January 29, 2024 Project No. 31405076.000

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

FOURTH QUARTER 2023 ENVIRONMENTAL MONITORING REPORT
SMITHS CREEK LANDFILL, WDS #452546
ST. CLAIR COUNTY, MICHIGAN

Dear Mr. Darling:

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 fifteen monitoring wells, four surface water locations, and one leachate sampling location between November 7 and 9, 2023. 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**.

The analytical data for the one leachate sample and the four surface water samples is included in **Appendix B, Laboratory Analytical Report**. A review of the report indicates that the leachate and 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 – November 2023**. 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 0.0049 feet per day (ft/day) (1.8 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 2023 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, four (4) confirmed exceedances were reported during the fourth quarter 2023 monitoring event:

- Potassium and sodium in monitoring well MW-203B – Verified
- Total Organic Carbon in monitoring well MW-207A – Verified
- Sodium in monitoring well MW-210 – Verified

4.2 Statistically Significant Increases

As shown in **Table 5, Summary of Statistical Exceedances** (required by MDEQ RMD-115-29), four (4) total exceedances (all verified) were reported during the fourth quarter 2023 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 this event was the eighth sampling event since the well was installed. Therefore, statistical limits for all constituents at this well can be recalculated using the background for this well. 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

A verified statistically significant increase (SSI) for sodium in monitoring well MW-210 is shown on Table 4. 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 MW-210**, 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 of 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 Total Organic Carbon in Monitoring Well MW-207B

A verified exceedance for total organic carbon (TOC) in downgradient monitoring well MW-207A. It is WSP's opinion that the TOC exceedance reported in downgradient monitoring well MW-207A is not a result of landfill influence on the groundwater but is rather a result of natural geochemical variability. As shown in **Appendix D**, **Time Series Plots MW-207A**, the current concentration of TOC is elevated with respect to TOC concentrations in upgradient monitoring wells at SCL. However, the concentrations of other indicator constituents, particularly chloride, potassium, sodium, and total inorganic nitrogen, decreased or stayed the same at the same time that TOC concentrations increased. If the increased concentration for TOC was a result of landfill influence on the landfill, it would be expected that the landfill indicator parameters would all increase simultaneously. Because only

TOC showed an increase concentration during recent sampling events, it is WSP's opinion that the recent change in TOC is not a result of landfill influence on the groundwater, but is a result of another source.

4.2.4 Statistical Summary

Rule 299.4440(9) of Part 115 allows a site 30 days to prepare an ASD which asserts that an 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 (all verified) were reported for the fourth quarter 2023 monitoring event. However, none of the exceedances reported during the fourth quarter 2023 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 (1.8 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.

Christian J. Lundy
Assistant Consultant, Environmental Geochemist

Mary L. Siegan, P.E.
Assistant Vice President, Environmental Engineer

CJL/MLS/cl

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

https://wsponlinenam.sharepoint.com/sites/global-smithscreekthomasrd/shared documents/200 reports/scl/4q23/fn rp-scl 4q2023.docx

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	2018		2019		2020		2021		2022		2023	
		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	5/2/2023	11/7/2023
MW-101	634.76	612.31	611.19	611.30	611.73	611.38	611.08	611.79	612.03	611.57	610.46	610.39	611.14
MW-106A	633.43	601.61	602.74	602.14	602.48	602.41	602.14	602.06	602.39	602.11	601.53	599.99	598.61
MW-201	634.57	611.78	610.79	610.68	611.13	611.39	610.73	611.38	611.49	611.34	610.20	610.43	602.01
MW-202	635.22	611.69	610.62	610.81	611.18	610.92	610.57	611.24	611.65	611.19	610.09	609.80	606.81
MW-203	632.05	607.71	606.39	606.02	607.28	607.66	607.62	n/a	n/a	n/a	n/a	n/a	n/a
MW-203B	633.00	n/a	n/a	n/a	n/a	n/a	n/a	609.02	608.77	608.45	608.18	603.61	607.71
MW-207A	634.29	598.61	597.95	597.78	598.38	598.59	598.11	598.45	598.92	598.47	597.42	598.19	594.69
MW-208B	633.91	599.93	599.13	598.96	599.58	599.87	599.41	599.80	600.21	599.80	598.76	598.44	598.91
MW-209	630.58	602.83	602.16	601.83	602.41	602.78	602.44	602.72	603.00	602.73	601.73	601.27	601.12
MW-210	628.38	600.55	600.07	599.70	600.39	600.83	600.62	600.84	601.02	600.85	599.89	599.39	602.75
MW-212	628.16	599.84	599.35	599.07	599.64	600.23	600.11	600.42	600.46	600.26	599.21	598.80	599.22
MW-301	635.10	601.54	600.76	600.49	601.20	601.40	601.01	601.36	601.74	601.38	600.39	598.97	600.48
MW-302	626.75	601.53	600.96	600.73	601.34	601.86	601.63	601.92	602.04	601.81	600.82	600.58	599.30
MW-303A	633.41	611.41	610.38	610.20	610.91	608.91	610.30	610.88	611.22	610.93	609.89	610.00	604.50
MW-304	635.12	610.36	609.47	609.42	609.89	612.34	609.27	609.93	610.21	609.86	608.81	609.12	609.70
MW-305	628.93	599.11	598.60	598.28	590.80	599.45	599.15	599.49	599.75	599.45	598.39	596.63	599.13

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)	11.59	2356	0.0049	0.283	0.30	0.0046
B (MW-303A/MW-207A)	11.81	2168	0.0054			0.0051
C (MW-304/MW-305)	12.49	2443	0.0051			0.0048

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 2023 Monitoring Results

Constituent Name	Units	Prediction Limit	Previous Quarterly Result	Current Quarterly Result
MW-101			**5/2/2023**	**11/7/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	30.1	25.1	24.6
Potassium	mg/L	2.4	1.59	1.6
Sodium	mg/L	75.3	69	69.9
Total Inorganic Nitrogen	mg/L	0.72	0.114	0.122
Total Organic Carbon	mg/L	9.1	1.34	1.65
MW-106A			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	39.8	38.6	37
Potassium	mg/L	3.7	1.18	1.16
Sodium	mg/L	89.1	79.2	77.9
Total Organic Carbon	mg/L	5.1	1.91	2.02
Total Inorganic Nitrogen	mg/L	0.48	0.105	0.16
MW-201			**5/3/2023**	**11/7/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	30.2	16.2	15.9
Potassium	mg/L	2.6	1.39	1.3
Sodium	mg/L	75.2	67.2	66.1
Total Inorganic Nitrogen	mg/L	5.07	0.0951	0.0843
Total Organic Carbon	mg/L	7.2	1.33	<-2
MW-202			**5/2/2023**	**11/7/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	40	30.8	29.2
Potassium	mg/L	2.1	1.38	1.18
Sodium	mg/L	79	70.9	68.4
Total Organic Carbon	mg/L	8.2	1.3	1.57
Total Inorganic Nitrogen	mg/L	0.64	0.106	0.0815

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-2

TABLE 4.
SMITHS CREEK LANDFILL
Fourth Quarter 2023 Monitoring Results

Constituent Name	Units	Prediction Limit	Previous Quarterly Result	Current Quarterly Result
MW-203B			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	39.9*	39.3	36.9
Potassium	mg/L	1.5*	4.57	4.61
Sodium	mg/L	87.5*	89.2	88.4
Total Inorganic Nitrogen	mg/L	1.05*	0.195	0.335
Total Organic Carbon	mg/L	5.1*	1.7	2.1
MW-207A			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	33.5	11.6	7.82
Potassium	mg/L	3.5	1.41	0.591
Sodium	mg/L	94.2	28.1	28.4
Total Inorganic Nitrogen	mg/L	1.62	<-0.04	<-0.02
Total Organic Carbon	mg/L	4.2	9.56	13.3
MW-208B			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	36.8	32.1	31.2
Potassium	mg/L	2.4	1.24	1.16
Sodium	mg/L	117.3	85.4	85.7
Total Inorganic Nitrogen	mg/L	4.4	0.163	0.38
Total Organic Carbon	mg/L	6.2	1.47	1.23
MW-209			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	44.5	34.6	33.3
Potassium	mg/L	1.5	1.21	1.04
Sodium	mg/L	99.8	94.2	90
Total Organic Carbon	mg/L	7.8	1.32	1.81
Total Inorganic Nitrogen	mg/L	5.72	0.0969	0.114

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-2

TABLE 4.
SMITHS CREEK LANDFILL
Fourth Quarter 2023 Monitoring Results

Constituent Name	Units	Prediction Limit	Previous Quarterly Result	Current Quarterly Result
MW-210			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	40.1	29.7	29.9
Potassium	mg/L	2.45	1.36	1.29
Sodium	mg/L	90.6	93.7	92.9
Total Inorganic Nitrogen	mg/L	1.71	0.112	0.0269
Total Organic Carbon	mg/L	10.6	1.49	1.46
MW-212			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	41.4	31.3	30.5
Potassium	mg/L	1.8	1.11	0.959
Sodium	mg/L	101.2	91.9	88.3
Total Inorganic Nitrogen	mg/L	0.72	0.0893	0.0371
Total Organic Carbon	mg/L	7.1	1.69	1.59
MW-301			**5/3/2023**	**11/9/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	54.3	40.8	39.2
Potassium	mg/L	11.8	1.28	1.19
Sodium	mg/L	110.4	103	98.1
Sodium	mg/L	110.4	99.1	98.1
Total Inorganic Nitrogen	mg/L	1.13	0.185	0.235
Total Organic Carbon	mg/L	12.3	1.27	1.13
MW-302			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	67	37.5	36.1
Potassium	mg/L	7.9	1.68	1.63
Sodium	mg/L	111.9	95.6	93.3
Total Organic Carbon	mg/L	11.9	1.39	1.16
Total Inorganic Nitrogen	mg/L	0.92	0.108	0.077

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-2

TABLE 4.
SMITHS CREEK LANDFILL
Fourth Quarter 2023 Monitoring Results

Constituent Name	Units	Prediction Limit	Previous Quarterly Result	Current Quarterly Result
MW-303A			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	48.6	41.9	40.5
Potassium	mg/L	2.2	1.05	0.985
Sodium	mg/L	157.6	104	103
Sodium	mg/L	157.6	106	103
Total Organic Carbon	mg/L	1.89	1.37	1.17
Total Inorganic Nitrogen	mg/L	0.21	0.0719	0.0812
MW-304			**5/2/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	40.2	32.1	30.5
Potassium	mg/L	4.2	1.52	1.48
Sodium	mg/L	90	80.5	78.6
Total Inorganic Nitrogen	mg/L	1.3	0.129	0.154
Total Organic Carbon	mg/L	3.1	1.2	1.05
MW-305			**5/3/2023**	**11/8/2023**
Inorganic Indicators - Semiannual				
Chloride	mg/L	49.2	34.3	33.4
Potassium	mg/L	11.1	1.65	1.72
Sodium	mg/L	96.1	93.9	92.3
Total Organic Carbon	mg/L	11.9	1.75	1.83
Total Inorganic Nitrogen	mg/L	2.16	0.131	0.727

Notes:

Shaded values represent exceedance of statistical prediction limit

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

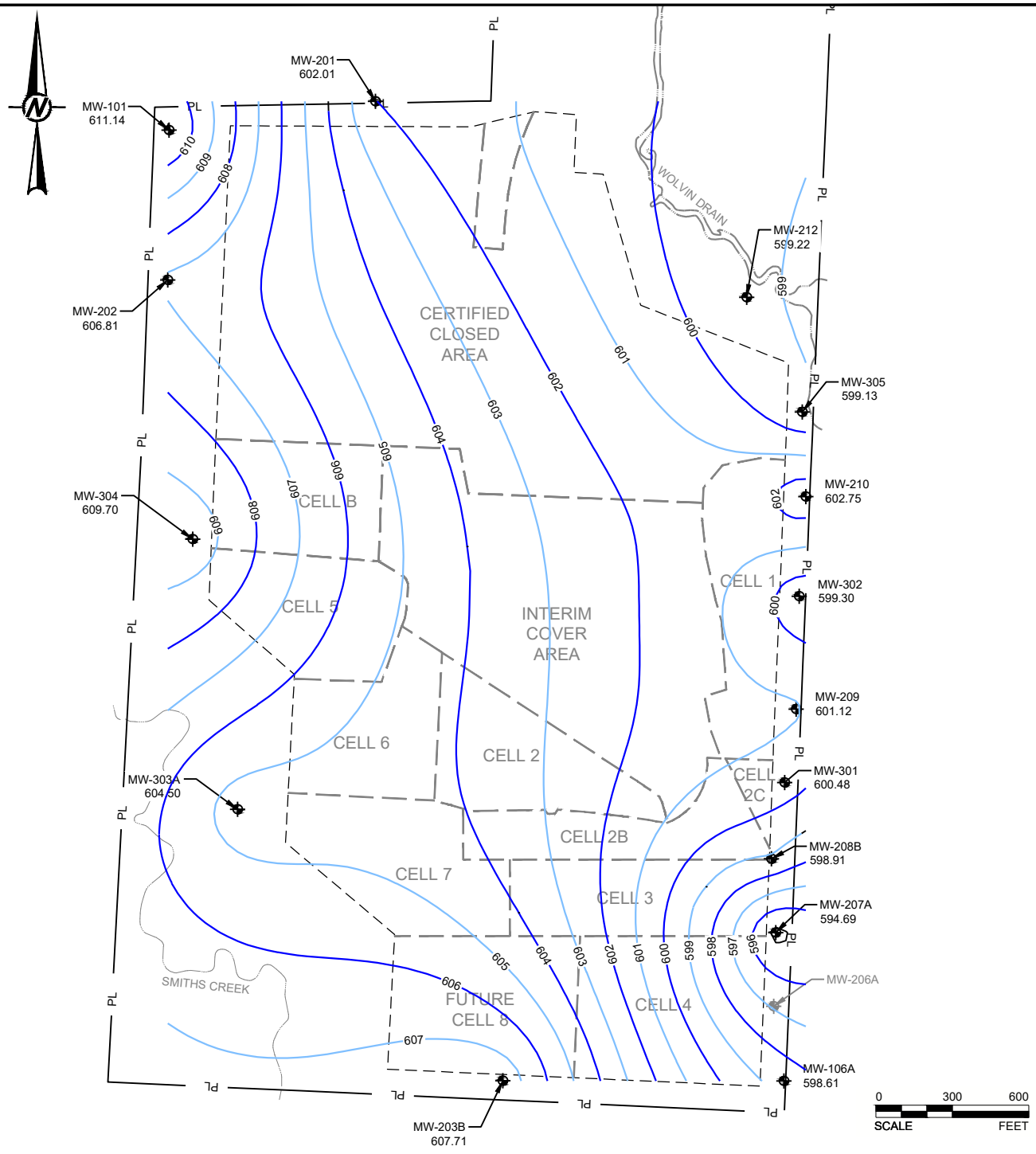
* = limits shown are from MW-203; additional data being gathered to determine whether revised limits are required for MW-2

TABLE 5.
SUMMARY OF STATISTICAL EXCEEDANCES
Fourth Quarter 2023 Monitoring Event
Smiths Creek Landfill

Parameter	Well #	Location (U/D/S)	Part 201 GRCC DWC	Statistical Limit	4Q2023 (bold>201)	2Q2023 (bold>201)	4Q2022 (bold>201)	3Q2022 (verification) (bold>201)
Potassium (mg/l)	MW-203B	S	n/a	1.5	4.61	4.57	5.05	6.41
Sodium (mg/L)		S	230	87.5	88.4	89.2	97.7	95.4
Total Organic Carbon (mg/L)	MW-207A	D	NC	4.2	13.3	9.56	2.41	5.6
Sodium (mg/L)	MW-210	D	230	90.6	92.9	93.7	101	n/a
Arsenic (ug/L)	MW-303A	U	10	1.0	n/a	3	n/a	n/a
Sodium (mg/L)	MW-305	D	230	96.1	92.3	93.9	97.6	n/a

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

Figure



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
2023 GROUNDWATER MONITORING

TITLE
GROUNDWATER ELEVATION CONTOUR MAP
NOVEMBER 7, 2023

CONSULTANT

YYYY-MM-DD	2023-12-07
PREPARED	CAG
DESIGN	RR
REVIEW	RR
APPROVED	mls

PROJECT No.	CONTROL	Rev.	FIGURE
31405076.000	31405076.000B003.dwg	A	4

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\B-2023 QUARTERLY MONITORING\ | File Name: 31405076.000B003.dwg

APPENDIX A

Laboratory Results

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

December 01, 2023

Mary Siegan
WSP
46850 Magellan Drive
Suite 190
Novi, MI 48377

RE: Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Dear Mary Siegan:

Enclosed are the analytical results for sample(s) received by the laboratory on November 09, 2023. 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

This report replaces the one issued 11/28/23. It was revised to correct the sample ID for MW-203B. JLR 12/1/23.

