L	1000	1		10/31/22 17:08	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**118**	ug/L	20.0	1		11/01/22 11:48	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1310**	ug/L	500	1		11/05/22 02:13	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-212 **Lab ID: 50329515010** Collected: 10/25/22 10:00 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**994**	ug/L	500	1	11/02/22 10:17	11/02/22 15:44	7440-09-7	
Sodium, Dissolved	**95800**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:44	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**27.7**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/09/22 17:27		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**30400**	ug/L	1000	1		10/31/22 17:09	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**27.7**	ug/L	20.0	1		11/01/22 11:52	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1510**	ug/L	500	1		11/05/22 02:32	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-213 **Lab ID: 50329515011** Collected: 10/25/22 13:20 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1010**	ug/L	500	1	11/02/22 10:17	11/02/22 15:47	7440-09-7	
Sodium, Dissolved	**112000**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:47	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**112**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/09/22 17:28		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**41500**	ug/L	1000	1		10/31/22 17:09	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**112**	ug/L	20.0	1		11/01/22 11:53	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1110**	ug/L	500	1		11/05/22 02:52	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-301 **Lab ID: 50329515012** Collected: 10/24/22 18:28 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1240**	ug/L	500	1	11/02/22 10:17	11/02/22 15:50	7440-09-7	
Sodium, Dissolved	**106000**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:50	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**207**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/12/22 11:52		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**38600**	ug/L	1000	1		10/31/22 17:12	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**207**	ug/L	20.0	1		11/01/22 11:54	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1040**	ug/L	500	1		11/05/22 03:11	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-303A **Lab ID: 50329515013** Collected: 10/25/22 13:20 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1020**	ug/L	500	1	11/02/22 10:17	11/02/22 15:52	7440-09-7	
Sodium, Dissolved	**110000**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:52	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**115**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/12/22 13:26		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**40700**	ug/L	1000	1		10/31/22 17:13	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**115**	ug/L	20.0	1		11/01/22 11:56	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1210**	ug/L	500	1		11/05/22 03:30	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-304 **Lab ID: 50329515014** Collected: 10/25/22 11:30 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1530**	ug/L	500	1	11/02/22 10:17	11/02/22 15:55	7440-09-7	
Sodium, Dissolved	**83600**	ug/L	1000	1	11/02/22 10:17	11/02/22 15:55	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**163**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/12/22 11:59		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**30200**	ug/L	1000	1		10/31/22 17:14	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**163**	ug/L	20.0	1		11/01/22 11:57	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1050**	ug/L	500	1		11/05/22 03:50	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-305 **Lab ID: 50329515015** Collected: 10/25/22 10:20 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1540**	ug/L	500	1	11/02/22 10:17	11/02/22 16:10	7440-09-7	
Sodium, Dissolved	**97600**	ug/L	1000	1	11/02/22 10:17	11/02/22 16:10	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**99.9**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/12/22 12:04		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**32200**	ug/L	1000	1		10/31/22 17:20	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**99.9**	ug/L	20.0	1		11/01/22 12:01	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1530**	ug/L	500	1		11/05/22 04:48	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Sample: MW-302 **Lab ID: 50329515016** Collected: 10/24/22 15:05 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Potassium, Dissolved	**1570**	ug/L	500	1	11/02/22 10:17	11/02/22 16:13	7440-09-7	
Sodium, Dissolved	**100000**	ug/L	1000	1	11/02/22 10:17	11/02/22 16:13	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**252**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<20.0**	ug/L	20.0	1		11/12/22 12:08		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**35300**	ug/L	1000	1		10/31/22 17:21	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**252**	ug/L	20.0	1		11/01/22 12:02	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1110**	ug/L	500	1		11/07/22 20:27	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

QC Batch: 703973
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329515001, 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011, 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

METHOD BLANK: 3236102 Matrix: Water
Associated Lab Samples: 50329515001, 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011, 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Potassium, Dissolved	ug/L	<500	500	11/02/22 15:04	
Sodium, Dissolved	ug/L	<1000	1000	11/02/22 15:04	

LABORATORY CONTROL SAMPLE: 3236103

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Potassium, Dissolved	ug/L	10000	10400	104	80-120	
Sodium, Dissolved	ug/L	10000	10500	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3236104 3236105

Parameter	Units	50329515014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Potassium, Dissolved	ug/L	1530	10000	10000	12400	12400	108	109	75-125	0	20	
Sodium, Dissolved	ug/L	83600	10000	10000	93000	93200	94	96	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

QC Batch: 705371 — Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 — Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329515001, 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011

METHOD BLANK: 3242470 — Matrix: Water
Associated Lab Samples: 50329515001, 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	20.0	11/09/22 16:39	

LABORATORY CONTROL SAMPLE: 3242471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	2000	2040	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3242472 3242473

Parameter	Units	50329515001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	2000	1990	1990	99	99	90-110	0	20	

MATRIX SPIKE SAMPLE: 3242474

Parameter	Units	50329515002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	1970	98	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

QC Batch: 705996
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

METHOD BLANK: 3245841 Matrix: Water
Associated Lab Samples: 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	20.0	11/12/22 11:40	

LABORATORY CONTROL SAMPLE: 3245842

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	2000	2050	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3245843 3245844

Parameter	Units	50329515014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	2000	1980	1980	99	99	90-110	0	20	

MATRIX SPIKE SAMPLE: 3245845

Parameter	Units	50329515015 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	1990	99	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

QC Batch: 703571 — Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E — Analysis Description: 4500 Chloride
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329515001, 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011

METHOD BLANK: 3234533 — Matrix: Water
Associated Lab Samples: 50329515001, 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	10/31/22 16:41	

LABORATORY CONTROL SAMPLE: 3234534

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	20000	19900	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234535 3234536

Parameter	Units	50329393006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	175 mg/L	200000	200000	379000	378000	102	102	90-110	0	20	

MATRIX SPIKE SAMPLE: 3234537

Parameter	Units	50329515001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	24800	20000	43800	95	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

QC Batch: 703573 — Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E — Analysis Description: 4500 Chloride
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

METHOD BLANK: 3234540 — Matrix: Water
Associated Lab Samples: 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	10/31/22 17:10	

LABORATORY CONTROL SAMPLE: 3234541

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	20000	19600	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234542 — 3234543

Parameter	Units	50329515014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	30200	20000	20000	49700	48900	98	93	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234544 — 3234545

Parameter	Units	50329514001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	1.7 mg/L	20000	20000	22000	21400	102	99	90-110	3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

QC Batch: 703681
QC Batch Method: SM-4500-NH3 G
Analysis Method: SM-4500-NH3 G
Analysis Description: 4500 Ammonia Low Level
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329515001

METHOD BLANK: 3234948 Matrix: Water
Associated Lab Samples: 50329515001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<20.0	20.0	11/01/22 10:40	

LABORATORY CONTROL SAMPLE: 3234949

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1000	1060	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234950 3234951

Parameter	Units	50329466007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	ug/L	279	1000	1000	1320	1330	104	105	90-110	0	20	

MATRIX SPIKE SAMPLE: 3234952

Parameter	Units	50329466017 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	31.2	1000	961	93	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

QC Batch: 703726
QC Batch Method: SM-4500-NH3 G
Analysis Method: SM-4500-NH3 G
Analysis Description: 4500 Ammonia Low Level
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011, 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

METHOD BLANK: 3235065 Matrix: Water
Associated Lab Samples: 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011, 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<20.0	20.0	11/01/22 11:36	

LABORATORY CONTROL SAMPLE: 3235066

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1000	1040	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3235067 3235068

Parameter	Units	50329515014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	ug/L	163	1000	1000	1210	1210	104	104	90-110	0	20	

MATRIX SPIKE SAMPLE: 3235069

Parameter	Units	50329514009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1.1 mg/L	1000	2010	96	90-110	E

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

QC Batch: 703506
QC Batch Method: SM 5310C
Analysis Method: SM 5310C
Analysis Description: 5310C Total Organic Carbon
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329515001, 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011, 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

METHOD BLANK: 3234364 Matrix: Water
Associated Lab Samples: 50329515001, 50329515002, 50329515003, 50329515004, 50329515005, 50329515006, 50329515007, 50329515008, 50329515009, 50329515010, 50329515011, 50329515012, 50329515013, 50329515014, 50329515015, 50329515016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	ug/L	<500	500	11/04/22 22:15	

LABORATORY CONTROL SAMPLE: 3234365

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	10000	10300	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234366 3234367

Parameter	Units	50329515014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	ug/L	1050	10000	10000	11300	11200	102	102	80-120	0	20	

MATRIX SPIKE SAMPLE: 3234368

Parameter	Units	50329515015 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	1530	10000	1450	-1	80-120	M0

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALIFIERS

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50329515001	**MW-101**	EPA 3010	703973	EPA 6010	703974
50329515002	**MW-106A**	EPA 3010	703973	EPA 6010	703974
50329515003	**MW-201**	EPA 3010	703973	EPA 6010	703974
50329515004	**MW-202**	EPA 3010	703973	EPA 6010	703974
50329515005	**MW-203B**	EPA 3010	703973	EPA 6010	703974
50329515006	**MW-207A**	EPA 3010	703973	EPA 6010	703974
50329515007	**MW-208B**	EPA 3010	703973	EPA 6010	703974
50329515008	**MW-209**	EPA 3010	703973	EPA 6010	703974
50329515009	**MW-210**	EPA 3010	703973	EPA 6010	703974
50329515010	**MW-212**	EPA 3010	703973	EPA 6010	703974
50329515011	**MW-213**	EPA 3010	703973	EPA 6010	703974
50329515012	**MW-301**	EPA 3010	703973	EPA 6010	703974
50329515013	**MW-303A**	EPA 3010	703973	EPA 6010	703974
50329515014	**MW-304**	EPA 3010	703973	EPA 6010	703974
50329515015	**MW-305**	EPA 3010	703973	EPA 6010	703974
50329515016	**MW-302**	EPA 3010	703973	EPA 6010	703974
50329515001	**MW-101**	NO2+NO3+NH3 Calculation	706132		
50329515002	**MW-106A**	NO2+NO3+NH3 Calculation	706132		
50329515003	**MW-201**	NO2+NO3+NH3 Calculation	706132		
50329515004	**MW-202**	NO2+NO3+NH3 Calculation	706132		
50329515005	**MW-203B**	NO2+NO3+NH3 Calculation	706132		
50329515006	**MW-207A**	NO2+NO3+NH3 Calculation	706132		
50329515007	**MW-208B**	NO2+NO3+NH3 Calculation	706132		
50329515008	**MW-209**	NO2+NO3+NH3 Calculation	706132		
50329515009	**MW-210**	NO2+NO3+NH3 Calculation	706132		
50329515010	**MW-212**	NO2+NO3+NH3 Calculation	706132		
50329515011	**MW-213**	NO2+NO3+NH3 Calculation	706132		
50329515012	**MW-301**	NO2+NO3+NH3 Calculation	706132		
50329515013	**MW-303A**	NO2+NO3+NH3 Calculation	706132		
50329515014	**MW-304**	NO2+NO3+NH3 Calculation	706132		
50329515015	**MW-305**	NO2+NO3+NH3 Calculation	706132		
50329515016	**MW-302**	NO2+NO3+NH3 Calculation	706132		
50329515001	**MW-101**	EPA 353.2	705371		
50329515002	**MW-106A**	EPA 353.2	705371		
50329515003	**MW-201**	EPA 353.2	705371		
50329515004	**MW-202**	EPA 353.2	705371		
50329515005	**MW-203B**	EPA 353.2	705371		

