2023 ANNUAL GROUNDWATER MONITORING,

CORRECTIVE ACTION REPORT,

AND

STATISTICAL EVALUATION OF DETECTION MONITORING RESULTS

General Waste & Recycling, LLC

Coal Combustion Residual Landfill

PREPARED BY:

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NTS PROJECT 6385CC

January 2024

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PURPOSE

The purpose of this document is to meet U.S. Code of Federal Regulation (CFR) requirements for General Waste & Recycling, LLC's (General Waste's) Keewatin, Minnesota, Coal Combustion Residual (CCR) landfill (the Facility) for preparation of an "Annual Groundwater Monitoring and Corrective Action Report" per CFR §257.90 (e).

INTRODUCTION

General Waste's Keewatin Facility consists of a composite lined industrial landfill (CCR Unit) and an unlined demolition debris disposal cell. The Facility is located on approximately 70 acres of land in: Township 57 North, Range 22 West, Section 25 of Itasca County, as shown on Figure 1, Site Vicinity Map and Figure 2, Site Location Map. The location of the active CCR Units and CCR groundwater monitoring system is shown on Figure 3, Site Detail Map.

HYDROGEOLOGIC CONCEPTUAL MODEL

Hydrogeologic conditions were investigated while conducting permitting activities for the Facility during 2013. An extensive investigation was completed at that time to refine the hydrologic model of the Facility in preparation of the installation of a groundwater monitoring system. The hydrogeologic investigation and groundwater monitoring system has been certified by a licensed professional engineer (PE) as meeting CRF 257.91 requirements and the certification has been posted on a CCR Website for the Facility per CFR 257.105(h)(3).

Geologic Units

Three (3) stratigraphic units have been identified for the hydrogeological conceptual model as follows:

1. Mine overburden stockpile unit that varies across the landfill footprint in depths ranging from 5 to 80 feet and consists of sand, silty-clayey sand, and sandy silty clay.

2. Native soil unit which consists of fine sand and silty sand near the top of the unit and generally grades to a silty medium grained sand with abundant gravel.

3. Mine tailings unit which consists of interlayered grey and black silt and fine sand sized taconite tailings. The mine tailings are approximately range from 10 to 26 feet thick and were placed in the tailings basin constructed directly to the west of the mine overburden stockpile.

The location of the mine overburden stockpile and the mine tailings (i.e., the Tailings Basin) are shown on Figure 2.

Hydrogeologic Setting

An unconfined aquifer exists below the Facility with the water table present within the mine overburden stockpile near the contact of the mine overburden stockpile unit with the native soil unit, except on the western edge of the permitted landfill boundary near MW-7 where the water table is within the tailings. Groundwater flow is generally to the east and southeast towards a ditch (Welcome Creek) located

adjacent to the Facility. Welcome Creek is considered a groundwater divide and is a discharge point for shallow unconfined groundwater.

Environmental Monitoring System

The CCR Groundwater Monitoring System (GMS) consists of four (4) water table monitoring wells as follows:

- MW-7 is an up-gradient (with respect to general groundwater flow direction) monitoring well; and,
- MW-8, MW-9, and MW-10 (replaced MW-3R) are down-gradient (with respect to general groundwater flow direction) monitoring wells.

The groundwater monitoring system and active CCR Units (Cell A and Cell B) are shown on Figure 3. Groundwater monitoring well details are summarized in Table 1, including static water level and potentiometric surface data (i.e., groundwater elevation data). MW-3R was abandoned during landfill expansion activities during the 2019 summer. MW-10 was constructed down-gradient of the landfill to replace MW-3R in the GMS.

Groundwater monitoring summary

CCR groundwater monitoring has been conducted semi-annually during the Spring and Fall of each year (i.e., during April/May and October, respectively). Groundwater monitoring was performed on April 25 and October 16, 2023 for CCR Appendix III parameters (Table 2A). Static water levels were obtained and groundwater elevations calculated for both groundwater monitoring events (Table 1). CCR groundwater monitoring will continue through the active life of the CCR Unit and post closure. CCR Unit post closure monitoring will be conducted for 30 years.

Groundwater Elevations and General Groundwater Flow Direction

Groundwater elevations summarized in Table 1 were graphed (see Figure 4 Hydrograph). Potentiometric surface (groundwater elevation) contour maps were created and general groundwater flow direction evaluated (Figures 5 and 6). Groundwater elevations fluctuated similarly in the upgradient well MW-7 and the downgradient well MW-10 with groundwater levels approximately 4 to 6 feet feet higher in the spring as compared to the fall event. Downgradient wells MW-8 and MW-9 showed less variability indicating a decrease of 1.25 and 0.85 feet, respectively between the April and October events.

Based on evaluation of the groundwater data, the general direction of groundwater flow is eastward (Figures 5 and 6) towards the ditch (Welcome Creek) and is consistent with historical groundwater flow. Evaluation of groundwater elevation trends will continue throughout the active life of the CCR Unit and post closure.

Quality Assurance and Data Validation

Quality control (QC) samples were included for the CCR monitoring events. QC samples include field blanks and field duplicates analyzed for the same parameters as the respective monitoring well. The QC samples are used to determine the integrity of the field sampling procedures and the validity of the analytical results. QC testing was consistent with expected results in 2023 with the field blank indicating

below detection limit values for all measured parameters and field duplicate samples matching within tolerance the detection monitoring results.

Groundwater Monitoring Results

Groundwater monitoring results are summarized in Table 3 (CCR Lab Results Summary). Statistical analysis of the groundwater monitoring results, including determination of whether or not a Statistically Significant Increase (SSI) has been observed is presented below.

STATISTICAL ANALYSIS

Statistical Analysis was performed using the applicable field parameters and laboratory results collected during 2023 and guided by the Statistical Analysis Plan (SAP) written for the facility. No SSIs were determined to have occurred based on the statistical evaluation of 2023 groundwater monitoring results. In 2023, the full statistical evaluation was not able to be completed per the requirements set forth in 40 CFR 257.91 since the facility only had two downstream monitoring locations (MW-8 and MW-9) with sufficient background dataset through 2023. Beginning in 2024, a statistically significant dataset (8 or more samples) for MW-10 has been collected, and 3 downgradient wells will be assessed and the facility will again be in compliance with federal regulation. The statistical analyses completed for the April and October events are presented in Appendix B.

Following the SAP, the detection monitoring data collected in 2022 and 2023 was assessed and incorporated into the background dataset. With the completion of the October 2023 monitoring event, MW-10 has 8 complete monitoring events, which is considered an appropriate background dataset to conduct statistical analysis. Therefore, MW-10 data was assessed along with MW-7, MW-8, and MW-9 data to determine Upper Prediction Limits (UPLs) which are utilized to set the Trigger Values utilized to assess detection monitoring data.

After assessing the monitoring data, it was determined that intrawell assessment for MW-8, MW-9, and MW-10 is more appropriate and will provide a higher statistical power than an interwell analysis (comparing upgradient well MW-7 parameters to downgradient wells MW-8, MW-9, and MW-10 data). The groundwater monitored in MW-7 is very distinct from the groundwater monitored in MW-8, MW-9, and MW-10 with much higher concentrations of Calcium, Chloride, Sulfate, and Total Dissolved Solids (TDS) observed in the upgradient well MW-7.

The rationale and workflow utilized to update the background dataset and adjust Upper Prediction Limits (UPLs) for 2022 and 2023 monitoring can be found in Appendix C. The updated Trigger Values to be utilized for 2024 and 2025 monitoring can be seen in Table 4.

CONCLUSIONS AND RECOMMENDATIONS

Review of the collected data indicates that a SSI of CCR Appendix III parameter concentrations has not occurred in the downgradient monitoring wells MW-08 and MW-09 (see Appendix B). Detection monitoring should continue as described in the Statistical Analysis Plan. Trigger values for MW-10 have been established and will be utilized to assess for a SSI occurrence in the 2024 detection monitoring events. The Groundwater Monitoring System is now in compliance with CRF 257.91 which requires a minimum of 3 down-gradient wells.

FIGURES

N

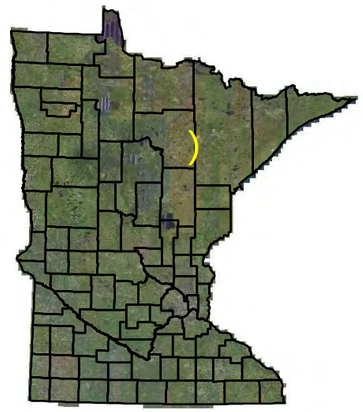
0 3,000 6,000 12,000

Feet

1 Inch = 6,000 Feet

Legend

Project Location



Notes:
Background imagery provded by MnGeo WMS.

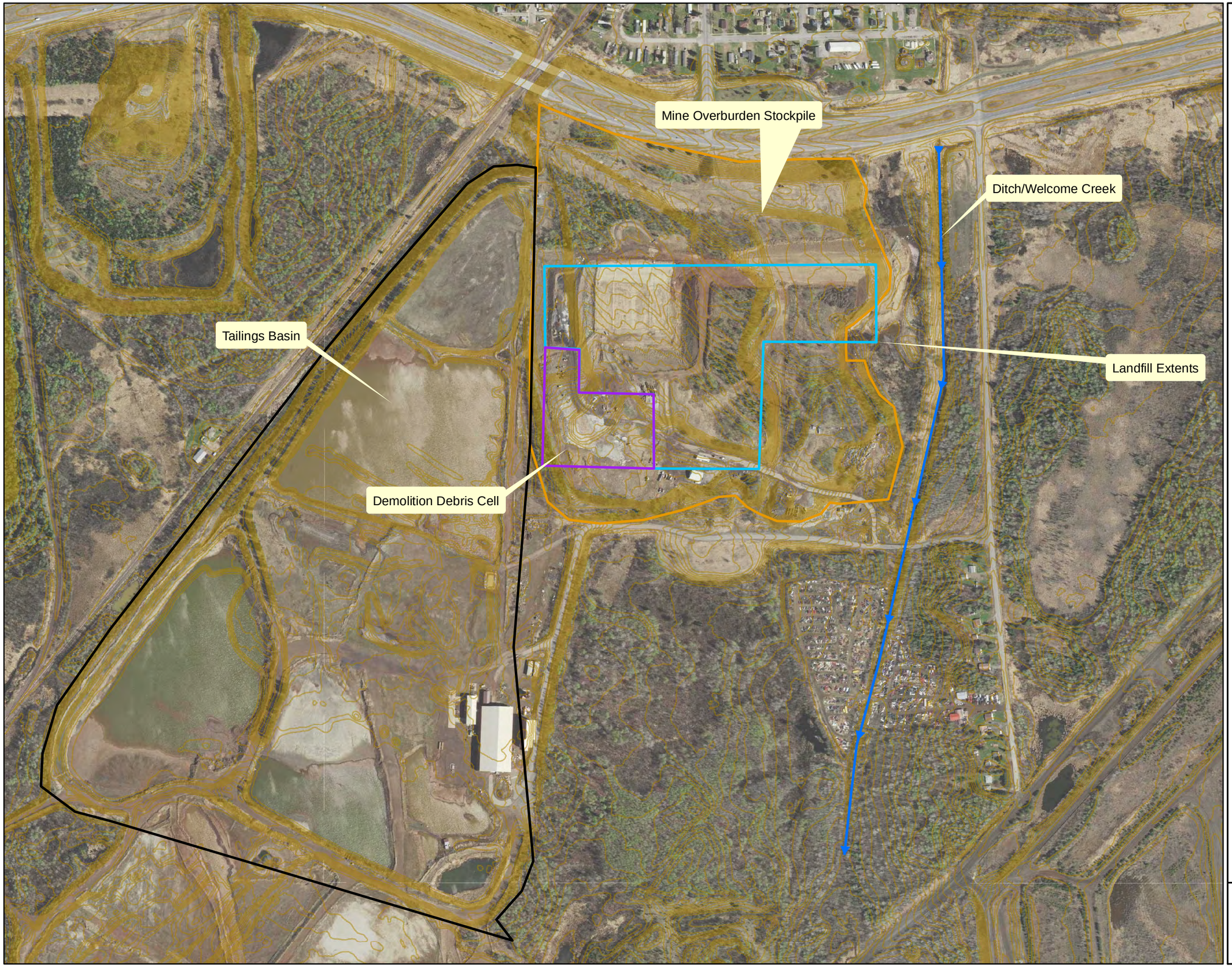
Figure 1
Site Vicinity Map

General Waste & Recycling, LLC
CCR Landfill
Keewatin, Minnesota (Itasca County)

Environmental Science & Engineering
www.netechnical.com

Date Drawn :	27 January 2021
Drawn By :	C. Hafdahl
NTS Project #:	6385CC

1



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Feet

1 Inch = 500 Feet

Legend

- Demolition Debris Cell
- CCR Landfill Footprint
- Tailings Basin
- Mine Overburden Stockpile
- Ditch/Welcome Creek
- Contours

Notes:
-Background image provided by MnGeo WMS 2018.

Figure 2
Site Location Map

General Waste & Recycling, LLC
CCR Landfill
Keewatin, Minnesota (Itasca County)

Environmental Science & Engineering
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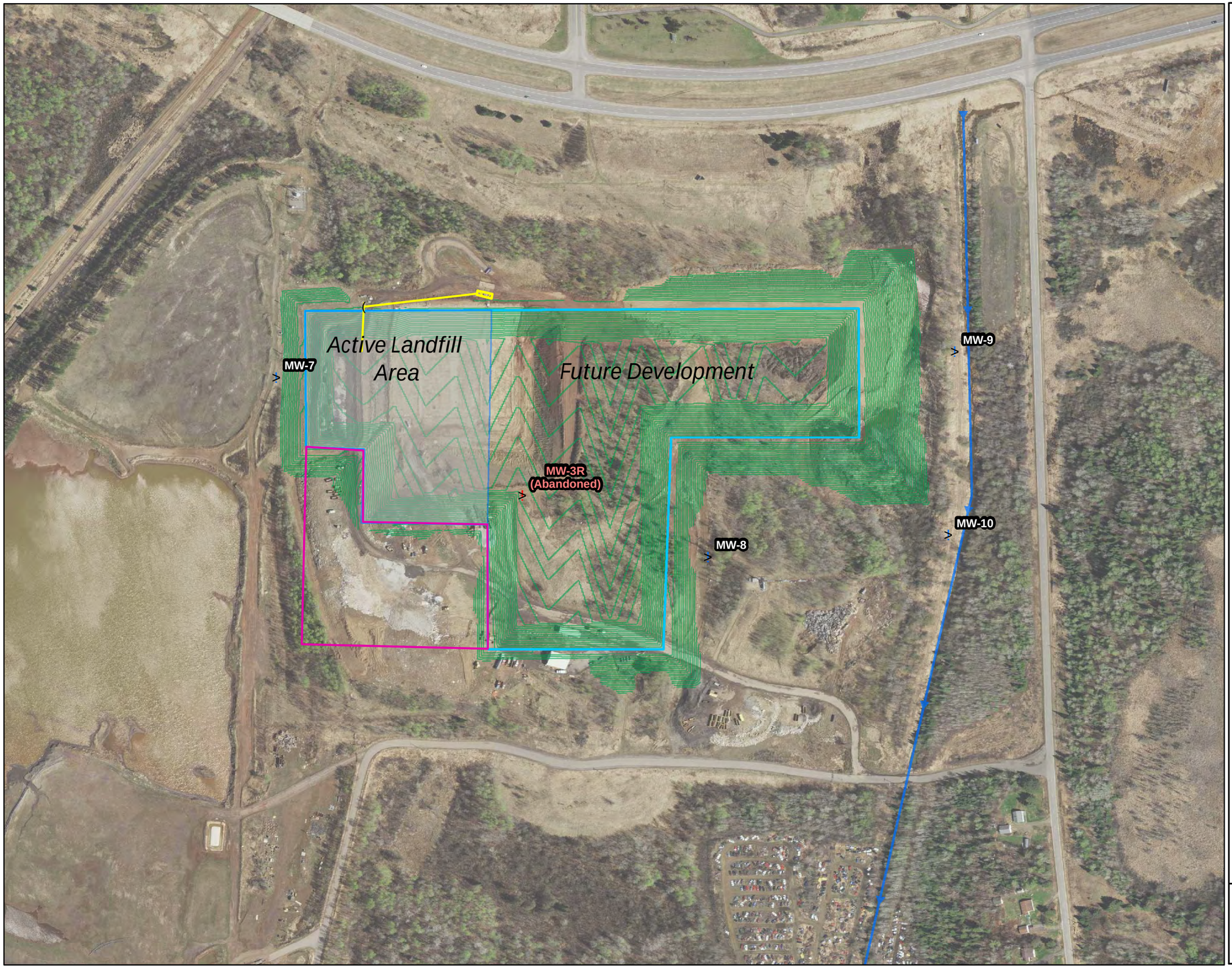
Date Drawn :
25 January 2022

Drawn By :
E. Johnson

NTS Project #:
6385CC

2



N

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Feet

1 Inch = 300 Feet

Legend

- Demolition Debris Cell
- Landfill Footprint
- Leachate Collection Pad
- Leachate Collection Pipe
- Landfill Base Grade Contours
- Ditch
- Groundwater Monitoring Well
- Abandonend Monitoring Well
- Leachate Pump Access Vault

Notes:
-Background image provided by MnGeo Itasca 2018.

Figure 3
Site Detail Map

General Waste Industrial Landfill
CCR Groundwater Monitoring System
Keewatin, Minnesota (Itasca County)

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FIGURE 4
HYDROGRAPH

Figure 4
Groundwater Hydrograph

General Waste Industrial Landfill
CCR Groundwater Monitoring System
2022 Annual Monitoring Report
Keewatin, Minnesota (Itasca County)

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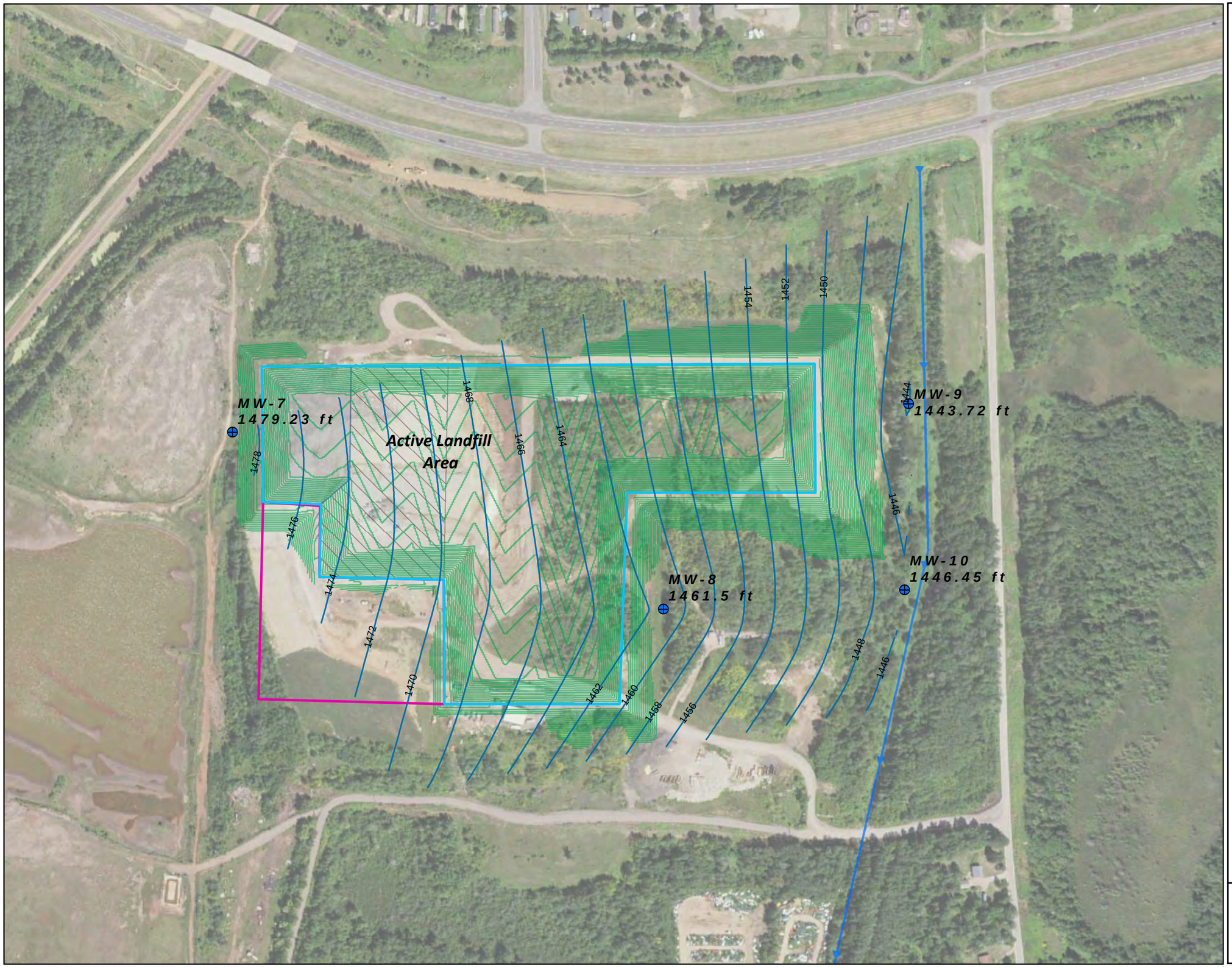
4



N

0 150 300 600

Feet

1 Inch = 300 Feet

Legend

- Groundwater Contours
- Landfill
- Demolition Debris Cell
- May Groundwater Contours
- Landfill Base Grade Contours
- Monitoring Well

Notes:
-Background image has been provided by MnGeo, 2021.
- Groundwater contours were updated by E. Johnson in January 2023.