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-Revised Report
Pace Project No.: 50359321

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 Foreign Soil Permit #: 525-23-13-23119
USDA Compliance Agreement #: IN-SL-22-001

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50359321001	**MW-101**	Water	11/07/23 14:30	11/09/23 16:25
50359321002	**MW-106A**	Water	11/08/23 09:10	11/09/23 16:25
50359321003	**MW-201**	Water	11/07/23 15:30	11/09/23 16:25
50359321004	**MW-202**	Water	11/07/23 15:10	11/09/23 16:25
50359321005	**MW-203B**	Water	11/08/23 15:48	11/09/23 16:25
50359321006	**MW-207A**	Water	11/08/23 09:48	11/09/23 16:25
50359321007	**MW-208B**	Water	11/08/23 10:15	11/09/23 16:25
50359321008	**MW-209**	Water	11/08/23 10:32	11/09/23 16:25
50359321009	**MW-210**	Water	11/08/23 11:20	11/09/23 16:25
50359321010	**MW-212**	Water	11/08/23 08:20	11/09/23 16:25
50359321011	**MW-213**	Water	11/08/23 00:00	11/09/23 16:25
50359321012	**MW-301**	Water	11/09/23 10:05	11/09/23 16:25
50359321013	**MW-302**	Water	11/08/23 11:05	11/09/23 16:25
50359321014	**MW-303A**	Water	11/08/23 14:52	11/09/23 16:25
50359321015	**MW-304**	Water	11/08/23 12:50	11/09/23 16:25
50359321016	**MW-305**	Water	11/08/23 08:50	11/09/23 16:25

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SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50359321001	**MW-101**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321002	**MW-106A**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321003	**MW-201**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321004	**MW-202**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321005	**MW-203B**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321006	**MW-207A**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321007	**MW-208B**	EPA 6010	JPK	2	PASI-I

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SAMPLE ANALYTE COUNT

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Pace Project No.: 50359321

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321008	**MW-209**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321009	**MW-210**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321010	**MW-212**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321011	**MW-213**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321012	**MW-301**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321013	**MW-302**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I

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SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321014	**MW-303A**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321015	**MW-304**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359321016	**MW-305**	EPA 6010	JPK	2	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-101 **Lab ID: 50359321001** Collected: 11/07/23 14:30 Received: 11/09/23 16:25 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	**1600**	ug/L	500	1	11/28/23 02:55	11/28/23 03:16	7440-09-7	
Sodium, Dissolved	**69900**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:16	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**122**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 13:33		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**24600**	ug/L	1000	1		11/20/23 14:00	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**122**	ug/L	20.0	1		11/19/23 15:42	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1650**	ug/L	500	1		11/20/23 21:09	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-106A **Lab ID: 50359321002** Collected: 11/08/23 09:10 Received: 11/09/23 16:25 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	11/28/23 02:55	11/28/23 03:18	7440-09-7	
Sodium, Dissolved	**77900**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:18	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**160**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 13:35		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**37000**	ug/L	1000	1		11/20/23 14:01	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**160**	ug/L	20.0	1		11/19/23 15:43	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**2020**	ug/L	1000	2		11/20/23 21:49	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-201 **Lab ID: 50359321003** Collected: 11/07/23 15:30 Received: 11/09/23 16:25 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	**1300**	ug/L	500	1	11/28/23 02:55	11/28/23 03:28	7440-09-7	
Sodium, Dissolved	**66100**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:28	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**84.3**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**84.3**	ug/L	20.0	1		11/22/23 13:36		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**15900**	ug/L	1000	1		11/20/23 14:03	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		11/19/23 15:45	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**<2000**	ug/L	2000	4		11/20/23 21:58	7440-44-0	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-202 **Lab ID: 50359321004** Collected: 11/07/23 15:10 Received: 11/09/23 16:25 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	11/28/23 02:55	11/28/23 03:29	7440-09-7	
Sodium, Dissolved	**68400**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:29	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**81.5**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 13:38		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**29200**	ug/L	1000	1		11/20/23 14:04	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**81.5**	ug/L	20.0	1		11/19/23 15:46	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1570**	ug/L	500	1		11/20/23 22:08	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-203B **Lab ID: 50359321005** Collected: 11/08/23 15:48 Received: 11/09/23 16:25 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	**4610**	ug/L	500	1	11/28/23 02:55	11/28/23 03:31	7440-09-7	
Sodium, Dissolved	**88400**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:31	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**335**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**232**	ug/L	20.0	1		11/22/23 13:42		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**36900**	ug/L	1000	1		11/20/23 14:05	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**108**	ug/L	20.0	1		11/19/23 15:47	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**2100**	ug/L	500	1		11/20/23 22:18	7440-44-0	

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-207A **Lab ID: 50359321006** Collected: 11/08/23 09:48 Received: 11/09/23 16:25 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	**591**	ug/L	500	1	11/28/23 02:55	11/28/23 03:32	7440-09-7	
Sodium, Dissolved	**28400**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:32	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**<20.0**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 13:43		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**7820**	ug/L	1000	1		11/20/23 14:06	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		11/19/23 15:51	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**13300**	ug/L	500	1		11/20/23 22:35	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-208B **Lab ID: 50359321007** Collected: 11/08/23 10:15 Received: 11/09/23 16:25 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	11/28/23 02:55	11/28/23 03:33	7440-09-7	
Sodium, Dissolved	**85700**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:33	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**380**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<40.0**	ug/L	40.0	2		11/22/23 13:45		D3
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**31200**	ug/L	1000	1		11/20/23 14:07	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**380**	ug/L	20.0	1		11/19/23 15:52	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1230**	ug/L	1000	2		11/20/23 17:59	7440-44-0	

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-209 **Lab ID: 50359321008** Collected: 11/08/23 10:32 Received: 11/09/23 16:25 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	**1040**	ug/L	500	1	11/28/23 02:55	11/28/23 03:35	7440-09-7	
Sodium, Dissolved	**90000**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:35	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**114**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**82.1**	ug/L	20.0	1		11/22/23 13:50		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**33300**	ug/L	1000	1		11/20/23 14:08	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**32.1**	ug/L	20.0	1		11/19/23 15:54	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1810**	ug/L	500	1		11/20/23 18:58	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-210 **Lab ID: 50359321009** Collected: 11/08/23 11:20 Received: 11/09/23 16:25 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	**1290**	ug/L	500	1	11/28/23 02:55	11/28/23 03:36	7440-09-7	
Sodium, Dissolved	**92900**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:36	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**26.9**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 13:52		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**29900**	ug/L	1000	1		11/20/23 14:09	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**26.9**	ug/L	20.0	1		11/19/23 15:55	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1460**	ug/L	500	1		11/20/23 19:55	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-212 **Lab ID: 50359321010** Collected: 11/08/23 08:20 Received: 11/09/23 16:25 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	**959**	ug/L	500	1	11/28/23 02:55	11/28/23 03:38	7440-09-7	
Sodium, Dissolved	**88300**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:38	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**37.1**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 13:54		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**30500**	ug/L	1000	1		11/20/23 14:15	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**37.1**	ug/L	20.0	1		11/19/23 15:56	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1590**	ug/L	500	1		11/20/23 20:16	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-213 **Lab ID: 50359321011** Collected: 11/08/23 00:00 Received: 11/09/23 16:25 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	**1510**	ug/L	500	1	11/28/23 02:55	11/28/23 03:39	7440-09-7	
Sodium, Dissolved	**79700**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:39	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**151**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**34.0**	ug/L	20.0	1		11/22/23 13:56		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**30800**	ug/L	1000	1		11/20/23 14:16	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**117**	ug/L	20.0	1		11/19/23 15:58	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1070**	ug/L	500	1		11/20/23 20:48	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-301 **Lab ID: 50359321012** Collected: 11/09/23 10:05 Received: 11/09/23 16:25 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	**1190**	ug/L	500	1	11/28/23 02:55	11/28/23 03:40	7440-09-7	
Sodium, Dissolved	**98100**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:40	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**235**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 13:58		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**39200**	ug/L	1000	1		11/20/23 14:16	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**235**	ug/L	20.0	1		11/19/23 16:59	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1130**	ug/L	500	1		11/20/23 21:52	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-302 **Lab ID: 50359321013** Collected: 11/08/23 11:05 Received: 11/09/23 16:25 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	**1630**	ug/L	500	1	11/28/23 02:55	11/28/23 03:45	7440-09-7	
Sodium, Dissolved	**93300**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:45	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**77.0**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**29.7**	ug/L	20.0	1		11/22/23 13:59		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**36100**	ug/L	1000	1		11/20/23 14:17	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**47.3**	ug/L	20.0	1		11/19/23 17:00	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1160**	ug/L	500	1		11/20/23 22:11	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-303A **Lab ID: 50359321014** Collected: 11/08/23 14:52 Received: 11/09/23 16:25 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	**985**	ug/L	500	1	11/28/23 02:55	11/28/23 03:46	7440-09-7	
Sodium, Dissolved	**103000**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:46	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**81.2**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 14:01		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**40500**	ug/L	1000	1		11/20/23 14:18	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**81.2**	ug/L	20.0	1		11/19/23 17:01	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1170**	ug/L	1000	2		11/20/23 22:31	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-304 **Lab ID: 50359321015** Collected: 11/08/23 12:50 Received: 11/09/23 16:25 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	**1480**	ug/L	500	1	11/28/23 02:55	11/28/23 03:48	7440-09-7	
Sodium, Dissolved	**78600**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:48	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**154**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**32.6**	ug/L	20.0	1		11/22/23 14:03		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**30500**	ug/L	1000	1		11/20/23 14:21	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**121**	ug/L	20.0	1		11/19/23 17:02	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1050**	ug/L	1000	2		11/20/23 22:50	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

Sample: MW-305 **Lab ID: 50359321016** Collected: 11/08/23 08:50 Received: 11/09/23 16:25 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	**1720**	ug/L	500	1	11/28/23 02:55	11/28/23 03:49	7440-09-7	
Sodium, Dissolved	**92300**	ug/L	1000	1	11/28/23 02:55	11/28/23 03:49	7440-23-5	
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**727**	ug/L	20.0	1		11/28/23 14:44		
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		11/22/23 14:05		
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**33400**	ug/L	1000	1		11/20/23 14:25	16887-00-6	
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**727**	ug/L	20.0	1		11/19/23 17:04	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**1830**	ug/L	1000	2		11/20/23 23:09	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

QC Batch: 764944
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006, 50359321007, 50359321008, 50359321009, 50359321010, 50359321011, 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

METHOD BLANK: 3505807 Matrix: Water
Associated Lab Samples: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006, 50359321007, 50359321008, 50359321009, 50359321010, 50359321011, 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Potassium, Dissolved	ug/L	<500	500	11/28/23 03:15	
Sodium, Dissolved	ug/L	<1000	1000	11/28/23 03:15	

LABORATORY CONTROL SAMPLE: 3505808

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505809 3505810

Parameter	Units	50359373001 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	ND	10000	10000	11000	11200	106	108	75-125	2	20	
Sodium, Dissolved	ug/L	2010	10000	10000	12500	12500	105	105	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-Revised Report
Pace Project No.: 50359321

QC Batch: 764484
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: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006, 50359321007, 50359321008, 50359321009, 50359321010, 50359321011, 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

METHOD BLANK: 3504067 Matrix: Water
Associated Lab Samples: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006, 50359321007, 50359321008, 50359321009, 50359321010, 50359321011, 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	20.0	11/22/23 13:15	

LABORATORY CONTROL SAMPLE: 3504068

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	2000	1990	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3504069 3504070

Parameter	Units	50359253005 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	0.013J mg/L	2000	2000	1870	1860	93	92	90-110	0	20	

MATRIX SPIKE SAMPLE: 3504071

Parameter	Units	50359321004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	2000	2100	105	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

QC Batch: 763939
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: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006, 50359321007, 50359321008, 50359321009

METHOD BLANK: 3501991 Matrix: Water
Associated Lab Samples: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006, 50359321007, 50359321008, 50359321009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	11/20/23 13:40	

LABORATORY CONTROL SAMPLE: 3501992

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501993 3501994

Parameter	Units	50359317005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	<1.0 mg/L	20000	20000	21700	22100	104	106	90-110	2	20	

MATRIX SPIKE SAMPLE: 3501995

Parameter	Units	50359321002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	37000	20000	57100	101	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

QC Batch: 763945 | 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: 50359321010, 50359321011, 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

METHOD BLANK: 3502001 Matrix: Water
Associated Lab Samples: 50359321010, 50359321011, 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	11/20/23 14:13	

LABORATORY CONTROL SAMPLE: 3502002

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	20000	20200	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502003 3502004

Parameter	Units	50359321014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	40500	20000	20000	59900	59800	97	96	90-110	0	20	

MATRIX SPIKE SAMPLE: 3502005

Parameter	Units	50359358008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	<10.0 mg/L	20000	23700	104	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

QC Batch: 763834
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: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006, 50359321007, 50359321008, 50359321009, 50359321010, 50359321011

METHOD BLANK: 3501637 Matrix: Water
Associated Lab Samples: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006, 50359321007, 50359321008, 50359321009, 50359321010, 50359321011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<20.0	20.0	11/19/23 15:22	

LABORATORY CONTROL SAMPLE: 3501638

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1000	971	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501639 3501640

Parameter	Units	50359320001 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	1070	1080	105	106	90-110	1	20	

MATRIX SPIKE SAMPLE: 3501641

Parameter	Units	50359320002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	25.8	1000	1060	103	90-110	

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QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

QC Batch: 763835 | Analysis Method: SM-4500-NH3 G
QC Batch Method: SM-4500-NH3 G | Analysis Description: 4500 Ammonia Low Level
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

METHOD BLANK: 3501642 Matrix: Water
Associated Lab Samples: 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<20.0	20.0	11/19/23 16:56	

LABORATORY CONTROL SAMPLE: 3501643

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1000	1000	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501644 3501645

Parameter	Units	50359358001 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				1100	1100				0	20	

MATRIX SPIKE SAMPLE: 3501646

Parameter	Units	50359358002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L			1120			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

QUALITY CONTROL DATA

Project: Smith's Creek Landfill GW-Revised Report
Pace Project No.: 50359321

QC Batch: 763576 | Analysis Method: SM 5310C
QC Batch Method: SM 5310C | Analysis Description: 5310C Total Organic Carbon
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006

METHOD BLANK: 3500141 Matrix: Water
Associated Lab Samples: 50359321001, 50359321002, 50359321003, 50359321004, 50359321005, 50359321006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	ug/L	<500	500	11/20/23 16:56	

LABORATORY CONTROL SAMPLE: 3500142

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	10000	9720	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3500143 3500144

Parameter	Units	50359253005 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	2.1 mg/L	10000	10000	11700	11800	97	98	80-120	1	20	

MATRIX SPIKE SAMPLE: 3500145

Parameter	Units	50359255007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	2.0 mg/L	10000	11700	97	80-120	

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-Revised Report
Pace Project No.: 50359321

QC Batch: 763578 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359321007, 50359321008, 50359321009, 50359321010, 50359321011, 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

METHOD BLANK: 3500151 Matrix: Water
Associated Lab Samples: 50359321007, 50359321008, 50359321009, 50359321010, 50359321011, 50359321012, 50359321013, 50359321014, 50359321015, 50359321016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	ug/L	<500	500	11/20/23 17:14	

LABORATORY CONTROL SAMPLE: 3500152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	10000	9650	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3500153 3500154

Parameter	Units	50359321007 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	1230	10000	10000	11000	11100	98	99	80-120	1	20	

MATRIX SPIKE SAMPLE: 3500155

Parameter	Units	50359321008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	1810	10000	11700	98	80-120	

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-Revised Report
Pace Project No.: 50359321

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.