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50329515006	**MW-207A**	EPA 353.2	705371		
50329515007	**MW-208B**	EPA 353.2	705371		
50329515008	**MW-209**	EPA 353.2	705371		
50329515009	**MW-210**	EPA 353.2	705371		
50329515010	**MW-212**	EPA 353.2	705371		
50329515011	**MW-213**	EPA 353.2	705371		
50329515012	**MW-301**	EPA 353.2	705996		
50329515013	**MW-303A**	EPA 353.2	705996		
50329515014	**MW-304**	EPA 353.2	705996		
50329515015	**MW-305**	EPA 353.2	705996		
50329515016	**MW-302**	EPA 353.2	705996		
50329515001	**MW-101**	SM 4500-Cl-E	703571		
50329515002	**MW-106A**	SM 4500-Cl-E	703571		
50329515003	**MW-201**	SM 4500-Cl-E	703571		
50329515004	**MW-202**	SM 4500-Cl-E	703571		
50329515005	**MW-203B**	SM 4500-Cl-E	703571		
50329515006	**MW-207A**	SM 4500-Cl-E	703571		
50329515007	**MW-208B**	SM 4500-Cl-E	703571		
50329515008	**MW-209**	SM 4500-Cl-E	703571		
50329515009	**MW-210**	SM 4500-Cl-E	703571		
50329515010	**MW-212**	SM 4500-Cl-E	703571		
50329515011	**MW-213**	SM 4500-Cl-E	703571		
50329515012	**MW-301**	SM 4500-Cl-E	703573		
50329515013	**MW-303A**	SM 4500-Cl-E	703573		
50329515014	**MW-304**	SM 4500-Cl-E	703573		
50329515015	**MW-305**	SM 4500-Cl-E	703573		
50329515016	**MW-302**	SM 4500-Cl-E	703573		
50329515001	**MW-101**	SM-4500-NH3 G	703681		
50329515002	**MW-106A**	SM-4500-NH3 G	703726		
50329515003	**MW-201**	SM-4500-NH3 G	703726		
50329515004	**MW-202**	SM-4500-NH3 G	703726		
50329515005	**MW-203B**	SM-4500-NH3 G	703726		
50329515006	**MW-207A**	SM-4500-NH3 G	703726		
50329515007	**MW-208B**	SM-4500-NH3 G	703726		
50329515008	**MW-209**	SM-4500-NH3 G	703726		
50329515009	**MW-210**	SM-4500-NH3 G	703726		
50329515010	**MW-212**	SM-4500-NH3 G	703726		
50329515011	**MW-213**	SM-4500-NH3 G	703726		
50329515012	**MW-301**	SM-4500-NH3 G	703726		
50329515013	**MW-303A**	SM-4500-NH3 G	703726		
50329515014	**MW-304**	SM-4500-NH3 G	703726		
50329515015	**MW-305**	SM-4500-NH3 G	703726		
50329515016	**MW-302**	SM-4500-NH3 G	703726		
50329515001	**MW-101**	SM 5310C	703506		
50329515002	**MW-106A**	SM 5310C	703506		
50329515003	**MW-201**	SM 5310C	703506		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Smith's Creek Landfill GW
Pace Project No.: 50329515

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50329515004	**MW-202**	SM 5310C	703506		
50329515005	**MW-203B**	SM 5310C	703506		
50329515006	**MW-207A**	SM 5310C	703506		
50329515007	**MW-208B**	SM 5310C	703506		
50329515008	**MW-209**	SM 5310C	703506		
50329515009	**MW-210**	SM 5310C	703506		
50329515010	**MW-212**	SM 5310C	703506		
50329515011	**MW-213**	SM 5310C	703506		
50329515012	**MW-301**	SM 5310C	703506		
50329515013	**MW-303A**	SM 5310C	703506		
50329515014	**MW-304**	SM 5310C	703506		
50329515015	**MW-305**	SM 5310C	703506		
50329515016	**MW-302**	SM 5310C	703506		

Pace

CHAIN-OF-CUSTOD

WO# : 50329515

50329515

The Chain-of-Custody is a LEGA

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Ter -terms.pdf

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Inform	
Company:	Golder Associates - Farmington Hills, MI	Report To:	Carolyn Powrozek	Attention:	
Address:	27200 Haggerty Road	Copy To:		Company Name:	
Suite B-12, Farmington, MI 48331				Address:	
Email:	carolyn.powrozek@wsp.com	Purchase Order #:		Pace Quote:	
Phone:	(248)536-5440 Fax:	Project Name:	Smith's Creek GW	Pace Project Manager:	jennifer.rice@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	8284

Regulatory Agency

State / Location: MI

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analyses Test: Cl	NH3, NPN, TIN	Dissolved Metals	TOC	Residual Chlorine (Y/N)
1	MW-101					10-24-22	1700	12.4	4	1	2	1						X	X	X	X	
2	MW-106A					10-25-22	1358	13.3															
3	MW-201					10-25-22	0915	11.7															
4	MW-202					10-24-22	1515	12.9															
5	MW-203B					10-25-22	1340	11.6															
6	MW-207A					10-25-22	1225	12.2															
7	MW-208B					10-25-22	1320	13.5															
8	MW-209					10-25-22	1120	12.6															
9	MW-210					10-25-22	1048	13.5															
10	MW-212					10-25-22	1000	11.9															
11	MW-213					10-25-22	1320	11.9															
12	MW-301					10-24-22	1828	12.1	↓	↓	↓	↓						↓	↓	↓	↓		

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Sampler	10-26-22	1545	Christine Lynskey / WSP	10-26-22	1545	
	Christine Lynskey / WSP	10-27-22	1235		10/27/22	1235	
		10/27/22	1534		10/27/22	1534	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Arthur D. Ranalli

SIGNATURE of SAMPLER:

DATE Signed: 10-26-22

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

Pace

CHAIN-OF-CUSTO

WO# : 50329515

PM: JLR1 Due Date: 11/10/22

CLIENT: GR-Golder

The Chain-of-Custody is a LE

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace T

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ard-terms.pdf.

Page : 2 Of 2

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Info	
Company:	Golder Associates - Farmington Hills, MI	Report To:	Carolyn Powrozek	Attention:	
Address:	27200 Haggerty Road	Copy To:		Company Name:	
Suite B-12, Farmington, MI 48331				Address:	
Email:	carolyn.powrozek@wsp.com	Purchase Order #:		Pace Quote:	
Phone:	(248)536-5440 Fax:	Project Name:	Smith's Creek GW	Pace Project Manager:	jennifer.rice@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	8284

Regulatory Agency
State / Location
MI

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analyses Test: Cl	NH3, NPN, TIN	Dissolved Metals	TOC	Residual Chlorine (Y/N)
1	MW-303A					10-25-22	1320	11.5	6	1	2	1											
2	MW-304					10-25-22	1130	11.8	12	3	6	3											
3	MW-305					10.25.22	1020	11.9	4	1	2	1											MS/MSD
4	MW-302					10-24-22	1505	13.3	4	1	2	1											
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Sampler	10-26-22	1545	WSP	10-26-22	1545	
	WSP	10-27-22	1235		10/27/22	1235	
		10/27/22	1535		10/27/22	1535	

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Arthur D. Rogers					
SIGNATURE of SAMPLER:		DATE Signed: 10-26-22				

Pace

Sample Conditions Upon Receipt Form (SCUR)

Date/Time: 10/27/22	**Evaluated By:** JXL
Client: Golder Assoc.	**PM:** JLR
Lab Notified of Rush or Short Holds: YES NO	

WO# : 50329515

PM: JLR1 **Due Date: 11/10/22**

CLIENT: GR-Golder

Project Received Via: FedEx UPS Client Pace Courier Other: _____

				Comments:
Custody Seal Present and Intact:	YES	NO	NA	
Received Sample Information Form (SIF): Drinking Waters Only	YES	NO	NA	
Short Hold Present (≤ 48 Hours):	YES	NO		
Sample Received in Hold:	YES	NO		
Custody Signature Present:	YES	NO		
Collector Signature Present:	YES	NO		
Sample Collected Today and On Ice:	YES	NO	N/A	

IR Gun #: 280 281

Temp. should be 0°C - 6°C (Initial/Corrected)

Ice Type: WET Bagged / WET Loose BLUE NONE

1. Cooler Temp. Upon Receipt: 5.9/5.7 °C

Ice Location: TOP BOTTOM MIDDLE DISPERSED

2. Cooler Temp. Upon Receipt: 5.2/5.0 °C

Temp Blank Received:	YES	NO		
Sample Label Matches COC (ID/Date/Time):	YES	NO		
Container Intact:	YES	NO		
Correct Container:	YES	NO		
Sufficient Volume:	YES	NO		
Sample pH Acceptable: All containers needing preservation are found to be in complaince with EPA recommendation **pH Strip Lot #:** 12291590 *Exceptions are VOA, coliform, LLHg, O&G/TPH, or any container with a septum cap or preserved with HCl*	YES	NO	N/A	
Residual Chlorine Absent: **Cl_2 Strip Lot #:** _____ *Applies to SVOC 625, PCB/Pest. 608, Total/Amenable Cyanide*	YES	NO	N/A	
VOA Headspace Acceptable (<6mm):	YES	NO	N/A	
Trip Blank Received: HCl MeOH Other: _____	YES	NO	ON HOLD	

Comments:

3. Cooler Temp. Upon Receipt: _____ °C

4. Cooler Temp. Upon Receipt: _____ °C

Non-Conformance Form Required: YES NO

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

November 14, 2022

Carolyn Powrozek
WSP / Golder
27200 Haggerty Road
Suite B-12
Farmington, MI 48331

RE: Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

Dear Carolyn Powrozek:

Enclosed are the analytical results for sample(s) received by the laboratory on October 27, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Indianapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Rice
jennifer.rice@pacelabs.com
(616)975-4500
Project Manager

Enclosures

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

CERTIFICATIONS

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

Pace Analytical Services Indianapolis

7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050
Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Wisconsin Laboratory #: 999788130
USDA Soil Permit #: P330-19-00257

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

SAMPLE SUMMARY

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50329492001	**SW-U1**	Water	10/25/22 14:30	10/27/22 15:35
50329492002	**SW-U2**	Water	10/25/22 14:50	10/27/22 15:35
50329492003	**SW-D1A**	Water	10/25/22 15:10	10/27/22 15:35

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(616)975-4500

SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50329492001	**SW-U1**	EPA 9056	ADM	2	PASI-I
		EPA 6010	RAM	4	PASI-I
		SM 2320B	TAY	2	PASI-I
		SM 2540C	AEL	1	PASI-I
		SM 2540D	BSW	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50329492002	**SW-U2**	EPA 9056	ADM	2	PASI-I
		EPA 6010	RAM	4	PASI-I
		SM 2320B	TAY	2	PASI-I
		SM 2540C	AEL	1	PASI-I
		SM 2540D	BSW	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50329492003	**SW-D1A**	EPA 9056	ADM	2	PASI-I
		EPA 6010	RAM	4	PASI-I
		SM 2320B	TAY	2	PASI-I
		SM 2540C	AEL	1	PASI-I
		SM 2540D	BSW	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM-4500-NH3 G	STS	1	PASI-I
		SM 5310C	ATS	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

Sample: SW-U1 **Lab ID: 50329492001** Collected: 10/25/22 14:30 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
9056 IC Anions	Analytical Method: EPA 9056 Pace Analytical Services - Indianapolis							
Chloride	**279000**	ug/L	100000	100		11/02/22 14:53	16887-00-6	
Sulfate	**49000**	ug/L	20000	10		11/01/22 01:19	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Calcium	**86600**	ug/L	1000	1	11/07/22 18:38	11/10/22 12:41	7440-70-2	
Iron	**1060**	ug/L	100	1	11/07/22 18:38	11/10/22 12:41	7439-89-6	
Magnesium	**33400**	ug/L	1000	1	11/07/22 18:38	11/10/22 12:41	7439-95-4	
Sodium	**179000**	ug/L	1000	1	11/07/22 18:38	11/10/22 12:41	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis							
Alkalinity, Total as CaCO3	**211000**	ug/L	10000	1		10/31/22 12:54		
Alkalinity,Bicarbonate (CaCO3)	**180000**	ug/L	10000	1		10/31/22 12:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**808000**	ug/L	80000	1		11/01/22 12:23		
2540D Total Suspended Solids	Analytical Method: SM 2540D Pace Analytical Services - Indianapolis							
Total Suspended Solids	**615000**	ug/L	25000	1		10/28/22 13:43		
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**<200**	ug/L	200	10		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<200**	ug/L	200	10		11/09/22 16:51		D3
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**62.2**	ug/L	20.0	1		11/11/22 10:01	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**38900**	ug/L	2000	4		10/31/22 12:28	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

Sample: SW-U2 **Lab ID: 50329492002** Collected: 10/25/22 14:50 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
9056 IC Anions	Analytical Method: EPA 9056 Pace Analytical Services - Indianapolis							
Chloride	**47600**	ug/L	10000	10		11/01/22 01:35	16887-00-6	
Sulfate	**47300**	ug/L	20000	10		11/01/22 01:35	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Calcium	**62900**	ug/L	1000	1	11/07/22 18:38	11/10/22 12:44	7440-70-2	
Iron	**1650**	ug/L	100	1	11/07/22 18:38	11/10/22 12:44	7439-89-6	
Magnesium	**19000**	ug/L	1000	1	11/07/22 18:38	11/10/22 12:44	7439-95-4	
Sodium	**17600**	ug/L	1000	1	11/07/22 18:38	11/10/22 12:44	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis							
Alkalinity, Total as CaCO3	**155000**	ug/L	10000	1		10/31/22 12:54		
Alkalinity,Bicarbonate (CaCO3)	**155000**	ug/L	10000	1		10/31/22 12:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**327000**	ug/L	20000	1		11/01/22 12:23		
2540D Total Suspended Solids	Analytical Method: SM 2540D Pace Analytical Services - Indianapolis							
Total Suspended Solids	**31700**	ug/L	8330	1		10/28/22 13:43		
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**140**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**32.5**	ug/L	20.0	1		11/09/22 16:53		
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**108**	ug/L	20.0	1		11/11/22 10:02	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**11400**	ug/L	500	1		10/29/22 07:11	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