Figure 5
Groundwater Contour Map
April, 2023

General Waste Industrial Landfill
CCR Groundwater Monitoring System
2021 Annual Monitoring Report
Keewatin, Minnesota (Itasca County)

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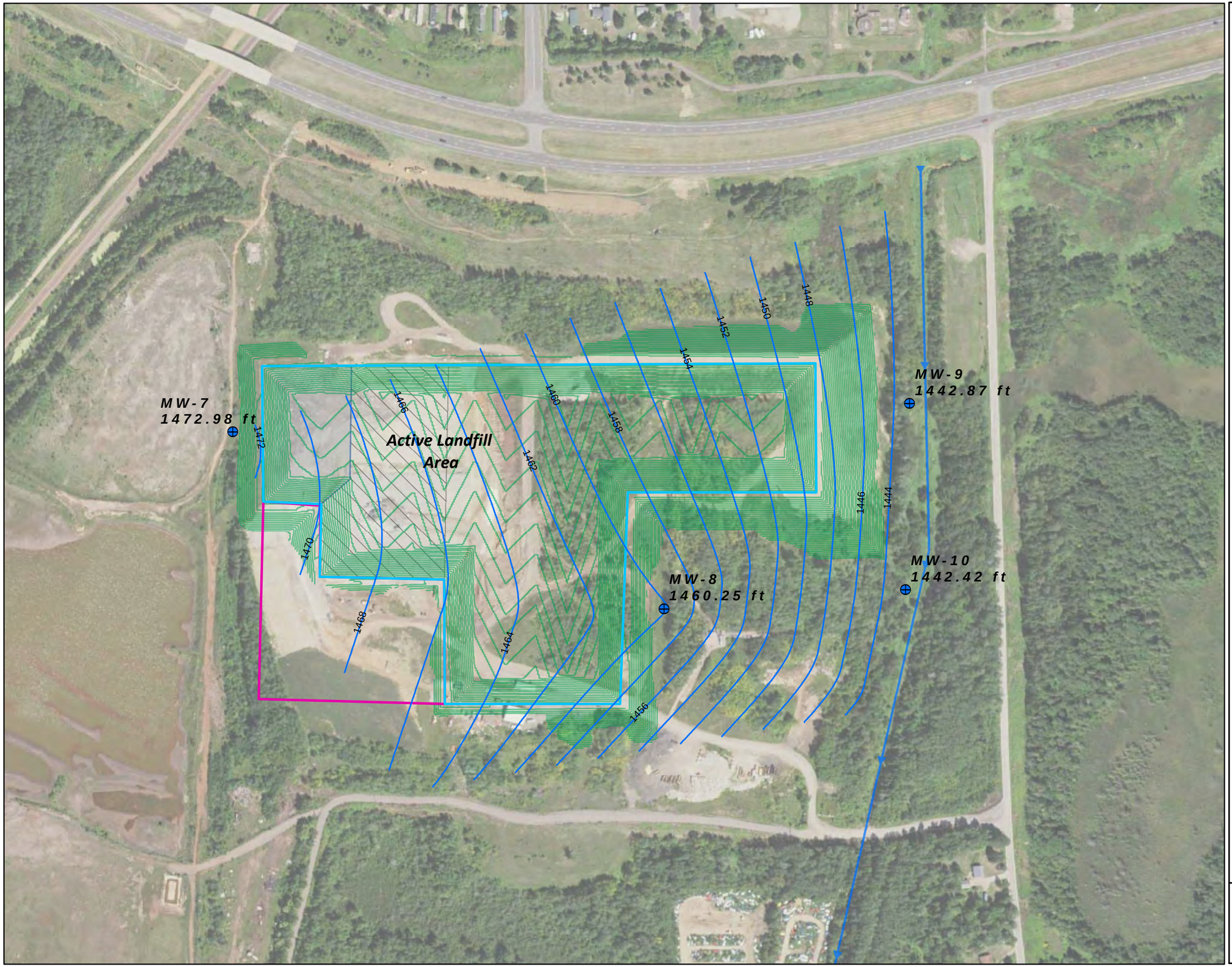
NTS Project #: 6385CC	



N

0 150 300 600

Feet

1 Inch = 300 Feet

Legend

- Groundwater Contours
- Landfill Footprint
- Demolition Debris Cell
- Landfill Base Grade Contours
- Monitoring Well

Notes:
-Background image has been provided by MnGeo, 2021.
- Groundwater contours were updated by E. Johnson in January 2023.

Figure 6
Groundwater Contour Map
October, 2023

General Waste Industrial Landfill
CCR Groundwater Monitoring System
2021 Annual Monitoring Report
Keewatin, Minnesota (Itasca County)

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Drawn By : E. Johnson	6
NTS Project #: 6385CC	

TABLES

TABLE 1
GROUNDWATER MONITORING WELL DETAILS
GENERAL WASTE AND RECYCLING CCR LANDFILL

	MW-3R		MW-7		MW-8		MW-9		MW-10	
MDH Unique Well #	797239		817979		817978		817980		847087	
Northing (UTM NAD83)	5248332.87		5248449.356		5248271.719		5248474.904		5248293.27	
Easting (Zone 15 Meters)	494267.27		494024.588		494451.676		494695.922		494689.54	
Installation Date	7/9/15		9/30/2016		9/29/2016		9/30/2016		May-20	
Ground Elev. (ft)	1530.10		1493.62		1491.63		1452.93		1449.8	
Riser Top Elev. (ft)	1532.29		1496.13		1494.41		1454.72		1452.6	
Total Depth (ft)	75.0		26.6		41.3		18.9		18.2	
Screened Interval (ft)	65 - 75		16.6 - 26.6		31.3 - 41.3		8.9 - 18.9		8.2-18.2	
Screened Elevation	1465.10 - 1455.10		1477.02 - 1467.02		1460.33 - 1450.33		1444.03 - 1434.03		1444-40 - 1454.40	
Date of Measurement	**Static Level**	**GW Elev.**	**Static Level**	**GW Elev.**	**Static Level**	**GW Elev.**	**Static Level**	**GW Elev.**	**Static Level**	**GW Elev.**
25-Oct-16	61.90	1470.39	17.92	1478.21	30.42	1463.99	11.07	1443.65		
15-Nov-16	61.75	1470.54	18.11	1478.02	30.31	1464.10	11.16	1443.56		
5-Dec-16	61.90	1470.39	16.22	1479.91	33.40	1461.01	10.69	1444.03		
17-Apr-17	61.95	1470.34	17.93	1478.20	30.18	1464.23	10.98	1443.74		
8-May-17	61.82	1470.47	16.16	1479.97	29.72	1464.69	10.62	1444.10		
20-Jun-17	61.56	1470.73	17.97	1478.16	29.60	1464.81	11.11	1443.61		
11-Jul-17	61.57	1470.72	18.32	1477.81	29.84	1464.57	11.40	1443.32		
1-Aug-17	61.74	1470.55	18.95	1477.18	30.21	1464.20	11.50	1443.22		
16-Aug-17	61.90	1470.39	19.34	1476.79	30.53	1463.88	11.53	1443.19		
18-Sep-17	61.89	1470.40	18.85	1477.28	30.74	1463.67	10.84	1443.88		
16-Oct-17	61.47	1470.82	16.97	1479.16	30.18	1464.23	11.00	1443.72		
23-Apr-18	64.84	1467.45	20.64	1475.49	33.81	1460.60	10.71	1444.01		
11-Oct-18	65.65	1466.64	21.65	1474.48	34.57	1459.84	10.97	1443.75		
25-Apr-19	65.79	1466.50	18.76	1477.37	34.23	1460.18	10.99	1443.73		
21-Oct-19			21.65	1474.48	34.57	1459.84	10.97	1443.75		
6-May-20			20.65	1475.48	32.76	1461.65	11.39	1443.33	9.99	1442.61
6-Oct-20			21.46	1474.67	33.72	1460.69	11.2	1443.52	9.17	1443.43
29-Apr-21			21.18	1474.95	35.37	1459.04	11.19	1443.53	7.91	1444.69
21-Oct-21			24.98	1471.15	37.24	1457.17	11.22	1443.50	10.30	1442.3
18-Apr-22			18.95	1477.18	36.03	1458.38	10.5	1444.22	6.87	1445.73
18-Oct-22			22.35	1473.78	31.99	1462.42	10.99	1443.73	10.21	1442.39
25-Apr-23			16.90	1479.23	32.91	1461.50	11.00	1443.72	6.15	1446.45
16-Oct-23			23.15	1472.98	34.16	1460.25	11.85	1442.87	10.18	1442.42

Note: MW-3R was abandoned during landfill expansion prior to the October 2019 monitoring event.

TABLE 2A Appendix III Parameters	
Parameter	**MCL**
Boron	NA
Calcium	NA
Chloride	NA
Fluoride	4.0 mg/L
pH	NA
Sulfate	NA
Total Dissolved Solids (TDS)	NA

TABLE 2B Appendix IV Parameters	
Parameter	**MCL**
Antimony	0.006 mg/L
Arsenic	0.01 mg/L
Barium	2.0 mg/L
Beryllium	0.004 mg/L
Cadmium	0.10 mg/L
Chromium	0.10 mg/L
Cobalt	NA
Fluoride	4.0 mg/L
Lead	0.015 mg/L
Lithium	NA
Mercury	0.002 mg/L
Molybdenum	NA
Selenium	0.05 mg/L
Thallium	0.002 mg/L
Radium 226 and 228 combined	5 pCi/L

TABLE 3A
GENERAL PARAMETERS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Chloride	**mg/L**	25-Oct-16	1.1	109	1	606		606	<1.0
		15-Nov-16	2.2	105	1.2	4.1		4.3	<1.0
		5-Dec-16	1.6	102	1.2	5.8		5.8	<1.0
		17-Apr-17	1.1	63.8	1.1	6.6		7.6	<1.0
		8-May-17	1.1	52.2	<1.0	14.9		13.9	<1.0
		20-Jun-17	1.1	52.5	1	8.9		9	<1.0
		11-Jul-17	1.1	55.6	1	17.6		17.5	<1.0
		1-Aug-17	1.2	61.0	1.3	20.8		20.3	<1.0
		16-Aug-17	1.2	67.5	1.2	19		19.8	<1.0
		18-Sep-17	1.2	82.4	1	10.4		10.7	<1.0
		16-Oct-17	1.1	52.0	1.2	8.7		8.8	<1.0
		4/23/2018	1.5	124	<1.2	2.8			
		10/11/2018	2	91.4	1.4	8.4		8.4	<1.0
		4/25/2019	2.8	61.4	1.3	2.9		2.8	<1.0
		10/21/2019		37.4	1.4	6		5.9	<1.0
		6-May-20			<1.0	2.1		2.1	<1.0
		29-May-20		15.8			1.4	15.8	<1.0
		5-Oct-20		19.4	<1.0	1.5	1.6	1.6	<1.0
		29-Apr-21		11.5	1.5	4	1.5	3.9	<1.0
		25-Oct-21		(dry)	2	6.4	1.3	7.1	<1.0
		18-Apr-22		3	1.3	8.1	1.2	1.2	<1.2
		18-Oct-22		2.9	1.4	5	<1	5.2	<1
		25-Apr-23		1.5	1.1	7.9	1.2	1.2	<1.0
		16-Oct-23		1.9	1.4	8	1.1	7.9	<1.0
Fluoride	**mg/L**	25-Oct-16	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		15-Nov-16	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		5-Dec-16	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		17-Apr-17	0.11	0.11	<0.10	<0.10		<0.10	<0.10
		8-May-17	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		20-Jun-17	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		11-Jul-17	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		1-Aug-17	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		16-Aug-17	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		18-Sep-17	0.1	<0.10	<0.10	<0.10		<0.10	<0.10
		16-Oct-17	<0.10	<0.10	<0.10	<0.10		<0.10	<0.10
		4/23/2018	0.086	0.08	0.053	0.075			
		10/11/2018	<0.1	<0.1	<0.1	<0.1		<0.10	<0.10
		4/25/2019	<0.1	<0.1	<0.1	<0.1		<0.10	<0.10
		10/21/2019		<0.1	<0.1	<0.1		<0.10	<0.10
		6-May-20			<0.1	<0.1		<0.10	<0.10
		5-Oct-20			<0.1	<0.1	0.14	0.14	<0.10
		29-Apr-21		<0.05	<0.05	0.079	0.12	0.076	<0.05
		25-Oct-21		(dry)	0.06	0.084	0.17	0.084	<0.05
		18-Apr-22		0.067	0.058	0.086	0.14	0.14	<0.05
		18-Oct-22		<0.05	<0.05	0.092	0.14	0.061	<0.05
		25-Apr-23		0.079	0.075	0.09	0.13	0.13	<0.05
		16-Oct-23		0.072	0.06	0.084	0.16	0.083	<.05
Sulfate	**mg/L**	25-Oct-16	1980	937	823	462		458	<2.0
		15-Nov-16	1820	929	764	475		470	<2.0
		5-Dec-16	1840	903	778	460		460	<2.0

TABLE 3A
GENERAL PARAMETERS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Sulfate	**mg/L**	17-Apr-17	1710	551	780	454		441	<2.0
		8-May-17	1760	712	731	438		433	<2.0
		11-Jul-17	1870	548	707	406		412	<2.0
		1-Aug-17	1830	511	700	339		342	<2.0
		16-Aug-17	1840	447	703	354		348	<2.0
		18-Sep-17	1890	441	719	432		436	<2.0
		16-Oct-17	1840	675	1010	443		432	<2.0
		10/11/2018	1550	695	589	460		461	<2.0
		4/25/2019	1300	988	562	423		441	<2.0
		10/21/2019		1120	630	437		434	<2.0
		6-May-20			547	425		346	<2.0
		29-May-20		1420			360	1420	<2.0
		5-Oct-20		1140	594	467	180	180	<2.0
		29-Apr-21		1500	673	487	238	396	<1.0
		25-Oct-21		(dry)	692	431	389	435	<1.0
		18-Apr-22		1560	864	372	208	209	<1
		18-Oct-22		1390	794	450	269	457	<1
		25-Apr-23		1480	790	448	548	546	<5
		16-Oct-23		1370	825	431	427	443	<1.0
Total Dissolved Solids	**mg/L**	25-Oct-16	3300	2070	1740	1070		1090	<10.0
		15-Nov-16	3130	2090	1710	1190		1140	<10.0
		5-Dec-16	3110	1940	1710	1100		1110	<10.0
		17-Apr-17	3160	1500	1760	1180		1120	<10.0
		8-May-17	3010	1610	1630	1050		1040	<10.0
		20-Jun-17	3190	1700	1510	1090		1120	<10.0
		11-Jul-17	3040	1380	1550	1010		1020	<10.0
		1-Aug-17	3290	1300	1560	864		888	12
		16-Aug-17	3360	1300	1610	979		957	32
		18-Sep-17	2580	1310	1580	1100		1000	<10.0
		16-Oct-17	3110	1380	1800	993		1010	<10.0
		4/23/2018	2870	1420	1400	1080			
		10/11/2018	2850	1600	1350	1100		1120	<10.0
		4/25/2019	2560	1970	1380	1020		1050	<10.0
		10/21/2019		2250	1490	1100		1090	<10.0
		6-May-20		2590	1460	1100			
		29-May-20					806		
		5-Oct-20		2370	1500	1200	556		
		29-Apr-21		2810	1590	1180	587	1170	<10.0
		25-Oct-21		(dry)	1370	1060	754	1070	<10.0
		18-Apr-22		2700	1530	1020	480	362	<10
		18-Oct-22		2300	933	1140	716	1170	<10
		25-Apr-23		2380	1700	1120	1100	1120	<10
		16-Oct-23		2470	1790	1190	920	1190	<10
pH, Lab	**SU**	15-Nov-16	7.3	7.2	7.2	7.2		7.2	6.0
		5-Dec-16	6.8	6.6	6.6	6.9		6.8	7.1
		17-Apr-17	7.3	7.4	7.3	7.3		7.3	6.1
		8-May-17	7.2	7.1	7.1	7.2		7.2	6.2
		20-Jun-17	7.1	7.1	7.2	7.2		7.2	5.9
		11-Jul-17	7.1	7.1	7.1	7.2		7.2	6.0
		1-Aug-17	7.1	7.1	7.2	7.2		7.2	6.0

TABLE 3A
GENERAL PARAMETERS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
pH, Lab	**SU**	16-Aug-17	7.1	7.2	7.2	7.2		7.2	5.8
		18-Sep-17	7.2	7.1	7.2	7.2		7.2	5.8
		16-Oct-17	7.3	7.2	7.2	7.3		7.3	6.0
		4/23/2018	6.8	7	7	6.3			
		10/11/2018	7.2	7.2	7.2	7.2		7.2	6.1
		4/25/2019	7.4	7.4	7.2	7.5		7.3	6.2
		10/21/2019		7.2	7.1	7.2		7.2	5.7
		6-May-20			7.4	7.4			
		29-May-20		7.5			7.7		
		5-Oct-20		7.1	7.2	7.2	7.4		
pH, Field	**SU**	25-Oct-16	6.48	6.34	6.38	6.54			
		15-Nov-16	6.89	6.46	6.62	6.81			
		5-Dec-16	6.53	6.35	6.35	6.59			
		17-Apr-17	6.79	6.52	6.49	6.34			
		8-May-17	6.76	6.67	6.73	6.97			
		20-Jun-17	6.78	6.66	6.74	6.96			
		11-Jul-17	4.57	4.63	5.03	5.34			
		1-Aug-17	6.52	6.63	6.71	6.89			
		16-Aug-17	6.63	6.58	6.68	6.92			
		18-Sep-17	6.47	6.31	6.37	6.59			
		16-Oct-17	6.74	6.48	6.48	6.71			
		4/23/2018	6.45	6.34	6.40	6.60			
		10/11/2018	6.27	6.29	6.34	6.52			
		10/21/2019		6.25	6.28	6.53			
		6-May-20			6.36	6.53			
		29-May-20		6.27			6.91		
		5-Oct-20		6.21	6.29	6.50	6.66		
		29-Apr-21		6.10	6.27	6.49	6.85		
		25-Oct-21		(dry)	6.46	6.55	7.08		
		18-Apr-22		7.20	7.30	7.20	7.70	7.6	5.9
		18-Oct-22		7.30	7.10	7.40	7.50	7.3	6.1
		25-Apr-23		6.30	6.24	6.56	6.81		
		16-Oct-23		6.20	6.38	6.56	6.97		
Specific Conductance, Field	**µmhos/cm**	25-Oct-16	3596	2570	2146	1460			
		15-Nov-16	3359	2534	2088	1586			
		5-Dec-16	3314	2330	2106	1530			
		17-Apr-17	3351	1874	2090	1541			
		8-May-17	3366	2090	2063	1494			
		20-Jun-17	3359	1995	1898	1514			
		11-Jul-17	3464	1802	1974	1436			
		1-Aug-17	3433	1773	1961	1321			
		16-Aug-17	3430	1806	1959	1333			
		18-Sep-17	3475	1815	1978	1477			
		16-Oct-17	3422	2015	2360	1469			
		4/23/2018	3131	2008	1894	1562			
		10/11/2018	3128	1428	1793	1526			
		4/25/2019	2983	2501	1821	1522			
		10/21/2019		2634	1917	1531			
		6-May-20		1065	1821	1486			
		5-Oct-20		2565	1869	1575	818		

TABLE 3A
GENERAL PARAMETERS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Specific Conductance, Field	**µmhos/cm**	29-Apr-21		3004	1964	1601	790		
		25-Oct-21		(dry)	1749	1288	882		
		18-Apr-22		2992	2179	1377	662		
		18-Oct-22		2641	2106	1517	1000		
		25-Apr-23		2739	2031	1565	1419		
		16-Oct-23		2719	1108	844	788		