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-Revised Report
Pace Project No.: 50359321

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50359321001	**MW-101**	EPA 3010	764944	EPA 6010	764945
50359321002	**MW-106A**	EPA 3010	764944	EPA 6010	764945
50359321003	**MW-201**	EPA 3010	764944	EPA 6010	764945
50359321004	**MW-202**	EPA 3010	764944	EPA 6010	764945
50359321005	**MW-203B**	EPA 3010	764944	EPA 6010	764945
50359321006	**MW-207A**	EPA 3010	764944	EPA 6010	764945
50359321007	**MW-208B**	EPA 3010	764944	EPA 6010	764945
50359321008	**MW-209**	EPA 3010	764944	EPA 6010	764945
50359321009	**MW-210**	EPA 3010	764944	EPA 6010	764945
50359321010	**MW-212**	EPA 3010	764944	EPA 6010	764945
50359321011	**MW-213**	EPA 3010	764944	EPA 6010	764945
50359321012	**MW-301**	EPA 3010	764944	EPA 6010	764945
50359321013	**MW-302**	EPA 3010	764944	EPA 6010	764945
50359321014	**MW-303A**	EPA 3010	764944	EPA 6010	764945
50359321015	**MW-304**	EPA 3010	764944	EPA 6010	764945
50359321016	**MW-305**	EPA 3010	764944	EPA 6010	764945
50359321001	**MW-101**	NO2+NO3+NH3 Calculation	765092		
50359321002	**MW-106A**	NO2+NO3+NH3 Calculation	765092		
50359321003	**MW-201**	NO2+NO3+NH3 Calculation	765092		
50359321004	**MW-202**	NO2+NO3+NH3 Calculation	765092		
50359321005	**MW-203B**	NO2+NO3+NH3 Calculation	765092		
50359321006	**MW-207A**	NO2+NO3+NH3 Calculation	765092		
50359321007	**MW-208B**	NO2+NO3+NH3 Calculation	765092		
50359321008	**MW-209**	NO2+NO3+NH3 Calculation	765092		
50359321009	**MW-210**	NO2+NO3+NH3 Calculation	765092		
50359321010	**MW-212**	NO2+NO3+NH3 Calculation	765092		
50359321011	**MW-213**	NO2+NO3+NH3 Calculation	765092		
50359321012	**MW-301**	NO2+NO3+NH3 Calculation	765092		
50359321013	**MW-302**	NO2+NO3+NH3 Calculation	765092		
50359321014	**MW-303A**	NO2+NO3+NH3 Calculation	765092		
50359321015	**MW-304**	NO2+NO3+NH3 Calculation	765092		
50359321016	**MW-305**	NO2+NO3+NH3 Calculation	765092		
50359321001	**MW-101**	EPA 353.2	764484		
50359321002	**MW-106A**	EPA 353.2	764484		
50359321003	**MW-201**	EPA 353.2	764484		
50359321004	**MW-202**	EPA 353.2	764484		
50359321005	**MW-203B**	EPA 353.2	764484		

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-Revised Report
Pace Project No.: 50359321

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50359321006	**MW-207A**	EPA 353.2	764484		
50359321007	**MW-208B**	EPA 353.2	764484		
50359321008	**MW-209**	EPA 353.2	764484		
50359321009	**MW-210**	EPA 353.2	764484		
50359321010	**MW-212**	EPA 353.2	764484		
50359321011	**MW-213**	EPA 353.2	764484		
50359321012	**MW-301**	EPA 353.2	764484		
50359321013	**MW-302**	EPA 353.2	764484		
50359321014	**MW-303A**	EPA 353.2	764484		
50359321015	**MW-304**	EPA 353.2	764484		
50359321016	**MW-305**	EPA 353.2	764484		
50359321001	**MW-101**	SM 4500-Cl-E	763939		
50359321002	**MW-106A**	SM 4500-Cl-E	763939		
50359321003	**MW-201**	SM 4500-Cl-E	763939		
50359321004	**MW-202**	SM 4500-Cl-E	763939		
50359321005	**MW-203B**	SM 4500-Cl-E	763939		
50359321006	**MW-207A**	SM 4500-Cl-E	763939		
50359321007	**MW-208B**	SM 4500-Cl-E	763939		
50359321008	**MW-209**	SM 4500-Cl-E	763939		
50359321009	**MW-210**	SM 4500-Cl-E	763939		
50359321010	**MW-212**	SM 4500-Cl-E	763945		
50359321011	**MW-213**	SM 4500-Cl-E	763945		
50359321012	**MW-301**	SM 4500-Cl-E	763945		
50359321013	**MW-302**	SM 4500-Cl-E	763945		
50359321014	**MW-303A**	SM 4500-Cl-E	763945		
50359321015	**MW-304**	SM 4500-Cl-E	763945		
50359321016	**MW-305**	SM 4500-Cl-E	763945		
50359321001	**MW-101**	SM-4500-NH3 G	763834		
50359321002	**MW-106A**	SM-4500-NH3 G	763834		
50359321003	**MW-201**	SM-4500-NH3 G	763834		
50359321004	**MW-202**	SM-4500-NH3 G	763834		
50359321005	**MW-203B**	SM-4500-NH3 G	763834		
50359321006	**MW-207A**	SM-4500-NH3 G	763834		
50359321007	**MW-208B**	SM-4500-NH3 G	763834		
50359321008	**MW-209**	SM-4500-NH3 G	763834		
50359321009	**MW-210**	SM-4500-NH3 G	763834		
50359321010	**MW-212**	SM-4500-NH3 G	763834		
50359321011	**MW-213**	SM-4500-NH3 G	763834		
50359321012	**MW-301**	SM-4500-NH3 G	763835		
50359321013	**MW-302**	SM-4500-NH3 G	763835		
50359321014	**MW-303A**	SM-4500-NH3 G	763835		
50359321015	**MW-304**	SM-4500-NH3 G	763835		
50359321016	**MW-305**	SM-4500-NH3 G	763835		
50359321001	**MW-101**	SM 5310C	763576		
50359321002	**MW-106A**	SM 5310C	763576		
50359321003	**MW-201**	SM 5310C	763576		

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-Revised Report
Pace Project No.: 50359321

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50359321004	**MW-202**	SM 5310C	763576		
50359321005	**MW-203B**	SM 5310C	763576		
50359321006	**MW-207A**	SM 5310C	763576		
50359321007	**MW-208B**	SM 5310C	763578		
50359321008	**MW-209**	SM 5310C	763578		
50359321009	**MW-210**	SM 5310C	763578		
50359321010	**MW-212**	SM 5310C	763578		
50359321011	**MW-213**	SM 5310C	763578		
50359321012	**MW-301**	SM 5310C	763578		
50359321013	**MW-302**	SM 5310C	763578		
50359321014	**MW-303A**	SM 5310C	763578		
50359321015	**MW-304**	SM 5310C	763578		
50359321016	**MW-305**	SM 5310C	763578		

Pace® Location Requested (City/State):
Pace Analytical Grand Rapids
4171 40th Street SE, Grand Rapids, MI 49512

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

WO# : 50359321

50359321

Company Name:	WSP, Michigan	Contact/Report To:	Mary Siegan
Street Address:	46850 Magellan Drive, Novi, MI 48377	Phone #:	(248)536-5435
		E-Mail:	mary.siegan@wsp.com
		Cc E-Mail:	
Customer Project #:		Invoice To:	Mary Siegan
Project Name:	Smith's Creek GW	Invoice E-Mail:	mary.siegan@wsp.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

County / State origin of sample(s): Michigan

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required):
[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____
Date Results Requested:

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [X] Yes [ ] No
Analysis:

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only: Proj. Mgr: Jennifer Rice; AcctNum / Client ID:; Table #:; Profile / Template: 8284; Prelog / Bottle Ord. ID: EZ 3014898

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. Cl2	Number & Type of Containers: Plastic	Number & Type of Containers: Glass	353.2-NO3/NO2, 4500-NH3, TIN	4500 Chloride	5310C TOC	6010 Dissolved Metals	Sample Comment	Preservation non-conformance identified for sample.
MW-101	GW	G	11/7	1430	11/7	1430		4		X	X	X	X	-001	
MW-106A			11/8	0910	11/8	0910								-002	
MW-201			11/7	1530	11/7	1530								-003	
MW-202			11/7	1510	11/7	1510								-004	
MW-203B per client email			11/8	1548	11/8	1548								-005	
MW-207A				0948		0948								-006	
MW-208B				1015		1015								-007	
MW-209				1032		1032								-008	
MW-210				1120		1120								-009	
MW-212				0820		0820								-010	

Customer Remarks / Special Conditions / Possible Hazards:
Dissolved metals bottles field filtered

Collected By:
Printed Name: Ian Cisco
Signature:

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
WSP	11/9/23 1130		11/9/23 1216	
	11/9/23 1625	J. Martin Pace	11/9/2316 25	Delivered by: [ ] In-Person [ ] Courier
				[ ] FedEx [ ] UPS [ ] Other
				Page: 1 of 2

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v01_082123 ©

Pace®

Pace® Location Requested (City/State):
Pace Analytical Grand Rapids
4171 40th Street SE, Grand Rapids, MI 49512

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

WO#: 50359321
PM: JLR1 Due Date: 11/28/23
CLIENT: GR-Golder

Company Name:	WSP, Michigan	Contact/Report To:	Mary Siegan
Street Address:	46850 Magellan Drive, Novi, MI 48377	Phone #:	(248)536-5435
		E-Mail:	mary.siegan@wsp.com
		Cc E-Mail:	
Customer Project #:		Invoice To:	Mary Siegan
Project Name:	Smith's Creek GW	Invoice E-Mail:	mary.siegan@wsp.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET		County / State origin of sample(s):	Michigan

Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required): [ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other____

DW PWSID # or WW Permit # as applicable:

Date Results Requested:

Field Filtered (if applicable): [X] Yes [ ] No

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

Lab Use Only: Proj. Mgr: **Jennifer Rice**; AcctNum / Client ID: ; Table #: ; Profile / Template: **8284**; Prelog / Bottle Ord. ID: **EZ 3014898**

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected Time	Composite End Date	Composite End Time	Res. CL2	Containers Plastic	Containers Glass	353.2-NO3/NO2, 4500-NH3, TIN	4500 Chloride	5310C TOC	6010 Dissolved Metals	Sample Comment	Preservation non-conformance identified for sample.
MW-213	GW	G	11/8	–	11/8	–		4		X	X	X	X	-011	
MW-301	↓	↓	11/9	1005	11/9	1005		↓		↓	↓	↓	↓	-012	
MW-302	↓	↓	11/8	1105	11/8	1105		↓		↓	↓	↓	↓	-013	
MW-303A	↓	↓	↓	1452	↓	1452		↓		↓	↓	↓	↓	-014	
MW-304	↓	↓	↓	1250	↓	1250		↓		↓	↓	↓	↓	-015	
MW-305	↓	↓	↓	0850	↓	0850		↓		↓	↓	↓	↓	-016	

Customer Remarks / Special Conditions / Possible Hazards: Dissolved metals field filtered

Collected By:
Printed Name: Ian Cisco
Signature: [signature]

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] /WSP	11/9/23 1130	[signature] /Pace	11/9/23 1216
[signature]	11/9/23 1625	B. Nardin / PACE	11/9/23 @ 1625

Tracking Number:

Delivered by: [ ] In-Person [ ] Courier [ ] FedEX [ ] UPS [ ] Other

Page: 2 of 2

ENV-FRM-CORQ-0019_v01_082123 ©

Sample Conditions Upon Receipt Form (SCUR)

Date/Time: 11/9/23	**Evaluated By:** JN	**WO# : 50359321**
Client: WSP, NICH	**PM:** JLR	**PM: JLR1** **Due Date: 11/28/23**
Lab Notified of Rush or Short Holds: YES NO NA		**CLIENT: GR-Golder**

Project Received Via: FedEx UPS Client Race 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 #: 350 351 **Therm #:** 282 283

Ice Type: WET Bagged / WET Loose BLUE NONE

Ice Location: TOP BOTTOM MIDDLE DISPERSED

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

1. Cooler Temp. Upon Receipt: 0.7/0.4 °C
2. Cooler Temp. Upon Receipt: 1.5/1.2 °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 compliance with EPA recommendation. Denote with red dot on container lid if unacceptable. **pH Strip Lot #:** HC314719 *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/Available/Free Cyanide*	YES	NO	N/A	
VOA Headspace Acceptable (<6mm): Denote with silver x on rim of container cap if unacceptable.	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 28, 2023

Mary Siegan
WSP
46850 Magellan Drive
Suite 190
Novi, MI 48377

RE: Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

Dear Mary Siegan:

Enclosed are the analytical results for sample(s) received by the laboratory on November 09, 2023. 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.: 50359320

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 Foreign Soil Permit #: 525-23-13-23119
USDA Compliance Agreement #: IN-SL-22-001

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.: 50359320

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50359320001	**SW-U1**	Water	11/09/23 08:45	11/09/23 16:25
50359320002	**SW-U2**	Water	11/09/23 08:20	11/09/23 16:25
50359320003	**SW-DA1**	Water	11/09/23 09:00	11/09/23 16:25
50359320004	**SW-D2**	Water	11/09/23 09:15	11/09/23 16:25

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SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50359320001	**SW-U1**	EPA 9056	KBB	2	PASI-I
		EPA 6010	MTM	4	PASI-I
		SM 2320B	DAW	2	PASI-I
		SM 2540C	MTW	1	PASI-I
		SM 2540D	AEL	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359320002	**SW-U2**	EPA 9056	KBB	2	PASI-I
		EPA 6010	MTM	4	PASI-I
		SM 2320B	DAW	2	PASI-I
		SM 2540C	MTW	1	PASI-I
		SM 2540D	AEL	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359320003	**SW-DA1**	EPA 9056	KBB	2	PASI-I
		EPA 6010	MTM	4	PASI-I
		SM 2320B	DAW	2	PASI-I
		SM 2540C	MTW	1	PASI-I
		SM 2540D	AEL	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I
50359320004	**SW-D2**	EPA 9056	KBB	2	PASI-I
		EPA 6010	MTM	4	PASI-I
		SM 2320B	DAW	2	PASI-I
		SM 2540C	MTW	1	PASI-I
		SM 2540D	AEL	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM-4500-NH3 G	OAS	1	PASI-I
		SM 5310C	ATS	1	PASI-I