Sample: SW-D1A **Lab ID: 50329492003** Collected: 10/25/22 15:10 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
9056 IC Anions	Analytical Method: EPA 9056 Pace Analytical Services - Indianapolis							
Chloride	**48900**	ug/L	10000	10		11/01/22 02:23	16887-00-6	
Sulfate	**10600**	ug/L	2500	10		11/01/22 02:23	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Calcium	**71300**	ug/L	1000	1	11/07/22 18:38	11/10/22 14:54	7440-70-2	
Iron	**17100**	ug/L	100	1	11/07/22 18:38	11/10/22 14:54	7439-89-6	
Magnesium	**27400**	ug/L	1000	1	11/07/22 18:38	11/10/22 14:54	7439-95-4	
Sodium	**25500**	ug/L	1000	1	11/07/22 18:38	11/10/22 14:54	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis							
Alkalinity, Total as CaCO3	**179000**	ug/L	10000	1		10/31/22 12:54		
Alkalinity,Bicarbonate (CaCO3)	**179000**	ug/L	10000	1		10/31/22 12:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**299000**	ug/L	20000	1		11/01/22 12:23		
2540D Total Suspended Solids	Analytical Method: SM 2540D Pace Analytical Services - Indianapolis							
Total Suspended Solids	**85600**	ug/L	10000	1		10/28/22 13:43		
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**650**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**126**	ug/L	20.0	1		11/09/22 16:55		
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**524**	ug/L	20.0	1		11/01/22 11:14	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**13300**	ug/L	500	1		10/29/22 07:31	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 703484
QC Batch Method: EPA 9056
Analysis Method: EPA 9056
Analysis Description: 9056 IC Anions
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492001, 50329492002, 50329492003

METHOD BLANK: 3234234 Matrix: Water
Associated Lab Samples: 50329492001, 50329492002, 50329492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	10/31/22 20:17	
Sulfate	ug/L	<2000	2000	10/31/22 20:17	

LABORATORY CONTROL SAMPLE: 3234235

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	1250	1130	90	80-120	
Sulfate	ug/L	2500	2400	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234236 3234237

Parameter	Units	50329393006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	175 mg/L	125000	125000	295000	292000	96	94	80-120	1	15	
Sulfate	ug/L	583 mg/L	250000	250000	808000	804000	90	88	80-120	0	15	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 703794
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492001, 50329492002, 50329492003

METHOD BLANK: 3235399 Matrix: Water
Associated Lab Samples: 50329492001, 50329492002, 50329492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	ug/L	<1000	1000	11/10/22 10:07	
Iron	ug/L	<100	100	11/10/22 10:07	
Magnesium	ug/L	<1000	1000	11/10/22 10:07	
Sodium	ug/L	<1000	1000	11/10/22 10:07	

LABORATORY CONTROL SAMPLE: 3235400

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	10100	101	80-120	
Iron	ug/L	10000	9600	96	80-120	
Magnesium	ug/L	10000	9870	99	80-120	
Sodium	ug/L	10000	9860	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3235401 3235402

Parameter	Units	50329469002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	113000	10000	10000	112000	116000	-7	29	75-125	3	20	P6
Iron	ug/L	ND	10000	10000	9600	9440	95	93	75-125	2	20	
Magnesium	ug/L	30000	10000	10000	36900	37800	69	78	75-125	3	20	M0
Sodium	ug/L	335000	10000	10000	275000	300000	-600	-349	75-125	9	20	P6

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 703464
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492001, 50329492002, 50329492003

METHOD BLANK: 3234174 Matrix: Water
Associated Lab Samples: 50329492001, 50329492002, 50329492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	ug/L	<10000	10000	10/31/22 12:54	
Alkalinity,Bicarbonate (CaCO3)	ug/L	<10000	10000	10/31/22 12:54	

LABORATORY CONTROL SAMPLE: 3234175

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	ug/L	50000	46900	94	90-110	

SAMPLE DUPLICATE: 3234176

Parameter	Units	50329494001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	ug/L	271 mg/L	275000	1	20	
Alkalinity,Bicarbonate (CaCO3)	ug/L	271 mg/L	275000	1	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 703703
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492001, 50329492002, 50329492003

METHOD BLANK: 3234999 Matrix: Water
Associated Lab Samples: 50329492001, 50329492002, 50329492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	ug/L	<20000	20000	11/01/22 12:06	

LABORATORY CONTROL SAMPLE: 3235000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	ug/L	300000	283000	94	80-120	

SAMPLE DUPLICATE: 3235001

Parameter	Units	50329466013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	674000	658000	2	10	

SAMPLE DUPLICATE: 3235002

Parameter	Units	50329466014 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	1880000	1840000	2	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 703246
QC Batch Method: SM 2540D
Analysis Method: SM 2540D
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492001, 50329492002, 50329492003

METHOD BLANK: 3232996 Matrix: Water
Associated Lab Samples: 50329492001, 50329492002, 50329492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	ug/L	<2500	2500	10/28/22 13:43	

LABORATORY CONTROL SAMPLE: 3232997

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	ug/L	100000	97000	97	80-120	

SAMPLE DUPLICATE: 3232998

Parameter	Units	50329314002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	ug/L	541 mg/L	534000	1	10	

SAMPLE DUPLICATE: 3233034

Parameter	Units	50329537001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	ug/L	176 mg/L	170000	3	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 705371
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492001, 50329492002, 50329492003

METHOD BLANK: 3242470 Matrix: Water
Associated Lab Samples: 50329492001, 50329492002, 50329492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	20.0	11/09/22 16:39	

LABORATORY CONTROL SAMPLE: 3242471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	2000	2040	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3242472 3242473

Parameter	Units	50329515001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	2000	1990	1990	99	99	90-110	0	20	

MATRIX SPIKE SAMPLE: 3242474

Parameter	Units	50329515002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	1970	98	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 703681
QC Batch Method: SM-4500-NH3 G
Analysis Method: SM-4500-NH3 G
Analysis Description: 4500 Ammonia Low Level
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492003

METHOD BLANK: 3234948 Matrix: Water
Associated Lab Samples: 50329492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<20.0	20.0	11/01/22 10:40	

LABORATORY CONTROL SAMPLE: 3234949

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1000	1060	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234950 3234951

Parameter	Units	50329466007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	ug/L	279	1000	1000	1320	1330	104	105	90-110	0	20	

MATRIX SPIKE SAMPLE: 3234952

Parameter	Units	50329466017 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	31.2	1000	961	93	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 705744
QC Batch Method: SM-4500-NH3 G
Analysis Method: SM-4500-NH3 G
Analysis Description: 4500 Ammonia Low Level
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492001, 50329492002

METHOD BLANK: 3244322 Matrix: Water
Associated Lab Samples: 50329492001, 50329492002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<20.0	20.0	11/11/22 09:57	

LABORATORY CONTROL SAMPLE: 3244323

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1000	985	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3244324 3244325

Parameter	Units	50329799005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	ug/L	<20.0	1000	1000	976	973	96	96	90-110	0	20	

MATRIX SPIKE SAMPLE: 3244326

Parameter	Units	50329840010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	473	1000	1470	99	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

QC Batch: 703275
QC Batch Method: SM 5310C
Analysis Method: SM 5310C
Analysis Description: 5310C Total Organic Carbon
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329492001, 50329492002, 50329492003

METHOD BLANK: 3233159 Matrix: Water
Associated Lab Samples: 50329492001, 50329492002, 50329492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	ug/L	<500	500	10/29/22 06:02	

LABORATORY CONTROL SAMPLE: 3233160

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	10000	10000	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3233161 3233162

Parameter	Units	50329494001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	ug/L	0.98 mg/L	10000	10000	11100	11200	102	102	80-120	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALIFIERS

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

Pace Analytical Services, LLC
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Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Smith's Creek Landfill SW
Pace Project No.: 50329492

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50329492001	**SW-U1**	EPA 9056	703484		
50329492002	**SW-U2**	EPA 9056	703484		
50329492003	**SW-D1A**	EPA 9056	703484		
50329492001	**SW-U1**	EPA 3010	703794	EPA 6010	705514
50329492002	**SW-U2**	EPA 3010	703794	EPA 6010	705514
50329492003	**SW-D1A**	EPA 3010	703794	EPA 6010	705514
50329492001	**SW-U1**	SM 2320B	703464		
50329492002	**SW-U2**	SM 2320B	703464		
50329492003	**SW-D1A**	SM 2320B	703464		
50329492001	**SW-U1**	SM 2540C	703703		
50329492002	**SW-U2**	SM 2540C	703703		
50329492003	**SW-D1A**	SM 2540C	703703		
50329492001	**SW-U1**	SM 2540D	703246		
50329492002	**SW-U2**	SM 2540D	703246		
50329492003	**SW-D1A**	SM 2540D	703246		
50329492001	**SW-U1**	NO2+NO3+NH3 Calculation	706132		
50329492002	**SW-U2**	NO2+NO3+NH3 Calculation	706132		
50329492003	**SW-D1A**	NO2+NO3+NH3 Calculation	706132		
50329492001	**SW-U1**	EPA 353.2	705371		
50329492002	**SW-U2**	EPA 353.2	705371		
50329492003	**SW-D1A**	EPA 353.2	705371		
50329492001	**SW-U1**	SM-4500-NH3 G	705744		
50329492002	**SW-U2**	SM-4500-NH3 G	705744		
50329492003	**SW-D1A**	SM-4500-NH3 G	703681		
50329492001	**SW-U1**	SM 5310C	703275		
50329492002	**SW-U2**	SM 5310C	703275		
50329492003	**SW-D1A**	SM 5310C	703275		

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

WO# : 50329492

50329492

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates - Farmington Hills, MI	Report To:	Carolyn Powrozek	Attention:	
Address:	27200 Haggerty Road	Copy To:		Company Name:	
	Suite B-12, Farmington, MI 48331			Address:	
Email:	carolyn.powrozek@wsp.com	Purchase Order #:		Pace Quote:	
Phone:	(248)536-5440 Fax:	Project Name:	Smith's Creek SW	Pace Project Manager:	jennifer.rice@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	8218

MI

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: Total Metals	Cl,SO4,Alk	TDS	TSS	NH3, NPN, TIN	TOC	Residual Chlorine (Y/N)
1	SW-U1					10-25-22	1430	17.46	3		2	1												
2	SW-U2					10-25-22	1450	14.76	3		2	1												
3	SW-D1A					10-25-22	1510	17.46	3		2	1												
4	~~SW-D2~~ CL																							
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	sampler	10-26-22	1610	Christina Lundy WSP	10-25-22	1610
	Christina Lundy WSP	10-27-22	1235	D. Stan	10/27/22	1235
	D. Stan	10/27/22	1535	D. Stan	10/27/22	1535

SAMPLE CONDITIONS: TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE		
PRINT Name of SAMPLER:	Arthur D. Roff	
SIGNATURE of SAMPLER:		DATE Signed: 10-26-22

Sample Conditions Upon Receipt Form (SCUR)

Date/Time: 10/27 1705	**Evaluated By:** DS	**WO#: 50329492**			
Client: Golder Associates	**PM:** JLR	**PM: JLR1** **Due Date: 11/10/22**			
Lab Notified of Rush or Short Holds: YES NO		**CLIENT: GR-Golder**			
Project Received Via: FedEx UPS Client Pace Courier Other: _____					**Comments:**
Custody Seal Present and Intact:	YES	NO	NA		
Received Sample Information Form (SIF): Drinking Waters Only	YES	NO	NA		
Short Hold Present (≤ 48 Hours):	YES	NO			
Sample Received in Hold:	YES	NO			
Custody Signature Present:	YES	NO			
Collector Signature Present:	YES	NO			
Sample Collected Today and On Ice:	YES	NO	N/A		
IR Gun #: 280 281	**Temp. should be 0°C - 6°C (Initial/Corrected)**				
Ice Type: WET Bagged / WET Loose BLUE NONE	**1.** Cooler Temp. Upon Receipt: 5.2/4.8 °C				
Ice Location: TOP BOTTOM MIDDLE DISPERSED	**2.** Cooler Temp. Upon Receipt: _____ °C				
Temp Blank Received:	YES	NO			
Sample Label Matches COC (ID/Date/Time):	YES	NO			
Container Intact:	YES	NO			
Correct Container:	YES	NO			
Sufficient Volume:	YES	NO			
Sample pH Acceptable: All containers needing preservation are found to be in complaince with EPA recommendation **pH Strip Lot #:** HC291590 *Exceptions are VOA, coliform, LLHg, O&G/TPH, or any container with a septum cap or preserved with HCl*	YES	NO	N/A		
Residual Chlorine Absent: **Cl_2 Strip Lot #:** _____ *Applies to SVOC 625, PCB/Pest. 608, Total/Amenable Cyanide*	YES	NO	N/A		
VOA Headspace Acceptable (<6mm):	YES	NO	N/A		
Trip Blank Received: HCl MeOH Other: _____	YES	NO	ON HOLD		
Comments:	**3.** Cooler Temp. Upon Receipt: _____ °C				
	4. Cooler Temp. Upon Receipt: _____ °C				
	Non-Conformance Form Required: YES NO				