TABLE 3B
TOTAL METALS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Antimony	µg/L	17-Apr-17	<2.0	<2.0	<2.0	<2.0		<2.0	<0.50
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<2.0	<2.0	<2.0	<2.0		<2.0	<0.50
		8-May-17	<2.0	<2.0	<2.0	<2.0		<2.0	<0.50
		20-Jun-17	<2.0	<2.0	<2.0	<2.0		<2.0	<0.50
		11-Jul-17	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50
		1-Aug-17	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50
		16-Aug-17	<1.0	<1.0	<1.0	<1.0		<1.0	<0.50
		18-Sep-17	<1.0	<1.0	<1.0	<1.0		<1.0	<0.50
		16-Oct-17	**12**	<1.0	<1.0	<1.0		<1.0	<0.50
		29-May-20					<1.0		
Arsenic	µg/L	17-Apr-17	<2.0	<2.0	<2.0	<2.0		<2.0	<0.50
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<2.0	<2.0	<2.0	<2.0		<2.0	<0.50
		8-May-17	<2.0	<2.0	2.7	<2.0		<2.0	<0.50
		20-Jun-17	<2.0	**38.7**	<2.0	<2.0		<2.0	<0.50
		11-Jul-17	<0.50	**3.2**	<0.50	<0.50		<0.50	<0.50
		1-Aug-17	<0.50	**3.2**	**0.99**	<0.50		<0.50	<0.50
		16-Aug-17	<1.0	**2.7**	**2.7**	<1.0		<1.0	<0.50
		18-Sep-17	<1.0	<1.0	<1.0	<1.0		<1.0	<0.50
		16-Oct-17	<1.0	<1.0	<1.0	<1.0		<1.0	<0.50
		29-May-20					<1.0		
Barium	µg/L	17-Apr-17	<40.0	**187**	<40.0	**61.5**		**59.9**	<10.0
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<40.0	**51.5**	<40.0	**62.8**		**65.6**	<10.0
		8-May-17	**42.4**	**48.6**	**62.5**	**64.5**		**63.8**	<10.0
		20-Jun-17	**18.5**	**1740**	**40.9**	**61.3**		**59.3**	<10.0
		11-Jul-17	**18.7**	**172**	**38.8**	**58.5**		**57.2**	<10.0
		1-Aug-17	<40.0	**165**	**59.4**	**59.0**		**64.5**	<10.0
		16-Aug-17	**17.0**	**129**	**86.2**	**54.0**		**53.1**	<10.0
		18-Sep-17	**18.9**	**61.1**	**24.7**	**54.2**		**55.3**	<0.50
		16-Oct-17	**41.4**	**40.1**	**34.0**	**60.5**		**60.6**	<0.50
		29-May-20					**50.7**		
Beryllium	µg/L	17-Apr-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20
		8-May-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20
		20-Jun-17	<0.80	**6.9**	**0.28J**	<0.80		<0.80	<0.20
		11-Jul-17	**0.48J**	**0.72**	**0.23**	**0.125**		**0.098J**	<0.20
		1-Aug-17	<0.20	**0.43**	**0.15J**	<0.20		<0.20	<0.20
		16-Aug-17	<0.40	**0.40J**	**0.34J**	<0.40		<0.40	<0.20
		18-Sep-17	<0.40	**0.18J**	<0.40	<0.40		<0.40	<0.20
		16-Oct-17	<0.40	<0.40	**0.12J**	<0.40		<0.40	<0.20
		29-May-20					<0.30		

TABLE 3B
TOTAL METALS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Boron	µg/L	17-Apr-17	<160	<160	<160	<160		<160	<40.0
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<160	<160	<160	<160		<160	<40.0
		8-May-17	<160	<160	<160	<160		<160	<40.0
		20-Jun-17	<160	<160	<160	<160		<160	<40.0
		11-Jul-17	**124**	**76.4**	**70.7**	<40.0		<40.0	<40.0
		1-Aug-17	**123**	**75.9**	**69.5**	<40.0		<40.0	<40.0
		16-Aug-17	**114**	<80.0	<80.0	<80.0		<80.0	<40.0
		18-Sep-17	**122**	<80.0	<80.0	<80.0		<80.0	<40.0
		16-Oct-17	**126**	**87.8**	<80.0	<80.0		<80.0	<40.0
		4/23/2018	**123**	**73.8**	**79.5**	**43.3**			
		10/11/2018	**103**	**70.8**	**64.7**	<40		<40.0	<40.0
		4/25/2019	**96**	**69.7**	**75.8**	<50		<50.0	<10.0
		10/21/2019		**66.9**	**70.5**	<40		<40.0	<40.0
		6-May-20			**71.9**	<40		<40	<40
		29-May-20		**64.7**			<40	<40	<40
		5-Oct-20		**71.7**	**70.3**	**42.9**	<40	<40	<40
		29-Apr-21		**67.3**	**78.2**	**41**	**15.8**	**41.6**	<10
		25-Oct-21		**(dry)**	**57.1**	**35.5**	**18.5**	**35.4**	<10
		18-Apr-22		**55.6**	**64.2**	**32.7**	**11.8**	**11.8**	<10
		18-Oct-22		**70.9**	**71.5**	**38.8**	**37.8**	**37.5**	<10
		25-Apr-23		**66.7**	**92.6**	**36.2**	**20**	**19.8**	<10
		16-Oct-23		**84.9**	**76.8**	**<50.0**	**<50.0**	**<50.0**	<10.0
Cadmium	µg/L	17-Apr-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20
Dissolved (ONE EVENT ONLY)		17-Apr-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20
		8-May-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20
		20-Jun-17	<0.80	**1.3**	<0.80	<0.80		<0.80	<0.20
		11-Jul-17	<0.20	**0.15J**	<0.20	<0.20		<0.20	<0.20
		1-Aug-17	<0.20	**0.13J**	<0.20	<0.20		<0.20	<0.20
		16-Oct-17	**2.0**	<0.40	<0.40	<0.40		<0.40	<0.20
		29-May-20					<0.2		
Calcium	mg/L	17-Apr-17	**563**	**350**	**384**	**197**		**192**	<0.50
Dissolved (ONE EVENT ONLY)		17-Apr-17	**617**	**347**	**412**	**208**		**216**	<0.50
		8-May-17	**588**	**404**	**402**	**203**		**209**	<1.0
		20-Jun-17	**607**	**524**	**373**	**211**		**207**	<0.50
		11-Jul-17	**628**	**355**	**387**	**199**		**199**	<0.50
		1-Aug-17	**650**	**375**	**415**	**189**		**185**	<0.50
		16-Aug-17	**609**	**341**	**388**	**179**		**178**	<0.50
		18-Sep-17	**538**	**316**	**369**	**192**		**191**	<100
		16-Oct-17	**585**	**357**	**448**	**197**		**197**	<100
		4/23/2018	**551**	**371**	**371**	**229**			
		10/11/2018	**532**	**400**	**331**	**193**		**192**	<0.10
		4/25/2019	**484**	**481**	**343**	**206**		**203**	<0.50
		10/21/2019		**539**	**354**	**217**		**219**	<0.50

TABLE 3B
TOTAL METALS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Calcium	mg/L	6-May-20			**342**	**206**		**203**	<0.50
		29-May-20		**583**			**168**	**616**	<0.50
		5-Oct-20		**521**	**360**	**225**	**124**	**126**	<0.50
		29-Apr-21		**664**	**402**	**221**	**123**	**224**	<0.50
		25-Oct-21		**(dry)**	**372**	**206**	**149**	**195**	<0.50
		18-Apr-22		**608**	**403**	**194**	**97.9**	**93.6**	<0.50
		18-Oct-22		**547**	**405**	**212**	**158**	**212**	<0.50
		25-Apr-23		**539**	**403**	**199**	**215**	**219**	<0.50
		16-Oct-23		**498**	**387**	**213**	**189**	**219**	<0.50
Chromium	µg/L	17-Apr-17	<4.0	<4.0	<4.0	<4.0		<4.0	<1.0
Dissolved (ONE EVENT ONLY)		8-May-17	**17.6**	<4.0	**10.7**	<4.0		<4.0	<1.0
		20-Jun-17	<4.0	**309**	**4.2**	<4.0		<4.0	<1.0
		1-Aug-17	<1.0	**20.2**	**7.7**	<1.0		1.3	<1.0
		16-Aug-17	<2.0	**18.0**	**17.7**	<2.0		<2.0	<1.0
		18-Sep-17	<2.0	**5.5**	**2.1**	<2.0		<2.0	<1.0
		16-Oct-17	**17.0**	<2.0	**4.2**	<2.0		<2.0	<1.0
		29-May-20					<1.5		
Cobalt	µg/L	17-Apr-17	**7.3**	**10.2**	**5.8**	<0.80		<0.80	<0.20
Dissolved (ONE EVENT ONLY)		17-Apr-17	**4.6**	<0.80	**4.7**	<0.80		<0.80	<0.20
		8-May-17	**9.1**	**2.5**	**8.2**	<0.80		<0.80	<0.20
		20-Jun-17	**5.3**	**97.9**	**6.3**	<0.80		<0.80	<0.20
		11-Jul-17	**4.9**	**9.4**	**6.2**	<0.20		<0.20	<0.20
		1-Aug-17	**3.7**	**7.3**	**6.1**	<0.20		**0.28**	<0.20
		16-Aug-17	**4.8**	**6.2**	**8.4**	<0.40		<0.40	<0.20
		18-Sep-17	**4.4**	**2.5**	**5.3**	<0.40		<0.40	<0.20
		16-Oct-17	**13.0**	**0.86**	**6.6**	<0.40		<0.40	<0.20
		29-May-20					**0.8**		
Lead	µg/L	17-Apr-17	<2.0	**5.6**	<2.0	<2.0		<2.0	<0.50
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<2.0	<2.0	<2.0	<2.0		<2.0	<0.50
		8-May-17	<2.0	<2.0	**2.5**	<2.0		<2.0	<0.50
		20-Jun-17	<2.0	**77.0**	<2.0	<2.0		<2.0	<0.50
		11-Jul-17	<0.50	**5.3**	**1.1**	<0.50		<0.50	<0.50
		1-Aug-17	<0.50	**4.6**	**1.9**	<0.50		**0.60**	<0.50
		16-Aug-17	<1.0	**3.8**	**3.3**	<1.0		<1.0	<0.50
		18-Sep-17	<1.0	**1.4**	<1.0	<1.0		<1.0	<0.50
		16-Oct-17	**2.2**	<1.0	<1.0	<1.0		<1.0	<0.50
		29-May-20					<0.50		
Lithium	µg/L	17-Apr-17	<20.0	**26.5**	**32.7**	<20.0		<20.0	<5.0
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<20.0	<20.0	**27.9**	<20.0		<20.0	<5.0
		8-May-17	<20.0	<20.0	**30.3**	<20.0		<20.0	<5.0

TABLE 3B
TOTAL METALS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Lithium	µg/L	20-Jun-17	<20.0	**150**	**26.8**	<20.0		<20.0	<5.0
		11-Jul-17	**12.5**	**25.2**	**27.7**	**11.6**		**11.0**	<5.0
		1-Aug-17	**12.6**	**22.9**	**29.6**	**10.9**		**12.2**	<5.0
		16-Aug-17	<20.0	**18.3**	**29.7**	**10.7**		**10.5**	<5.0
		18-Sep-17	**14.5**	**19.9**	**29.7**	**14.3**		**14.5**	<5.0
		16-Oct-17	**17.0**	**19.5**	**28.1**	**15.7**		**16.4**	<5.0
		29-May-20					<10.0		
Mercury	µg/L	17-Apr-17	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
		8-May-17	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
		20-Jun-17	<0.20	0.46	<0.20	<0.20		<0.20	<0.20
		11-Jul-17	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
		1-Aug-17	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
		16-Aug-17	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
		18-Sep-17	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
		16-Oct-17	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20
		29-May-20					<0.10		
Molybdenum	µg/L	17-Apr-17	**2.3**	<1.2	<1.2	<1.2		<1.2	<0.30
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<1.2	<1.2	<1.2	<1.2		<1.2	<0.30
		8-May-17	**2.9**	<1.2	<1.2	<1.2		<1.2	<0.30
		20-Jun-17	<1.2	**2.8**	<1.2	<1.2		<1.2	<0.30
		11-Jul-17	**0.43**	**0.55**	<0.30	<0.30		<0.30	<0.30
		1-Aug-17	<0.30	**0.39**	**0.33**	<0.30		<0.30	<0.30
		16-Aug-17	<0.60	<0.60	<0.60	<0.60		<0.60	<0.30
		18-Sep-17	<0.60	<0.60	<0.60	<0.60		<0.60	<0.30
		16-Oct-17	**3.1**	<0.60	<0.60	<0.60		<0.60	<0.30
		29-May-20					**0.98**		
Selenium	µg/L	17-Apr-17	<4.0	<4.0	<4.0	<4.0		<4.0	<1.0
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<4.0	<4.0	<4.0	<4.0		<4.0	<1.0
		8-May-17	<4.0	<4.0	<4.0	<4.0		<4.0	<1.0
		20-Jun-17	<4.0	<4.0	<4.0	<4.0		<4.0	<1.0
		11-Jul-17	<1.0	<1.0	<1.0	<1.0		<1.0	<1.0
		1-Aug-17	<1.0	<1.0	<1.0	<1.0		<1.0	<1.0
		16-Aug-17	<2.0	<2.0	<2.0	<2.0		<2.0	<1.0
		18-Sep-17	<2.0	<2.0	<2.0	<2.0		<2.0	<1.0
		16-Oct-17	<2.0	<2.0	<2.0	<2.0		<2.0	<1.0
		29-May-20					<1.0		
Thallium	µg/L	17-Apr-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20
Dissolved (ONE EVENT ONLY) ->		17-Apr-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20

TABLE 3B
TOTAL METALS LAB RESULTS SUMMARY
GENERAL WASTE AND RECYCLING, LLC

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Thallium	µg/L	8-May-17	<0.80	<0.80	<0.80	<0.80		<0.80	<0.20
		20-Jun-17	<0.80	**2.3**	**0.48j**	<0.80		<0.80	<0.20
		11-Jul-17	<0.20	**0.19J**	**0.04J**	<0.20		<0.20	<0.20
		1-Aug-17	<0.20	**0.15J**	**0.053J**	**0.0035J**		**0.012J**	<0.20
		16-Aug-17	<0.40	**0.14J**	**0.12J**	<0.40		<0.40	<0.20
		18-Sep-17	<0.40	**0.069J**	**0.069J**	<0.40		<0.40	<0.20
		16-Oct-17	**0.10J**	**0.052J**	**0.038J**	<0.40		<0.40	<0.20
		29-May-20					<0.02		

TABLE 3C
CCR COMBINED RADIUM 226 AND 228 SUMMARY
GENERAL WASTE AND RECYCLING, INC.

PARAMETER	UNITS	DATE	MW-3R	MW-7	MW-8	MW-9	MW-10	Field Dup	Field Blank
Combined Radium 226/228	pCi/L	17-Apr-17	1.32 ± 0.53	<0.57	0.60 ± 0.56	<0.55		0.91 ± 0.64	1.06 ± 0.52
Combined Radium 226/228	pCi/L	8-May-17	1.08 ± 0.70	1.78 ± 0.80	4.25 ± 1.07	<0.88		1.51 ± 0.66	<0.59
Combined Radium 226/228	pCi/L	20-Jun-17	2.06 ± 0.84	0.90 ± 0.93	1.22 ± 0.84	0.73 ± 0.79		<0.68	<1.0
Combined Radium 226/228	pCi/L	11-Jul-17	<0.78	1.57 ± 1.34	1.26 ± 1.23	<0.75		2.16 ± 1.23	<0.69
Combined Radium 226/228	pCi/L	1-Aug-17	1.24 ± 0.54	1.24 ± 0.68	0.85 ± 0.56	0.91 ± 0.65		1.54 ± 0.57	0.76 ± 0.48
Combined Radium 226/228	pCi/L	16-Aug-17	0.68 ± 0.515	0.90 ± 0.48	0.92 ± 0.59	1.15 ± 0.51		1.59 ± 0.73	<0.62
Combined Radium 226/228	pCi/L	18-Sep-17	0.789 ± 1.33	2.89 ± 1.73	2.43 ± 1.83	2.17 ± 1.63		1.66 ± 1.49	0.805 ± 1.27
Combined Radium 226/228	pCi/L	16-Oct-17	1.62 ± 1.23	3.40 ± 1.68	3.11 ± 1.42	1.95 ± 1.15		2.18 ± 1.33	1.10 ± 1.06

Table 4: 2024 Updated UPLs Based on Unified Guidance				
Parameter	**MW-7**	**MW-8**	**MW-9**	**MW-10**
Boron (ug/L)	104.3	106.17	43.456	41.8
Calcium (mg/L)	663.1	433.0	231.3	252.5
Chloride (mg/L)	131.4	1.8	18.9	1.9
Fluoride (mg/L)	0.104	0.079	0.098	0.184
pH (SU)	6.03 - 6.74	6.09 - 6.79	6.27 - 7.01	6.48 - 7.35
Sulfate (mg/L)	1729.9	891.16	515.6	655.7
Total Dissolved Solids (mg/L)	2963	1882	1252	1273

APPENDICES

APPENDIX A

ANALYTICAL LABORATORY REPORTS & FIELD REPORTS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

May 08, 2023

Scott Seeley
Northeast Technical Services
526 Chestnut Street
Virginia, MN 55792

RE: Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Dear Scott Seeley:

Enclosed are the analytical results for sample(s) received by the laboratory on April 25, 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 - Duluth, MN
- Pace Analytical Services - Minneapolis

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

Sincerely,

Nikki Staton

Nikki Staton
nikki.staton@pacelabs.com
(218) 336-2110
Project Manager

Enclosures

cc: Allison Byrd, Northeast Technical Services
Sample Data, Northeast Technical Services
Carrie Jensen, Northeast Technical Services
Alan Phillips, Dem-Con Companies
Karissa Vosen, Northeast Technical Services

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

CERTIFICATIONS

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
GMP+ Certification #: GMP050884
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Approval: via MN 027-053-137
Minnesota Petrofund Registration #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification (A2LA) #: R-036
North Dakota Certification (MN) #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01
USDA Permit #: P330-19-00208

Pace Analytical Services, LLC - Duluth MN

4730 Oneota Street, Duluth, MN 55807
Minnesota Certification #: 027-137-152
Minnesota Dept of Ag Approval: via Minnesota 027-137-152
Minnesota Petrofund Registration #: 1240
Montana Certification #: CERT0102
Nevada Certification #: MN00037
North Dakota Certification #: R-105
Wisconsin Certification #: 999446800
Wisconsin Dept of Ag Certification: 480341

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

SAMPLE SUMMARY

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10650724001	**MW7**	Water	04/25/23 10:30	04/25/23 16:25
10650724002	**MW8**	Water	04/25/23 11:35	04/25/23 16:25
10650724003	**MW9**	Water	04/25/23 13:02	04/25/23 16:25
10650724004	**MW10**	Water	04/25/23 14:06	04/25/23 16:25
10650724005	**Field Duplicate**	Water	04/25/23 14:07	04/25/23 16:25
10650724006	**Field Blank**	Water	04/25/23 14:10	04/25/23 16:25

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

SAMPLE ANALYTE COUNT

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10650724001	**MW7**	SM 2540C-2015	CD3	1	PASI-DU
		EPA 300.0	RL1	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	TJ1	1	PASI-M
10650724002	**MW8**	SM 2540C-2015	CD3	1	PASI-DU
		EPA 300.0	RL1	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	TJ1	1	PASI-M
10650724003	**MW9**	SM 2540C-2015	CD3	1	PASI-DU
		EPA 300.0	RL1	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	TJ1	1	PASI-M
10650724004	**MW10**	SM 2540C-2015	CD3	1	PASI-DU
		EPA 300.0	RL1	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	TJ1	1	PASI-M
10650724005	**Field Duplicate**	SM 2540C-2015	CD3	1	PASI-DU
		EPA 300.0	RL1	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	TJ1	1	PASI-M
10650724006	**Field Blank**	SM 2540C-2015	RL1	1	PASI-DU
		EPA 300.0	RL1	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	TJ1	1	PASI-M

PASI-DU = Pace Analytical Services - Duluth, MN
PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

ANALYTICAL RESULTS

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Sample: MW7 **Lab ID: 10650724001** Collected: 04/25/23 10:30 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**2380**	mg/L	250	1		04/28/23 12:48		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.5**	mg/L	1.0	1		04/28/23 15:00	16887-00-6	
Fluoride	**0.079**	mg/L	0.050	1		04/28/23 15:00	16984-48-8	
Sulfate	**1480**	mg/L	10.0	10		04/28/23 15:23	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		04/27/23 00:04		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**539**	mg/L	0.50	1	04/28/23 07:55	05/01/23 10:57	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**66.7**	ug/L	10.0	1	04/28/23 07:59	04/28/23 17:53	7440-42-8	

Sample: MW8 **Lab ID: 10650724002** Collected: 04/25/23 11:35 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1700**	mg/L	40.0	1		04/28/23 12:48		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.1**	mg/L	1.0	1		04/28/23 13:26	16887-00-6	
Fluoride	**0.075**	mg/L	0.050	1		04/28/23 13:26	16984-48-8	
Sulfate	**790**	mg/L	5.0	5		04/28/23 13:50	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**7.1**	Std. Units	0.10	1		04/27/23 00:12		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**403**	mg/L	0.50	1	04/28/23 07:55	05/01/23 10:59	7440-70-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