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory

PASI-I = Pace Analytical Services - Indianapolis

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

Sample: SW-U1 **Lab ID: 50359320001** Collected: 11/09/23 08:45 Received: 11/09/23 16:25 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	**77100**	ug/L	10000	10		11/25/23 09:32	16887-00-6	
Sulfate	**12800**	ug/L	2000	1		11/25/23 09:16	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Calcium	**69800**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:50	7440-70-2	
Iron	**1850**	ug/L	100	1	11/16/23 16:33	11/18/23 14:50	7439-89-6	
Magnesium	**20200**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:50	7439-95-4	
Sodium	**36000**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:50	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis							
Alkalinity, Total as CaCO3	**199000**	ug/L	10000	1		11/13/23 21:17		
Alkalinity,Bicarbonate (CaCO3)	**199000**	ug/L	10000	1		11/13/23 21:17		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**395000**	ug/L	20000	1		11/15/23 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D Pace Analytical Services - Indianapolis							
Total Suspended Solids	**39200**	ug/L	4170	1		11/16/23 08:53		
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**103**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**103**	ug/L	20.0	1		11/27/23 17:16		
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**<20.0**	ug/L	20.0	1		11/19/23 15:31	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**14500**	ug/L	2000	4		11/20/23 20:18	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

Sample: SW-U2 **Lab ID: 50359320002** Collected: 11/09/23 08:20 Received: 11/09/23 16:25 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	**55600**	ug/L	10000	10		11/25/23 10:57	16887-00-6	
Sulfate	**24400**	ug/L	2000	1		11/25/23 10:40	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Calcium	**78100**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:51	7440-70-2	
Iron	**534**	ug/L	100	1	11/16/23 16:33	11/18/23 14:51	7439-89-6	
Magnesium	**21100**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:51	7439-95-4	
Sodium	**34400**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:51	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis							
Alkalinity, Total as CaCO3	**249000**	ug/L	10000	1		11/13/23 21:17		
Alkalinity,Bicarbonate (CaCO3)	**249000**	ug/L	10000	1		11/13/23 21:17		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**411000**	ug/L	20000	1		11/15/23 19:36		
2540D Total Suspended Solids	Analytical Method: SM 2540D Pace Analytical Services - Indianapolis							
Total Suspended Solids	**6400**	ug/L	2500	1		11/16/23 08:53		
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**351**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**325**	ug/L	20.0	1		11/27/23 17:18		
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**25.8**	ug/L	20.0	1		11/19/23 15:37	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**11700**	ug/L	1000	2		11/20/23 20:34	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

Sample: SW-DA1 **Lab ID: 50359320003** Collected: 11/09/23 09:00 Received: 11/09/23 16:25 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	**46500**	ug/L	10000	10		11/25/23 11:30	16887-00-6	
Sulfate	**30600**	ug/L	2000	1		11/25/23 11:14	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Calcium	**80700**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:53	7440-70-2	
Iron	**3510**	ug/L	100	1	11/16/23 16:33	11/18/23 14:53	7439-89-6	
Magnesium	**22200**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:53	7439-95-4	
Sodium	**37700**	ug/L	1000	1	11/16/23 16:33	11/18/23 14:53	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis							
Alkalinity, Total as CaCO3	**200000**	ug/L	10000	1		11/13/23 21:17		
Alkalinity,Bicarbonate (CaCO3)	**200000**	ug/L	10000	1		11/13/23 21:17		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**325000**	ug/L	20000	1		11/15/23 19:36		
2540D Total Suspended Solids	Analytical Method: SM 2540D Pace Analytical Services - Indianapolis							
Total Suspended Solids	**64400**	ug/L	6490	1		11/16/23 08:53		
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**188**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**142**	ug/L	20.0	1		11/27/23 16:07		
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**45.7**	ug/L	20.0	1		11/19/23 15:40	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**11200**	ug/L	2000	4		11/20/23 20:44	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.: 50359320

Sample: SW-D2 **Lab ID: 50359320004** Collected: 11/09/23 09:15 Received: 11/09/23 16:25 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	**14900**	ug/L	1000	1		11/25/23 11:47	16887-00-6	
Sulfate	**36400**	ug/L	2000	1		11/25/23 11:47	14808-79-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010 Pace Analytical Services - Indianapolis							
Calcium	**212000**	ug/L	5000	1	11/16/23 16:33	11/18/23 14:54	7440-70-2	
Iron	**160000**	ug/L	500	1	11/16/23 16:33	11/18/23 14:54	7439-89-6	
Magnesium	**106000**	ug/L	5000	1	11/16/23 16:33	11/18/23 14:54	7439-95-4	
Sodium	**14300**	ug/L	5000	1	11/16/23 16:33	11/18/23 14:54	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B Pace Analytical Services - Indianapolis							
Alkalinity, Total as CaCO3	**434000**	ug/L	10000	1		11/13/23 21:17		
Alkalinity,Bicarbonate (CaCO3)	**434000**	ug/L	10000	1		11/13/23 21:17		
2540C Total Dissolved Solids	Analytical Method: SM 2540C Pace Analytical Services - Indianapolis							
Total Dissolved Solids	**208000**	ug/L	80000	1		11/15/23 19:36		
2540D Total Suspended Solids	Analytical Method: SM 2540D Pace Analytical Services - Indianapolis							
Total Suspended Solids	**11700000**	ug/L	250000	1		11/16/23 08:54		
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**249**	ug/L	20.0	1		11/28/23 14:44		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**34.3**	ug/L	20.0	1		11/27/23 16:12		
4500 Ammonia Water Low Level	Analytical Method: SM-4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**215**	ug/L	20.0	1		11/19/23 15:41	7664-41-7	
5310C TOC	Analytical Method: SM 5310C Pace Analytical Services - Indianapolis							
Total Organic Carbon	**37800**	ug/L	5000	10		11/20/23 20:59	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.: 50359320

QC Batch: 763653
QC Batch Method: EPA 9056
Analysis Method: EPA 9056
Analysis Description: 9056 IC Anions
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

METHOD BLANK: 3500573 Matrix: Water
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	11/24/23 21:11	
Sulfate	ug/L	<2000	2000	11/24/23 21:11	

LABORATORY CONTROL SAMPLE: 3500574

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	2500	2450	98	80-120	
Sulfate	ug/L	5000	4660	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3500575 3500576

Parameter	Units	50359322004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	1940 mg/L	250000	250000	2270000	2230000	132	119	80-120	1	15	M0
Sulfate	ug/L	819 mg/L	500000	500000	1310000	1300000	97	96	80-120	1	15	

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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(616)975-4500

QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

QC Batch: 762712
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

METHOD BLANK: 3495954 Matrix: Water
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	ug/L	<1000	1000	11/18/23 14:15	
Iron	ug/L	<100	100	11/18/23 14:15	
Magnesium	ug/L	<1000	1000	11/18/23 14:15	
Sodium	ug/L	<1000	1000	11/18/23 14:15	

LABORATORY CONTROL SAMPLE: 3495955

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	10000	10300	103	80-120	
Iron	ug/L	10000	10200	102	80-120	
Magnesium	ug/L	10000	10200	102	80-120	
Sodium	ug/L	10000	10100	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3495956 3495957

Parameter	Units	50359277001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	ug/L	17700	10000	10000	28500	28100	107	104	75-125	1	20	
Iron	ug/L	455	10000	10000	10700	10400	103	99	75-125	3	20	
Magnesium	ug/L	5450	10000	10000	15800	15500	103	101	75-125	1	20	
Sodium	ug/L	97300	10000	10000	109000	109000	116	115	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

QC Batch: 762951 | Analysis Method: SM 2320B
QC Batch Method: SM 2320B | Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

METHOD BLANK: 3496961 Matrix: Water
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	ug/L	<10000	10000	11/13/23 21:17	
Alkalinity,Bicarbonate (CaCO3)	ug/L	<10000	10000	11/13/23 21:17	

LABORATORY CONTROL SAMPLE: 3496962

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	ug/L	50000	48300	97	90-110	

SAMPLE DUPLICATE: 3496963

Parameter	Units	50359322004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	ug/L	153 mg/L	152000	1	20	
Alkalinity,Bicarbonate (CaCO3)	ug/L	153 mg/L	152000	1	20	

SAMPLE DUPLICATE: 3496964

Parameter	Units	50359324006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	ug/L	148 mg/L	152000	2	20	
Alkalinity,Bicarbonate (CaCO3)	ug/L	148 mg/L	152000	2	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Smith's Creek Landfill SW
Pace Project No.: 50359320

QC Batch: 763072
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

METHOD BLANK: 3497369 Matrix: Water
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	ug/L	<20000	20000	11/15/23 19:32	

LABORATORY CONTROL SAMPLE: 3497370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	ug/L	300000	287000	96	80-120	

SAMPLE DUPLICATE: 3497371

Parameter	Units	50359103004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	407 mg/L	398000	2	10	

SAMPLE DUPLICATE: 3497372

Parameter	Units	50359322004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	4950 mg/L	5220000	5	10	

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.: 50359320

QC Batch: 763297
QC Batch Method: SM 2540D
Analysis Method: SM 2540D
Analysis Description: 2540D Total Suspended Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

METHOD BLANK: 3498648 Matrix: Water
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	ug/L	<2500	2500	11/16/23 08:52	

LABORATORY CONTROL SAMPLE: 3498649

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	ug/L	100000	95000	95	80-120	

SAMPLE DUPLICATE: 3498650

Parameter	Units	50359290001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	ug/L	262 mg/L	268000	2	10	

SAMPLE DUPLICATE: 3498651

Parameter	Units	50359320004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	ug/L	11700000	9450000	22	10	R1

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.: 50359320

QC Batch: 764843
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: 50359320001, 50359320002, 50359320003, 50359320004

METHOD BLANK: 3505509 Matrix: Water
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	20.0	11/27/23 16:00	

LABORATORY CONTROL SAMPLE: 3505510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	2000	2020	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3505511 3505512

Parameter	Units	50359597007 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	1.0 mg/L	2000	2000	3020	3010	99	99	90-110	0	20	

MATRIX SPIKE SAMPLE: 3505513

Parameter	Units	50359597015 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	1.2 mg/L	2000	3230	102	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.: 50359320

QC Batch: 763834
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: 50359320001, 50359320002, 50359320003, 50359320004

METHOD BLANK: 3501637 Matrix: Water
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<20.0	20.0	11/19/23 15:22	

LABORATORY CONTROL SAMPLE: 3501638

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	1000	971	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501639 3501640

Parameter	Units	50359320001 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	1070	1080	105	106	90-110	1	20	

MATRIX SPIKE SAMPLE: 3501641

Parameter	Units	50359320002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	25.8	1000	1060	103	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.: 50359320

QC Batch: 763576 | Analysis Method: SM 5310C
QC Batch Method: SM 5310C | Analysis Description: 5310C Total Organic Carbon
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

METHOD BLANK: 3500141 Matrix: Water
Associated Lab Samples: 50359320001, 50359320002, 50359320003, 50359320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	ug/L	<500	500	11/20/23 16:56	

LABORATORY CONTROL SAMPLE: 3500142

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	10000	9720	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3500143 3500144

Parameter	Units	50359253005 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	2.1 mg/L	10000	10000	11700	11800	97	98	80-120	1	20	

MATRIX SPIKE SAMPLE: 3500145

Parameter	Units	50359255007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	2.0 mg/L	10000	11700	97	80-120	

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.: 50359320

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

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
R1	RPD value was outside 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 SW
Pace Project No.: 50359320

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50359320001	**SW-U1**	EPA 9056	763653		
50359320002	**SW-U2**	EPA 9056	763653		
50359320003	**SW-DA1**	EPA 9056	763653		
50359320004	**SW-D2**	EPA 9056	763653		
50359320001	**SW-U1**	EPA 3010	762712	EPA 6010	763794
50359320002	**SW-U2**	EPA 3010	762712	EPA 6010	763794
50359320003	**SW-DA1**	EPA 3010	762712	EPA 6010	763794
50359320004	**SW-D2**	EPA 3010	762712	EPA 6010	763794
50359320001	**SW-U1**	SM 2320B	762951		
50359320002	**SW-U2**	SM 2320B	762951		
50359320003	**SW-DA1**	SM 2320B	762951		
50359320004	**SW-D2**	SM 2320B	762951		
50359320001	**SW-U1**	SM 2540C	763072		
50359320002	**SW-U2**	SM 2540C	763072		
50359320003	**SW-DA1**	SM 2540C	763072		
50359320004	**SW-D2**	SM 2540C	763072		
50359320001	**SW-U1**	SM 2540D	763297		
50359320002	**SW-U2**	SM 2540D	763297		
50359320003	**SW-DA1**	SM 2540D	763297		
50359320004	**SW-D2**	SM 2540D	763297		
50359320001	**SW-U1**	NO2+NO3+NH3 Calculation	765092		
50359320002	**SW-U2**	NO2+NO3+NH3 Calculation	765092		
50359320003	**SW-DA1**	NO2+NO3+NH3 Calculation	765092		
50359320004	**SW-D2**	NO2+NO3+NH3 Calculation	765092		
50359320001	**SW-U1**	EPA 353.2	764843		
50359320002	**SW-U2**	EPA 353.2	764843		
50359320003	**SW-DA1**	EPA 353.2	764843		
50359320004	**SW-D2**	EPA 353.2	764843		
50359320001	**SW-U1**	SM-4500-NH3 G	763834		
50359320002	**SW-U2**	SM-4500-NH3 G	763834		
50359320003	**SW-DA1**	SM-4500-NH3 G	763834		
50359320004	**SW-D2**	SM-4500-NH3 G	763834		
50359320001	**SW-U1**	SM 5310C	763576		
50359320002	**SW-U2**	SM 5310C	763576		
50359320003	**SW-DA1**	SM 5310C	763576		
50359320004	**SW-D2**	SM 5310C	763576		

Pace® Location Requested (City/State):
Pace Analytical Grand Rapids
4171 40th Street SE, Grand Rapids, MI 49512

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

WO#: 50359320

50359320

Company Name:	WSP, Michigan
Street Address:	46850 Magellan Drive, Novi, MI 48377
Customer Project #:	
Project Name:	Smith's Creek SW
Site Collection Info/Facility ID (as applicable):	
Contact/Report To:	Mary Siegan
Phone #:	(248)536-5435
E-Mail:	mary.siegan@wsp.com
Cc E-Mail:	
Invoice To:	Mary Siegan
Invoice E-Mail:	mary.siegan@wsp.com
Purchase Order # (if applicable):	
Quote #:	
County / State origin of sample(s):	Michigan

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required): [ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other

Date Results Requested:

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [ ] Yes [X] No

Analysis:

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only: Proj. Mgr: Jennifer Rice; AcctNum / Client ID: ; Table #: ; Profile / Template: 8218; Prelog / Bottle Ord. ID: EZ 3014735