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

November 14, 2022

Carolyn Powrozek
WSP / Golder
27200 Haggerty Road
Suite B-12
Farmington, MI 48331

RE: Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

Dear Carolyn Powrozek:

Enclosed are the analytical results for sample(s) received by the laboratory on October 27, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Indianapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Rice
jennifer.rice@pacelabs.com
(616)975-4500
Project Manager

Enclosures

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

CERTIFICATIONS

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

Pace Analytical Services Indianapolis

7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050
Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Wisconsin Laboratory #: 999788130
USDA Soil Permit #: P330-19-00257

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

SAMPLE SUMMARY

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50329481001	**Leachate**	Water	10/25/22 15:50	10/27/22 15:35
50329481002	**Trip Blank**	Water	10/25/22 00:00	10/27/22 15:35

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(616)975-4500

SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50329481001	**Leachate**	EPA 6010	MTM	1	PASI-I
		EPA 5030B/8260	ALA	39	PASI-I
		SM 2540C	AEL	1	PASI-I
		EPA 9038	BEP	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	OAS	1	PASI-I
		SM 4500-Cl-E	OAS	1	PASI-I
		SM 4500-NH3 G	STS	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

Sample: Leachate **Lab ID: 50329481001** Collected: 10/25/22 15:50 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Iron	**139000**	ug/L	100	1	11/07/22 09:32	11/09/22 12:38	7439-89-6	
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - Indianapolis							
Benzene	**21.3**	ug/L	10.0	10		11/04/22 11:18	71-43-2	
Bromodichloromethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	75-27-4	
Bromoform	**<10.0**	ug/L	10.0	10		11/04/22 11:18	75-25-2	
Bromomethane	**<50.0**	ug/L	50.0	10		11/04/22 11:18	74-83-9	
Carbon tetrachloride	**<10.0**	ug/L	10.0	10		11/04/22 11:18	56-23-5	
Chlorobenzene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	108-90-7	
Chloroethane	**<50.0**	ug/L	50.0	10		11/04/22 11:18	75-00-3	
Chloroform	**<10.0**	ug/L	10.0	10		11/04/22 11:18	67-66-3	
Chloromethane	**<50.0**	ug/L	50.0	10		11/04/22 11:18	74-87-3	
Dibromochloromethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	124-48-1	
Dibromomethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	74-95-3	
1,2-Dichlorobenzene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	95-50-1	
1,4-Dichlorobenzene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	106-46-7	
1,1-Dichloroethane	**138**	ug/L	10.0	10		11/04/22 11:18	75-34-3	
1,2-Dichloroethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	107-06-2	
1,1-Dichloroethene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	75-35-4	
cis-1,2-Dichloroethene	**17.7**	ug/L	10.0	10		11/04/22 11:18	156-59-2	
trans-1,2-Dichloroethene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	156-60-5	
1,2-Dichloropropane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	78-87-5	
cis-1,3-Dichloropropene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	10061-01-5	
trans-1,3-Dichloropropene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	10061-02-6	
Ethylbenzene	**16.3**	ug/L	10.0	10		11/04/22 11:18	100-41-4	
Iodomethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	74-88-4	
Methylene Chloride	**<50.0**	ug/L	50.0	10		11/04/22 11:18	75-09-2	
Styrene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	100-42-5	
1,1,1,2-Tetrachloroethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	630-20-6	
1,1,2,2-Tetrachloroethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	79-34-5	
Tetrachloroethene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	127-18-4	
Toluene	**366**	ug/L	10.0	10		11/04/22 11:18	108-88-3	
1,1,1-Trichloroethane	**19.7**	ug/L	10.0	10		11/04/22 11:18	71-55-6	
1,1,2-Trichloroethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	79-00-5	
Trichloroethene	**<10.0**	ug/L	10.0	10		11/04/22 11:18	79-01-6	
Trichlorofluoromethane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	75-69-4	
1,2,3-Trichloropropane	**<10.0**	ug/L	10.0	10		11/04/22 11:18	96-18-4	
Vinyl chloride	**<10.0**	ug/L	10.0	10		11/04/22 11:18	75-01-4	
Xylene (Total)	**51.5**	ug/L	20.0	10		11/04/22 11:18	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	98	%.	79-124	10		11/04/22 11:18	460-00-4	F1
Dibromofluoromethane (S)	98	%.	82-128	10		11/04/22 11:18	1868-53-7	
Toluene-d8 (S)	98	%.	73-122	10		11/04/22 11:18	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

ANALYTICAL RESULTS

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

Sample: Leachate **Lab ID: 50329481001** Collected: 10/25/22 15:50 Received: 10/27/22 15:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**18900000**	ug/L	667000	1		11/01/22 12:22		
9038 Sulfate Water	Analytical Method: EPA 9038 Pace Analytical Services - Indianapolis							
Sulfate	**<50000**	ug/L	50000	5		10/31/22 09:28	14808-79-8	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**1050000**	ug/L	20.0	1		11/14/22 15:36		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<10000**	ug/L	10000	500		11/09/22 16:49		D3,P4
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**9770000**	ug/L	500000	500		10/31/22 16:55	16887-00-6	
4500 Ammonia Water	Analytical Method: SM 4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**1050000**	ug/L	10000	100		11/04/22 13:41	7664-41-7	P4

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

QC Batch: 703797
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329481001

METHOD BLANK: 3235405 Matrix: Water
Associated Lab Samples: 50329481001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron	ug/L	<100	100	11/09/22 11:39	

LABORATORY CONTROL SAMPLE: 3235406

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10100	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3235407 3235408

Parameter	Units	50329475001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	170	10000	10000	10300	10300	102	101	75-125	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

QC Batch: 704318
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Low Level
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329481001

METHOD BLANK: 3237832 Matrix: Water
Associated Lab Samples: 50329481001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<1.0	1.0	11/04/22 02:31	
1,1,1-Trichloroethane	ug/L	<1.0	1.0	11/04/22 02:31	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	1.0	11/04/22 02:31	
1,1,2-Trichloroethane	ug/L	<1.0	1.0	11/04/22 02:31	
1,1-Dichloroethane	ug/L	<1.0	1.0	11/04/22 02:31	
1,1-Dichloroethene	ug/L	<1.0	1.0	11/04/22 02:31	
1,2,3-Trichloropropane	ug/L	<1.0	1.0	11/04/22 02:31	
1,2-Dichlorobenzene	ug/L	<1.0	1.0	11/04/22 02:31	
1,2-Dichloroethane	ug/L	<1.0	1.0	11/04/22 02:31	
1,2-Dichloropropane	ug/L	<1.0	1.0	11/04/22 02:31	
1,4-Dichlorobenzene	ug/L	<1.0	1.0	11/04/22 02:31	
Benzene	ug/L	<1.0	1.0	11/04/22 02:31	
Bromodichloromethane	ug/L	<1.0	1.0	11/04/22 02:31	
Bromoform	ug/L	<1.0	1.0	11/04/22 02:31	
Bromomethane	ug/L	<5.0	5.0	11/04/22 02:31	
Carbon tetrachloride	ug/L	<1.0	1.0	11/04/22 02:31	
Chlorobenzene	ug/L	<1.0	1.0	11/04/22 02:31	
Chloroethane	ug/L	<5.0	5.0	11/04/22 02:31	
Chloroform	ug/L	<1.0	1.0	11/04/22 02:31	
Chloromethane	ug/L	<5.0	5.0	11/04/22 02:31	
cis-1,2-Dichloroethene	ug/L	<1.0	1.0	11/04/22 02:31	
cis-1,3-Dichloropropene	ug/L	<1.0	1.0	11/04/22 02:31	
Dibromochloromethane	ug/L	<1.0	1.0	11/04/22 02:31	
Dibromomethane	ug/L	<1.0	1.0	11/04/22 02:31	
Ethylbenzene	ug/L	<1.0	1.0	11/04/22 02:31	
Iodomethane	ug/L	<1.0	1.0	11/04/22 02:31	
Methylene Chloride	ug/L	<5.0	5.0	11/04/22 02:31	
Styrene	ug/L	<1.0	1.0	11/04/22 02:31	
Tetrachloroethene	ug/L	<1.0	1.0	11/04/22 02:31	
Toluene	ug/L	<1.0	1.0	11/04/22 02:31	
trans-1,2-Dichloroethene	ug/L	<1.0	1.0	11/04/22 02:31	
trans-1,3-Dichloropropene	ug/L	<1.0	1.0	11/04/22 02:31	
Trichloroethene	ug/L	<1.0	1.0	11/04/22 02:31	
Trichlorofluoromethane	ug/L	<1.0	1.0	11/04/22 02:31	
Vinyl chloride	ug/L	<1.0	1.0	11/04/22 02:31	
Xylene (Total)	ug/L	<2.0	2.0	11/04/22 02:31	
4-Bromofluorobenzene (S)	%.	98	79-124	11/04/22 02:31	
Dibromofluoromethane (S)	%.	98	82-128	11/04/22 02:31	
Toluene-d8 (S)	%.	99	73-122	11/04/22 02:31	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

LABORATORY CONTROL SAMPLE: 3237833

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	51.2	102	77-125	
1,1,1-Trichloroethane	ug/L	50	50.8	102	69-125	
1,1,2,2-Tetrachloroethane	ug/L	50	50.8	102	72-123	
1,1,2-Trichloroethane	ug/L	50	52.3	105	73-124	
1,1-Dichloroethane	ug/L	50	49.5	99	71-124	
1,1-Dichloroethene	ug/L	50	48.7	97	63-138	
1,2,3-Trichloropropane	ug/L	50	52.9	106	75-122	
1,2-Dichlorobenzene	ug/L	50	48.1	96	76-118	
1,2-Dichloroethane	ug/L	50	51.2	102	68-126	
1,2-Dichloropropane	ug/L	50	51.0	102	73-127	
1,4-Dichlorobenzene	ug/L	50	49.3	99	74-118	
Benzene	ug/L	50	52.2	104	76-121	
Bromodichloromethane	ug/L	50	55.5	111	72-125	
Bromoform	ug/L	50	53.7	107	57-134	
Bromomethane	ug/L	50	47.0	94	10-187	
Carbon tetrachloride	ug/L	50	51.5	103	71-134	
Chlorobenzene	ug/L	50	50.7	101	74-119	
Chloroethane	ug/L	50	62.9	126	49-152	
Chloroform	ug/L	50	52.1	104	68-123	
Chloromethane	ug/L	50	42.5	85	33-133	
cis-1,2-Dichloroethene	ug/L	50	52.3	105	73-122	
cis-1,3-Dichloropropene	ug/L	50	50.1	100	69-128	
Dibromochloromethane	ug/L	50	54.0	108	69-127	
Dibromomethane	ug/L	50	51.0	102	74-126	
Ethylbenzene	ug/L	50	48.5	97	74-122	
Iodomethane	ug/L	50	29.0	58	10-181	
Methylene Chloride	ug/L	50	52.4	105	71-125	
Styrene	ug/L	50	51.9	104	74-126	
Tetrachloroethene	ug/L	50	47.1	94	74-129	
Toluene	ug/L	50	50.0	100	70-118	
trans-1,2-Dichloroethene	ug/L	50	47.0	94	69-124	
trans-1,3-Dichloropropene	ug/L	50	49.2	98	66-125	
Trichloroethene	ug/L	50	51.3	103	73-125	
Trichlorofluoromethane	ug/L	50	44.3	89	56-139	
Vinyl chloride	ug/L	50	49.0	98	46-134	
Xylene (Total)	ug/L	150	148	98	71-123	
4-Bromofluorobenzene (S)	%.			100	79-124	
Dibromofluoromethane (S)	%.			102	82-128	
Toluene-d8 (S)	%.			99	73-122	

MATRIX SPIKE SAMPLE: 3237834

Parameter	Units	50329468001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.16	50	54.0	108	64-142	
1,1,1-Trichloroethane	ug/L	<0.19	50	55.6	111	60-143	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