ANALYTICAL RESULTS

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Sample: MW8 **Lab ID: 10650724002** Collected: 04/25/23 11:35 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**92.6**	ug/L	10.0	1	04/28/23 07:59	04/28/23 17:57	7440-42-8	

Sample: MW9 **Lab ID: 10650724003** Collected: 04/25/23 13:02 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1120**	mg/L	40.0	1		04/28/23 12:48		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**7.9**	mg/L	1.0	1		04/28/23 16:57	16887-00-6	
Fluoride	**0.090**	mg/L	0.050	1		04/28/23 16:57	16984-48-8	
Sulfate	**448**	mg/L	2.0	2		04/28/23 17:21	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**7.2**	Std. Units	0.10	1		04/27/23 00:20		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**199**	mg/L	0.50	1	04/28/23 07:55	05/01/23 11:00	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**36.2**	ug/L	10.0	1	04/28/23 07:59	04/28/23 18:00	7440-42-8	

Sample: MW10 **Lab ID: 10650724004** Collected: 04/25/23 14:06 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1100**	mg/L	20.0	1		04/28/23 12:48		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.2**	mg/L	1.0	1		04/28/23 16:10	16887-00-6	
Fluoride	**0.13**	mg/L	0.050	1		04/28/23 16:10	16984-48-8	
Sulfate	**548**	mg/L	5.0	5		04/28/23 16:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

ANALYTICAL RESULTS

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Sample: MW10 **Lab ID: 10650724004** Collected: 04/25/23 14:06 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**7.7**	Std. Units	0.10	1		04/27/23 00:58		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**215**	mg/L	0.50	1	04/28/23 07:55	05/01/23 11:02	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**20.0**	ug/L	10.0	1	04/28/23 07:59	04/28/23 18:04	7440-42-8	

Sample: Field Duplicate **Lab ID: 10650724005** Collected: 04/25/23 14:07 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1120**	mg/L	40.0	1		04/28/23 12:48		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.2**	mg/L	1.0	1		04/28/23 17:44	16887-00-6	
Fluoride	**0.13**	mg/L	0.050	1		04/28/23 17:44	16984-48-8	
Sulfate	**546**	mg/L	5.0	5		04/28/23 18:08	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**7.6**	Std. Units	0.10	1		04/27/23 01:07		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**219**	mg/L	0.50	1	04/28/23 07:55	05/01/23 11:09	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**19.8**	ug/L	10.0	1	04/28/23 07:59	04/28/23 17:24	7440-42-8	

Sample: Field Blank **Lab ID: 10650724006** Collected: 04/25/23 14:10 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	ND	mg/L	10.0	1		05/02/23 10:55		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

ANALYTICAL RESULTS

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Sample: Field Blank **Lab ID: 10650724006** Collected: 04/25/23 14:10 Received: 04/25/23 16:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	ND	mg/L	1.0	1		04/28/23 15:47	16887-00-6	
Fluoride	ND	mg/L	0.050	1		04/28/23 15:47	16984-48-8	
Sulfate	ND	mg/L	1.0	1		04/28/23 15:47	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**6.3**	Std. Units	0.10	1		04/27/23 01:12		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	ND	mg/L	0.50	1	04/28/23 07:55	05/01/23 11:11	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	ND	ug/L	10.0	1	04/28/23 07:59	04/28/23 17:28	7440-42-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

QC Batch: 878196 — Analysis Method: SM 2540C-2015
QC Batch Method: SM 2540C-2015 — Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005

METHOD BLANK: 4629942 — Matrix: Water
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	04/28/23 12:48	

METHOD BLANK: 4629946 — Matrix: Water
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	04/28/23 12:48	

LABORATORY CONTROL SAMPLE: 4629943

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	244	98	80-120	

SAMPLE DUPLICATE: 4629944

Parameter	Units	10650724003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1120	1100	2	5	

SAMPLE DUPLICATE: 4629945

Parameter	Units	10650626005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	382	373	2	5	

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
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

QC Batch: 878721
QC Batch Method: SM 2540C-2015
Analysis Method: SM 2540C-2015
Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10650724006

METHOD BLANK: 4632028 Matrix: Water
Associated Lab Samples: 10650724006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	05/02/23 10:54	

METHOD BLANK: 4632032 Matrix: Water
Associated Lab Samples: 10650724006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	05/02/23 10:56	

LABORATORY CONTROL SAMPLE: 4632029

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	236	94	80-120	

SAMPLE DUPLICATE: 4632030

Parameter	Units	10650739006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1120	1120	0	5	

SAMPLE DUPLICATE: 4632031

Parameter	Units	10650739004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	460	450	2	5	

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
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

QC Batch: 878020 — Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 — Analysis Description: 300.0 IC Anions WW 28 Day DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005, 10650724006

METHOD BLANK: 4629172 — Matrix: Water
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005, 10650724006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/27/23 16:44	
Fluoride	mg/L	ND	0.050	04/27/23 16:44	
Sulfate	mg/L	ND	1.0	04/27/23 16:44	

LABORATORY CONTROL SAMPLE: 4629173

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	100	98.4	98	90-110	
Fluoride	mg/L	5	4.8	95	90-110	
Sulfate	mg/L	100	102	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4629174 — 4629175

Parameter	Units	10650929002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	116	100	100	211	215	95	99	90-110	2	20	
Fluoride	mg/L	0.083	5	5	4.8	5.1	95	99	90-110	5	20	
Sulfate	mg/L	5.9	100	100	107	111	101	105	90-110	4	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4629178 — 4629179

Parameter	Units	10650929003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	122	100	100	217	213	94	90	90-110	2	20	
Fluoride	mg/L	0.087	5	5	4.8	4.6	95	91	90-110	4	20	
Sulfate	mg/L	7.0	100	100	106	104	99	97	90-110	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

QC Batch: 877736
QC Batch Method: SM 4500-H+B-2011
Analysis Method: SM 4500-H+B-2011
Analysis Description: 4500H+B pH, WW DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005, 10650724006

LABORATORY CONTROL SAMPLE: 4627818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	100	98-102	H6

SAMPLE DUPLICATE: 4627819

Parameter	Units	10650628003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.5	7.5	0	10	H6

SAMPLE DUPLICATE: 4627820

Parameter	Units	10650739001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.4	7.2	2	10	H6

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
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

QC Batch: 878072 — Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 — Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005, 10650724006

METHOD BLANK: 4629578 — Matrix: Water
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005, 10650724006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	05/01/23 10:32	

LABORATORY CONTROL SAMPLE: 4629579

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	20	18.8	94	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4629580 4629581

Parameter	Units	10650525001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	5.2	20	20	24.8	24.5	98	97	70-130	1	20	

MATRIX SPIKE SAMPLE: 4629582

Parameter	Units	10650907001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	88800 ug/L	20	109	99	70-130	

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
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

QC Batch: 878071 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005, 10650724006

METHOD BLANK: 4629574 Matrix: Water
Associated Lab Samples: 10650724001, 10650724002, 10650724003, 10650724004, 10650724005, 10650724006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	04/28/23 17:17	

LABORATORY CONTROL SAMPLE: 4629575

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	100	109	109	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4629576 4629577

Parameter	Units	10650726001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	306	100	100	392	407	86	101	70-130	4	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALIFIERS

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

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

H6 Analysis initiated outside of the 15 minute EPA required holding time.

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 6385CC General Waste Apr-23
Pace Project No.: 10650724

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10650724001	**MW7**	SM 2540C-2015	878196		
10650724002	**MW8**	SM 2540C-2015	878196		
10650724003	**MW9**	SM 2540C-2015	878196		
10650724004	**MW10**	SM 2540C-2015	878196		
10650724005	**Field Duplicate**	SM 2540C-2015	878196		
10650724006	**Field Blank**	SM 2540C-2015	878721		
10650724001	**MW7**	EPA 300.0	878020		
10650724002	**MW8**	EPA 300.0	878020		
10650724003	**MW9**	EPA 300.0	878020		
10650724004	**MW10**	EPA 300.0	878020		
10650724005	**Field Duplicate**	EPA 300.0	878020		
10650724006	**Field Blank**	EPA 300.0	878020		
10650724001	**MW7**	SM 4500-H+B-2011	877736		
10650724002	**MW8**	SM 4500-H+B-2011	877736		
10650724003	**MW9**	SM 4500-H+B-2011	877736		
10650724004	**MW10**	SM 4500-H+B-2011	877736		
10650724005	**Field Duplicate**	SM 4500-H+B-2011	877736		
10650724006	**Field Blank**	SM 4500-H+B-2011	877736		
10650724001	**MW7**	EPA 200.7	878072	EPA 200.7	878256
10650724002	**MW8**	EPA 200.7	878072	EPA 200.7	878256
10650724003	**MW9**	EPA 200.7	878072	EPA 200.7	878256
10650724004	**MW10**	EPA 200.7	878072	EPA 200.7	878256
10650724005	**Field Duplicate**	EPA 200.7	878072	EPA 200.7	878256
10650724006	**Field Blank**	EPA 200.7	878072	EPA 200.7	878256
10650724001	**MW7**	EPA 200.8	878071	EPA 200.8	878242
10650724002	**MW8**	EPA 200.8	878071	EPA 200.8	878242
10650724003	**MW9**	EPA 200.8	878071	EPA 200.8	878242
10650724004	**MW10**	EPA 200.8	878071	EPA 200.8	878242
10650724005	**Field Duplicate**	EPA 200.8	878071	EPA 200.8	878242
10650724006	**Field Blank**	EPA 200.8	878071	EPA 200.8	878242

NTS
526 CHESTNUT STREET
VIRGINIA, MN 55792
(218) 741-4290 Fax: (218) 741-4291

PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

REQUIRED TURN-AROUND TIME: 2 Weeks from submittal date

WO#: 10650724

PM: NMJ **Due Date: 05/10/23**

CLIENT: DU-NTS-SCOTT

CLIENT NAME,ADDRESS,PHONE#:
GENERAL WASTE and RECYLING LLC
DEMOLITION & INDUSTRIAL LANDFILL
ITASCA COUNTY, MINNESOTA

REPORT TO:
SCOTT SEELEY & KARISSA VOSEN

SAMPLER: Corey Andrews

PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.

PROJECT NUMBER: 6385CC CCR Monitoirng

PERMIT REQ.: SW-620-002
Apr-23

LOG-IN #:	SAMPLE #	DESCRIPTION:	COLLECTION: DATE:	TIME:	MATRIX: LIQ.	SOL.	filtered	TYPE & # CONTAINERS: VOC M. 8260 (HCL)	GENERAL CHEMISTRY (NO PRES)	GENERAL CHEMISTRY (H2SO4)	TOTAL METALS (HN03)	DISSOLVED METALS (HN03)		REQUIRED ANALYSIS:
	MW7	GW WELL	4/25/23	1030	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	4/25/23	1135	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	4/25/23	1302	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	4/25/23	1406	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	4/25/23	1407	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	4/25/23	1410	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

RELINQUISHED BY: DATE: 4/25/23 TIME: 1625

RECEIVED BY: DATE: TIME:

RELINQUISHED TO NTS SAMPLE LOCK-UP BY: DATE: TIME:

RECEIVED FROM NTS SAMPLE LOCKUP BY: DATE: TIME:

RECEIVED FOR LAB BY: B. Mathew

TEMP.AT ARRIVAL: 1.7 C

DATE: 4/25/23 TIME: 1625

Relinquished By: 4/26/23 8:30

Delaeth Place 4/26/23 10:00 5.8°C

PARAMETER	SYMBOL	EPA Method
Boron	B	200.8
Calcium	Ca	200.7
Chloride	Chloride	300.0
Fluoride	Flouride	300.0
pH	pH	SM 4500 H+B
Sulfate	SO_4	300.0
TDS	TDS	SM 2540C

Sample Condition Upon Receipt

Client Name: NTS

Project #: WO# : 10650724

10650724

Courier: ☐ FedEx ☐ UPS ☐ USPS ☑ Client ☐ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: _____ ☐ See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☐ T1 (0461) ☐ T2 (1336) ☐ T3 (0459) ☐ T4 (0254) ☑ T5 (0178) ☐ 01339252/1710 **Type of Ice:** ☑ Wet ☐ Blue ☐ Dry ☐ None ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☑ No **Were All Container Temps Taken?** ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6 °C **Cooler temp Read w/Temp Blank:** 1.4 °C 5.6

Correction Factor: +0.3 +0.2 **Cooler Temp Corrected w/temp blank:** 1.7 °C 5.8

Average Corrected Temp (no temp blank only): _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: ☑ N/A, water sample/other: _____) **Date/Initials of Person Examining Contents:** BM 4/26/23

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

				COMMENTS
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4. If fecal: ☐ <8 hrs ☐ >8 hr, <24 ☐ No
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E.coli ☐ BOD/cBOD ☐ Hex Chrom ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Sample Volume?	☑ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☑ Yes	☐ No ☐ No	☐ N/A	8.
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other	☑ Yes	☐ No		11. **If no, write ID/Date/Time of container below:** ☐ See Exceptions ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☑ N/A	☐ NaOH ☐ HNO3 ☐ H2SO4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	☐ Yes	☐ No	☑ N/A	Positive for Residual Chlorine? ☐ Yes ☐ No ☐ See Exceptions ENV-FRM-MIN4-0142 **pH Paper Lot #** Residual Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in Methyl Mercury Container?	☐ Yes	☐ No	☑ N/A	13.
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	14. ☐ See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Nikki Staton **Date:** 04/27/23

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Intra-Regional Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 10650724 **Workorder Name:** 6385CC General Waste Apr-23 **Owner Received Date:** 4/25/2023 **Due Date:** 5/10/2023

Received at:

Pace Analytical Virginia
315 Chestnut Street
Virginia, MN 55792
Phone (218) 336-2110

Send To Lab:

Pace Analytical Minnesota
1700 Elm Street
Minneapolis, MN 55414
Phone (612)607-1700

Report To:
Nikki Staton

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HNO3 BP3N						Requested Analysis: EPA 200.7	EPA 200.8											LAB USE ONLY
1	MW7	PS	4/25/2023 10:30	10650724001	Water	1						X	X											001
2	MW8	PS	4/25/2023 11:35	10650724002	Water	1						X	X											002
3	MW9	PS	4/25/2023 13:02	10650724003	Water	1						X	X											003
4	MW10	PS	4/25/2023 14:06	10650724004	Water	1						X	X											004
5	Field Duplicate	PS	4/25/2023 14:07	10650724005	Water	1						X	X											005
6	Field Blank	PS	4/25/2023 14:10	10650724006	Water	1						X	X											006

Transfers	Released By	Date/Time	Received By	Date/Time
1	4/28/23	1450	4/27	23 0800
2	4/27/23	1040	Evan Christian/Pace	4-27-23 1040
3				
4				

Comments

Cooler Temperature on Receipt 0.5 °C | **Custody Seal** Y or (N) | **Received on Ice** (Y) or N | **Samples Intact** (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
This chain of custody is considered complete as is since this information is available in the owner laboratory.

WO# : 10650724

10650724

DC#_Title: ENV-FRM-MIN4-0150 v13_Sample Condition Upon Receipt (SCUR)
Effective Date: 4/14/2023

Sample Condition Upon Receipt

Client Name: Pace Virginia

Project #: WO#: 10650724
PM: NMJ Due Date: 05/10/23
CLIENT: DU-NTS-SCOTT

Courier: ☐ FedEx ☐ UPS ☐ USPS ☐ Client ☑ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: _____ ☐ See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☑ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☐ T9(0727) ☐ 01339252/1710 **Type of Ice:** ☑ Wet ☐ Blue ☐ Dry ☐ None ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☑ No **Were All Container Temps Taken?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6 °C **Cooler temp Read w/Temp Blank:** 0.2 °C

Correction Factor: +0.3 **Cooler Temp Corrected w/temp blank:** 0.5 °C

Average Corrected Temp (no temp blank only): _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: (☑ N/A, water sample/other: _____) **Date/Initials of Person Examining Contents:** EC 4-27-23

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): ☐ Duluth ☑ Minneapolis ☐ Virginia

				COMMENTS
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☐ Yes	☐ No	☑ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4. If fecal: ☐ <8 hrs ☐ >8 hr, <24 ☐ No
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E.coli ☐ BOD/cBOD ☐ Hex Chrom ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Sample Volume?	☑ Yes	☐ No		7.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	8.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC?	☑ Yes	☐ No		11. **If no, write ID/Date/Time of container below:** ☐ See Exceptions ENV-FRM-MIN4-0142
Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other				
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	12. Sample # 001-006
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☑ Yes	☐ No	☐ N/A	☐ NaOH ☑ HNO3 ☐ H2SO4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	☐ Yes	☐ No	☑ N/A	Positive for Residual Chlorine? ☐ Yes ☐ No ☐ See Exceptions ENV-FRM-MIN4-0142
				pH Paper Lot # Residual Chlorine: 0-6 Roll 208422 / 0-6 Strip / 0-14 Strip
Headspace in Methyl Mercury Container?	☐ Yes	☐ No	☑ N/A	13.
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	14. ☐ See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Nikki Staton **Date:** 04/28/23

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: EC **Line:** 2

NTS
526 Chestnut Street
Virginia, MN 55792
Phone: (218) 741-4290

Laboratory Report Review Checklist

6385CC_2023 (Spring) 0425(CA)
Printed: 5/9/2023 11:53:16 AM

Environmental Science & Engineering

Report: 10650724

Samples not Collected by NTS: ☐ **Lab:** **Revised Lab Report:** ☐

Reviewer #1:	Date:	Reviewer #2:	Date:
Carrie Jensen	5/9/2023		

SAMPLE HANDLING AND PRESERVATION	Yes:	No:	N/A:
A copy of the chain of custody (COC) is provided with the final report and field parameters (if included) are correctly reported by the laboratory	☑	☐	☐
A sample condition upon receipt form was included with the final report	☑	☐	☐
Samples were received by the laboratory with proper preservation (i.e., on ice and/or in correct container types)	☑	☐	☐
Samples were received and analyzed by the laboratory within method required holding times	☐	☑	☐
Any results associated with incorrect preservation or missed hold time are qualified in the body of the report	☑	☐	☐

Comments: pH analysis initiated outside of the 15 minute required EPA holding time; data qualified.

CALIBRATION	Yes:	No:	N/A:
The report narrative or data qualifiers indicate there were calibration failures for any of the required analyses	☐	☑	☐

Comments:

METHOD BLANKS	Yes:	No:	N/A:
A method blank was analyzed for all applicable analytical methods	☑	☐	☐
All method blanks are free of target analytes	☑	☐	☐
If any analytes were detected in the method blank, the detected analytes were qualified in the associated samples	☐	☐	☑

Comments:

LABORATORY CONTROL SAMPLES (LCS)	Yes:	No:	N/A:
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA Laboratory Quality Control and Data Policy (p-eao2-09a)	☑	☐	☐
An LCS was prepared and analyzed for each analytical method and contains all target analytes being reported	☑	☐	☐
The percent recovery of all target analytes are within laboratory control limits	☑	☐	☐
If any analytes had a percent recovery outside of laboratory control limits, qualifiers were added to the associated samples	☐	☐	☑

Comments:

MATRIX SPIKES/MATRIX SPIKE DUPLICATES (MS/MSD)	Yes:	No:	N/A:
An MS/MSD was prepared and analyzed for each applicable analytical method and contains all target analytes being reported	☑	☐	☐
If no, was an alternate spiked sample processed instead (such as an LCS duplicate)	☐	☐	☑
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA Laboratory Quality Control and Data Policy (p-eao2-09a)	☑	☐	☐
The percent recovery of all target analytes are within laboratory control limits	☑	☐	☐
The relative percent difference (RPD) is within laboratory control limits for all target analytes	☑	☐	☐
If any analytes had a percent recovery or RPD outside of laboratory control limits, qualifiers were added to the parent sample	☐	☐	☑
Comments			

LABORATORY DUPLICATES	Yes:	No:	N/A:
A laboratory duplicate was prepared and analyzed for each applicable analytical method	☑	☐	☐
The RPD for the duplicate pair is within laboratory control limits	☑	☐	☐
If any analytes had an RPD outside of laboratory control limits, qualifiers were added to the parent sample	☐	☐	☑
Comments			

SURROGATES	Yes:	No:	N/A:
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA Laboratory Quality Control and Data Policy (p-eao2-09a)	☐	☐	☑
The percent recovery of all surrogate compounds are within laboratory control limits	☐	☐	☑
If any surrogate had a percent recovery outside of laboratory control limits, qualifiers were added to the surrogate compound	☐	☐	☑
Comments			

FIELD DUPLICATES	Yes:	No:	N/A:
A field duplicate was required for this project	☑	☐	☐
The RPD for the duplicate pair is within NTS control limits (20%)	☑	☐	☐
If any analytes had an RPD outside of NTS control limits, qualifiers were added to the parent sample	☐	☐	☑
Comments	Field Duplicate taken at MW10.		