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res. CL2	Plastic	Glass	2320B Alk 9056 Cl, SO4	2540C Total Dissolved Solids	2540D Total Suspended Solids	353.2 NO2/NO3, 4500-NH3, TIN	5310C TOC	6010 MET ICP	Sample Comment	Preservation non-conformance identified for sample.
SW-U1	SW	G	11/9	0845	11/9	0845		6		X	X	X	X	X	X	-001	
SW-U2	↓	↓	↓	0820	↓	0820		↓		↓	↓	↓	↓	↓	↓	-002	
SW-DA1	↓	↓	↓	0900	↓	0900		↓		↓	↓	↓	↓	↓	↓	-003	
SW-D2	↓	↓	↓	0915	↓	0915		↓		↓	↓	↓	↓	↓	↓	-004	

Customer Remarks / Special Conditions / Possible Hazards:

Collected By:
Printed Name: Jon Cisco
Signature: [signature]

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] / WSP	11/9/23 1130	[signature] / Pace	11/9/23 1216
[signature] / Pace	11/9/23 1625	D. Nardin / Pace	11/9/23 @ 1625

Tracking Number:

Delivered by: [ ] In- Person [ ] Courier [ ] FedEX [ ] UPS [ ] Other

Page: 1 of 1

Sample Conditions Upon Receipt Form (SCUR)

Date/Time: 11/9/23	**Evaluated By:** DN	**WO#: 50359320**
Client: WSP-MICH	**PM:** JLR	**PM: JLR1** **Due Date: 11/28/23**
Lab Notified of Rush or Short Holds: YES NO NA		**CLIENT: GR-Golder**

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

	YES	NO	N/A	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 #: 350 351 **Therm #:** 282 283

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

Ice Type: WET Bagged / WET Loose BLUE NONE

1. Cooler Temp. Upon Receipt: 4.9/4.6 °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 compliance with EPA recommendation. Denote with red dot on container lid if unacceptable. **pH Strip Lot #:** HC31G719 *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/Available/Free Cyanide*	YES	NO	N/A	
VOA Headspace Acceptable (<6mm): Denote with silver x on rim of container cap if unacceptable.	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

December 01, 2023

Mary Siegan
WSP
46850 Magellan Drive
Suite 190
Novi, MI 48377

RE: Project: Smith's Creek Leachate
Pace Project No.: 50359311

Dear Mary Siegan:

Enclosed are the analytical results for sample(s) received by the laboratory on November 09, 2023. 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 Leachate
Pace Project No.: 50359311

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 Foreign Soil Permit #: 525-23-13-23119
USDA Compliance Agreement #: IN-SL-22-001

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 Leachate
Pace Project No.: 50359311

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50359311001	**Leachate**	Water	11/09/23 10:20	11/09/23 16:25
50359311002	**Trip Blank**	Water	11/09/23 00:00	11/09/23 16:25

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

SAMPLE ANALYTE COUNT

Project: Smith's Creek Leachate
Pace Project No.: 50359311

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50359311001	**Leachate**	EPA 6010	MTM	1	PASI-I
		EPA 5030B/8260	DAP	39	PASI-I
		SM 2540C	MTW	1	PASI-I
		EPA 9038	BEP	1	PASI-I
		NO2+NO3+NH3 Calculation	MMS	1	PASI-I
		EPA 353.2	ZM	1	PASI-I
		SM 4500-Cl-E	ZM	1	PASI-I
		SM 4500-NH3 G	OAS	1	PASI-I
50359311002	**Trip Blank**	EPA 5030B/8260	DAP	39	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 Leachate
Pace Project No.: 50359311

Sample: Leachate **Lab ID: 50359311001** Collected: 11/09/23 10:20 Received: 11/09/23 16:25 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	**11500**	ug/L	500	1	11/16/23 08:07	11/22/23 12:19	7439-89-6	
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - Indianapolis							
Benzene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	71-43-2	
Bromodichloromethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	75-27-4	
Bromoform	**<10.0**	ug/L	10.0	10		11/16/23 04:35	75-25-2	
Bromomethane	**<50.0**	ug/L	50.0	10		11/16/23 04:35	74-83-9	
Carbon tetrachloride	**<10.0**	ug/L	10.0	10		11/16/23 04:35	56-23-5	
Chlorobenzene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	108-90-7	
Chloroethane	**<50.0**	ug/L	50.0	10		11/16/23 04:35	75-00-3	
Chloroform	**<10.0**	ug/L	10.0	10		11/16/23 04:35	67-66-3	
Chloromethane	**<50.0**	ug/L	50.0	10		11/16/23 04:35	74-87-3	
Dibromochloromethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	124-48-1	
Dibromomethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	74-95-3	
1,2-Dichlorobenzene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	95-50-1	
1,4-Dichlorobenzene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	106-46-7	
1,1-Dichloroethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	75-34-3	
1,2-Dichloroethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	107-06-2	
1,1-Dichloroethene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	75-35-4	
cis-1,2-Dichloroethene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	156-59-2	
trans-1,2-Dichloroethene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	156-60-5	
1,2-Dichloropropane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	78-87-5	
cis-1,3-Dichloropropene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	10061-01-5	
trans-1,3-Dichloropropene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	10061-02-6	
Ethylbenzene	**13.9**	ug/L	10.0	10		11/16/23 04:35	100-41-4	
Iodomethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	74-88-4	
Methylene Chloride	**<50.0**	ug/L	50.0	10		11/16/23 04:35	75-09-2	
Styrene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	100-42-5	
1,1,1,2-Tetrachloroethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	630-20-6	
1,1,2,2-Tetrachloroethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	79-34-5	
Tetrachloroethene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	127-18-4	
Toluene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	108-88-3	
1,1,1-Trichloroethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	71-55-6	
1,1,2-Trichloroethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	79-00-5	
Trichloroethene	**<10.0**	ug/L	10.0	10		11/16/23 04:35	79-01-6	
Trichlorofluoromethane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	75-69-4	
1,2,3-Trichloropropane	**<10.0**	ug/L	10.0	10		11/16/23 04:35	96-18-4	
Vinyl chloride	**<10.0**	ug/L	10.0	10		11/16/23 04:35	75-01-4	
Xylene (Total)	**<20.0**	ug/L	20.0	10		11/16/23 04:35	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	102	%.	79-124	10		11/16/23 04:35	460-00-4	D3,F1, pH
Dibromofluoromethane (S)	97	%.	82-128	10		11/16/23 04:35	1868-53-7	
Toluene-d8 (S)	101	%.	73-122	10		11/16/23 04:35	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 Leachate
Pace Project No.: 50359311

Sample: Leachate **Lab ID: 50359311001** Collected: 11/09/23 10:20 Received: 11/09/23 16:25 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	**13000000**	ug/L	667000	1		11/15/23 19:35		
9038 Sulfate Water	Analytical Method: EPA 9038 Pace Analytical Services - Indianapolis							
Sulfate	**<50000**	ug/L	50000	5		11/21/23 11:23	14808-79-8	D3
Total Inorganic Nitrogen	Analytical Method: NO2+NO3+NH3 Calculation Pace Analytical Services - Indianapolis							
Total Inorganic Nitrogen	**796000**	ug/L	20.0	1		12/01/23 16:14		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Indianapolis							
Nitrogen, NO2 plus NO3	**<1000**	ug/L	1000	50		11/22/23 13:13		D3,P4
4500 Chloride	Analytical Method: SM 4500-Cl-E Pace Analytical Services - Indianapolis							
Chloride	**6870000**	ug/L	200000	200		11/20/23 13:48	16887-00-6	
4500 Ammonia Water	Analytical Method: SM 4500-NH3 G Pace Analytical Services - Indianapolis							
Nitrogen, Ammonia	**796000**	ug/L	50000	500		11/30/23 12:34	7664-41-7	P4

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 Leachate
Pace Project No.: 50359311

Sample: Trip Blank **Lab ID: 50359311002** Collected: 11/09/23 00:00 Received: 11/09/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 5030B/8260 Pace Analytical Services - Indianapolis							
Benzene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	71-43-2	
Bromodichloromethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	75-27-4	
Bromoform	**<1.0**	ug/L	1.0	1		11/16/23 01:48	75-25-2	
Bromomethane	**<5.0**	ug/L	5.0	1		11/16/23 01:48	74-83-9	
Carbon tetrachloride	**<1.0**	ug/L	1.0	1		11/16/23 01:48	56-23-5	
Chlorobenzene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	108-90-7	
Chloroethane	**<5.0**	ug/L	5.0	1		11/16/23 01:48	75-00-3	
Chloroform	**<1.0**	ug/L	1.0	1		11/16/23 01:48	67-66-3	
Chloromethane	**<5.0**	ug/L	5.0	1		11/16/23 01:48	74-87-3	
Dibromochloromethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	124-48-1	
Dibromomethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	74-95-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	95-50-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	106-46-7	
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	156-60-5	
1,2-Dichloropropane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	78-87-5	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	100-41-4	
Iodomethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	74-88-4	
Methylene Chloride	**<5.0**	ug/L	5.0	1		11/16/23 01:48	75-09-2	
Styrene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	79-34-5	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		11/16/23 01:48	79-01-6	
Trichlorofluoromethane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	75-69-4	
1,2,3-Trichloropropane	**<1.0**	ug/L	1.0	1		11/16/23 01:48	96-18-4	
Vinyl chloride	**<1.0**	ug/L	1.0	1		11/16/23 01:48	75-01-4	
Xylene (Total)	**<2.0**	ug/L	2.0	1		11/16/23 01:48	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	101	%.	79-124	1		11/16/23 01:48	460-00-4	
Dibromofluoromethane (S)	96	%.	82-128	1		11/16/23 01:48	1868-53-7	
Toluene-d8 (S)	100	%.	73-122	1		11/16/23 01:48	2037-26-5	

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 Leachate
Pace Project No.: 50359311

QC Batch: 762710
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359311001

METHOD BLANK: 3495944 Matrix: Water
Associated Lab Samples: 50359311001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron	ug/L	<100	100	11/22/23 11:43	

LABORATORY CONTROL SAMPLE: 3495945

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9740	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3495946 3495947

Parameter	Units	50358479004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	2.0 mg/L	10000	10000	11300	11500	93	95	75-125	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 Leachate
Pace Project No.: 50359311

QC Batch: 763143
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: 50359311001, 50359311002

METHOD BLANK: 3497799 Matrix: Water
Associated Lab Samples: 50359311001, 50359311002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<1.0	1.0	11/16/23 00:52	
1,1,1-Trichloroethane	ug/L	<1.0	1.0	11/16/23 00:52	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	1.0	11/16/23 00:52	
1,1,2-Trichloroethane	ug/L	<1.0	1.0	11/16/23 00:52	
1,1-Dichloroethane	ug/L	<1.0	1.0	11/16/23 00:52	
1,1-Dichloroethene	ug/L	<1.0	1.0	11/16/23 00:52	
1,2,3-Trichloropropane	ug/L	<1.0	1.0	11/16/23 00:52	
1,2-Dichlorobenzene	ug/L	<1.0	1.0	11/16/23 00:52	
1,2-Dichloroethane	ug/L	<1.0	1.0	11/16/23 00:52	
1,2-Dichloropropane	ug/L	<1.0	1.0	11/16/23 00:52	
1,4-Dichlorobenzene	ug/L	<1.0	1.0	11/16/23 00:52	
Benzene	ug/L	<1.0	1.0	11/16/23 00:52	
Bromodichloromethane	ug/L	<1.0	1.0	11/16/23 00:52	
Bromoform	ug/L	<1.0	1.0	11/16/23 00:52	
Bromomethane	ug/L	<5.0	5.0	11/16/23 00:52	
Carbon tetrachloride	ug/L	<1.0	1.0	11/16/23 00:52	
Chlorobenzene	ug/L	<1.0	1.0	11/16/23 00:52	
Chloroethane	ug/L	<5.0	5.0	11/16/23 00:52	
Chloroform	ug/L	<1.0	1.0	11/16/23 00:52	
Chloromethane	ug/L	<5.0	5.0	11/16/23 00:52	
cis-1,2-Dichloroethene	ug/L	<1.0	1.0	11/16/23 00:52	
cis-1,3-Dichloropropene	ug/L	<1.0	1.0	11/16/23 00:52	
Dibromochloromethane	ug/L	<1.0	1.0	11/16/23 00:52	
Dibromomethane	ug/L	<1.0	1.0	11/16/23 00:52	
Ethylbenzene	ug/L	<1.0	1.0	11/16/23 00:52	
Iodomethane	ug/L	<1.0	1.0	11/16/23 00:52	
Methylene Chloride	ug/L	<5.0	5.0	11/16/23 00:52	
Styrene	ug/L	<1.0	1.0	11/16/23 00:52	
Tetrachloroethene	ug/L	<1.0	1.0	11/16/23 00:52	
Toluene	ug/L	<1.0	1.0	11/16/23 00:52	
trans-1,2-Dichloroethene	ug/L	<1.0	1.0	11/16/23 00:52	
trans-1,3-Dichloropropene	ug/L	<1.0	1.0	11/16/23 00:52	
Trichloroethene	ug/L	<1.0	1.0	11/16/23 00:52	
Trichlorofluoromethane	ug/L	<1.0	1.0	11/16/23 00:52	
Vinyl chloride	ug/L	<1.0	1.0	11/16/23 00:52	
Xylene (Total)	ug/L	<2.0	2.0	11/16/23 00:52	
4-Bromofluorobenzene (S)	%.	104	79-124	11/16/23 00:52	
Dibromofluoromethane (S)	%.	96	82-128	11/16/23 00:52	
Toluene-d8 (S)	%.	102	73-122	11/16/23 00:52	

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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 Leachate
Pace Project No.: 50359311

LABORATORY CONTROL SAMPLE: 3497800

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.3	101	81-130	
1,1,1-Trichloroethane	ug/L	50	46.5	93	76-127	
1,1,2,2-Tetrachloroethane	ug/L	50	53.2	106	70-126	
1,1,2-Trichloroethane	ug/L	50	55.5	111	79-124	
1,1-Dichloroethane	ug/L	50	52.8	106	76-123	
1,1-Dichloroethene	ug/L	50	46.8	94	73-133	
1,2,3-Trichloropropane	ug/L	50	51.6	103	75-121	
1,2-Dichlorobenzene	ug/L	50	47.4	95	79-123	
1,2-Dichloroethane	ug/L	50	49.1	98	70-124	
1,2-Dichloropropane	ug/L	50	54.9	110	74-128	
1,4-Dichlorobenzene	ug/L	50	47.1	94	77-120	
Benzene	ug/L	50	51.3	103	74-124	
Bromodichloromethane	ug/L	50	51.6	103	80-126	
Bromoform	ug/L	50	49.8	100	75-128	
Bromomethane	ug/L	50	28.0	56	10-183	
Carbon tetrachloride	ug/L	50	47.5	95	78-132	
Chlorobenzene	ug/L	50	48.6	97	77-121	
Chloroethane	ug/L	50	49.7	99	43-140	
Chloroform	ug/L	50	49.5	99	75-118	
Chloromethane	ug/L	50	57.0	114	45-130	
cis-1,2-Dichloroethene	ug/L	50	50.6	101	76-125	
cis-1,3-Dichloropropene	ug/L	50	53.4	107	76-132	
Dibromochloromethane	ug/L	50	49.9	100	79-130	
Dibromomethane	ug/L	50	51.9	104	79-124	
Ethylbenzene	ug/L	50	49.5	99	74-125	
Iodomethane	ug/L	50	15.7	31	10-160	
Methylene Chloride	ug/L	50	44.8	90	77-126	
Styrene	ug/L	50	50.5	101	81-129	
Tetrachloroethene	ug/L	50	44.3	89	73-132	
Toluene	ug/L	50	50.2	100	72-119	
trans-1,2-Dichloroethene	ug/L	50	47.5	95	74-125	
trans-1,3-Dichloropropene	ug/L	50	52.1	104	75-132	
Trichloroethene	ug/L	50	48.4	97	75-127	
Trichlorofluoromethane	ug/L	50	47.3	95	64-136	
Vinyl chloride	ug/L	50	54.0	108	48-133	
Xylene (Total)	ug/L	150	139	93	73-123	
4-Bromofluorobenzene (S)	%.			103	79-124	
Dibromofluoromethane (S)	%.			95	82-128	
Toluene-d8 (S)	%.			102	73-122	