MATRIX SPIKE SAMPLE: 3237834

Parameter	Units	50329468001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	<0.080	50	52.4	105	64-135	
1,1,2-Trichloroethane	ug/L	<0.11	50	53.8	108	66-137	
1,1-Dichloroethane	ug/L	<0.18	50	52.2	104	62-144	
1,1-Dichloroethene	ug/L	<0.24	50	54.3	109	55-158	
1,2,3-Trichloropropane	ug/L	<0.25	50	52.5	105	66-135	
1,2-Dichlorobenzene	ug/L	<0.17	50	49.6	99	47-140	
1,2-Dichloroethane	ug/L	<0.14	50	51.9	104	61-144	
1,2-Dichloropropane	ug/L	<0.14	50	53.4	107	67-141	
1,4-Dichlorobenzene	ug/L	<0.19	50	50.4	101	39-140	
Benzene	ug/L	<0.16	50	55.8	112	68-139	
Bromodichloromethane	ug/L	<0.15	50	56.8	114	65-139	
Bromoform	ug/L	<0.12	50	53.4	107	51-139	
Bromomethane	ug/L	<0.28	50	44.9	90	10-189	
Carbon tetrachloride	ug/L	<0.17	50	57.0	114	61-153	
Chlorobenzene	ug/L	<0.15	50	53.6	107	57-137	
Chloroethane	ug/L	<0.21	50	69.3	139	41-183	
Chloroform	ug/L	<0.20	50	54.5	109	61-138	
Chloromethane	ug/L	<0.18	50	47.1	94	25-150	
cis-1,2-Dichloroethene	ug/L	<0.18	50	55.4	111	58-142	
cis-1,3-Dichloropropene	ug/L	<0.12	50	52.0	104	53-140	
Dibromochloromethane	ug/L	<0.10	50	55.0	110	61-139	
Dibromomethane	ug/L	<0.21	50	51.9	104	69-138	
Ethylbenzene	ug/L	<0.18	50	52.1	104	54-141	
Iodomethane	ug/L	<0.11	50	34.1	68	10-184	
Methylene Chloride	ug/L	<1.7	50	51.9	104	59-141	
Styrene	ug/L	<0.15	50	54.7	109	51-146	
Tetrachloroethene	ug/L	<0.39	50	50.9	102	50-149	
Toluene	ug/L	<0.14	50	53.8	108	59-134	
trans-1,2-Dichloroethene	ug/L	<0.14	50	50.9	102	57-141	
trans-1,3-Dichloropropene	ug/L	<0.080	50	51.1	102	51-136	
Trichloroethene	ug/L	<0.16	50	54.1	108	55-147	
Trichlorofluoromethane	ug/L	<0.22	50	50.5	101	55-160	
Vinyl chloride	ug/L	<0.19	50	55.5	111	36-154	
Xylene (Total)	ug/L	<0.19	150	158	105	50-143	
4-Bromofluorobenzene (S)	%.				102	79-124	
Dibromofluoromethane (S)	%.				102	82-128	
Toluene-d8 (S)	%.				99	73-122	

SAMPLE DUPLICATE: 3237835

Parameter	Units	50329468002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.16	<1.0		20	
1,1,1-Trichloroethane	ug/L	<0.19	<1.0		20	
1,1,2,2-Tetrachloroethane	ug/L	<0.080	<1.0		20	
1,1,2-Trichloroethane	ug/L	<0.11	<1.0		20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

SAMPLE DUPLICATE: 3237835

Parameter	Units	50329468002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1-Dichloroethane	ug/L	<0.18	<1.0		20	
1,1-Dichloroethene	ug/L	<0.24	<1.0		20	
1,2,3-Trichloropropane	ug/L	<0.25	<1.0		20	
1,2-Dichlorobenzene	ug/L	<0.17	<1.0		20	
1,2-Dichloroethane	ug/L	<0.14	<1.0		20	
1,2-Dichloropropane	ug/L	<0.14	<1.0		20	
1,4-Dichlorobenzene	ug/L	<0.19	<1.0		20	
Benzene	ug/L	<0.16	<1.0		20	
Bromodichloromethane	ug/L	<0.15	<1.0		20	
Bromoform	ug/L	<0.12	<1.0		20	
Bromomethane	ug/L	<0.28	<5.0		20	
Carbon tetrachloride	ug/L	<0.17	<1.0		20	
Chlorobenzene	ug/L	<0.15	<1.0		20	
Chloroethane	ug/L	<0.21	<5.0		20	
Chloroform	ug/L	<0.20	<1.0		20	
Chloromethane	ug/L	<0.18	<5.0		20	
cis-1,2-Dichloroethene	ug/L	<0.18	<1.0		20	
cis-1,3-Dichloropropene	ug/L	<0.12	<1.0		20	
Dibromochloromethane	ug/L	<0.10	<1.0		20	
Dibromomethane	ug/L	<0.21	<1.0		20	
Ethylbenzene	ug/L	<0.18	<1.0		20	
Iodomethane	ug/L	<0.11	<1.0		20	
Methylene Chloride	ug/L	<1.7	<5.0		20	
Styrene	ug/L	<0.15	<1.0		20	
Tetrachloroethene	ug/L	<0.39	<1.0		20	
Toluene	ug/L	<0.14	<1.0		20	
trans-1,2-Dichloroethene	ug/L	<0.14	<1.0		20	
trans-1,3-Dichloropropene	ug/L	<0.080	<1.0		20	
Trichloroethene	ug/L	<0.16	<1.0		20	
Trichlorofluoromethane	ug/L	<0.22	<1.0		20	
Vinyl chloride	ug/L	<0.19	<1.0		20	
Xylene (Total)	ug/L	<0.19	<2.0		20	
4-Bromofluorobenzene (S)	%.	98	99			
Dibromofluoromethane (S)	%.	99	98			
Toluene-d8 (S)	%.	99	100			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

QC Batch: 703703
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329481001

METHOD BLANK: 3234999 Matrix: Water
Associated Lab Samples: 50329481001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	ug/L	<20000	20000	11/01/22 12:06	

LABORATORY CONTROL SAMPLE: 3235000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	ug/L	300000	283000	94	80-120	

SAMPLE DUPLICATE: 3235001

Parameter	Units	50329466013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	674000	658000	2	10	

SAMPLE DUPLICATE: 3235002

Parameter	Units	50329466014 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	1880000	1840000	2	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

QC Batch: 703470
QC Batch Method: EPA 9038
Analysis Method: EPA 9038
Analysis Description: 9038 Sulfate Water
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329481001

METHOD BLANK: 3234192 Matrix: Water
Associated Lab Samples: 50329481001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	ug/L	<10000	10000	10/31/22 09:25	

LABORATORY CONTROL SAMPLE: 3234193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	20000	19900	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234195 3234196

Parameter	Units	50329249001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	ug/L	463 mg/L	1000000	1000000	1250000	1330000	79	86	90-110	6	20	M3

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

QC Batch: 705371
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329481001

METHOD BLANK: 3242470 Matrix: Water
Associated Lab Samples: 50329481001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	20.0	11/09/22 16:39	

LABORATORY CONTROL SAMPLE: 3242471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	2000	2040	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3242472 3242473

Parameter	Units	50329515001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	2000	1990	1990	99	99	90-110	0	20	

MATRIX SPIKE SAMPLE: 3242474

Parameter	Units	50329515002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	1970	98	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

QC Batch: 703571
QC Batch Method: SM 4500-Cl-E
Analysis Method: SM 4500-Cl-E
Analysis Description: 4500 Chloride
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329481001

METHOD BLANK: 3234533 Matrix: Water
Associated Lab Samples: 50329481001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	10/31/22 16:41	

LABORATORY CONTROL SAMPLE: 3234534

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	20000	19900	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3234535 3234536

Parameter	Units	50329393006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	175 mg/L	200000	200000	379000	378000	102	102	90-110	0	20	

MATRIX SPIKE SAMPLE: 3234537

Parameter	Units	50329515001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	24800	20000	43800	95	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

QC Batch: 704476
QC Batch Method: SM 4500-NH3 G
Analysis Method: SM 4500-NH3 G
Analysis Description: 4500 Ammonia
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50329481001

METHOD BLANK: 3238494 Matrix: Water
Associated Lab Samples: 50329481001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<100	100	11/04/22 13:10	

LABORATORY CONTROL SAMPLE: 3238495

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	5000	5230	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3238496 3238497

Parameter	Units	50329396010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	ug/L	<0.10 mg/L	5000	5000	5290	5290	106	106	90-110	0	20	

MATRIX SPIKE SAMPLE: 3238498

Parameter	Units	50329524004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	<0.10 mg/L	5000	5310	106	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4171 40th St. SE
Grand Rapids, MI 49512
(616)975-4500

QUALIFIERS

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
F1	The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
P4	Sample field preservation does not meet EPA or method recommendations for this analysis.

Pace Analytical Services, LLC
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Grand Rapids, MI 49512
(616)975-4500

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Smith's Creek Landfill Leach
Pace Project No.: 50329481

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50329481001	**Leachate**	EPA 3010	703797	EPA 6010	705227
50329481001	**Leachate**	EPA 5030B/8260	704318		
50329481001	**Leachate**	SM 2540C	703703		
50329481001	**Leachate**	EPA 9038	703470		
50329481001	**Leachate**	NO2+NO3+NH3 Calculation	706132		
50329481001	**Leachate**	EPA 353.2	705371		
50329481001	**Leachate**	SM 4500-Cl-E	703571		
50329481001	**Leachate**	SM 4500-NH3 G	704476		

Pace

CHAIN-OF-CUSTODY / Analytical Request Do

WO# : 50329481

50329481

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at https://info.pacelab

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates - Farmington Hills, MI	Report To:	Carolyn Powrozek	Attention:	
Address:	27200 Haggerty Road	Copy To:		Company Name:	
	Suite B-12, Farmington, MI 48331			Address:	
Email:	carolyn.powrozek@wsp.com	Purchase Order #:		Pace Quote:	
Phone:	(248)536-5440 Fax:	Project Name:	Smith's Creek Leachate	Pace Project Manager:	jennifer.rice@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	8219

Regulatory Agency
State / Location
MI

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	VOC - 8260	TDS	Cl, SO4	NH3, NPN, TIN	Total Iron	Residual Chlorine (Y/N)
1	Leachate					10-25-22	1550	19.8	7	2	1	1	3				X							
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Sampler	10-26-22	1610	Christine Lundy WSP	10-26-22	1610	
	Christine Lundy WSP	10-27-22	1235		10/27/22	1235	
		10/27/22	1535		10/27/22	1535	

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Arthur D. Rose III				
SIGNATURE of SAMPLER:					
DATE Signed:	10-26-22				

Pace

Sample Conditions Upon Receipt Form (SCUR)

WO# : 50329481
PM: JLR1 Due Date: 11/10/22
CLIENT: GR-Golder

Date/Time: 10/27/22	**Evaluated By:** JW			
Client: Golder Assoc	**PM:** JLR			
Lab Notified of Rush or Short Holds: YES NO				
Project Received Via: FedEx UPS Client Pace Courier Other: _____				**Comments:**
Custody Seal Present and Intact:	YES	NO	N/A	
Received Sample Information Form (SIF): Drinking Waters Only	YES	NO	N/A	
Short Hold Present (≤ 48 Hours):	YES	NO		
Sample Received in Hold:	YES	NO		
Custody Signature Present:	YES	NO		
Collector Signature Present:	YES	NO		
Sample Collected Today and On Ice:	YES	NO	N/A	
IR Gun #: 280 281	**Temp. should be 0°C - 6°C (Initial/Corrected)**			
Ice Type: WET Bagged / WET Loose BLUE NONE	**1.** Cooler Temp. Upon Receipt: 5.2/5.0 °C			
Ice Location: TOP BOTTOM MIDDLE DISPERSED	**2.** Cooler Temp. Upon Receipt: _____ °C			
Temp Blank Received:	YES	NO		
Sample Label Matches COC (ID/Date/Time):	YES	NO		
Container Intact:	YES	NO		
Correct Container:	YES	NO		
Sufficient Volume:	YES	NO		
Sample pH Acceptable: All containers needing preservation are found to be in complaince with EPA recommendation **pH Strip Lot #:** HC291590 *Exceptions are VOA, coliform, LLHg, O&G/TPH, or any container with a septum cap or preserved with HCl*	YES	NO	N/A	SEE NCF
Residual Chlorine Absent: **Cl_2 Strip Lot #:** _____ *Applies to SVOC 625, PCB/Pest. 608, Total/Amenable Cyanide*	YES	NO	N/A	
VOA Headspace Acceptable (<6mm):	YES	NO	N/A	SEE NCF
Trip Blank Received: HCl MeOH Other: _____	YES	NO	ON HOLD	
Comments:	**3.** Cooler Temp. Upon Receipt: _____ °C			
	4. Cooler Temp. Upon Receipt: _____ °C			
	Non-Conformance Form Required: YES NO			