FIELD, EQUIPMENT, TRIP BLANKS	Yes:	No:	N/A:
A field, equipment, and/or trip blank was required for this project	☑	☐	☐
The blank is free of target analytes	☑	☐	☐
If any analytes were detected in the blank, were the detected analytes qualified in the associated samples	☐	☐	☑
Comments	Field Blank analyzed for this project.		

ADDITIONAL CHECKS	Yes:	No:	N/A:
All data within this report (including subcontracted analyses) have been uploaded to the NTS database and correctly reflect the results reported by the laboratory	☑	☐	☐
Analysis to the method detection limit (MDL) was required for this laboratory report	☐	☑	☐
If analysis to the MDL was required, data was appropriately qualified with J flags	☐	☐	☑
Non-detects are not reported off dilutions or dilution factors are typical of past events	☑	☐	☐
Dissolved, speciated, or fractional results are less than (or exceed by no more than 20%) total results	☐	☐	☑
All lab results were evaluated against the associated permit limits or appear typical of past monitoring events	☑	☐	☐
All lab calculations are accurate against NTS calculations	☑	☐	☐

Comments	
	Per historical data: Sulfate at MW10 is higher; Boron at MW8 is higher.

DEFINITIONS

COC = chain of custody

LCS/LCSD = laboratory control sample/laboratory control sample duplicate

MDL = method detection limit

MPCA = Minnesota Pollution Control Agency

MS/MSD = matrix spike/matrix spike duplicate

RPD = relative percent difference

Definitions

GW = groundwater, SOPs = standard operating procedures

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

October 31, 2023

Scott Seeley
Northeast Technical Services
526 Chestnut Street
Virginia, MN 55792

RE: Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Dear Scott Seeley:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 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 - Duluth, MN
- Pace Analytical Services - Minneapolis

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

Sincerely,

Nikki Staton

Nikki Staton
nikki.staton@pacelabs.com
(218) 336-2110
Project Manager

Enclosures

cc: Andrew Altobell, Northeast Technical Services
Allison Byrd, Northeast Technical Services
Sample Data, Northeast Technical Services
Carrie Jensen, Northeast Technical Services
Mikayla Mellesmoen, Northeast Technical Services
Alan Phillips, Dem-Con Companies
Karissa Vosen, Northeast Technical Services

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

CERTIFICATIONS

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
GMP+ Certification #: GMP050884
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Approval: via MN 027-053-137
Minnesota Petrofund Registration #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification (A2LA) #: R-036
North Dakota Certification (MN) #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01
USDA Permit #: P330-19-00208

Pace Analytical Services, LLC - Duluth MN

4730 Oneota Street, Duluth, MN 55807
Minnesota Certification #: 027-137-152
Minnesota Dept of Ag Approval: via Minnesota 027-137-152
Minnesota Petrofund Registration #: 1240
Montana Certification #: CERT0102
Nevada Certification #: MN00037
North Dakota Certification #: R-105
Wisconsin Certification #: 999446800
Wisconsin Dept of Ag Certification: 480341

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

SAMPLE SUMMARY

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10672461001	**MW7**	Water	10/16/23 11:40	10/16/23 15:23
10672461002	**MW8**	Water	10/16/23 12:23	10/16/23 15:23
10672461003	**MW9**	Water	10/16/23 10:59	10/16/23 15:23
10672461004	**MW10**	Water	10/16/23 11:43	10/16/23 15:23
10672461005	**Field Duplicate**	Water	10/16/23 11:00	10/16/23 15:23
10672461006	**Field Blank**	Water	10/16/23 10:56	10/16/23 15:23

Pace Analytical Services, LLC
4730 Oneota St.
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(218) 727-6380

SAMPLE ANALYTE COUNT

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10672461001	**MW7**	SM 2540C-2015	NGT	1	PASI-DU
		EPA 300.0	JA2	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	DJM	1	PASI-M
10672461002	**MW8**	SM 2540C-2015	NGT	1	PASI-DU
		EPA 300.0	JA2	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	DJM	1	PASI-M
10672461003	**MW9**	SM 2540C-2015	NGT	1	PASI-DU
		EPA 300.0	JA2	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	DJM	1	PASI-M
10672461004	**MW10**	SM 2540C-2015	NGT	1	PASI-DU
		EPA 300.0	JA2	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	DJM	1	PASI-M
10672461005	**Field Duplicate**	SM 2540C-2015	NGT	1	PASI-DU
		EPA 300.0	JA2	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	DJM	1	PASI-M
10672461006	**Field Blank**	SM 2540C-2015	NGT	1	PASI-DU
		EPA 300.0	JA2	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	DJM	1	PASI-M

PASI-DU = Pace Analytical Services - Duluth, MN
PASI-M = Pace Analytical Services - Minneapolis

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

ANALYTICAL RESULTS

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Sample: MW7 **Lab ID: 10672461001** Collected: 10/16/23 11:40 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**2470**	mg/L	333	1		10/19/23 10:00		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.9**	mg/L	1.0	1		10/20/23 01:16	16887-00-6	
Fluoride	**0.072**	mg/L	0.050	1		10/20/23 01:16	16984-48-8	
Sulfate	**1370**	mg/L	10.0	10		10/20/23 03:11	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**6.9**	Std. Units	0.10	1		10/18/23 09:13		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**498**	mg/L	0.50	1	10/23/23 08:45	10/24/23 12:33	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**84.9**	ug/L	50.0	5	10/23/23 08:40	10/26/23 15:35	7440-42-8	

Sample: MW8 **Lab ID: 10672461002** Collected: 10/16/23 12:23 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1790**	mg/L	40.0	1		10/19/23 10:00		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.4**	mg/L	1.0	1		10/20/23 04:20	16887-00-6	
Fluoride	**0.060**	mg/L	0.050	1		10/20/23 04:20	16984-48-8	
Sulfate	**825**	mg/L	5.0	5		10/20/23 16:33	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**7.0**	Std. Units	0.10	1		10/18/23 09:19		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**387**	mg/L	0.50	1	10/23/23 08:45	10/24/23 12:35	7440-70-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

ANALYTICAL RESULTS

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Sample: MW8 **Lab ID: 10672461002** Collected: 10/16/23 12:23 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**76.8**	ug/L	50.0	5	10/23/23 08:40	10/26/23 16:06	7440-42-8	

Sample: MW9 **Lab ID: 10672461003** Collected: 10/16/23 10:59 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1190**	mg/L	40.0	1		10/19/23 10:01		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**8.0**	mg/L	1.0	1		10/20/23 05:29	16887-00-6	
Fluoride	**0.084**	mg/L	0.050	1		10/20/23 05:29	16984-48-8	
Sulfate	**431**	mg/L	2.0	2		10/25/23 06:03	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**6.7**	Std. Units	0.10	1		10/18/23 09:21		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**213**	mg/L	0.50	1	10/23/23 08:45	10/24/23 12:37	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	ND	ug/L	50.0	5	10/23/23 08:40	10/26/23 16:12	7440-42-8	D3

Sample: MW10 **Lab ID: 10672461004** Collected: 10/16/23 11:43 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**920**	mg/L	20.0	1		10/19/23 10:00		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.1**	mg/L	1.0	1		10/20/23 05:52	16887-00-6	
Fluoride	**0.16**	mg/L	0.050	1		10/20/23 05:52	16984-48-8	
Sulfate	**427**	mg/L	2.0	2		10/20/23 18:05	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

ANALYTICAL RESULTS

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Sample: MW10 **Lab ID: 10672461004** Collected: 10/16/23 11:43 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		10/18/23 09:24		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**189**	mg/L	0.50	1	10/23/23 08:45	10/24/23 12:42	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	ND	ug/L	50.0	5	10/23/23 08:40	10/26/23 16:18	7440-42-8	D3

Sample: Field Duplicate **Lab ID: 10672461005** Collected: 10/16/23 11:00 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1190**	mg/L	40.0	1		10/19/23 10:00		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**7.9**	mg/L	1.0	1		10/20/23 06:15	16887-00-6	
Fluoride	**0.083**	mg/L	0.050	1		10/20/23 06:15	16984-48-8	
Sulfate	**443**	mg/L	2.0	2		10/20/23 18:28	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**6.7**	Std. Units	0.10	1		10/18/23 09:25		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**219**	mg/L	0.50	1	10/23/23 08:45	10/24/23 12:44	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	ND	ug/L	50.0	5	10/23/23 08:40	10/26/23 16:24	7440-42-8	D3

Sample: Field Blank **Lab ID: 10672461006** Collected: 10/16/23 10:56 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2015 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	ND	mg/L	10.0	1		10/19/23 10:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

ANALYTICAL RESULTS

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Sample: Field Blank **Lab ID: 10672461006** Collected: 10/16/23 10:56 Received: 10/16/23 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	ND	mg/L	1.0	1		10/20/23 07:24	16887-00-6	
Fluoride	ND	mg/L	0.050	1		10/20/23 07:24	16984-48-8	
Sulfate	ND	mg/L	1.0	1		10/20/23 07:24	14808-79-8	
4500H+B pH, WW DU	Analytical Method: SM 4500-H+B-2011 Pace Analytical Services - Duluth, MN							
pH at 25 Degrees C	**7.4**	Std. Units	0.10	1		10/18/23 09:27		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	ND	mg/L	0.50	1	10/23/23 08:45	10/24/23 12:45	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	ND	ug/L	10.0	1	10/23/23 08:40	10/26/23 16:31	7440-42-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

QC Batch: 912850 | Analysis Method: SM 2540C-2015
QC Batch Method: SM 2540C-2015 | Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

METHOD BLANK: 4803597 Matrix: Water
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/19/23 09:59	

METHOD BLANK: 4803601 Matrix: Water
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/19/23 10:01	

LABORATORY CONTROL SAMPLE: 4803598

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	618	648	105	80-120	

SAMPLE DUPLICATE: 4803599

Parameter	Units	10672754007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	185	195	5	10	

SAMPLE DUPLICATE: 4803600

Parameter	Units	10672754006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	239	236	1	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
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

QC Batch: 912928
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions WW 28 Day DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

METHOD BLANK: 4803946 Matrix: Water
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/20/23 00:30	
Fluoride	mg/L	ND	0.050	10/20/23 00:30	
Sulfate	mg/L	ND	1.0	10/20/23 00:30	

LABORATORY CONTROL SAMPLE: 4803947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	100	102	102	90-110	
Fluoride	mg/L	5	5.2	104	90-110	
Sulfate	mg/L	100	102	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4803948 4803949

Parameter	Units	10672461001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.9	100	100	106	106	104	104	90-110	0	20	
Fluoride	mg/L	0.072	5	5	5.4	5.4	106	106	90-110	0	20	
Sulfate	mg/L	1370	1000	1000	2380	2370	101	100	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4803950 4803951

Parameter	Units	10672461002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.4	100	100	106	103	104	102	90-110	2	20	
Fluoride	mg/L	0.060	5	5	5.4	5.3	106	104	90-110	2	20	
Sulfate	mg/L	825	500	500	1330	1320	100	99	90-110	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

QC Batch: 913958
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions WW 28 Day DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10672461003

METHOD BLANK: 4809411 Matrix: Water
Associated Lab Samples: 10672461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	10/24/23 18:11	

LABORATORY CONTROL SAMPLE: 4809412

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	100	104	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4809413 4809414

Parameter	Units	10673405001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	40.5	100	100	149	147	109	107	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4809415 4809416

Parameter	Units	10673405002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	2.8	100	100	112	113	109	110	90-110	1	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
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QUALITY CONTROL DATA

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

QC Batch: 912544
QC Batch Method: SM 4500-H+B-2011
Analysis Method: SM 4500-H+B-2011
Analysis Description: 4500H+B pH, WW DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

LABORATORY CONTROL SAMPLE: 4802317

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	100	98-102	H6

SAMPLE DUPLICATE: 4802318

Parameter	Units	10672461001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.9	6.9	1	10	H6

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
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

QC Batch: 913279 | Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 | Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

METHOD BLANK: 4806452 Matrix: Water
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	10/24/23 12:02	

LABORATORY CONTROL SAMPLE: 4806453

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	20	19.2	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4806454 4806455

Parameter	Units	10672034001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	3310 ug/L	20	20	23.0	22.5	98	96	70-130	2	20	

MATRIX SPIKE SAMPLE: 4806456

Parameter	Units	10672460005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	19.2	20	37.7	92	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

QC Batch: 913280 | Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 | Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

METHOD BLANK: 4806457 Matrix: Water
Associated Lab Samples: 10672461001, 10672461002, 10672461003, 10672461004, 10672461005, 10672461006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	10/26/23 16:40	

LABORATORY CONTROL SAMPLE: 4806458

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	100	112	112	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4806459 4806460

Parameter	Units	10672461001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	84.9	100	100	190	197	106	112	70-130	3	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALIFIERS

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

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.
H6	Analysis initiated outside of the 15 minute EPA required holding time.

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 6385CC Gen Waste CCR Oct 2023
Pace Project No.: 10672461

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10672461001	**MW7**	SM 2540C-2015	912850		
10672461002	**MW8**	SM 2540C-2015	912850		
10672461003	**MW9**	SM 2540C-2015	912850		
10672461004	**MW10**	SM 2540C-2015	912850		
10672461005	**Field Duplicate**	SM 2540C-2015	912850		
10672461006	**Field Blank**	SM 2540C-2015	912850		
10672461001	**MW7**	EPA 300.0	912928		
10672461002	**MW8**	EPA 300.0	912928		
10672461003	**MW9**	EPA 300.0	912928		
10672461003	**MW9**	EPA 300.0	913958		
10672461004	**MW10**	EPA 300.0	912928		
10672461005	**Field Duplicate**	EPA 300.0	912928		
10672461006	**Field Blank**	EPA 300.0	912928		
10672461001	**MW7**	SM 4500-H+B-2011	912544		
10672461002	**MW8**	SM 4500-H+B-2011	912544		
10672461003	**MW9**	SM 4500-H+B-2011	912544		
10672461004	**MW10**	SM 4500-H+B-2011	912544		
10672461005	**Field Duplicate**	SM 4500-H+B-2011	912544		
10672461006	**Field Blank**	SM 4500-H+B-2011	912544		
10672461001	**MW7**	EPA 200.7	913279	EPA 200.7	913738
10672461002	**MW8**	EPA 200.7	913279	EPA 200.7	913738
10672461003	**MW9**	EPA 200.7	913279	EPA 200.7	913738
10672461004	**MW10**	EPA 200.7	913279	EPA 200.7	913738
10672461005	**Field Duplicate**	EPA 200.7	913279	EPA 200.7	913738
10672461006	**Field Blank**	EPA 200.7	913279	EPA 200.7	913738
10672461001	**MW7**	EPA 200.8	913280	EPA 200.8	913886
10672461002	**MW8**	EPA 200.8	913280	EPA 200.8	913886
10672461003	**MW9**	EPA 200.8	913280	EPA 200.8	913886
10672461004	**MW10**	EPA 200.8	913280	EPA 200.8	913886
10672461005	**Field Duplicate**	EPA 200.8	913280	EPA 200.8	913886
10672461006	**Field Blank**	EPA 200.8	913280	EPA 200.8	913886

NTS
Environmental Science & Engineering
526 CHESTNUT STREET
VIRGINIA, MN 55792
(218) 741-4290 Fax: (218) 741-4291

CHAIN O

WO#: 10672461

PM: NMJ Due Date: 10/31/23
CLIENT: DU-NTS-SCOTT

REQUIRED TURN-AROUND TIME: 2 Weeks fr

CLIENT NAME,ADDRESS,PHONE#:
GENERAL WASTE and RECYLING LLC
DEMOLITION & INDUSTRIAL LANDFILL
ITASCA COUNTY, MINNESOTA

REPORT TO:
SCOTT SEELEY & KARISSA VOSEN

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

SAMPLER: Corey Andrews ; Josh Peterson
PERMIT REQ.: SW-620-002
PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.
Oct-23
PROJECT NUMBER: 6385CC CCR Monitoirng

LOG-IN #	SAMPLE #	DESCRIPTION:	COLLECTION: DATE:	TIME:	MATRIX LIQ.	SOL.	filtered	TYPE & # CONTAINERS: VOC M. 8260 (HCL)	GENERAL CHEMISTRY (NO PRES)	GENERAL CHEMISTRY (H2SO4)	TOTAL METALS (HN03)	DISSOLVED METALS (HN03)		REQUIRED ANALYSIS:
	MW7	GW WELL	10/16/23	1140	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL		1223	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL		1059	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL		1143	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL		1100	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank		1056	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

RELINQUISHED BY: DATE: 10/16/23 TIME: 1525
RECEIVED BY: DATE: 10/16/23 TIME: 15:23
RELINQUISHED TO NTS SAMPLE LOCK-UP BY: DATE: TIME:
RECEIVED FROM NTS SAMPLE LOCKUP BY: DATE: TIME:
RECEIVED FOR LAB BY:
TEMP AT ARRIVAL: 4.2 C 4.4°C
DATE: 10/17/18 TIME: 16:30
10/17/23 1475

PARAMETER	SYMBOL	EPA Method
Boron	B	200.8
Calcium	Ca	200.7
Chloride	Chloride	300.0
Fluoride	Flouride	300.0
pH	pH	SM 4500 H+B
Sulfate	SO_4	300.0
TDS	TDS	SM 2540C

Sample Condition Upon Receipt

Client Name: NTS

Project #: WO# : 10672461

10672461

Courier: ☐ FedEx ☐ UPS ☐ USPS ☑ Client ☐ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: _____ ☐ See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☐ T1 (0461) ☐ T2 (1336) ☐ T3 (0459) ☐ T4 (0254) ☑ T5 (0178) ☐ 01339252/1710 **Type of Ice:** ☑ Wet ☐ Blue ☐ Dry ☐ None ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☑ No **Were All Container Temps Taken?** ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6 °C **Cooler temp Read w/Temp Blank:** 3.9 °C

Correction Factor: +0.3 **Cooler Temp Corrected w/temp blank:** 4.2 °C

Average Corrected Temp (no temp blank only): _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: (☑ N/A, water sample/other: _____) **Date/Initials of Person Examining Contents:** BM 10/17/23

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

				COMMENTS
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4. If fecal: ☐ <8 hrs ☐ >8 hr, <24 ☐ No
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E.coli ☐ BOD/cBOD ☐ Hex Chrom ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Sample Volume?	☑ Yes	☐ No		7.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	8.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other	☑ Yes	☐ No		11. **If no, write ID/Date/Time of container below:** ☐ See Exceptions ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☑ N/A	☐ NaOH ☐ HNO3 ☐ H2SO4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	☐ Yes	☐ No	☑ N/A	Positive for Residual Chlorine? ☐ Yes ☐ No ☐ See Exceptions ENV-FRM-MIN4-0142 **pH Paper Lot #** Residual Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in Methyl Mercury Container?	☐ Yes	☐ No	☑ N/A	13.
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	14. ☐ See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Nikki Staton **Date:** 10/18/23

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Intra-Regional Chain of Custody

Workorder: 10672461 **Workorder Name:** 6385CC Gen Waste CCR Oct 2023 **Owner Received Date:** 10/16/2023 **Due Date:** 10/31/2023

Received at:

Pace Analytical Virginia
315 Chestnut Street
Virginia, MN 55792
Phone (218) 336-2110

Sent to Lab:

Pace Analytical Minnesota
1700 Elm Street
Minneapolis, MN 55414
Phone (612)607-1700

Report To:
Nikki Staton

Item	Sample ID	Type	Collected	Lab ID	Matrix	# Plastic Bottle Containers: HNO3 BP3N						EPA 200.7	EPA 200.8											LAB USE ONLY
1	MW7	PS	10/16/2023 11:40	10672461001	Water	1						X	X											
2	MW8	PS	10/16/2023 12:23	10672461002	Water	1						X	X											
3	MW9	PS	10/16/2023 10:59	10672461003	Water	1						X	X											
4	MW10	PS	10/16/2023 11:43	10672461004	Water	1						X	X											
5	Field Duplicate	PS	10/16/2023 11:00	10672461005	Water	1						X	X											
6	Field Blank	PS	10/16/2023 10:56	10672461006	Water	1						X	X											

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] 10/18/23	1445	[signature] 10/19/23	0800
2	[signature] 10/19/23	1055	Nick J/Pace 10/19/23	10:55
3				
4				

Cooler Temperature on Receipt 0.5 °C | Custody Seal Y or (N) | Received on Ice (Y) or N | Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt

Client Name: Pace Virginia

Project #: 10672461

Courier: ☐ FedEx ☐ UPS ☐ USPS ☐ Client ☑ Pace ☐ SpeeDee ☐ Commercial

☐ See Exceptions ENV-FRM-MIN4-0142

Tracking Number: _____

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☑ T7 (0042) ☐ T8 (0775) ☐ T9(0727) ☐ 01339252/1710

Type of Ice: ☑ Wet ☐ Blue ☐ Dry ☐ None ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☑ No **Were All Container Temps Taken?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6 °C **Cooler temp Read w/Temp Blank:** _____ °C

Average Corrected Temp (no temp blank only): _____ °C

Correction Factor: _____ **Cooler Temp Corrected w/temp blank:** 0.5 °C

☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: (☑ N/A, water sample/other: _____) **Date/Initials of Person Examining Contents:** ASH 10-20-23

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): ☐ Duluth ☑ Minneapolis ☐ Virginia

				COMMENTS
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4. If fecal: ☐ <8 hrs ☐ >8 hr, <24 ☐ No
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E.coli ☐ BOD/cBOD ☐ Hex Chrom ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Sample Volume?	☑ Yes	☐ No		7.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	8.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC?	☑ Yes	☐ No		11. **If no, write ID/Date/Time of container below:** ☐ See Exceptions ENV-FRM-MIN4-0142
Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other				
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	12. Sample # 001-006: N/A
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☑ Yes	☐ No	☐ N/A	☐ NaOH ☑ HNO3 ☐ H2SO4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	☐ Yes	☐ No	☑ N/A	Positive for Residual Chlorine? ☐ Yes ☐ No ☐ See Exceptions ENV-FRM-MIN4-0142
				pH Paper Lot #
				Residual Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in Methyl Mercury Container?	☐ Yes	☐ No	☑ N/A	13.
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	14. ☐ See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
3 Trip Blanks Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Nikki Staton **Date:** 10/23/23

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: ASH **Line:** 2

NTS
526 Chestnut Street
Virginia, MN 55792
Phone: (218) 741-4290

Laboratory Report Review Checklist

6385CC_2023 (Fall) 1016(CA)

Printed: 11/14/2023 8:37:22 AM

Environmental Science & Engineering

Report: 10672461

Samples not Collected by NTS: ☐ **Lab:** **Revised Lab Report:** ☐

Reviewer #1:	Date:	Reviewer #2:	Date:	Invoice Reviewed: ☐
Carrie Jensen	11/14/2023			

SAMPLE HANDLING AND PRESERVATION	Yes:	No:	N/A:
A copy of the chain of custody (COC) is provided with the final report and field parameters (if included) are correctly reported by the laboratory	☑	☐	☐
A sample condition upon receipt form was included with the final report	☑	☐	☐
Samples were received by the laboratory with proper preservation (i.e., on ice and/or in correct container types)	☑	☐	☐
Samples were received and analyzed by the laboratory within method required holding times	☐	☑	☐
Any results associated with incorrect preservation or missed hold time are qualified in the body of the report	☑	☐	☐

Comments: pH was initiated outside of the EPA required holding time of 15 minutes.