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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 Leachate
Pace Project No.: 50359311

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497801 3497802

Parameter	Units	50359462004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	<0.073 mg/L	5000	5000	2360	2290	47	46	60-150	3	20	M1
1,1,1-Trichloroethane	ug/L	<0.067 mg/L	5000	5000	2410	2410	48	48	63-138	0	20	M1
1,1,2,2-Tetrachloroethane	ug/L	<0.022 mg/L	5000	5000	2450	2410	49	48	58-146	2	20	M1
1,1,2-Trichloroethane	ug/L	<0.036 mg/L	5000	5000	2690	2540	54	51	63-142	6	20	M1
1,1-Dichloroethane	ug/L	<0.035 mg/L	5000	5000	2730	2770	55	55	64-138	2	20	M1
1,1-Dichloroethene	ug/L	<0.031 mg/L	5000	5000	2710	2670	54	53	65-139	1	20	M1
1,2,3-Trichloropropane	ug/L	<0.042 mg/L	5000	5000	2300	2280	46	46	54-144	1	20	M1
1,2-Dichlorobenzene	ug/L	<0.034 mg/L	5000	5000	2320	2270	46	45	50-136	2	20	M1
1,2-Dichloroethane	ug/L	<0.035 mg/L	5000	5000	2510	2430	50	49	55-146	3	20	M1
1,2-Dichloropropane	ug/L	<0.036 mg/L	5000	5000	2710	2670	54	53	66-134	2	20	M1
1,4-Dichlorobenzene	ug/L	<0.035 mg/L	5000	5000	2390	2360	48	47	50-131	2	20	M1
Benzene	ug/L	<0.033 mg/L	5000	5000	2690	2670	54	53	65-137	1	20	M1
Bromodichloromethane	ug/L	<0.055 mg/L	5000	5000	2480	2470	50	49	61-149	0	20	M1
Bromoform	ug/L	<0.080 mg/L	5000	5000	2150	2120	43	42	51-138	1	20	M1
Bromomethane	ug/L	<0.24 mg/L	5000	5000	1310	1510	26	30	10-169	14	20	
Carbon tetrachloride	ug/L	<0.074 mg/L	5000	5000	2460	2450	49	49	65-156	0	20	M1
Chlorobenzene	ug/L	<0.031 mg/L	5000	5000	2510	2440	50	49	54-135	3	20	M1
Chloroethane	ug/L	<0.077 mg/L	5000	5000	2980	2890	60	58	46-142	3	20	
Chloroform	ug/L	<0.089 mg/L	5000	5000	2560	2530	51	51	64-133	1	20	M1
Chloromethane	ug/L	<0.063 mg/L	5000	5000	3440	3440	69	69	30-139	0	20	
cis-1,2-Dichloroethene	ug/L	<0.039 mg/L	5000	5000	2620	2590	52	52	59-141	1	20	M1
cis-1,3-Dichloropropene	ug/L	<0.069 mg/L	5000	5000	2500	2420	50	48	57-141	3	20	M1
Dibromochloromethane	ug/L	<0.070 mg/L	5000	5000	2340	2230	47	45	59-147	5	20	M1
Dibromomethane	ug/L	<0.051 mg/L	5000	5000	2580	2450	52	49	64-142	5	20	M1
Ethylbenzene	ug/L	13.3 mg/L	5000	5000	16100	15600	57	47	50-143	3	20	M1
Iodomethane	ug/L	<0.082 mg/L	5000	5000	399	622	8	12	10-154		20	M1
Methylene Chloride	ug/L	<0.28 mg/L	5000	5000	2510	2490	50	50	53-126	1	20	M1

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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 Leachate
Pace Project No.: 50359311

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3497801 3497802

Parameter	Units	50359462004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Styrene	ug/L	<0.031 mg/L	5000	5000	2620	2540	52	51	57-141	3	20	M1
Tetrachloroethene	ug/L	<0.025 mg/L	5000	5000	2410	2300	48	46	43-149	4	20	
Toluene	ug/L	<0.030 mg/L	5000	5000	2630	2590	52	51	57-137	2	20	M1
trans-1,2-Dichloroethene	ug/L	<0.035 mg/L	5000	5000	2470	2490	49	50	63-133	1	20	M1
trans-1,3-Dichloropropene	ug/L	<0.068 mg/L	5000	5000	2430	2330	49	47	56-140	4	20	M1
Trichloroethene	ug/L	<0.044 mg/L	5000	5000	2530	2520	51	50	52-145	1	20	M1
Trichlorofluoromethane	ug/L	<0.043 mg/L	5000	5000	2750	2710	55	54	52-144	1	20	
Vinyl chloride	ug/L	<0.062 mg/L	5000	5000	3350	3270	67	65	43-139	3	20	
Xylene (Total)	ug/L	0.15J mg/L	15000	15000	7430	7170	49	47	52-137	4	20	MS
4-Bromofluorobenzene (S)	%.						106	103	79-124			
Dibromofluoromethane (S)	%.						95	95	82-128			
Toluene-d8 (S)	%.						103	102	73-122			

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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 Leachate
Pace Project No.: 50359311

QC Batch: 763072
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359311001

METHOD BLANK: 3497369 Matrix: Water
Associated Lab Samples: 50359311001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	ug/L	<20000	20000	11/15/23 19:32	

LABORATORY CONTROL SAMPLE: 3497370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	ug/L	300000	287000	96	80-120	

SAMPLE DUPLICATE: 3497371

Parameter	Units	50359103004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	407 mg/L	398000	2	10	

SAMPLE DUPLICATE: 3497372

Parameter	Units	50359322004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	4950 mg/L	5220000	5	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Smith's Creek Leachate
Pace Project No.: 50359311

QC Batch: 764189
QC Batch Method: EPA 9038
Analysis Method: EPA 9038
Analysis Description: 9038 Sulfate Water
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50359311001

METHOD BLANK: 3502857 Matrix: Water
Associated Lab Samples: 50359311001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	ug/L	<10000	10000	11/21/23 11:22	

LABORATORY CONTROL SAMPLE: 3502858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	20000	21700	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3502859 3502860

Parameter	Units	50359932009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	ug/L	20.1 mg/L	50000	50000	81500	82300	123	124	90-110	1	20	M3

MATRIX SPIKE SAMPLE: 3502861

Parameter	Units	50359624001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	<10.0 mg/L	50000	75200	135	90-110	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

QUALITY CONTROL DATA

Project: Smith's Creek Leachate
Pace Project No.: 50359311

QC Batch: 764483
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: 50359311001

METHOD BLANK: 3504062 Matrix: Water
Associated Lab Samples: 50359311001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	<20.0	20.0	11/22/23 12:25	

LABORATORY CONTROL SAMPLE: 3504063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	2000	1940	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3504064 3504065

Parameter	Units	50359289001 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	1.1 mg/L	2000	2000	3200	3210	103	103	90-110	0	20	

MATRIX SPIKE SAMPLE: 3504066

Parameter	Units	50359289002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	ug/L	0.21 mg/L	2000	2300	104	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 Leachate
Pace Project No.: 50359311

QC Batch: 763939
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: 50359311001

METHOD BLANK: 3501991 Matrix: Water
Associated Lab Samples: 50359311001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	<1000	1000	11/20/23 13:40	

LABORATORY CONTROL SAMPLE: 3501992

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3501993 3501994

Parameter	Units	50359317005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	<1.0 mg/L	20000	20000	21700	22100	104	106	90-110	2	20	

MATRIX SPIKE SAMPLE: 3501995

Parameter	Units	50359321002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	37000	20000	57100	101	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 Leachate
Pace Project No.: 50359311

QC Batch: 765513
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: 50359311001

METHOD BLANK: 3508064 Matrix: Water
Associated Lab Samples: 50359311001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	ug/L	<100	100	11/30/23 12:27	

LABORATORY CONTROL SAMPLE: 3508065

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	5000	5170	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3508066 3508067

Parameter	Units	50359317002 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	0.21 mg/L	5000	5000	5310	5320	102	102	90-110	0	20	

MATRIX SPIKE SAMPLE: 3508068

Parameter	Units	50359317003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	ug/L	<0.10 mg/L	5000	5040	101	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

QUALIFIERS

Project: Smith's Creek Leachate
Pace Project No.: 50359311

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.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
MS	Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.
P4	Sample field preservation does not meet EPA or method recommendations for this analysis.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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 Leachate
Pace Project No.: 50359311

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50359311001	**Leachate**	EPA 3010	762710	EPA 6010	764536
50359311001	**Leachate**	EPA 5030B/8260	763143		
50359311002	**Trip Blank**	EPA 5030B/8260	763143		
50359311001	**Leachate**	SM 2540C	763072		
50359311001	**Leachate**	EPA 9038	764189		
50359311001	**Leachate**	NO2+NO3+NH3 Calculation	765864		
50359311001	**Leachate**	EPA 353.2	764483		
50359311001	**Leachate**	SM 4500-Cl-E	763939		
50359311001	**Leachate**	SM 4500-NH3 G	765513		

Pace® Location Requested (City/State):
Pace Analytical Grand Rapids
4171 40th Street SE, Grand Rapids, MI 49512

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

WO# : 50359311

50359311

Company Name:	WSP, Michigan	Contact/Report To:	Mary Siegan
Street Address:	46850 Magellan Drive, Novi, MI 48377	Phone #:	(248)536-5435
		E-Mail:	mary.siegan@wsp.com
		Cc E-Mail:	
Customer Project #:		Invoice To:	Mary Siegan
Project Name:	Smith's Creek Leachate	Invoice E-Mail:	mary.siegan@wsp.com
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):	
		Quote #:	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [X] ET

County / State origin of sample(s): Michigan

Data Deliverables:
[ ] Level II [ ] Level III [ ] Level IV
[ ] EQUIS
[ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable:

Rush (Pre-approval required):
[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____

Date Results Requested:

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Specify Container Size **

Identify Container Preservative Type***

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. Cl2	Number & Type of Containers Plastic	Number & Type of Containers Glass	2540C Total Dissolved Solids	353.2 NO2/NO3, 4500-NH3 TIN	4500-Cl, 9038-SO4	6010 Total Metals	8260 VOCs	8260 VOCs Trip Blank	Sample Comment
Leachate	OT	G	11/9/23	1020	11/9/23	1020		4	3	X	X	X	X	X		-001
Trip Blank	OT	G	11/2/23	-	11/2/23	-			3						X	-002

Lab Use Only
Proj. Mgr: Jennifer Rice
AcctNum / Client ID:
Table #:
Profile / Template: 8219
Prelog / Bottle Ord. ID: EZ 3014934

Preservation non-conformance identified for sample.

Customer Remarks / Special Conditions / Possible Hazards:

Collected By:
Printed Name: Ian Cisco
Signature:

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)

Relinquished by/Company: (Signature)	Date/Time: 11/9/23 1130	Received by/Company: (Signature)	Date/Time: 11/9/23 1216	Tracking Number:
Relinquished by/Company: (Signature)	Date/Time: 11/9/23 1625	Received by/Company: (Signature) J. JARDIN / PACE	Date/Time: 11/9/23 @ 1625	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	[ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of 1

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v01_082123 ©

Sample Conditions Upon Receipt Form (SCUR)

Date/Time: 11/9/23	**Evaluated By:** SN	**WO#: 50359311**	
Client: WSP, MICH	**PM:** JLR	**PM: JLR1** **Due Date: 11/28/23**	
Lab Notified of Rush or Short Holds: YES ✓NO NA		**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 #: 350 ✓351 **Therm #:** 282 283	**Temp. should be 0°C - 6°C (Initial/Corrected)**			
Ice Type: ✓WET Bagged / WET Loose BLUE NONE	**1.** Cooler Temp. Upon Receipt: 2.9/2.6 °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 compliance with EPA recommendation. Denote with red dot on container lid if unacceptable. **pH Strip Lot #:** HC314715 *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/Available/Free Cyanide*	YES	NO	✓N/A	
VOA Headspace Acceptable (<6mm): Denote with silver x on rim of container cap if unacceptable.	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			

WO#: 50359311

PM: JLR1 Due Date: 11/28/23

CLIENT: GR-Golder

ample Receiving Non-Conformance Form (NCF)

Date: 11/9/23		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
Evaluated by: SN		COC sample ID does not match sample label		Cooler or sample container broken or compromised		*Sample contains residual chlorine
Client: WSP, Michigan		*COC collection date/time missing or does not match sample label		*Sample past holding time	✓	Improper preservation
***Drinking Water Deficiency:** Samples may be invalid. Analysis must not proceed without client written permission.		*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 Integrity Issues: Check issues below and add details where appropriate

Sample Integrity Issues: Check issues below and add details where appropriate

COC					Sample Label					Sample Notes
Sample ID	Date	Time	Container Type	Quantity	Sample ID	Date	Time	Container Type	Quantity	
					Leachate			VG9H		(2of3) Headspace
					↓			BP3N		PH=6
					↓			BP3S		PH=5

General Comments/ Client Instructions:

APPENDIX B

Field Data Sheets

Well ID MW-101

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: dry
AIR TEMPERATURE (°F): 50
PRECIPITATION (LAST 24 HRS): none

WELL SECURITY

PROTECTIVE COVER: ok
BUMPER POSTS: ok
EXTERNAL WELL ID: ok
LOCK: ok
WELL DIAMETER: 2"
CONCRETE PAD: ok

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 23.62
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 76.9
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 9.05

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: 1402

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1412	1417	~~1422~~				1425
Volume Removed (gal)	9.05	18.1					27.15
pH (s.u.)	6.94	7.65					7.73
Conductivity. (µmho/cm)	0.551	0.468					0.458
Temperature (°C)	10.8	10.2					10.1

SAMPLING

SAMPLE DATE: 11/7
SAMPLE TIME: 1430
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): clear
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: Ian Cisco

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0830
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1,413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS:
CLIENT REPRESENTATIVES: 46850 Magellan Dr, Suite 190, Novi, MI 48377
REGULATORY REPRESENTATIVES:

COMMENTS:

Initial purge yellow, then cleared

FORM COMPLETED: ~~11/5~~ 11/7 FORM COMPLETED BY (signature):

Well ID MW-106A

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: dry
AIR TEMPERATURE (°F): 40
PRECIPITATION (LAST 24 HRS): None

WELL SECURITY

PROTECTIVE COVER: ok
BUMPER POSTS: ok
EXTERNAL WELL ID: ok
LOCK: ok
WELL DIAMETER: 2"
CONCRETE PAD: ok

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 34.82
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.2
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 6.97

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: 1102

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1100	1102					0905
Volume Removed (gal)	6.97	dry					6.97
pH (s.u.)	7.54						7.76
Conductivity. (µmho/cm)	0.419						0.445
Temperature (°C)	9.9						9.0

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 0910
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: IC

EQUIPMENT

FIELD METER USED: 451 Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1,413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/8
FORM COMPLETED BY (signature):

Well ID MW-201

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Overcast
GROUND: dry
AIR TEMPERATURE (°F): 50
PRECIPITATION (LAST 24 HRS): None

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): 32.56
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.4
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.28