Pace Analytical

Sample Receiving Non-Conformance Form (NCF)

WO#: 50329481

PM: JLR1 **Due Date: 11/10/22**

CLIENT: GR-Golder

Date: 10/27/22		**COC Integrity Issues:** Check issues below and add details where appropriate		**Sample Intergrity Issues:** Check issues below and add details where appropriate			
Evaluated by: JN		COC does not match samples received (missing, additional, etc.)		Custody seal(s) damaged or missing on coolers, samples, or trip blanks		*Insufficient sample volume received	
Client: Golder Assoc.		COC sample ID does not match sample label		Cooler or sample container broken or compromised		*Sample contains residual chlorine	
***Drinking Water Deficiency:** Samples may be invalid. Analysis must not proceed without client written permission.		*COC collection date/time missing or does not match sample label		*Sample past holding time	✓	Improper preservation	
		*Analyses/ analytes missing or clarification needed		*Temperature not within acceptance criteria (typically 0-6°C)		*Sample contains interferences (multi-phasic, solids, color, odor, etc…)	
		*Required signatures are missing		*Sample arrived frozen or partially frozen	✓	Vial(s) received with improper headspace (>6mm)	
*No Sample Information Form (SIF) received with sample(s)		*Residual Chlorine presence/ absence not indicated on COC		*Incorrect or improper containers received		Other: See notes below	

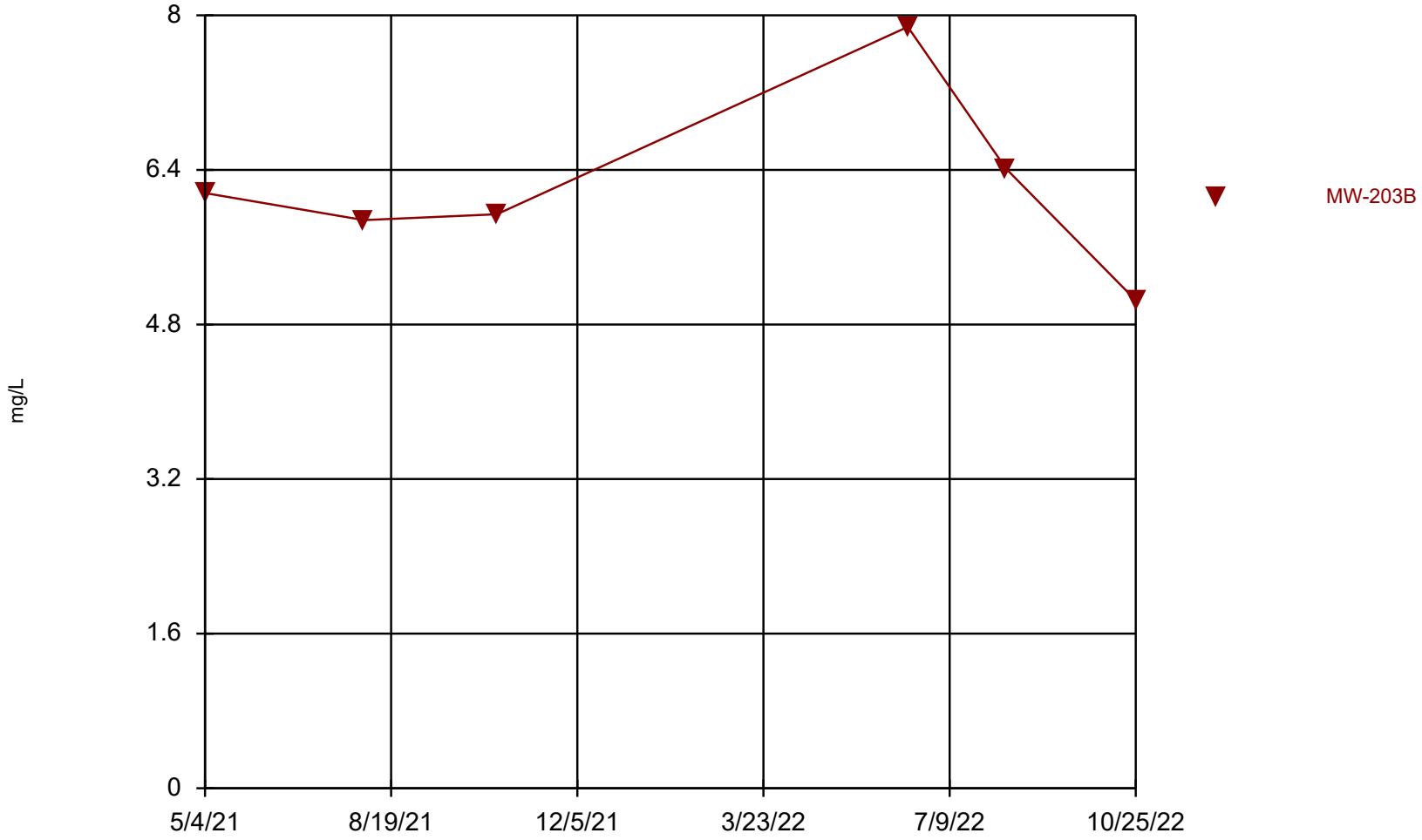
COC					Sample Label					Sample Notes
Sample ID	Date	Time	Container Type	Quantity	Sample ID	Date	Time	Container Type	Quantity	
					LEACHATE			3P3N		PH=6
					↓			3P3S		PH=6
					↓			VG9H		(3 OF 3) HEADSPACE

General Comments/ Client Instructions:

APPENDIX C

Time Series Plots

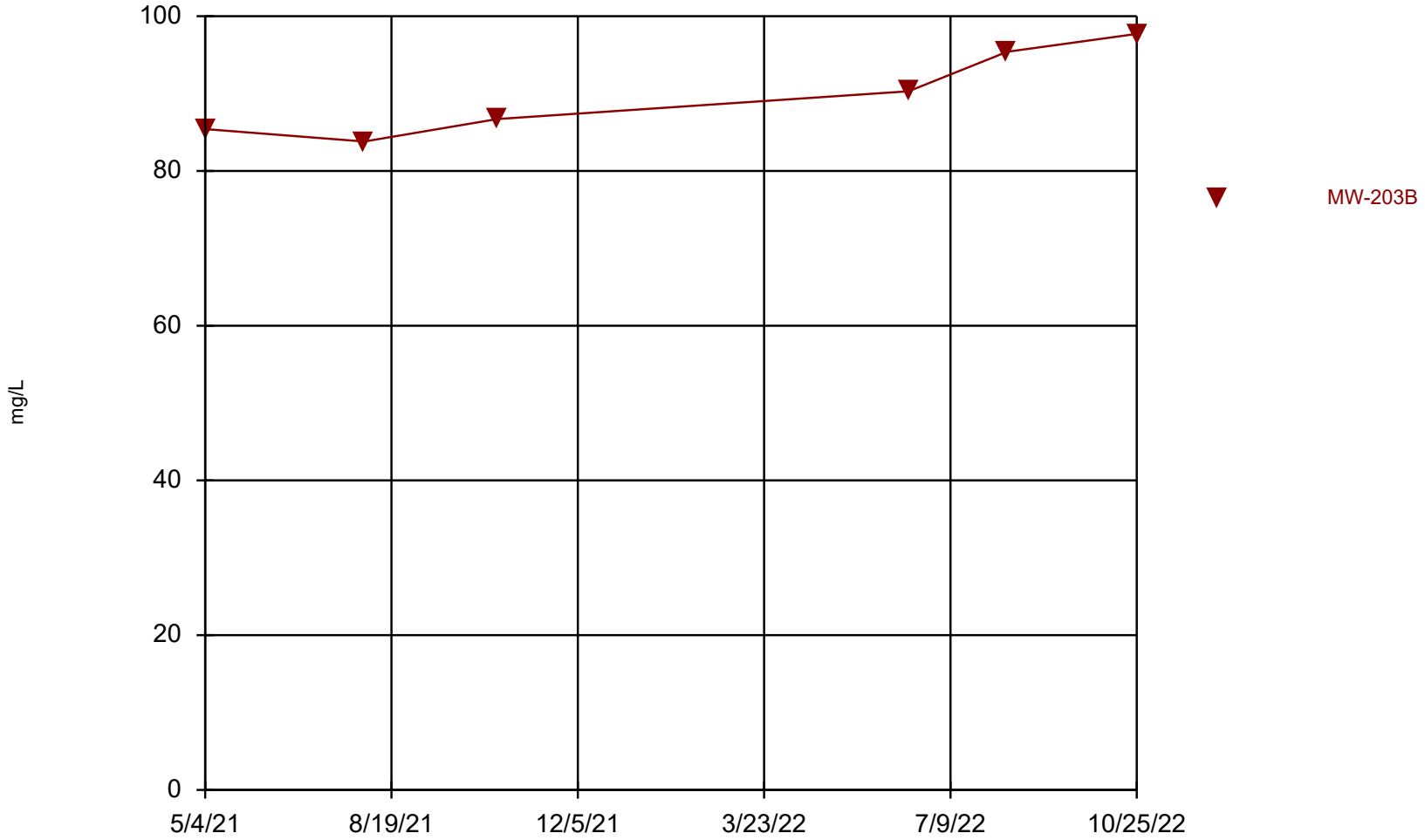
Time Series



Constituent: Potassium Analysis Run 1/24/2023 5:36 PM View: SCL GW

Smiths Creek LF Client: St. Clair County Data: Dt-scl

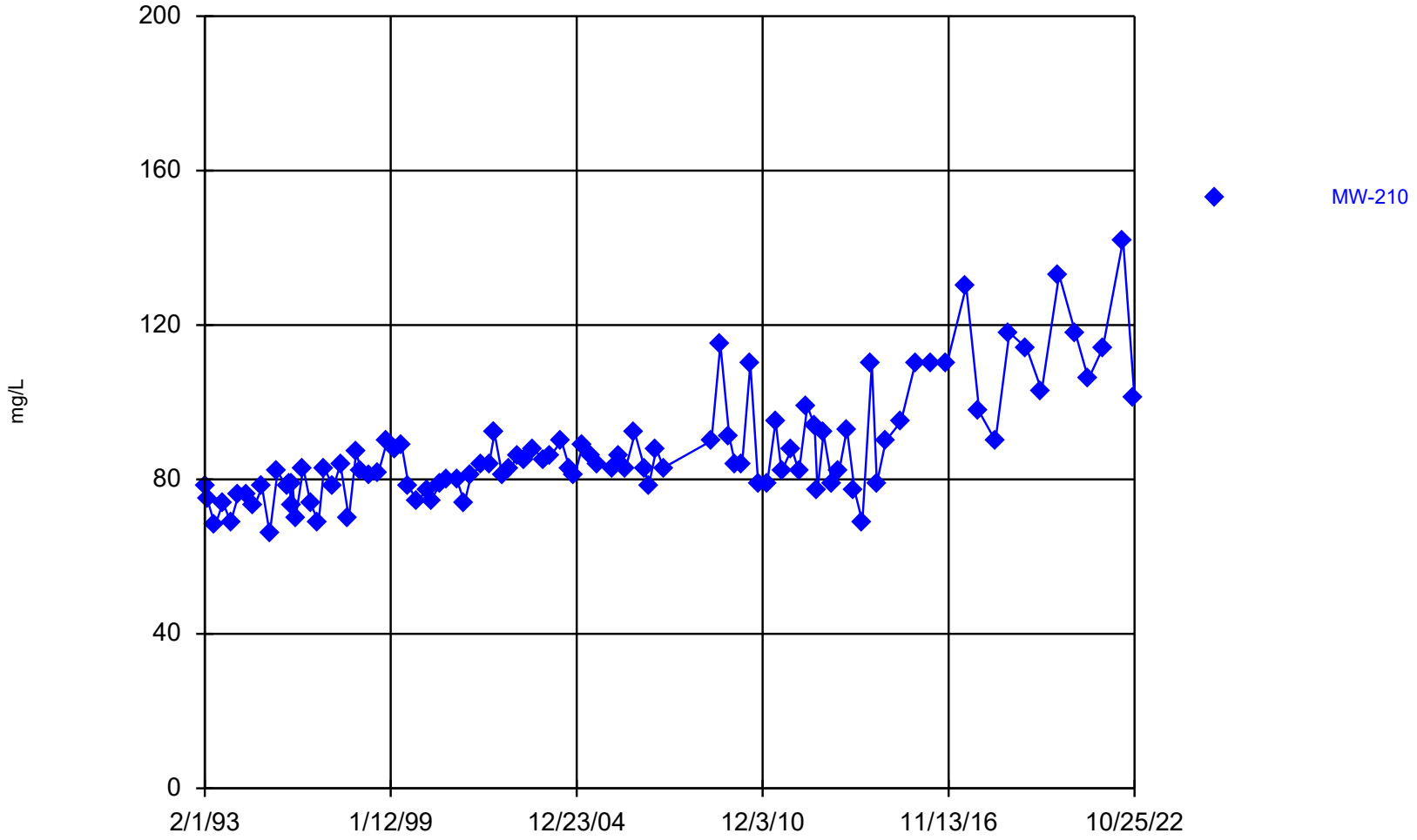
Time Series



Constituent: Sodium Analysis Run 1/24/2023 5:36 PM View: SCL GW

Smiths Creek LF Client: St. Clair County Data: Dt-scl

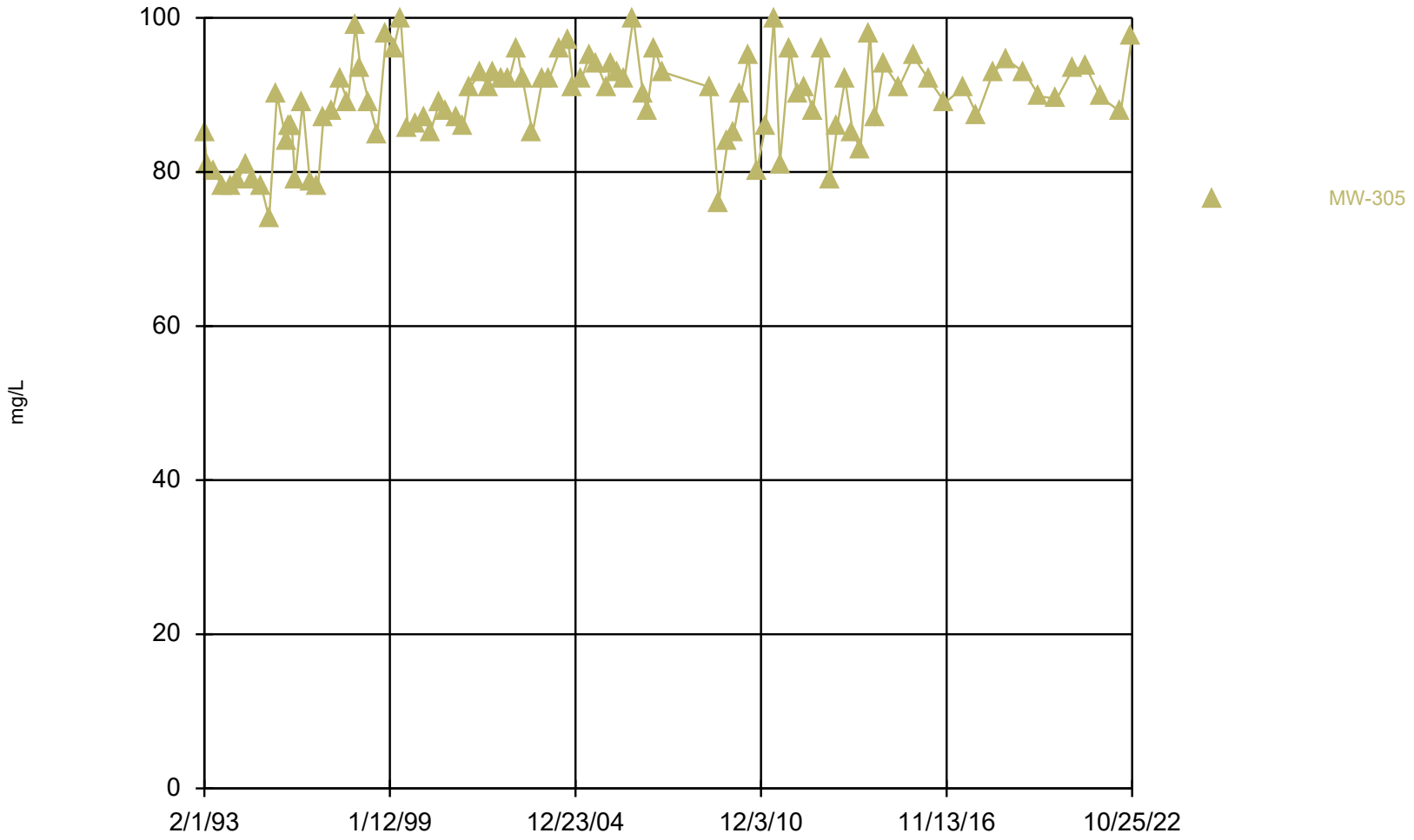
Time Series



Constituent: Sodium Analysis Run 1/24/2023 5:36 PM View: SCL GW

Smiths Creek LF Client: St. Clair County Data: Dt-scl

Time Series



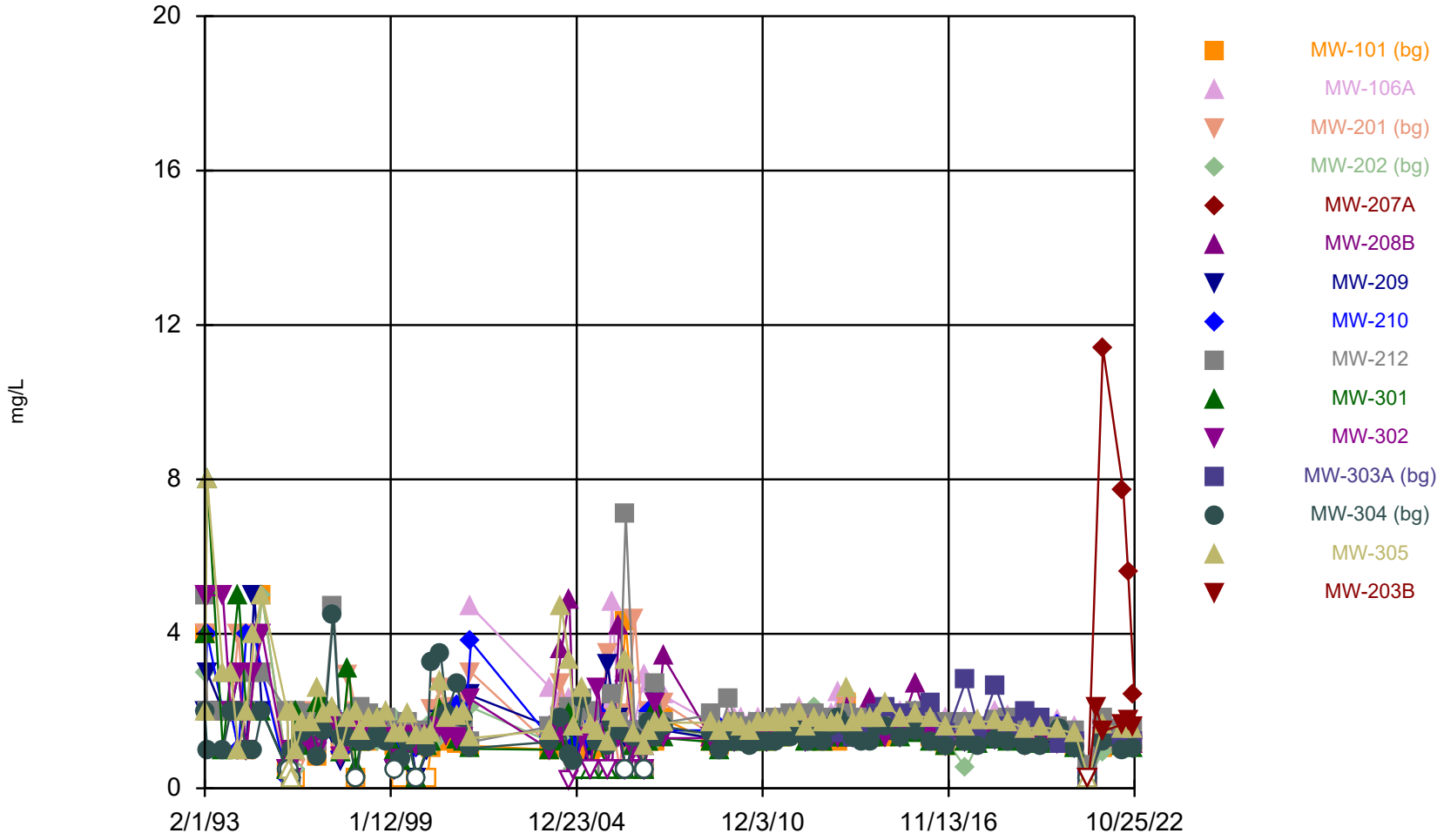
Constituent: Sodium Analysis Run 1/24/2023 5:36 PM View: SCL GW

Smiths Creek LF Client: St. Clair County Data: Dt-scl

Sanitas™ v.9.6.35 For the statistical analyses of ground water by Golder Associates only. UG

Hollow symbols indicate censored values.