CALIBRATION	Yes:	No:	N/A:
The report narrative or data qualifiers indicate there were calibration failures for any of the required analyses	☐	☑	☐

Comments:

METHOD BLANKS	Yes:	No:	N/A:
A method blank was analyzed for all applicable analytical methods	☑	☐	☐
All method blanks are free of target analytes	☑	☐	☐
If any analytes were detected in the method blank, the detected analytes were qualified in the associated samples	☐	☐	☑

Comments:

LABORATORY CONTROL SAMPLES (LCS)	Yes:	No:	N/A:
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA Laboratory Quality Control and Data Policy (p-eao2-09a)	☑	☐	☐
An LCS was prepared and analyzed for each analytical method and contains all target analytes being reported	☑	☐	☐
The percent recovery of all target analytes are within laboratory control limits	☑	☐	☐
If any analytes had a percent recovery outside of laboratory control limits, qualifiers were added to the associated samples	☐	☐	☑

Comments:

MATRIX SPIKES/MATRIX SPIKE DUPLICATES (MS/MSD)	Yes:	No:	N/A:
An MS/MSD was prepared and analyzed for each applicable analytical method and contains all target analytes being reported	☑	☐	☐
If no, was an alternate spiked sample processed instead (such as an LCS duplicate)	☐	☐	☑
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA Laboratory Quality Control and Data Policy (p-eao2-09a)	☑	☐	☐
The percent recovery of all target analytes are within laboratory control limits	☑	☐	☐
The relative percent difference (RPD) is within laboratory control limits for all target analytes	☑	☐	☐
If any analytes had a percent recovery or RPD outside of laboratory control limits, qualifiers were added to the parent sample	☐	☐	☑
Comments			

LABORATORY DUPLICATES	Yes:	No:	N/A:
A laboratory duplicate was prepared and analyzed for each applicable analytical method	☑	☐	☐
The RPD for the duplicate pair is within laboratory control limits	☑	☐	☐
If any analytes had an RPD outside of laboratory control limits, qualifiers were added to the parent sample	☐	☐	☑
Comments			

SURROGATES	Yes:	No:	N/A:
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA Laboratory Quality Control and Data Policy (p-eao2-09a)	☐	☐	☑
The percent recovery of all surrogate compounds are within laboratory control limits	☐	☐	☑
If any surrogate had a percent recovery outside of laboratory control limits, qualifiers were added to the surrogate compound	☐	☐	☑
Comments			

FIELD DUPLICATES	Yes:	No:	N/A:
A field duplicate was required for this project	☑	☐	☐
The RPD for the duplicate pair is within NTS control limits (20%)	☑	☐	☐
If any analytes had an RPD outside of NTS control limits, qualifiers were added to the parent sample	☐	☐	☑
Comments	Field Duplicate taken at MW9. Manually calculated Duplicate and MW9 results, and all were within control limits.		

FIELD, EQUIPMENT, TRIP BLANKS	Yes:	No:	N/A:
A field, equipment, and/or trip blank was required for this project	☑	☐	☐
The blank is free of target analytes	☑	☐	☐
If any analytes were detected in the blank, were the detected analytes qualified in the associated samples	☐	☐	☑
Comments	Field Blank analyzed for this project.		

ADDITIONAL CHECKS	Yes:	No:	N/A:
All data within this report (including subcontracted analyses) have been uploaded to the NTS database and correctly reflect the results reported by the laboratory	☑	☐	☐
Analysis to the method detection limit (MDL) was required for this laboratory report	☐	☑	☐
If analysis to the MDL was required, data was appropriately qualified with J flags	☐	☐	☑
Non-detects are not reported off dilutions or dilution factors are typical of past events	☐	☑	☐
Dissolved, speciated, or fractional results are less than (or exceed by no more than 20%) total results	☐	☐	☑
All lab results were evaluated against the associated permit limits or appear typical of past monitoring events	☑	☐	☐
All lab calculations are accurate against NTS calculations	☑	☐	☐

Comments	
	*Boron at MW9, MW10, and Field Duplicate were diluted with a ND result due to high levels of non-target analytes or other matrix interference, which resulted in an elevated RL that is higher than past events(with the exception of MW9). No limits associated with boron. *Boron at MW7 is slightly higher than past events. No limits.

DEFINITIONS

COC = chain of custody

LCS/LCSD = laboratory control sample/laboratory control sample duplicate

MDL = method detection limit

MPCA = Minnesota Pollution Control Agency

MS/MSD = matrix spike/matrix spike duplicate

RPD = relative percent difference

Definitions

GW = groundwater, SOPs = standard operating procedures

NTS
526 Chestnut Street
Virginia, MN 55792
Phone: (218) 741-4290

Field Report Cover Sheet

6385CC_2023 (Fall) 1016(CA)
Printed: 11/3/2023 12:25:48 PM

Client:
General Waste Disposal & Recovery

NTS Project:
6385CC - CCR Monitoring and Reporting

NTS Project Manager:
Scott Seeley

NTS Field Personnel:
Corey Andrews

Field Date:
10/16/2023

Summary of Services Performed:

Prepped and departed for Gen. Waste to conduct Fall CCR groundwater monitoring. Sampled wells MW-7, MW-8, MW-9, and MW-10 via low flow stabilization method. Lower than normal SpC readings were observed at MW-8, MW-9, and MW-10. Hydrolab post checked within NTS specifications. F.B. And Dup were obtained at MW-9. Samples were ceded to PACE Analytical in Virginia, MN. For additional details see field notes and COC.

I, Corey Andrews, certify that the information in this report is true and correct to the best of my knowledge.

MW10

Groundwater

Observation Time:	11:43	Collection Time:	11:43

DATA COLLECTED

SONDE PARAMETER(S)

Conductance, Specific (µS/cm)	787.9
ORP vs NHE (mV)	176
Oxygen, Dissolved (mg/L)	0.87
pH (SU)	6.97
Temperature (˚C)	9.83
Turbidity (NTU)	2.1

OTHER FIELD PARAMETER(S)

Elevation, Groundwater (ft)	1442.44
Static Water Level (ft)	10.18

STABILIZATION OR PURGE DATA

Purging Strategy:	Low-Flow Stabilization	Pump Rate:	0.33 gpm	Well Volume Interval:	3.97 min

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):	SWL (ft):
11:35	6.99	0.80	782.8	3.9	182	9.86	11.04
11:39	6.98	0.83	782.6	2.8	178	9.84	11.04
11:43	6.97	0.87	787.9	2.1	176	9.83	11.04
	Pass pH: Range=0, Criteria=+\-0.2	Pass LDO: Range=0.1, Criteria=+\-0.2	Pass SCond: Range=1%, Criteria=<5%	Pass Turb: MaxValue=4, Criteria= <5	Pass ORP: Range=6, Criteria=+\-20	Pass Temp: Range=0, Criteria=+\-0.2	

ROUTINE OBSERVATION(S)

WEATHER

Air Temperature:	41°F to 50°F
Wind Speed:	Calm
Cloud Cover:	Overcast
Airborne Particulate:	None
Precipitation:	None

SITE INFO

Well Plug Present:	**Yes**
Well Locked:	**Yes**

PURGE INFO

Purging Strategy:	Low-Flow Stabilization
Color, Purge:	Colorless
Appearance, Purge:	Clear
Odor Intensity, Purge:	None
Odor, Purge:	None

SAMPLE INFO

Color, Sample:	Colorless
Appearance, Sample:	Clear
Odor Intensity, Sample:	None
Odor, Sample:	None
Sampling Equipment:	Submersible Pump

ROUTINE MEASUREMENT(S)

PURGE INFO

Pump Rate(gpm):	0.33
Pump Start Time(HH:MM):	11:31
Pump End Time(HH:MM):	11:47
Pump Duration(min):	16.00

MEASURED VALUE

Measured Well Depth(ft):	18.2
Static Water Level(ft):	10.18

CALCULATED VALUE

Water Column(ft):	8.02
Well Volume(gal):	1.31
Volume Purged(gal):	5.28
Well Volume Interval(min):	3.97

INITIAL LOGGER INFO

Time of Initial SWL Measurement(HH:MM):	11:28

STATIC INFORMATION

MW10 (cont'd)

Groundwater

SITE INFO

MDH Number:	847087
Key Number:	2121

STATIC MEASUREMENT(S)

SITE INFO

Well Casing Diameter(in):	2
Top of Casing Elevation(ft):	1452.62

MW7

Groundwater

Observation Time:	11:40	Collection Time:	11:40

DATA COLLECTED

SONDE PARAMETER(S)

Conductance, Specific (µS/cm)	2719
ORP vs NHE (mV)	475
Oxygen, Dissolved (mg/L)	0.62
pH (SU)	6.20
Temperature (˚C)	9.02
Turbidity (NTU)	361.0

OTHER FIELD PARAMETER(S)

Elevation, Groundwater (ft)	1472.98
Static Water Level (ft)	23.15

STABILIZATION OR PURGE DATA

Purging Strategy:	Low-Flow Stabilization	Pump Rate:	0.1 gpm	Well Volume Interval:	5.7 min

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):	SWL (ft):
11:16	6.22	0.59	2697	1035	468	9.3	23.85
11:22	6.16	0.55	2723	907	472	9.04	24.15
11:28	6.16	0.61	2723	369.2	475	8.96	24.3
11:34	6.15	0.60	2726	365.1	475	9.06	24.35
11:40	6.20	0.62	2719	361.0	475	9.02	24.39
	Pass pH: Range=0, Criteria=+\-0.2	Pass LDO: Range=0, Criteria=+\-0.2	Pass SCond: Range=0%, Criteria=<5%	Pass Turb: MaxValue=369, Criteria= <5 Turb: Range=2%, Criteria=<10%	Pass ORP: Range=0, Criteria=+\-20	Pass Temp: Range=0.1, Criteria=+\-0.2	

ROUTINE OBSERVATION(S)

WEATHER

Air Temperature:	41°F to 50°F
Wind Speed:	Calm
Cloud Cover:	Overcast
Airborne Particulate:	None
Precipitation:	None

SITE INFO

Well Plug Present:	**Yes**
Well Locked:	**Yes**

PURGE INFO

Purging Strategy:	Low-Flow Stabilization
Color, Purge:	Light Brown
Appearance, Purge:	Fine Particulate
Odor Intensity, Purge:	None
Odor, Purge:	None

SAMPLE INFO

Color, Sample:	Light Brown
Appearance, Sample:	Turbid
Odor Intensity, Sample:	None
Odor, Sample:	None
Sampling Equipment:	Submersible Pump

ROUTINE MEASUREMENT(S)

PURGE INFO | MEASURED VALUE | CALCULATED VALUE | INITIAL LOGGER INFO

MW7 (cont'd)

Groundwater

Pump Rate(gpm): 0.1	Measured Well Depth(ft): 26.65	Water Column(ft): 3.5	Time of Initial SWL Measurement(HH:MM): 11:15
Pump Start Time(HH:MM): 11:16	Static Water Level(ft): 23.15	Well Volume(gal): 0.57	
Pump End Time(HH:MM): 11:45		Volume Purged(gal): 2.9	
Pump Duration(min): 29.00		Well Volume Interval(min): 5.7	

STATIC INFORMATION

SITE INFO

MDH Number:	817979
Key Number:	2106

STATIC MEASUREMENT(S)

SITE INFO

Well Casing Diameter(in):	2
Top of Casing Elevation(ft):	1496.13

MW8

Groundwater

Observation Time:	11:58	Collection Time:	12:23

DATA COLLECTED

SONDE PARAMETER(S)

Conductance, Specific (µS/cm)	1108
ORP vs NHE (mV)	282
Oxygen, Dissolved (mg/L)	2.67
pH (SU)	6.38
Temperature (˚C)	8.15
Turbidity (NTU)	21.7

OTHER FIELD PARAMETER(S)

Elevation, Groundwater (ft)	1460.25
Static Water Level (ft)	34.16

STABILIZATION OR PURGE DATA

Purging Strategy:	Low-Flow Stabilization	Pump Rate:	0.15 gpm	Well Volume Interval:	7.67 min

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):	SWL (ft):
11:59	6.33	2.46	1011	22.5	284	8.37	34.75
12:07	6.36	2.58	1099	22.2	281	8.30	34.75
12:15	6.36	2.61	1125	22.2	281	8.25	34.75
12:23	6.38	2.67	1108	21.7	282	8.15	34.75
	Pass pH: Range=0, Criteria=+\-0.2	**Pass LDO: Range=0.1, Criteria=+\-0.2**	**Pass SCond: Range=2%, Criteria=<5%**	**Pass Turb: MaxValue=22, Criteria= <5 Turb: Range=1%, Criteria=<10%**	**Pass ORP: Range=1, Criteria=+\-20**	**Pass Temp: Range=0.2, Criteria=+\-0.2**	

ROUTINE OBSERVATION(S)

WEATHER

Air Temperature:	41°F to 50°F
Wind Speed:	Calm
Cloud Cover:	Overcast
Airborne Particulate:	None
Precipitation:	None

SITE INFO

Well Plug Present:	**Yes**
Well Locked:	**Yes**

PURGE INFO

Purging Strategy:	Low-Flow Stabilization
Color, Purge:	Colorless
Appearance, Purge:	Clear
Odor Intensity, Purge:	None
Odor, Purge:	None

SAMPLE INFO

Color, Sample:	Colorless
Appearance, Sample:	Clear
Odor Intensity, Sample:	None
Odor, Sample:	None
Sampling Equipment:	Bladder Pump

ROUTINE MEASUREMENT(S)

PURGE INFO

Pump Rate(gpm):	0.15
Pump Start Time(HH:MM):	10:00
Pump End Time(HH:MM):	12:30
Pump Duration(min):	150

MEASURED VALUE

Measured Well Depth(ft):	41.22
Static Water Level(ft):	34.16

CALCULATED VALUE

Water Column(ft):	7.06
Well Volume(gal):	1.15
Volume Purged(gal):	22.5
Well Volume Interval(min):	7.67

INITIAL LOGGER INFO

Time of Initial SWL Measurement(HH:MM):	09:45

MW8 (cont'd)

Groundwater

STATIC INFORMATION

SITE INFO

MDH Number:	817978
Key Number:	2106

STATIC MEASUREMENT(S)

SITE INFO

Drilled Well Depth(ft):	41.2
Well Casing Diameter(in):	2
Top of Casing Elevation(ft):	1494.41

MW9

Groundwater

Observation Time:	10:55	Collection Time:	10:59

DATA COLLECTED

SONDE PARAMETER(S)

Conductance, Specific (µS/cm)	844.4
ORP vs NHE (mV)	119
Oxygen, Dissolved (mg/L)	0.33
pH (SU)	6.56
Temperature (˚C)	7.96
Turbidity (NTU)	1.0

OTHER FIELD PARAMETER(S)

Elevation, Groundwater (ft)	1442.87
Static Water Level (ft)	11.85

STABILIZATION OR PURGE DATA

Purging Strategy:	Low-Flow Stabilization	Pump Rate:	0.33 gpm	Well Volume Interval:	3.48 min

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):	SWL (ft):
10:51	6.54	0.32	882.1	1.7	132	8.00	12.04
10:55	6.57	0.32	859.1	1.9	125	8.01	12.04
10:59	6.56	0.33	844.4	1.0	119	7.96	12.04
	Pass pH: Range=0, Criteria=+\-0.2	**Pass** LDO: Range=0, Criteria=+\-0.2	**Pass** SCond: Range=4%, Criteria=<5%	**Pass** Turb: MaxValue=2, Criteria= <5	**Pass** ORP: Range=13, Criteria=+\-20	**Pass** Temp: Range=0, Criteria=+\-0.2	

ROUTINE OBSERVATION(S)

WEATHER

Air Temperature:	41°F to 50°F
Wind Speed:	Calm
Cloud Cover:	Overcast
Airborne Particulate:	None
Precipitation:	None

SITE INFO

Well Plug Present:	**Yes**
Well Locked:	**Yes**

PURGE INFO

Purging Strategy:	Low-Flow Stabilization
Color, Purge:	Colorless
Appearance, Purge:	Clear
Odor Intensity, Purge:	None
Odor, Purge:	None

SAMPLE INFO

Color, Sample:	Colorless
Appearance, Sample:	Clear
Odor Intensity, Sample:	None
Odor, Sample:	None
Sampling Equipment:	Submersible Pump

ROUTINE MEASUREMENT(S)

PURGE INFO

Pump Rate(gpm):	0.33
Pump Start Time(HH:MM):	10:47
Pump End Time(HH:MM):	11:07
Pump Duration(min):	20.00

MEASURED VALUE

Measured Well Depth(ft):	18.9
Static Water Level(ft):	11.85

CALCULATED VALUE

Water Column(ft):	7.05
Well Volume(gal):	1.15
Volume Purged(gal):	6.6
Well Volume Interval(min):	3.48

INITIAL LOGGER INFO

Time of Initial SWL Measurement(HH:MM):	10:40

STATIC INFORMATION

MW9 (cont'd)

Groundwater

SITE INFO

MDH Number:	817980
Key Number:	0410

STATIC MEASUREMENT(S)

SITE INFO

Drilled Well Depth(ft):	18.9
Well Casing Diameter(in):	2
Top of Casing Elevation(ft):	1454.72

Calibration Log

Staff: Corey Andrews **Date:** 10/16/2023 **Status:** pass

Comments:

Sonde:	EQ-08C	**PreCal (HH:MM):**	**PostCal (HH:MM):**	**PostEvent (HH:MM):**	
Last Temp Check:	9/1/2023				
Temp Spec.:	<50 +/-0.1 ˚C	8:05	8:10	15:35	**Specifications:**
SpC-0 (Air):		2.6	0.0	0.0	Sum of <100000 +/-1 µS/cm AND +/-0.5%
Standard (µS/cm):		0	0	0	
Temperature (°C):		20.8	20.8	22.6	
SpC-1000 (4303F04-1):		1010	1000	995	Sum of <100000 +/-1 µS/cm AND +/-0.5%
Standard (µS/cm):		1000	1000	1000	
Temperature (°C):		20.83	20.83	21.22	
ORP-Zobell (3130-4):		433	442	438	<999 +/-20 mV
Standard (mV):		442	442	439.2	
Temperature (°C):		20.4	20.4	21.5	
DO (100% Saturation):		8.58	8.55	8.55	<8 +/-0.1 mg/L >=8 AND <20 +/-0.2 mg/L >=20 AND <60 +/-10%
100% Oxygen Saturation:		8.61	8.61	8.59	
Temperature (°C):		20.5	20.5	20.5	
Barometric Pressure (mmHg):		728	728	726	
pH-4 (1302D44-2):		4.09	4.00	3.98	<14 +/-0.2 SU
Standard (SU):		4.00	4.00	4.00	
Temperature (°C):		20.5	20.5	21.15	
pH-7 (4212E87):		7.14	7.02	7.01	<14 +/-0.2 SU
Standard (SU):		7.02	7.02	7.0	
Temperature (°C):		19.9	19.9	20.25	
pH-10 (430IH81):		10.12	10.05	10.03	<14 +/-0.2 SU
Standard (SU):		10.05	10.05	10	
Temperature (°C):		20.3	20.3	20.78	
Turb-0 (DI Water):		0.0	0.0	0.0	<100 +/-1 NTU >=100 AND <400 +/-12 NTU >=400 AND <3000 +/-150 NTU
Standard (NTU):		0	0	0	
Temperature (°C):		20.8	20.8	21.71	