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: 0930

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	0940	0922	0926				1530
Volume Removed (gal)	7.28	14.56	dry				14.56
pH (s.u.)	7.79	7.84					7.82
Conductivity. (µmho/cm)	0.373	0.375					0.381
Temperature (°C)	10.0	10.1					9.9

SAMPLING

SAMPLE DATE: 11/7
SAMPLE TIME: 1530
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): clear
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: IC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0830
PH CALIBRATION STANDARDS (s.u.): 4,7,10
CONDUCTIVITY STANDARD (µmho/cm): 1.413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/7/23 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: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: moist
AIR TEMPERATURE (°F): 50
PRECIPITATION (LAST 24 HRS): none

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): 28.41
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 64.6
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 6.15

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME:

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1449	1459					1509
Volume Removed (gal)	6.15	12.30					18.45
pH (s.u.)	7.64	7.91					7.92
Conductivity. (µmho/cm)	0.401	0.401					0.401
Temperature (°C)	10.4	10.4					10.4

SAMPLING

SAMPLE DATE: 11/7
SAMPLE TIME: 1510
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): clear
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: Ian Cisco

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0830
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1.413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/7
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: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: wet
AIR TEMPERATURE (°F): 34
PRECIPITATION (LAST 24 HRS): during Sampling

WELL SECURITY

PROTECTIVE COVER: ok
BUMPER POSTS: ok
EXTERNAL WELL ID: ok
LOCK: ok
WELL DIAMETER: 2"
CONCRETE PAD: ok

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 25.29
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 73.21
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.15

PURGING

INITIAL PURGE DATE: 11/8
INITIAL PURGE TIME: 1541

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1525	1531	1537				1541
Volume Removed (gal)	8.15	16.30	24.45				24.45
pH (s.u.)	8.46	8.51	8.52				8.52
Conductivity. (µmho/cm)	0.459	0.477	0.478				0.478
Temperature (°C)	9.2	9.5	9.5				9.5

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 1548
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: JC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4,7,10
CONDUCTIVITY STANDARD (µmho/cm): 1,413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYPE: MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/8
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: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: dry
AIR TEMPERATURE (°F): 38F
PRECIPITATION (LAST 24 HRS): light Snow during sampling

WELL SECURITY

PROTECTIVE COVER: ok
BUMPER POSTS: ok
EXTERNAL WELL ID: ok
LOCK: ok
WELL DIAMETER: 2"
CONCRETE PAD: ok

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 39.60
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 82.9
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.36

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: 1139

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1130	1139					0945
Volume Removed (gal)	7.36	dry					
pH (s.u.)	7.09						6.92
Conductivity. (µmho/cm)	1.06						1.41
Temperature (°C)	9.8						8.9

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 0948
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: IC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1.413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr. Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/8
FORM COMPLETED BY (signature):

Well ID MW-208B

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: moist
AIR TEMPERATURE (°F): 36
PRECIPITATION (LAST 24 HRS): light rain during Sampling

WELL SECURITY

PROTECTIVE COVER: ok
BUMPER POSTS: ok
EXTERNAL WELL ID: ok
LOCK: ok
WELL DIAMETER: 2"
CONCRETE PAD: ok

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 35.00
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): ~~NA~~ 75.00
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 6.8

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: 1158

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1149	1155	1158				1015
Volume Removed (gal)	6.8	13.6	dry				
pH (s.u.)	7.47	7.51					7.64
Conductivity. (µmho/cm)	0.414	0.406					0.487
Temperature (°C)	10.1	10.0					9.3

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 1015
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: JC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1,413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/8
FORM COMPLETED BY (signature):

Well ID MW-209

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: wet
AIR TEMPERATURE (°F): 36
PRECIPITATION (LAST 24 HRS): during sampling

WELL SECURITY

PROTECTIVE COVER: ok
BUMPER POSTS: NA
EXTERNAL WELL ID: No sign present
LOCK: ok
WELL DIAMETER: 2"
CONCRETE PAD: ok

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 29.46
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 79.2
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.45

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: 1227

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1209	1221	1227				1030
Volume Removed (gal)	8.45	16.90	dry				16.90
pH (s.u.)	7.71	7.80					7.89
Conductivity. (µmho/cm)	0.516	0.529					0.587
Temperature (°C)	10.2	10.2					8.9

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 1032
TOTAL BOTTLES COLLECTED: ~~1032~~ 4
FILTERED FOR METALS: yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): clear
COLOR (yellow, brown, rust, grey, white, colorless): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): no odor
SAMPLE COLLECTED BY:

EQUIPMENT

FIELD METER USED: YSI PRO
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4,7,10
CONDUCTIVITY STANDARD (µmho/cm): 1.413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/8
FORM COMPLETED BY (signature):

Well ID MW-210

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Overcast
GROUND: dry
AIR TEMPERATURE (°F): 48
PRECIPITATION (LAST 24 HRS): none

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): 25.63
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 71.9
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.4

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: ~~1349~~ 1340

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	~~1325~~ 1335	1338	1340				1059
Volume Removed (gal)	7.4	~10.6	well dry				~10.6
pH (s.u.)	7.41	7.47					7.49
Conductivity. (µmho/cm)	0.701	0.751					0.739
Temperature (°C)	11.4	10.9					8.9

SAMPLING

SAMPLE DATE: 11/8/23
SAMPLE TIME: ~~0910~~ 1120
TOTAL BOTTLES COLLECTED: ~~0910~~ 4
FILTERED FOR METALS: yes
SAMPLE CLARITY (clear, sl. turbid, m. turbid, v. turbid): clear
COLOR (yellow, brown, rust, grey, white, colorless): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: Ian Cisco

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0850
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1,413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

E FORM COMPLETED: 11/8 FORM COMPLETED BY (signature):

Well ID MW-212

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: dry
AIR TEMPERATURE (°F): 39
PRECIPITATION (LAST 24 HRS): none

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): 28.94
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 65.2
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 5.76

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: 0951

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	0940	0950	0951				0830
Volume Removed (gal)	5.76	11.51	dry				11.51
pH (s.u.)	8.16	8.21					8.23
Conductivity. (µmho/cm)	0.511	0.526					0.588
Temperature (°C)	10.3	10.1					8.0

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 0820
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: IC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1,413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/8/23 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: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: Overcast
GROUND: wet
AIR TEMPERATURE (°F): 40
PRECIPITATION (LAST 24 HRS): overnight

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): 34.62
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 84.3
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.45

PURGING

INITIAL PURGE DATE: 11/9
INITIAL PURGE TIME: 1002

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	0939	0950	~~1001~~				1001
Volume Removed (gal)	8.45	16.90					25.35
pH (s.u.)	8.38	8.45					8.43
Conductivity. (µmho/cm)	1.56	1.55					1.56
Temperature (°C)	10.2	10.3					10.5

SAMPLING

SAMPLE DATE: 11/9
SAMPLE TIME: 1005
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: JC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0815
PH CALIBRATION STANDARDS (s.u.): 4/7/10
CONDUCTIVITY STANDARD (µmho/cm): 1.413 mS/cm
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/9
FORM COMPLETED BY (signature):

Well ID MW-302

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: wet
AIR TEMPERATURE (°F): 35F
PRECIPITATION (LAST 24 HRS): rain during sampling

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): 27.45
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 80.4
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 9.00

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: ~~1258~~ 1304

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1250	1259	1304				
Volume Removed (gal)	9.00	18.00	dry				18.00
pH (s.u.)	8.21	8.29					8.17
Conductivity. (µmho/cm)	0.516	0.487					0.490
Temperature (°C)	10.2	10.0					9.1

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 1105
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: JC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4,7,10
CONDUCTIVITY STANDARD (µmho/cm): 1.413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/8
FORM COMPLETED BY (signature):

Well ID MW-303A

GROUNDWATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: cloudy
GROUND: wet
AIR TEMPERATURE (°F): 34 P
PRECIPITATION (LAST 24 HRS): day of sampling

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): 28.91
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.7
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.49

PURGING

INITIAL PURGE DATE: 11/8
INITIAL PURGE TIME: 1450

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1425	1436	1447				1447
Volume Removed (gal)	7.49	14.98	22.47				22.47
pH (s.u.)	8.22	8.24					8.23
Conductivity. (µmho/cm)	0.529	0.524					0.527
Temperature (°C)	8.6	8.9					8.9

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 1452
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: JC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1.413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP30

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED:
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: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: wet
AIR TEMPERATURE (°F): 35
PRECIPITATION (LAST 24 HRS): during sampling

WELL SECURITY

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

CALCULATIONS

WELL ELEVATION (FT/MSL):
DEPTH TO WATER (FT): 25.42
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.7
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 8.04

PURGING

INITIAL PURGE DATE: 11/8
INITIAL PURGE TIME: 1247

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1210	1228	~~1247~~				1247
Volume Removed (gal)	8.04	16.08					24.12
pH (s.u.)	8.08	8.08					8.12
Conductivity. (µmho/cm)	0.448	0.459					0.437
Temperature (°C)	8.9	9.6					10.1

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 1250
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: JC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4, 7, 10
CONDUCTIVITY STANDARD (µmho/cm): 1.413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP: MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

Duplicate (MW-251) taken here

DATE FORM COMPLETED: 11/8
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: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS

SKY: overcast
GROUND: dry
AIR TEMPERATURE (°F): 40
PRECIPITATION (LAST 24 HRS): none

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): 29.8
GROUNDWATER ELEVATION (FT/MSL):
TOTAL WELL DEPTH (FT): 75.8
WELL STICK-UP (FT):
WATER VOLUME IN CASING (GALLONS): 7.82

PURGING

INITIAL PURGE DATE: 11/7
INITIAL PURGE TIME: 1035

STABILIZATION READINGS

	1	2	3	4	5	6	Final
Time	1030	1035					0850
Volume Removed (gal)	7.82	8.00					~~8.9~~ 8.00
pH (s.u.)	7.06	7.22					7.30
Conductivity. (µmho/cm)	0.477	0.476					0.478
Temperature (°C)	10.2	10.0					8.9

SAMPLING

SAMPLE DATE: 11/8
SAMPLE TIME: 0850
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): none
ODOR (sulfur, LFG, musty, solvent, petrol, no odor): none
SAMPLE COLLECTED BY: IC

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0800
PH CALIBRATION STANDARDS (s.u.): 4,7,10
CONDUCTIVITY STANDARD (µmho/cm): 1,413
PURIFIED WATER SUPPLIED BY: lab
PUMP/BAILER TYP MP50

SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS: Tubing appears to have been blocked by dead insects & organic debris on initial purge; cleared on initial purge

DATE FORM COMPLETED: 11/8/23 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: Overcast
WIND (mph): 0 mph
AIR TEMPERATURE (°F): 40

SAMPLING

SAMPLE DATE: 11/7
SAMPLE TIME: 0845
TOTAL BOTTLES COLLECTED: 6
FILTERED FOR METALS: No
SAMPLE CLARIT Clear
SAMPLE COLOR: none
SAMPLE ODOR: none

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 0840
FINAL pH (S.U.): 7.68
FINAL CONDUCTIVITY (µMHO/CM): 2.10
SAMPLE TEMPERATURE (°C): 7.8
DISSOLVED OXYGEN (mg/L): 7.79

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0813
FINAL CALIBRATION pH: 4, 7, 10
FINAL CALIBRATION SC: 1,413
DEIONIZED WATER SUPPLIED BY: Lab

SAMPLE COLLECTED BY: JC
SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED:
FORM COMPLETED BY (signature):

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: Overcast
WIND (mph): ~2
AIR TEMPERATURE (°F): 40

SAMPLING

SAMPLE DATE: 11/9
SAMPLE TIME: 0820
TOTAL BOTTLES COLLECTED: 6
FILTERED FOR METALS: No
SAMPLE CLARIT clear
SAMPLE COLOR: none
SAMPLE ODOR: none

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 0820
FINAL pH (S.U.): 7.67
FINAL CONDUCTIVITY (µMHO/CM): 2.29 mS/cm
SAMPLE TEMPERATURE (°C): 8.3
DISSOLVED OXYGEN (mg/L): 10.28

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0815
FINAL CALIBRATION pH: 4, 7, 10
FINAL CALIBRATION SC: 1.413 mS/cm
DEIONIZED WATER SUPPLIED BY: lab

SAMPLE COLLECTED BY: IC
SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED:
FORM COMPLETED BY (signature):

Sample ID SW-DA1

SURFACE WATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS DURING SAMPLING

SKY: Overcast
WIND (mph): 0 mph
AIR TEMPERATURE (°F): 44

SAMPLING

SAMPLE DATE: 11/9
SAMPLE TIME: 0900
TOTAL BOTTLES COLLECTED: 6
FILTERED FOR METALS: no
SAMPLE CLARIT clear
SAMPLE COLOR: none
SAMPLE ODOR: none

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 0855
FINAL pH (S.U.): 7.87
FINAL CONDUCTIVITY (µMHO/CM): 1,179
SAMPLE TEMPERATURE (°C): 7.8
DISSOLVED OXYGEN (mg/L): 8.07

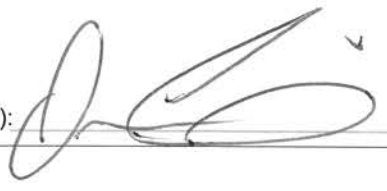
EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0815
FINAL CALIBRATION pH: 4, 7, 10
FINAL CALIBRATION SC: 1413
DEIONIZED WATER SUPPLIED BY: lab

SAMPLE COLLECTED BY: IC
SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/9
FORM COMPLETED BY (signature):



Sample ID SW-D2

SURFACE WATER SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS DURING SAMPLING

SKY: Overcast
WIND (mph): 0 mph
AIR TEMPERATURE (°F): 46F

SAMPLING

SAMPLE DATE: 11/9
SAMPLE TIME: 0915
TOTAL BOTTLES COLLECTED: 6
FILTERED FOR METALS: 1C 1D
SAMPLE CLARIT ~~Clear~~ V. turbid / muddy
SAMPLE COLOR: ~~None~~ brown
SAMPLE ODOR: none

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 0907
FINAL pH (S.U.): 7.80
FINAL CONDUCTIVITY (µMHO/CM): 1,994
SAMPLE TEMPERATURE (°C): 7.1
DISSOLVED OXYGEN (mg/L): 8.61

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0815
FINAL CALIBRATION pH: 4, 7, 10
FINAL CALIBRATION SC: 1.413 mS/cm
DEIONIZED WATER SUPPLIED BY: lab

SAMPLE COLLECTED BY: JC
SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

COMMENTS:

DATE FORM COMPLETED: 11/9
FORM COMPLETED BY (signature): 

SAMPLE ID: Leachate

LEACHATE SAMPLE COLLECTION RECORD

SITE IDENTIFICATION

COMPANY: Smith's Creek Landfill
FACILITY/SITE: Smith's Creek Landfill
PROJECT NUMBER: 31405076.2023
ADDRESS: 6779 Smith's Creek Rd. Smith's Creek, MI
CONTACT: Matt Williams
PHONE: (248) 459-3309

WEATHER CONDITIONS DURING SAMPLING

SKY: overcast
WIND (mph): 0
AIR TEMPERATURE (°F): 50

SAMPLING

SAMPLE DATE: 11/9
SAMPLE TIME: 1620
TOTAL BOTTLES COLLECTED: 4+3 VOAs
FILTERED FOR METALS: no
SAMPLE CLARITY: turbid
SAMPLE COLOR: brown
SAMPLE ODOR: strong