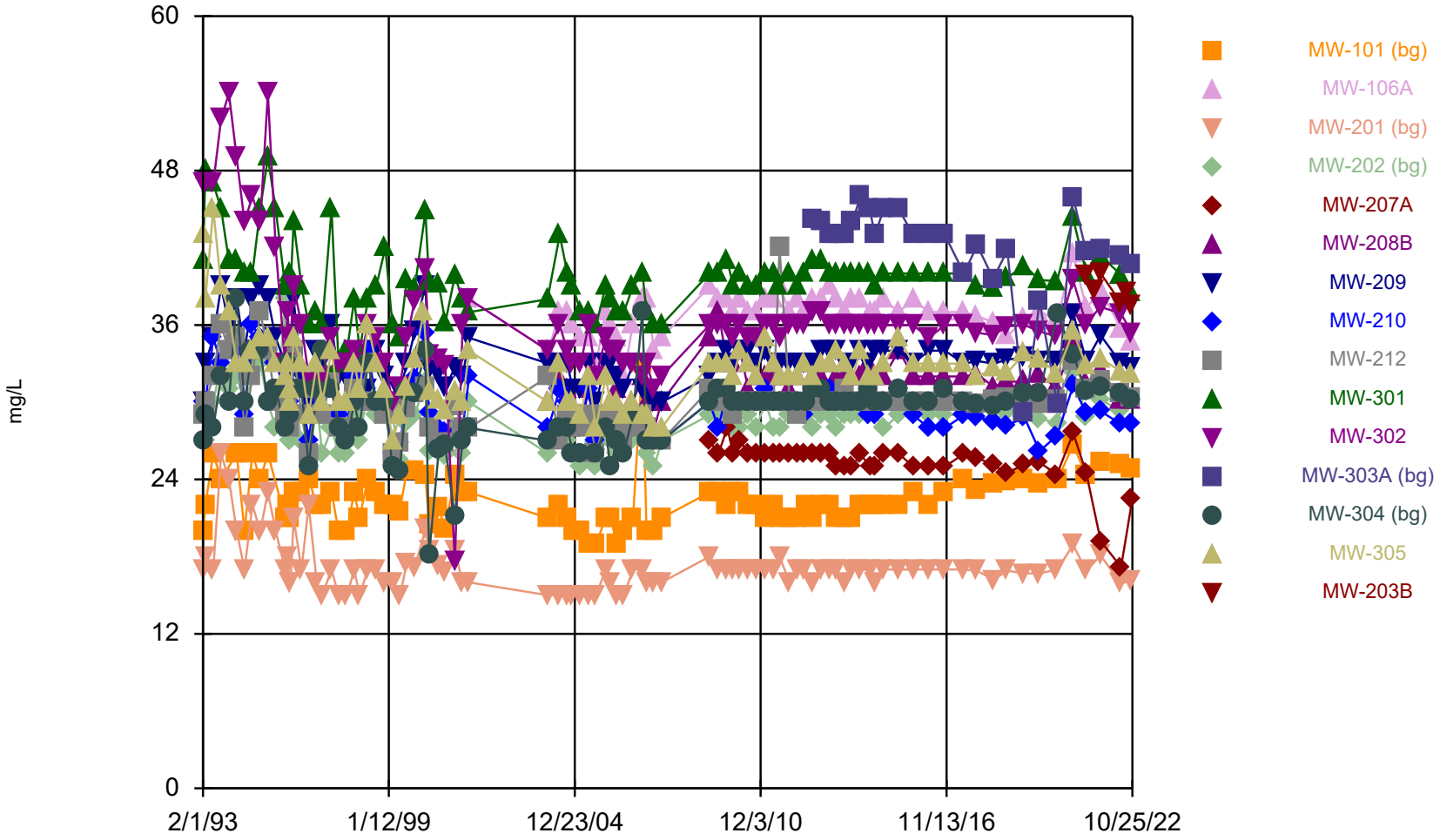
Time Series



Constituent: Carbon, Total Organic Analysis Run 1/24/2023 6:06 PM

Smiths Creek LF Client: St. Clair County Data: Dt-scl

Time Series



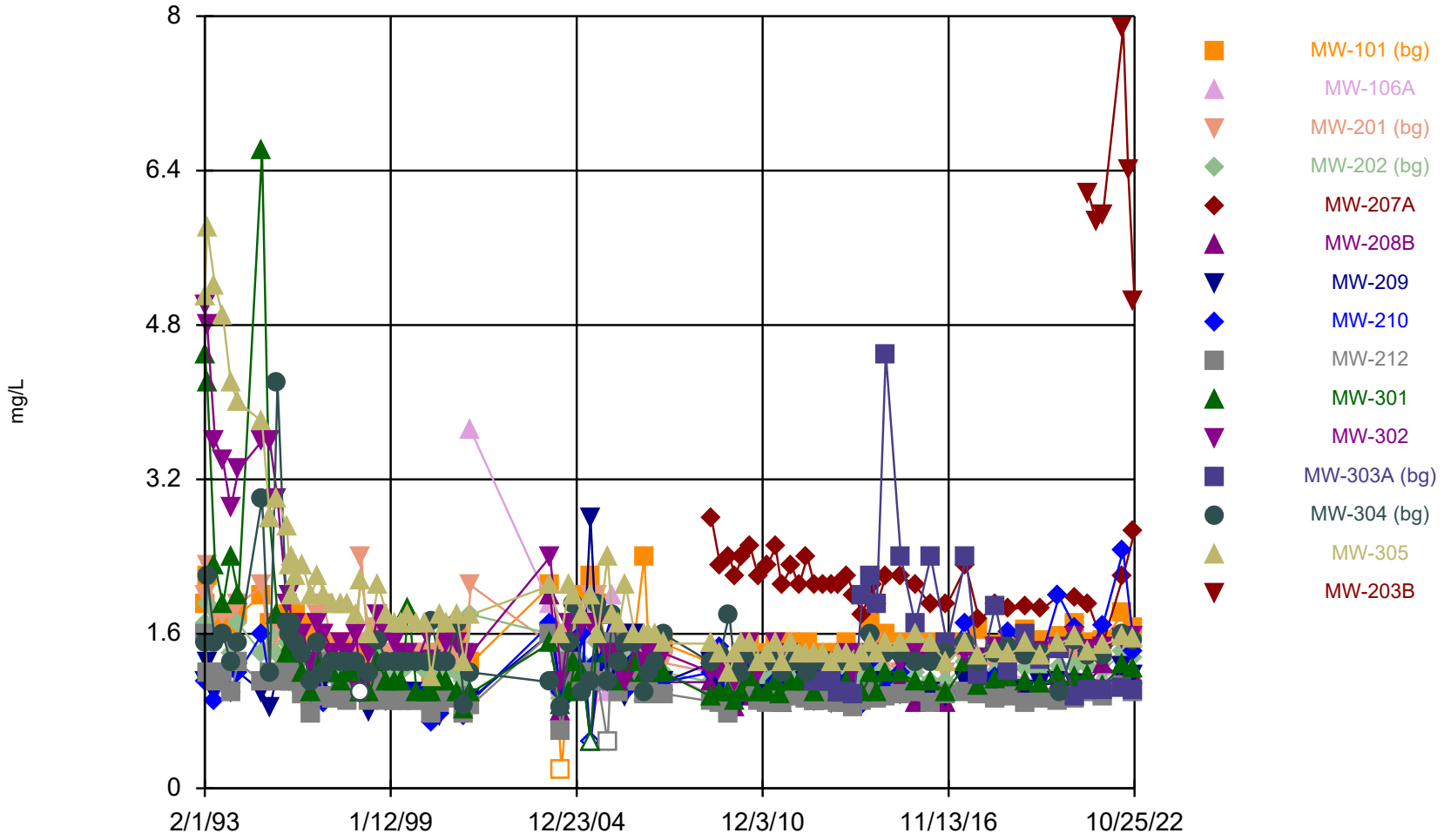
Constituent: Chloride Analysis Run 1/24/2023 6:06 PM

Smiths Creek LF Client: St. Clair County Data: Dt-scl

Sanitas™ v.9.6.35 For the statistical analyses of ground water by Golder Associates only. UG

Hollow symbols indicate censored values.

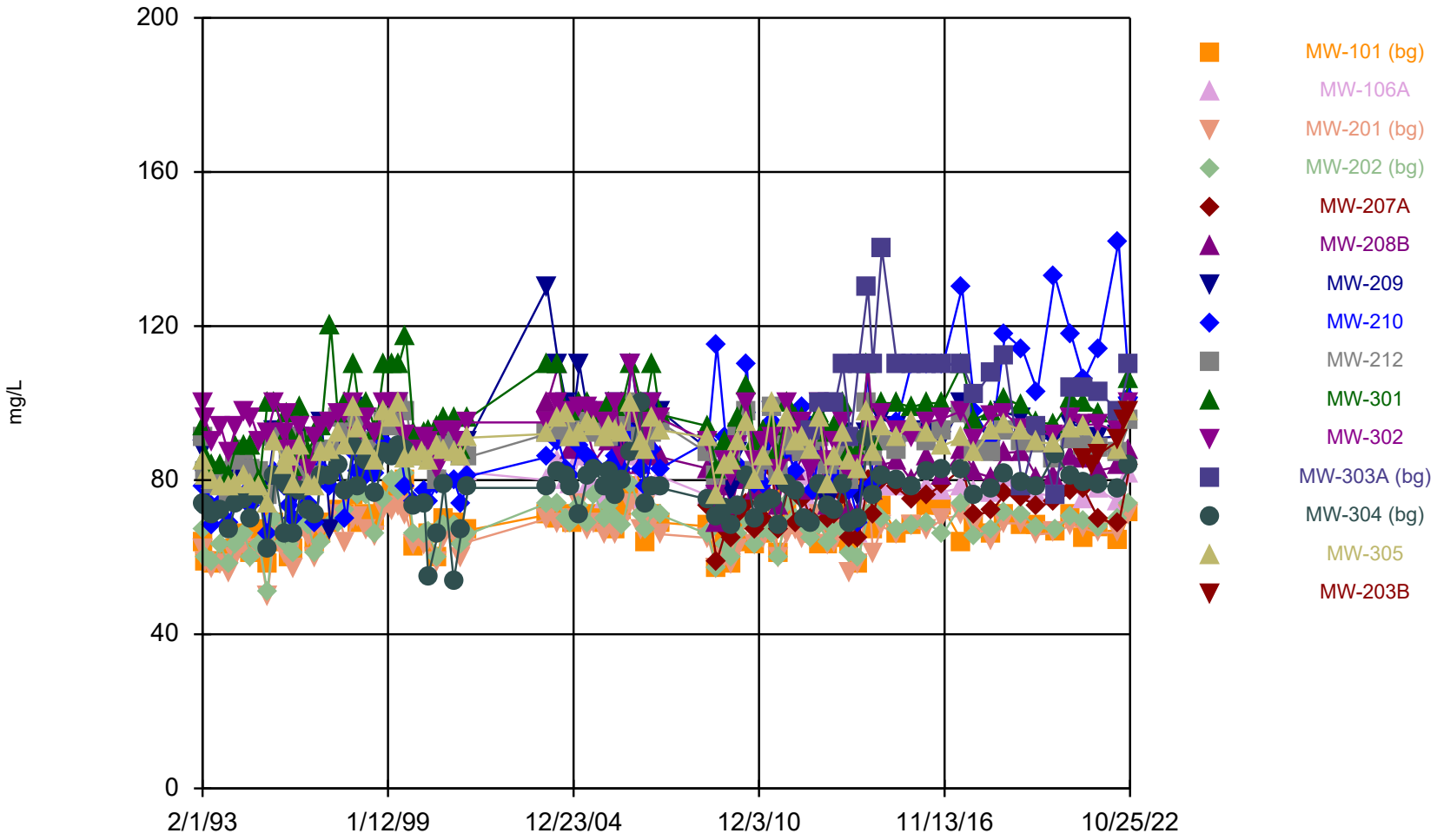
Time Series



Constituent: Potassium Analysis Run 1/24/2023 6:06 PM

Smiths Creek LF Client: St. Clair County Data: Dt-scl

Time Series

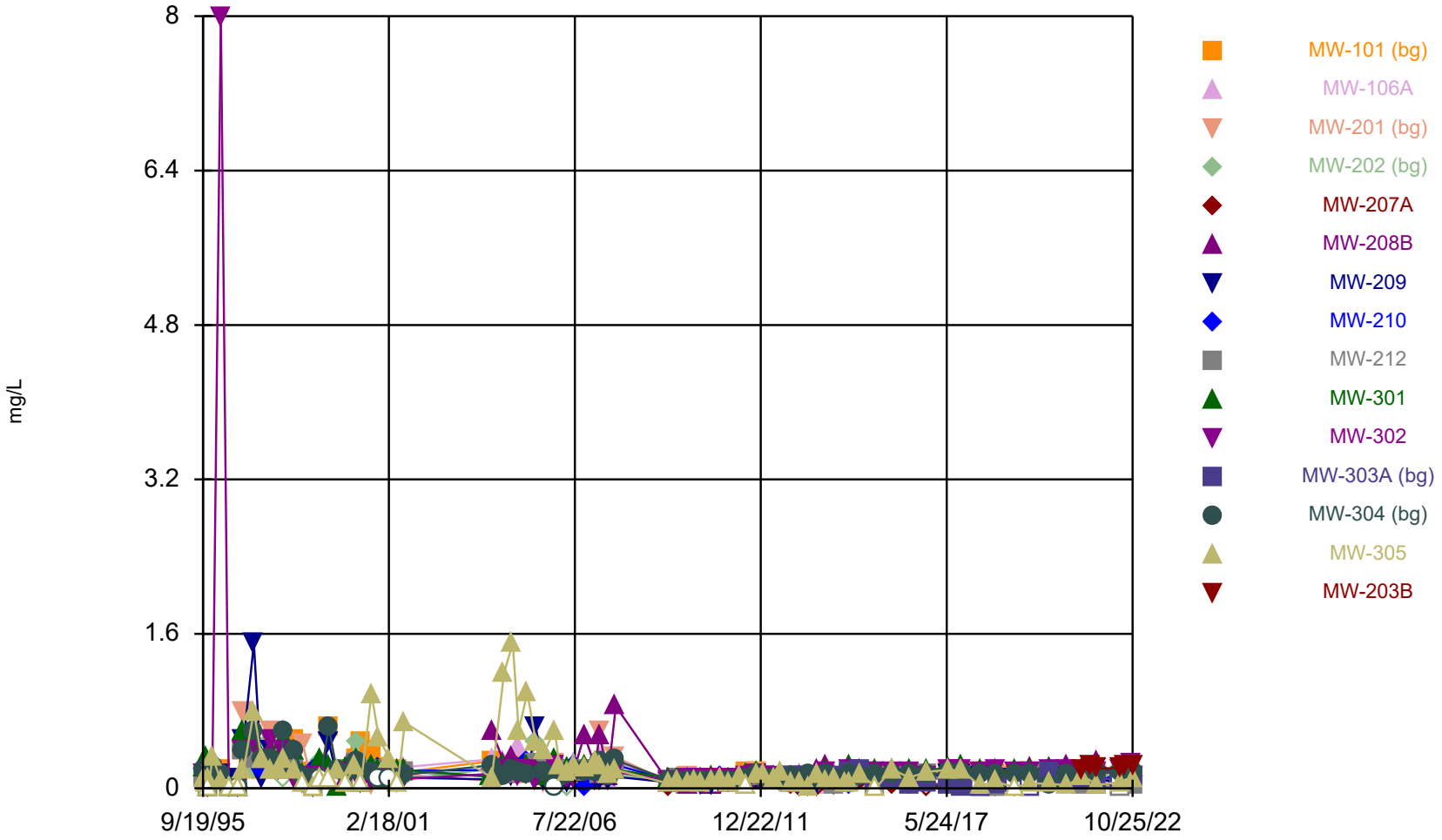


Constituent: Sodium Analysis Run 1/24/2023 6:06 PM

Smiths Creek LF Client: St. Clair County Data: Dt-scl

Hollow symbols indicate censored values.

Time Series



Constituent: Total Inorganic Nitrogen Analysis Run 1/24/2023 6:06 PM

Smiths Creek LF Client: St. Clair County Data: Dt-scl

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