Sonde:	EQ-08C	PreCal (HH:MM):	PostCal (HH:MM):	PostEvent (HH:MM):	
Last Temp Check:	9/1/2023				
Temp Spec.:	<50 +/-0.1 ˚C	8:05	8:10	15:35	Specifications:
Turb-100D (170-1):		104.0	100.0	99.3	<100 +/-1 NTU >=100 AND <400 +/-12 NTU >=400 AND <3000 +/-150 NTU
Standard (NTU):		100	100	100	
Temperature (°C):		21.15	21.15	21.9	

Vehicle Inspection 1

GENERAL INFO

Driver: Corey Andrews	Vehicle: VT-70 | 2017 GMC SIERRA	Time(HH:MM): 08:25
Odometer(mi):		

DRIVER/PASSENGER SIDE

External Side Mirrors (right and left): ☒	Windows (clean, free of cracks): ☒	Tires (properly inflated, adequate tread): ☒

FRONT/REAR

Tail Lights: ☒	Head Lights: ☒	Damage to Body/Bumpers: ☒	License Plates (tags current): ☒	Fluid Leaks: ☒
Turn Signals: ☒				

ROUTINE MAINTENANCE

Oil Change (current): ☒	Transmission Fluid (change every 60k miles): ☒	Air Filter (change every 30k miles): ☒	Gauges Operational (check engine light off): ☒
Spare Tire (present, properly inflated): ☒			

INTERIOR

Cleanliness: ☒	Check Brakes: ☒	Check Horn: ☒	Seat Belts (working condition): ☒	Check Parking Brake: ☒	
Rearview Mirror: ☒	Windshield Wipers and Fluid: ☒				

GENERAL/SAFETY

Insurance Card: ☒	Wheel Chocks: ☒	First Aid Kit: ☒	Operations Manual: ☒	Strobe Light (if needed): ☒	Buggy Whip (if needed): ☒

DEFICIENCIES CORRECTED

No Deficiencies Noted: ☒
Comments:

Field Checkout

EQUIPMENT

Resource:	Qty:
EQ-08F | Hydrolab MS5 Sonde F	1.00
EQ-16S | Static Water Level S, 100 ft (Skinny Dipper)	1.00
EQ-17 | Submersible Pump - Generic	1.00

VEHICLE(S)

Resource:	Qty:
VT-70 | 2017 GMC SIERRA	74.00

CONSUMABLES

Resource:	Qty:
CF-04 | Glove - Nitrile (ea)	6.00
CF-05 | Ice (6 lb bag)	3.00
CF-01 | Water - Distilled (gal)	4.00

6385CC Gen Waste Fall Groundwater Monitoring 10/16/23

Corey Andrews

Weather: High 51°F / Overcast / winds Light & variable

Equipment: V#70, Bladder pump, SWL, submersible pump, Hydrolab 74 miles

0715 Arrive at NTS office. Prep / Calibrate / Load.

0830 Depart NTS.

0917 Arrive at Gen. Waste, obtain gate key. Unlocked gate & showed Josh Peterson sampling wells.

0940 MW-8 Well locked & in good condition. Key #2124, Unique well ID #817978

SWL	TWD	WC	Vol	Pump start	Stop	Rate
34.16	41.22	7.06	1.15	0957	1240	0.15

1000 Began pumping well via bladder pump.

1009 Depart well

1029 MW-9 Well locked & in good condition. Key #2121. Unique well #817980

SWL	TWD	WC	Vol (gal)	Pump start	Stop	Rate (GPM)
11.85'	18.90'	7.05'	1.15	1047	1107	0.33

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL	SWL After
1051	6.54	0.32	882.1	1.7	132	8.00	12.04'	11.85'
1055	6.57	0.32	859.1	1.9	125	8.01	12.04'	
1059	6.56	0.33	844.4	1.8	119	7.96	12.04'	

* Lower than normal SpC observed. 1056 FB. 1100 Dup 1059 Sample

1124 MW-10 Well locked & in good condition. Key #2121. Unique well #847087

SWL	TWD	WC	Vol	Pump Rate	Stop	Start Rate	SWL After
10.18'	18.20	8.02	1.31	0.33	1147	1131	10.18'

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1135	6.99	0.80	782.8	3.9	182	9.86	11.04
1139	6.98	0.83	782.6	2.8	178	9.84	11.04
1143	6.97	0.87	787.9	2.1	176	9.83	11.04

* SpC lower than normal. 1143 sample obtained.

1151 MW-8 Began pumping well @ 1000 to allow for clearing. See above

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL	SWL After
1159	6.33	2.46	1011	22.5	284	8.37	34.75'	34.47'
1207	6.36	2.58	1099	22.2	281	8.30	34.75'	
1215	6.36	2.61	1125	22.2	281	8.25	34.75'	
1223	6.38	2.67	1108	21.7	282	8.15	34.75'	

* Lower than normal SpC. 1223 sample obtained.

10/16/23

Scale: 1 square = _____

Rite in the Rain

1110 - MW-7

SWL	TWD	Pump Rate	Vol	Start	Stop
23.15ft	26.65	0.1	0.57	1116	1145

Time	pH	DO	SpC	Tur	ORP	Temp	SWL	appearance
1116	6.22	0.59	2697	1035.0	468	9.3	23.85	brown/f/s.
1122	6.16	0.55	2723	907.0	472	9.04	24.15	brown/f/s.
1128	6.16	0.61	2723	369.2	475	8.96	24.3	brown/f/s.
1134	6.15	0.60	2726	365.1	475	9.06	24.35	brown/f/s.
1140	6.20	0.62	2719	361.0	475	9.02	24.39	brown/f/s.

1140 - Sampled. Brown/f/s.

Environmental Science & Engineering

Daily Tailgate Safety

Project: 638SCC **Date:** 10/16/23

Work Site Hazard Assessment Worksheet

- ☐ PPE Required (List): High Viz Level*____
- ☐ Weather Conditions (List): ____
- ☐ Vehicular Traffic
- ☐ Noise
- ☐ Housekeeping
- ☐ Communications
- ☐ Equipment/Tools
- ☐ Other Site Hazards**

☐ I have examined the work place named and found no hazards
☑ I have examined the work place named and hazards found are listed below with corrective action taken

Hazards Identified/Safety Items Discussed:

Slips, Trips, & Falls
Trucks hauling

Corrective Actions Taken:

watch footing
stay clear of trucks. Wear high Viz

Participants in Safety Discussion:

	Print Name	Signature
1.	Corey Andrews	Corey Andrews
2.		
3.		
4.		
5.		

Signature of Site Supervisor/Examiner: Corey Andrews Date: 10/16/23

*Level D, C, B or A
**Examples: Heavy Equipment, Air Quality, Flammable materials, Wildlife, Work Site Security, Confined Space

NTS
526 CHESTNUT STREET
VIRGINIA, MN 55792
(218) 741-4290 Fax: (218) 741-4291

Environmental Science & Engineering

PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

REQUIRED TURN-AROUND TIME: 2 Weeks from submittal date

CLIENT NAME,ADDRESS,PHONE#:
GENERAL WASTE and RECYLING LLC
DEMOLITION & INDUSTRIAL LANDFILL
ITASCA COUNTY, MINNESOTA

REPORT TO:
SCOTT SEELEY & KARISSA VOSEN

SAMPLER: Corey Andrews ; Josh Peterson

PERMIT REQ.: SW-620-002

PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.

Oct-23

PROJECT NUMBER: 6385CC CCR Monitoirng

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

LOG-IN #:	SAMPLE #	DESCRIPTION:	COLLECTION: DATE:	TIME:	MATRIX: LIQ.	SOL.	filtered	TYPE & # CONTAINERS: VOC M. 8260 (HCL)	GENERAL CHEMISTRY (NO PRES)	GENERAL CHEMISTRY (H2SO4)	TOTAL METALS (HN03)	DISSOLVED METALS (HN03)		REQUIRED ANALYSIS:
	MW7	GW WELL	10/16/23	1140	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL		1223	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL		1059	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL		1143	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL		1100	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank		1056	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

RELINQUISHED BY: Corey Andrews DATE: 10/16/23 TIME: 1525

RECEIVED BY: DATE: 10/16/23 TIME: 15:23

RELINQUISHED TO NTS SAMPLE LOCK-UP BY: DATE: TIME:

RECEIVED FROM NTS SAMPLE LOCK-UP BY: DATE: TIME:

RECEIVED FOR LAB BY:

TEMP.AT ARRIVAL: 4.2 C

DATE: TIME:

GENERAL WASTE CCR METHODS

PARAMETER	SYMBOL	EPA Method
Boron	B	200.8
Calcium	Ca	200.7
Chloride	Chloride	300.0
Fluoride	Flouride	300.0
pH	pH	SM 4500 H+B
Sulfate	SO_4	300.0
TDS	TDS	SM 2540C

NTS
526 Chestnut Street
Virginia, MN 55792
Phone: (218) 741-4290

Field Report Review Checklist

6385CC_2023 (Fall) 1016(CA)
Printed: 11/6/2023 9:24:42 AM

Environmental Science & Engineering

Report: 6385CC_2023 (Fall) 1016(CA)

Field work not completed by NTS: ☐ **SAF Reviewed:** ☑ **Invoice Reviewed:** ☐

Peer Reviewer:	Date:
Carrie Jensen	11/6/2023

Data Mgmt Reviewer:	Date:

Completeness Review	Included Yes:	No:
Cover Sheet:	☑	☐
Location Information		
Data Collection:	☑	☐
Observations:	☑	☐
Flow Measurements:	☐	☑
GW Stabilization:	☑	☐
Photograph(s):	☐	☑
Calibration Report(s):	☑	☐
Field Notes:	☑	☐
Safety Form(s):	☑	☐
Supplemental Form(s):	☑	☐
Chain(s) of Custody:	☑	☐
Figures or Drawings:	☐	☑

Accuracy Review	N/A:	Yes:	No:
Field calculations accurate:	☐	☑	
GW stabilization criteria met:	☐	☑	☐
Sonde(s) passed post-check:	☐	☑	☐
Consistent values in field notes:	☐	☑	
Consistent dates and times:	☐	☑	
Applicable SOPs followed:		☑	☐
Cover sheet provides a complete description of key activities and observations:		☑	☐

Completeness Review	Included Yes:	No:
Cover Sheet:	☐	☐
Location Information		
Data Collection:	☐	☐
Observations:	☐	☐
Flow Measurements:	☐	☐
GW Stabilization:	☐	☐
Photograph(s):	☐	☐
Calibration Report(s):	☐	☐
Field Notes:	☐	☐
Safety Form(s):	☐	☐
Supplemental Form(s):	☐	☐
Chain(s) of Custody:	☐	☐
Figures or Drawings:	☐	☐

Accuracy Review	N/A:	Yes:	No:
Field calculations accurate:	☐	☐	
GW stabilization criteria met:	☐	☐	☐
Sonde(s) passed post-check:	☐	☐	☐
Consistent values in field notes:	☐	☐	
Consistent dates and times:	☐	☐	
Data qualifiers/comments added:	☐	☐	
Data under correct Event Key:	☐	☐	
All required parameters measured, calculated, and uploaded to NTS database:	☐	☐	
All associated limits met:	☐	☐	

Peer Reviewer Comments:

Samples collected utilizing low-flow stabilization.
MW7 turbidity much higher than past data. PM notified.
MW8 and MW9 spec. conductance results are lower than past events.

Data Mgmt Reviewer Comments:

Definitions

GW = groundwater, SOPs = standard operating procedures

NTS
526 Chestnut Street
Virginia, MN 55792
Phone: (218) 741-4290

Field Report Cover Sheet

6385CC_2023 (Spring) 0425(CA)
Printed: 4/26/2023 9:16:31 AM

Client:
General Waste Disposal & Recovery

NTS Project:
6385CC - CCR Monitoring and Reporting

NTS Project Manager:
Scott Seeley

NTS Field Personnel:
Corey Andrews

Field Date:
4/25/2023

Summary of Services Performed:

Prepped and departed for General Waste to conduct Spring 2023 CCR well monitoring. Wells MW7, MW8, MW9, and MW10 were sampled via low flow stabilization method. Unable to meet stabilization criteria for Turbidity at MW8. Well has a history of being problematic with turbidity. At least five well volumes were removed from each well prior to sampling. Samples were ceded to PACE Analytical in Virginia, MN. For additional details see field notes and COC.

I, Corey Andrews, certify that the information in this report is true and correct to the best of my knowledge.

MW10

Sample Collected:	Time:	Associated Field QC:
Yes	14:06	Field Blank, Field Duplicate

DATA COLLECTED

SONDE PARAMETER(S)

Conductance, Specific (µS/cm)	1419
ORP vs NHE (mV)	262
Oxygen, Dissolved (mg/L)	4.85
pH (SU)	6.81
Temperature (˚C)	5.61
Turbidity (NTU)	1.7

OTHER FIELD PARAMETER(S)

Elevation, Groundwater (ft)	1446.47
Static Water Level (ft)	6.15

STABILIZATION OR PURGE DATA

Purging Strategy:	Pump Rate:	Well Volume Interval:
Low-Flow Stabilization	0.33 gpm	5.97 min

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):	SWL (ft):
13:48	6.84	3.85	1397	19.9	238	5.59	6.66
13:54	6.82	4.86	1411	3.0	256	5.51	6.66
14:00	6.82	4.84	1416	2.0	259	5.47	6.66
14:06	6.81	4.85	1419	1.7	262	5.61	6.66
	Pass pH: Range=0, Criteria=+\-0.2	Pass LDO: Range=0, Criteria=+\-0.2	Pass SCond: Range=1%, Criteria=<5%	Pass Turb: MaxValue=3, Criteria= <5	Pass ORP: Range=6, Criteria=+\-20	Pass Temp: Range=0.1, Criteria=+\-0.2	

ROUTINE OBSERVATION(S)

WEATHER

Air Temperature:	41°F to 50°F
Wind Speed:	Calm
Wind Direction:	E
Cloud Cover:	Partly Cloudy
Airborne Particulate:	None
Precipitation:	None

SITE INFO

Well Plug Present:	**Yes**
Well Locked:	**Yes**
Unable to Monitor (Dry, Frozen, Other):	

PURGE INFO

Purging Strategy:	Low-Flow Stabilization
Color, Purge:	Colorless
Appearance, Purge:	Clear
Odor Intensity, Purge:	None
Odor, Purge:	None

SAMPLE INFO

Color, Sample:	Colorless
Appearance, Sample:	Clear
Odor Intensity, Sample:	None
Odor, Sample:	None
Sampling Equipment:	Submersible Pump

ROUTINE MEASUREMENT(S)

PURGE INFO

Pump Rate(gpm):	0.33
Pump Start Time(HH:MM):	13:42
Pump End Time(HH:MM):	14:10
Pump Duration(min):	28

MEASURED VALUE

Measured Well Depth(ft):	18.2
Static Water Level(ft):	6.15
Time of Initial SWL Measurement(HH:MM):	13:36

CALCULATED VALUE

Water Column(ft):	12.05
Well Volume(gal):	1.97
Volume Purged(gal):	9.24
Well Volume Interval(min):	5.97

MW10 (cont'd)

STATIC INFORMATION

SITE INFO

MDH Number:	847087
Key Number:	2121

STATIC MEASUREMENT(S)

SITE INFO

Well Casing Diameter(in):	2
Top of Casing Elevation(ft):	1452.62

MW7

Sample Collected:	Yes	Time:	10:30

DATA COLLECTED

SONDE PARAMETER(S)		OTHER FIELD PARAMETER(S)	
Conductance, Specific (µS/cm)	2739	Elevation, Groundwater (ft)	1479.23
ORP vs NHE (mV)	390	Static Water Level (ft)	16.9
Oxygen, Dissolved (mg/L)	0.07		
pH (SU)	6.30		
Temperature (˚C)	7.83		
Turbidity (NTU)	22.2		

STABILIZATION OR PURGE DATA

Purging Strategy:	Low-Flow Stabilization	Pump Rate:	0.2 gpm	Well Volume Interval:	7.9 min

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):	SWL (ft):
9:58	6.16	0.94	2470	46.0	462	7.23	19.29
10:06	6.29	0.59	2585	20.1	426	7.74	19.17
10:14	6.28	0.23	2707	22.2	404	7.99	19.31
10:22	6.29	0.11	2734	22.9	392	7.90	19.44
10:30	6.30	0.07	2739	22.2	390	7.83	19.39
	Pass pH: Range=0, Criteria=+\-0.2	Pass LDO: Range=0.2, Criteria=+\-0.2	Pass SCond: Range=1%, Criteria=<5%	Pass Turb: MaxValue=23, Criteria= <5 Turb: Range=4%, Criteria=<10%	Pass ORP: Range=14, Criteria=+\-20	Pass Temp: Range=0.2, Criteria=+\-0.2	

ROUTINE OBSERVATION(S)

WEATHER		SITE INFO		PURGE INFO		SAMPLE INFO	
Air Temperature:	41°F to 50°F	Well Plug Present:	**Yes**	Purging Strategy:	Low-Flow Stabilization	Color, Sample:	Colorless
Wind Speed:	Calm	Well Locked:	**Yes**	Color, Purge:	Colorless	Appearance, Sample:	Clear
Wind Direction:	E	Unable to Monitor (Dry, Frozen, Other):		Appearance, Purge:	Clear	Odor Intensity, Sample:	None
Cloud Cover:	Partly Cloudy			Odor Intensity, Purge:	None	Odor, Sample:	None
Airborne Particulate:	None			Odor, Purge:	None	Sampling Equipment:	Submersible Pump
Precipitation:	None						

ROUTINE MEASUREMENT(S)

PURGE INFO	MEASURED VALUE	CALCULATED VALUE

MW7 (cont'd)

Pump Rate(gpm): 0.2	Measured Well Depth(ft): 26.6	Water Column(ft): 9.7
Pump Start Time(HH:MM): 09:50	Static Water Level(ft): 16.9	Well Volume(gal): 1.58
Pump End Time(HH:MM): 10:35	Time of Initial SWL Measurement(HH:MM): 09:40	Volume Purged(gal): 9
Pump Duration(min): 45		Well Volume Interval(min): 7.9

STATIC INFORMATION

SITE INFO

MDH Number:	817979
Key Number:	2106

STATIC MEASUREMENT(S)

SITE INFO

Well Casing Diameter(in):	2
Top of Casing Elevation(ft):	1496.13

MW8

Sample Collected:	Yes	Time:	11:35

DATA COLLECTED

SONDE PARAMETER(S)		OTHER FIELD PARAMETER(S)	
Conductance, Specific (µS/cm)	2031	Elevation, Groundwater (ft)	1461.5
ORP vs NHE (mV)	390	Static Water Level (ft)	32.91
Oxygen, Dissolved (mg/L)	1.92		
pH (SU)	6.24		
Temperature (˚C)	8.71		
Turbidity (NTU)	293.8		

STABILIZATION OR PURGE DATA

Purging Strategy:	Low-Flow Stabilization	Pump Rate:	0.25 gpm	Well Volume Interval:	5.44 min

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):	SWL (ft):
11:11	6.21	1.34	1943	211.9	397	8.61	32.99
11:17	6.19	1.95	1993	164.5	426	8.72	33.16
11:23	6.19	2.01	2013	182.9	405	8.60	33.22
11:29	6.15	1.98	2035	199.4	396	8.61	33.31
11:35	6.24	1.92	2031	293.8	390	8.71	33.38
	Pass pH: Range=0.1, Criteria=+\-0.2	Pass LDO: Range=0.1, Criteria=+\-0.2	Pass SCond: Range=1%, Criteria=<5%	Fail Turb: MaxValue=294, Criteria= <5 Turb: Range=47%, Criteria=<10%	Pass ORP: Range=15, Criteria=+\-20	Pass Temp: Range=0.1, Criteria=+\-0.2	

GENERAL OBSERVATIONS

Turbidity spike while sampling. Historically common for turbidity spikes in this well.