FIELD MEASUREMENTS

FIELD MEASUREMENT TIME: 1015
FINAL pH (S.U.): 7.33
FINAL CONDUCTIVITY (µMHO/CM): 75.6mS/cm
SAMPLE TEMPERATURE (°C): 12.4

EQUIPMENT

FIELD METER USED: YSI Pro
CALIBRATION TIME: 0815
FINAL CALIBRATION pH: 4/7/10
FINAL CALIBRATION SC: 1.413 mS/cm
FILTER TYPE USED: N/A
PUMP OR BAILER USED: bailer

SAMPLE COLLECTED BY: JC
SAMPLING COMPANY: WSP USA Inc.
SAMPLER'S PHONE:
SAMPLER'S ADDRESS: 46850 Magellan Dr, Suite 190, Novi, MI 48377
CLIENT REPRESENTATIVES:
REGULATORY REPRESENTATIVES:

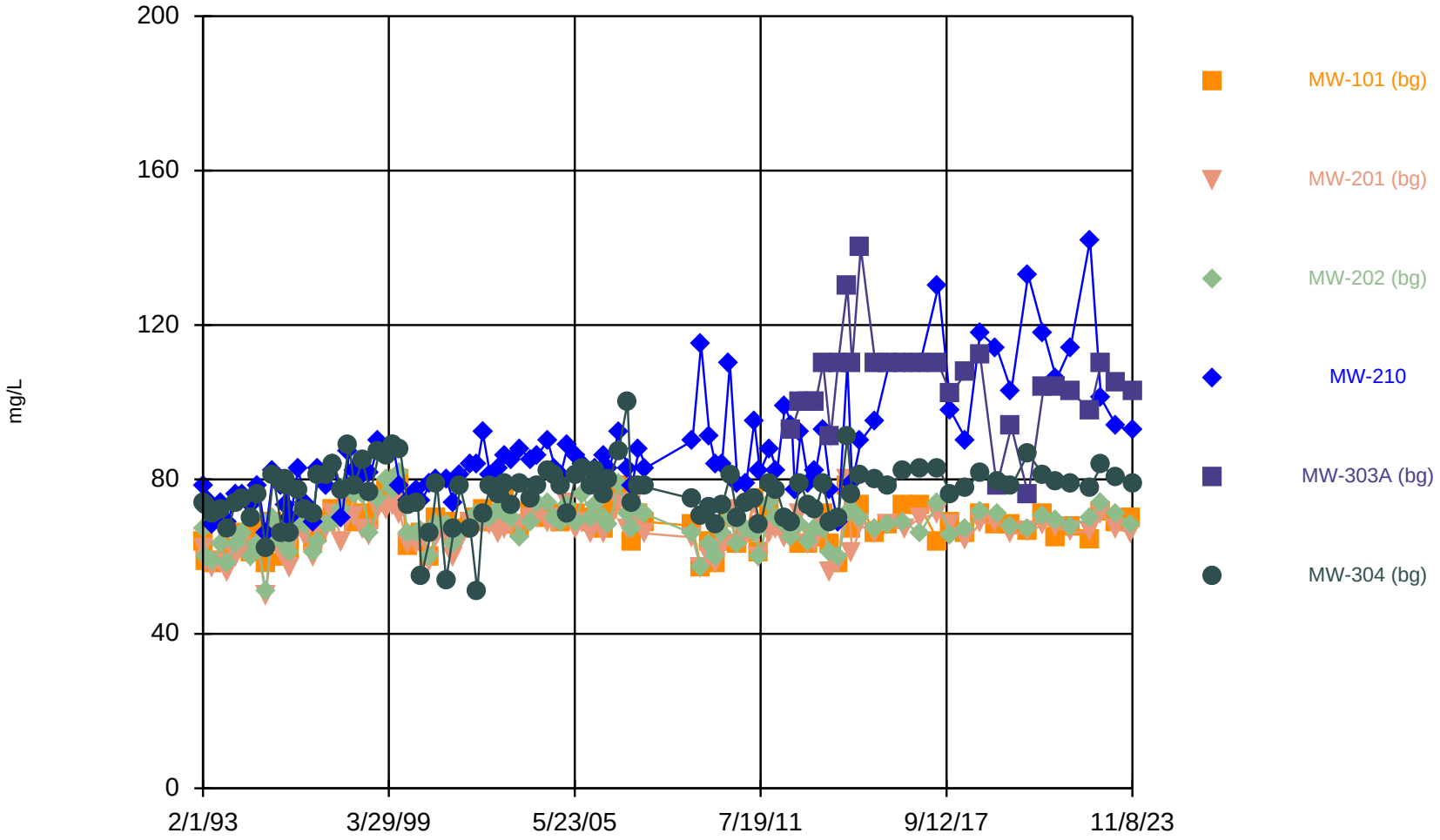
COMMENTS:

DATE FORM COMPLETED: 11/9/23 FORM COMPLETED BY (signature):

APPENDIX C

Time Series Plots
MW-210

Time Series



Constituent: Sodium Analysis Run 11/29/2023 10:59 AM View: SCL GW

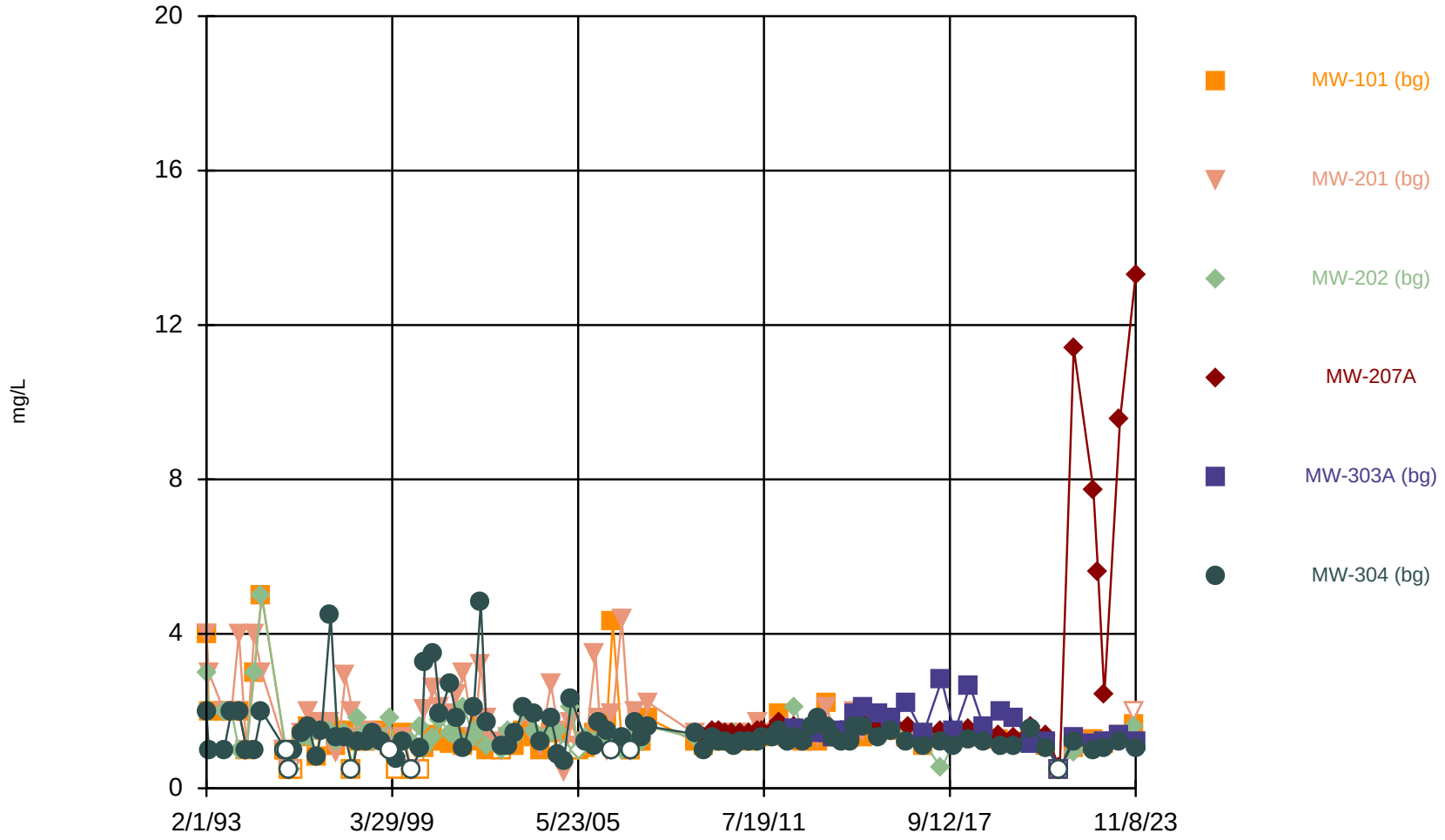
Smiths Creek LF Client: IN Dept. of Env. Mgmt. Data: Dt-scl

APPENDIX D

Time Series Plots
MW-207A

Hollow symbols indicate censored values.

Time Series

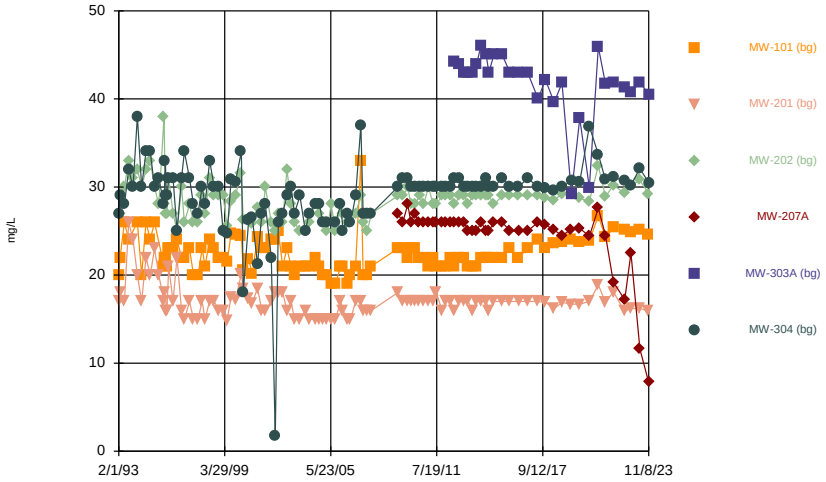


Constituent: Carbon, Total Organic Analysis Run 11/29/2023 11:00 AM View: SCL GW

Smiths Creek LF Client: IN Dept. of Env. Mgmt. Data: Dt-scl

Sanitas™ v.10.0.13 For the statistical analyses of ground water by Golder Associates only. UG

Time Series

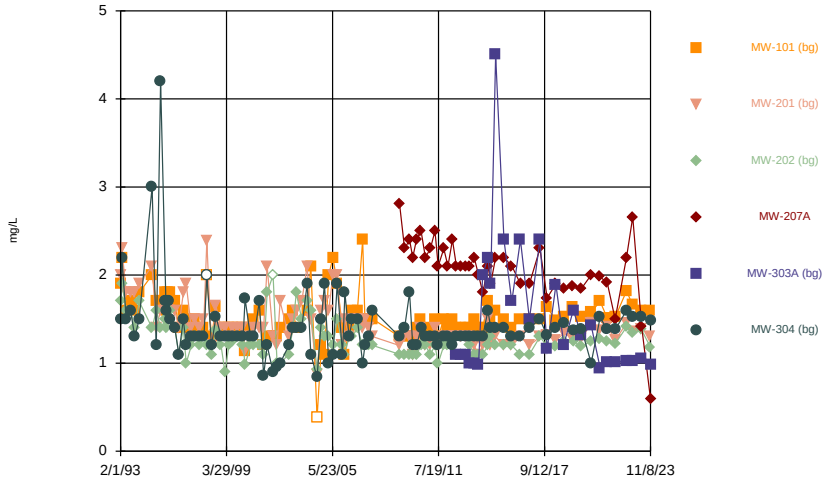


Constituent: Chloride Analysis Run 11/29/2023 11:02 AM View: SCL GW

Smiths Creek LF Client: IN Dept. of Env. Mgmt. Data: Dt-scl

Sanitas™ v.10.0.13 For the statistical analyses of ground water by Golder Associates only. UG
Hollow symbols indicate censored values.

Time Series

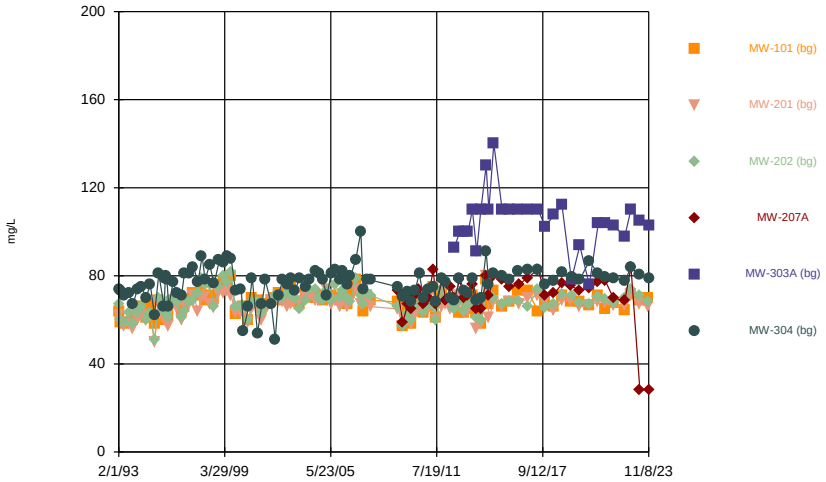


Constituent: Potassium Analysis Run 11/29/2023 11:02 AM View: SCL GW

Smiths Creek LF Client: IN Dept. of Env. Mgmt. Data: Dt-scl

Sanitas™ v.10.0.13 For the statistical analyses of ground water by Golder Associates only. UG

Time Series

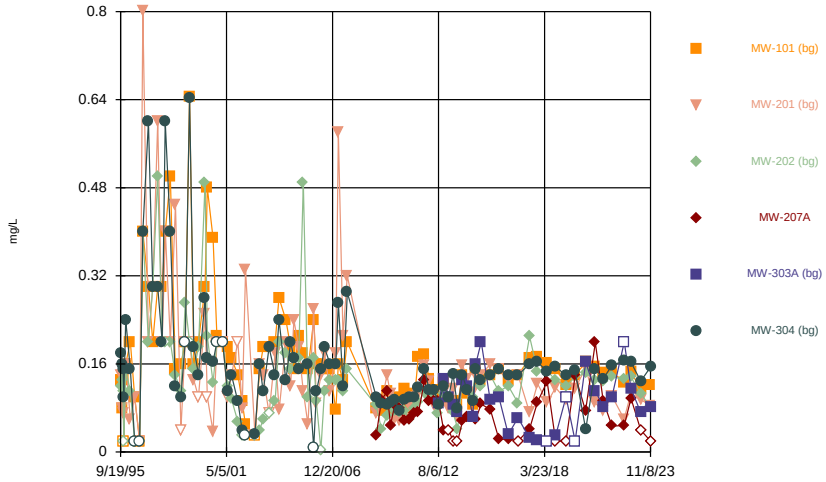


Constituent: Sodium Analysis Run 11/29/2023 11:02 AM View: SCL GW

Smiths Creek LF Client: IN Dept. of Env. Mgmt. Data: Dt-scl

Sanitas™ v.10.0.13 For the statistical analyses of ground water by Golder Associates only. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Total Inorganic Nitrogen Analysis Run 11/29/2023 11:02 AM View: SCL GW

Smiths Creek LF Client: IN Dept. of Env. Mgmt. Data: Dt-scl