ROUTINE OBSERVATION(S)

WEATHER		SITE INFO		PURGE INFO		SAMPLE INFO	
Air Temperature:	41°F to 50°F	Well Plug Present:	Yes	Purging Strategy:	Low-Flow Stabilization	Color, Sample:	Yellow
Wind Speed:	Calm	Well Locked:	Yes	Color, Purge:	Yellow	Appearance, Sample:	Turbid
Wind Direction:	E	Unable to Monitor (Dry, Frozen, Other):		Appearance, Purge:	Fine Particulate	Odor Intensity, Sample:	None
Cloud Cover:	Partly Cloudy			Odor Intensity, Purge:	None	Odor, Sample:	None
Airborne Particulate:	None			Odor, Purge:	None	Sampling Equipment:	Submersible Pump
Precipitation:	None						

ROUTINE MEASUREMENT(S)

PURGE INFO	MEASURED VALUE	CALCULATED VALUE

MW8 (cont'd)

Pump Rate(gpm): 0.25	Measured Well Depth(ft): 41.22	Water Column(ft): 8.31
Pump Start Time(HH:MM): 11:05	Static Water Level(ft): 32.91	Well Volume(gal): 1.36
Pump End Time(HH:MM): 11:45	Time of Initial SWL Measurement(HH:MM): 11:00	Volume Purged(gal): 10
Pump Duration(min): 40		Well Volume Interval(min): 5.44

STATIC INFORMATION

SITE INFO

MDH Number:	817978
Key Number:	2106

STATIC MEASUREMENT(S)

SITE INFO

Drilled Well Depth(ft):	41.2
Well Casing Diameter(in):	2
Top of Casing Elevation(ft):	1494.41

MW9

Sample Collected:	Yes	Time:	13:02

DATA COLLECTED

SONDE PARAMETER(S)

Conductance, Specific (µS/cm)	1565
ORP vs NHE (mV)	123
Oxygen, Dissolved (mg/L)	0.08
pH (SU)	6.56
Temperature (˚C)	7.35
Turbidity (NTU)	3.2

OTHER FIELD PARAMETER(S)

Elevation, Groundwater (ft)	1443.72
Static Water Level (ft)	11

STABILIZATION OR PURGE DATA

Purging Strategy:	Low-Flow Stabilization	Pump Rate:	0.33 gpm	Well Volume Interval:	3.91 min

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):	SWL (ft):
12:46	6.45	0.30	1628	36.1	149	8.00	11.04
12:50	6.51	0.12	1606	14.1	143	7.47	11.04
12:54	6.53	0.09	1585	4.2	139	7.46	11.04
12:58	6.56	0.08	1574	3.8	127	7.32	11.04
13:02	6.56	0.08	1565	3.2	123	7.35	11.04
	Pass pH: Range=0, Criteria=+\-0.2	Pass LDO: Range=0, Criteria=+\-0.2	Pass SCond: Range=1%, Criteria=<5%	Pass Turb: MaxValue=4, Criteria= <5	Pass ORP: Range=16, Criteria=+\-20	Pass Temp: Range=0.1, Criteria=+\-0.2	

ROUTINE OBSERVATION(S)

WEATHER

Air Temperature:	41°F to 50°F
Wind Speed:	Calm
Wind Direction:	E
Cloud Cover:	Partly Cloudy
Airborne Particulate:	None
Precipitation:	None

SITE INFO

Well Plug Present:	**Yes**
Well Locked:	**Yes**
Unable to Monitor (Dry, Frozen, Other):	

PURGE INFO

Purging Strategy:	Low-Flow Stabilization
Color, Purge:	Colorless
Appearance, Purge:	Clear
Odor Intensity, Purge:	None
Odor, Purge:	None

SAMPLE INFO

Color, Sample:	Colorless
Appearance, Sample:	Clear
Odor Intensity, Sample:	None
Odor, Sample:	None
Sampling Equipment:	Submersible Pump

ROUTINE MEASUREMENT(S)

PURGE INFO	MEASURED VALUE	CALCULATED VALUE

MW9 (cont'd)

Pump Rate(gpm): 0.33	Measured Well Depth(ft): 18.9	Water Column(ft): 7.9
Pump Start Time(HH:MM): 12:42	Static Water Level(ft): 11	Well Volume(gal): 1.29
Pump End Time(HH:MM): 13:05	Time of Initial SWL Measurement(HH:MM): 12:37	Volume Purged(gal): 7.59
Pump Duration(min): 23		Well Volume Interval(min): 3.91

STATIC INFORMATION

SITE INFO

MDH Number:	817980
Key Number:	0410

STATIC MEASUREMENT(S)

SITE INFO

Drilled Well Depth(ft):	18.9
Well Casing Diameter(in):	2
Top of Casing Elevation(ft):	1454.72

Calibration Log

Staff: Corey Andrews **Date:** 4/25/2023 **Status:** pass

Comments:

Sonde:	EQ-08F	**PreCal (HH:MM):**	**PostCal (HH:MM):**	**PostEvent (HH:MM):**	
Last Temp Check:	2/24/2023				
Temp Spec.:	<50 +/-0.1 ˚C	7:30	7:30	16:45	**Specifications:**
SpC-0 (Air):		0.9	0.0	0.0	Sum of <100000 +/-1 µS/cm AND +/-0.5%
Standard (µS/cm):		0	0	0	
Temperature (°C):		18.8	18.8	19.0	
SpC-1000 (4206F33-4):		1007	1000	997.0	Sum of <100000 +/-1 µS/cm AND +/-0.5%
Standard (µS/cm):		1000	1000	1000	
Temperature (°C):		19.9	19.9	19.9	
ORP-Zobell (2283-1):		444	444	446	<999 +/-20 mV
Standard (mV):		444.2	444.2	448.2	
Temperature (°C):		19.5	19.5	17.9	
DO (100% Saturation):		9.08	9.00	8.86	<8 +/-0.1 mg/L >=8 AND <20 +/-0.2 mg/L >=20 AND <60 +/-10%
100% Oxygen Saturation:		9.05	9.05	8.99	
Temperature (°C):		18.2	18.2	18.5	
Barometric Pressure (mmHg):		730	730	730	
pH-4 (4207L51-1):		4.00	4.00	4.04	<14 +/-0.2 SU
Standard (SU):		4.00	4.00	4.00	
Temperature (°C):		19.7	19.7	19.9	
pH-7 (4210G32):		7.03	7.02	7.02	<14 +/-0.2 SU
Standard (SU):		7.02	7.02	7.02	
Temperature (°C):		19.5	19.5	19.8	
pH-10 (4206H98-2):		10.03	10.05	10.01	<14 +/-0.2 SU
Standard (SU):		10.06	10.06	10.06	
Temperature (°C):		19.3	19.3	19.5	
Turb-0 (DI Water):		0.8	0.0	0.0	<100 +/-1 NTU >=100 AND <400 +/-12 NTU >=400 AND <3000 +/-150 NTU
Standard (NTU):		0	0	0	
Temperature (°C):		18.5	18.5	19.7	

Sonde:	EQ-08F	PreCal (HH:MM):	PostCal (HH:MM):	PostEvent (HH:MM):	
Last Temp Check:	2/24/2023				
Temp Spec.:	<50 +/-0.1 ˚C	7:30	7:30	16:45	Specifications:
Turb-100D (120-1):		106.1	100	101.7	<100 +/-1 NTU >=100 AND <400 +/-12 NTU >=400 AND <3000 +/-150 NTU
Standard (NTU):		100	100	100	
Temperature (°C):		19.8	19.8	20.3	

Vehicle Inspection 1

GENERAL INFO

Driver: Corey Andrews	Vehicle: VT-70 | 2017 GMC SIERRA	Time(HH:MM): 08:00
Odometer(mi):		

DRIVER/PASSENGER SIDE

External Side Mirrors (right and left): ☒	Windows (clean, free of cracks): ☒	Tires (properly inflated, adequate tread): ☒

FRONT/REAR

Tail Lights: ☒	Head Lights: ☒	Damage to Body/Bumpers: ☒	License Plates (tags current): ☒	Fluid Leaks: ☒
Turn Signals: ☒				

ROUTINE MAINTENANCE

Oil Change (current): ☒	Transmission Fluid (change every 60k miles): ☒	Air Filter (change every 30k miles): ☒	Gauges Operational (check engine light off): ☒
Spare Tire (present, properly inflated): ☒			

INTERIOR

Cleanliness: ☒	Check Brakes: ☒	Check Horn: ☒	Seat Belts (working condition): ☒	Check Parking Brake: ☒
Rearview Mirror: ☒	Windshield Wipers and Fluid: ☒			

GENERAL/SAFETY

Insurance Card: ☒	Wheel Chocks: ☒	First Aid Kit: ☒	Operations Manual: ☒	Strobe Light (if needed): ☒	Buggy Whip (if needed): ☒

DEFICIENCIES CORRECTED

No Deficiencies Noted: ☒
Comments:

Field Checkout

EQUIPMENT

Resource:	Qty:
EQ-08F | Hydrolab MS5 Sonde F	1.00
EQ-17 | Submersible Pump - Generic	1.00
EQ-16A | Static Water Level A, 150 ft (Heron)	1.00

VEHICLE(S)

Resource:	Qty:
VT-70 | 2017 GMC SIERRA	68.00

CONSUMABLES

Resource:	Qty:
CF-04 | Glove - Nitrile (ea)	6.00
CF-05 | Ice (6 lb bag)	2.00
CF-01 | Water - Distilled (gal)	2.00

6385CC Gen. Waste CCR Monitoring 4/25/25

Corey Andrews

Weather: High 45°F / Mostly Sunny / wind light & variable

Equipment: V#70 65 miles, Hydrolab, SWL, Submersible pump

0900 Prep / Calibrate / Load

0820 Depart NTS office

0907 Arrive at Gen Waste.

0915 MW-7 Well locked & in good condition, Unique well # 817979

SWL	TWD	WC	Vol	pump start	stop	Rate
16.90'	26.60'	9.70'	1.58	0950	1035	0.20

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
0958	6.16	0.94	2470	46.0	462	7.23	19.29'
1006	6.29	0.59	2585	20.1	426	7.74	19.17'
1014	6.28	0.23	2707	22.2	404	7.99	19.31'
1022	6.29	0.11	2734	22.9	392	7.90	19.44'
1030	6.30	0.07	2739	22.2	390	7.83	19.39'

*5 well volumes removed prior to sampling SWL After: 19.30'

1050 MW-8 Well locked & in good condition. Unique well # 817978

SWL	TWD	WC	Vol	pump start	stop	Rate
32.91'	41.22	5.31	1.36	1105	1145	0.25

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1111	6.21	1.34	1943	211.9	397	8.61	32.99'
1117	6.19	1.95	1993	164.5	426	8.72	33.16'
1123	6.19	2.01	2013	182.9	405	8.60	33.22'
1129	6.15	1.98	2035	199.4	396	8.61	33.31'
1135	6.24	1.92	2031	293.8	390	8.71	33.38'

*Turb spike while sampling. SWL After: 33.30'

1230 MW-9 Well locked & in good condition. Unique well # 817980

SWL	TWD	WC	Vol	Pump start	Stop	Rate
11.00	18.90'	7.90	1.29	1242	1305	0.33

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1246	6.45	0.30	1628	36.1	149	8.00	11.04'
1256	6.51	0.12	1606	14.1	143	7.47	11.04'
1254	6.53	0.09	1585	4.2	139	7.46	11.04'
1258	6.56	0.08	1574	3.8	127	7.32	11.04'
1302	6.56	0.08	1565	3.2	123	7.35	11.04'

SWL After: 11.00

Scale: 1 square = _____

6385CC Gen Waste CCR Monitoring 4/25/23
Corey Andrews
Weathers: High 45°F / Mostly Sunny / wind light & variable
1320 MW-10 Well locked & in good condition. Unique well # 847087

SWL	TWD	WC	Vol	Pump Start	Stop	Rate
6.15	18.20	12.05	1.9 L/7 cm	1342	1410	0.33

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1348	6.84	3.85	1397	19.9	238	5.59	~~6.66~~
1354	6.82	4.86	1411	3.0	256	5.51	6.66
1400	6.82	4.84	1416	2.0	259	5.47	6.66
1406	6.81	4.85	1419	1.7	262	5.61	6.66

SWL After 6.15' Sample: 1406 Dup: 1407 FB: 1410
1450 Met w/ Jakin & assisted w/ his sampling
1535 Depart Gen. Waste.
1625 Cede samples to PACE Analytical.
1632 Arrive back at NTS office. Unload / Post check / Report.

4/25/2023

Scale: 1 square = _____

Rite in the Rain

Environmental Science & Engineering

Daily Tailgate Safety

Project: 638SCC **Date:** 4/25/23

Work Site Hazard Assessment Worksheet

- ☒ PPE Required (List): High Viz. Level*____
- ☐ Weather Conditions (List): _____
- ☐ Vehicular Traffic
- ☐ Noise
- ☐ Housekeeping
- ☐ Communications
- ☐ Equipment/Tools
- ☐ Other Site Hazards**

☐I have examined the work place named and found no hazards
☐I have examined the work place named and hazards found are listed below with corrective action taken

Hazards Identified/Safety Items Discussed:
Muddy / wet working conditions

Corrective Actions Taken:
Drive according to conditions

Participants in Safety Discussion:

	Print Name	Signature
1.	Corey Andrews	
2.		
3.		
4.		
5.		

Signature of Site Supervisor/Examiner: _____ Date: 4/25/23

*Level D, C, B or A
**Examples: Heavy Equipment, Air Quality, Flammable materials, Wildlife, Work Site Security, Confined Space

NTS
Environmental Science & Engineering
526 CHESTNUT STREET
VIRGINIA, MN 55792
(218) 741-4290 Fax: (218) 741-4291

PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

REQUIRED TURN-AROUND TIME: 2 Weeks from submittal date

CLIENT NAME,ADDRESS,PHONE#:
GENERAL WASTE and RECYLING LLC
DEMOLITION & INDUSTRIAL LANDFILL
ITASCA COUNTY, MINNESOTA

REPORT TO:
SCOTT SEELEY & KARISSA VOSEN

SAMPLER: Corey Andrews

PERMIT REQ.: SW-620-002

PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.

Apr-23

PROJECT NUMBER: 6385CC CCR Monitoirng

LOG-IN #	SAMPLE #	DESCRIPTION:	COLLECTION: DATE:	TIME:	MATRIX: LIQ.	SOL.	filtered	TYPE & # CONTAINERS: VOC M. 8260 (HCL)	GENERAL CHEMISTRY (NO PRES)	GENERAL CHEMISTRY (H2SO4)	TOTAL METALS (HN03)	DISSOLVED METALS (HN03)		SPECIAL INSTRUCTIONS: REQUIRED ANALYSIS:
	MW7	GW WELL	4/25/23	1030	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	4/25/23	1135	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	4/25/23	1302	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	4/25/23	1406	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	4/25/23	1407	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	4/25/23	1410	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

RELINQUISHED BY: Corey Andrews DATE: 4/25/23 TIME: 1625

RECEIVED BY: DATE: TIME:

RELINQUISHED TO NTS SAMPLE LOCK-UP BY: DATE: TIME:

RECEIVED FROM NTS SAMPLE LOCKUP BY: DATE: TIME:

RECEIVED FOR LAB BY: B. Mathew

TEMP.AT ARRIVAL: 1.7 C

DATE: 4/25/23 TIME: 1625

GENERAL WASTE CCR METHODS

PARAMETER	SYMBOL	EPA Method
Boron	B	200.8
Calcium	Ca	200.7
Chloride	Chloride	300.0
Fluoride	Flouride	300.0
pH	pH	SM 4500 H+B
Sulfate	SO_4	300.0
TDS	TDS	SM 2540C

NTS
526 Chestnut Street
Virginia, MN 55792
Phone: (218) 741-4290

Field Report Review Checklist

6385CC_2023 (Spring) 0425(CA)

Printed: 5/5/2023 1:26:25 PM

Environmental Science & Engineering

Report: 6385CC_2023 (Spring) 0425(CA)

Field work not completed by NTS: ☐

SAF Reviewed: ☑

Peer Reviewer:	Date:
Terri Sabetti	4/26/2023

Data Mgmt Reviewer:	Date:

Completeness Review	Included Yes:	No:
Cover Sheet:	☑	☐
Location Information		
Data Collection:	☑	☐
Observations:	☑	☐
Flow Measurements:	☐	☑
GW Stabilization:	☑	☐
Photograph(s):	☐	☑
Calibration Report(s):	☑	☐
Field Notes:	☑	☐
Safety Form(s):	☑	☐
Supplemental Form(s):	☑	☐
Chain(s) of Custody:	☑	☐
Figures or Drawings:	☐	☑

Accuracy Review	N/A:	Yes:	No:
Field calculations accurate:	☐	☑	
GW stabilization criteria met:	☐	☐	☑
Sonde(s) passed post-check:	☐	☑	☐
Consistent values in field notes:	☐	☑	
Consistent dates and times:	☐	☑	
Applicable SOPs followed:		☑	☐
Cover sheet provides a complete description of key activities and observations:		☑	☐

Completeness Review	Included Yes:	No:
Cover Sheet:	☐	☐
Location Information		
Data Collection:	☐	☐
Observations:	☐	☐
Flow Measurements:	☐	☐
GW Stabilization:	☐	☐
Photograph(s):	☐	☐
Calibration Report(s):	☐	☐
Field Notes:	☐	☐
Safety Form(s):	☐	☐
Supplemental Form(s):	☐	☐
Chain(s) of Custody:	☐	☐
Figures or Drawings:	☐	☐

Accuracy Review	N/A:	Yes:	No:
Field calculations accurate:	☐	☐	
GW stabilization criteria met:	☐	☐	☐
Sonde(s) passed post-check:	☐	☐	☐
Consistent values in field notes:	☐	☐	
Consistent dates and times:	☐	☐	
Data qualifiers/comments added:	☐	☐	
Data under correct Event Key:	☐	☐	
All required parameters measured, calculated, and uploaded to NTS database:	☐	☐	
All associated limits met:	☐	☐	

Peer Reviewer Comments:

MW8: Stabilization failed to meet NTS acceptance criteria for NTU; Data was qualified. Has been a recurring issue.
Compared to past events:
MW10- SpC sl. higher
MW7-ORP sl lower
MW8-DO sl higher; NTU much higher
MW9-ORP sl lower

Data Mgmt Reviewer Comments:

Definitions

GW = groundwater, SOPs = standard operating procedures

APPENDIX B

April 2023 & October 2023

Statistical Analysis

June 27, 2023

Mr. Alan Phillips
Dem-Con Companies
13020 Dem-Con Drive
Shakopee, MN 55379
alanphillips@dem-con.com

Sent Via Email

RE: Statistical Analysis for April 2023 groundwater monitoring event for CCR compliance at the Keewatin, MN facility

Mr. Phillips,

NTS is pleased to submit this report summarizing the CCR monitoring data collected in April 2023 as well as the statistical analysis completed in accordance with the facility Statistical Analysis Plan (SAP).

MW-3R which was included in the initial groundwater monitoring plan was abandoned during landfill expansion during the summer of 2019. This down-gradient compliance well has been replaced with MW-10 in the groundwater monitoring network. MW-10 was first monitored on May 29, 2020. The first monitoring event included the CCR guidance Appendix III and Appendix IV parameters. Currently, with only 7 samples collected, upper prediction limits (UPLs) cannot be established for MW-10. MW-10 will continue to be monitored and statistics completed once a sufficient background dataset has been collected (approximately 8 samples).

Since only 2 compliance/downgradient wells are able to be assessed against a background dataset for statistically significant increases (SSIs), the current groundwater monitoring system does not meet the requirements of 40 CFR 257.91, and a complete semi-annual evaluation to determine if a SSI has occurred as outlined by the site specific Statistical Analysis Plan (SAP) cannot be fully completed. MW-8 and MW-9 will be assessed for a SSI and general comments regarding MW-10 data provided.

Review of the data indicates that no trigger values were exceeded during the April 2023 monitoring event. Parameters measured at MW-10 appear congruent with Sulfate and Total dissolved Solids (TDS) being slightly elevated compared to previous measurements at the same location.

Detection Monitoring

Detection monitoring at the Keewatin facility includes monitoring of 4 groundwater wells, one upgradient well (MW-7) and three downgradient wells (MW-8, MW-9, and MW-10). MW-3R has been replaced by MW-10 beginning in May, 2020. Field parameters and laboratory samples were collected on April 25, 2023 at all monitoring locations. Laboratory results were received from PACE Analytical on May 8, 2023. Lab analyses completed includes those found in the CCR guidance Appendix III table (See Appendix C). The monitoring results and the established detection monitoring trigger values can be seen in Tables 1 and 2, respectively.

Table 1
2023 April Detection Monitoring Event Results

Parameter	MW-7	MW-8	MW-9	MW-10
Boron (ug/L)	66.7	92.6	36.2	20.0
Calcium (mg/L)	539	403	199	215
Chloride (mg/L)	1.5	1.1	7.9	1.2
Fluoride (mg/L)	0.079	0.075	0.09	0.13
pH (SU)	6.30	6.24	6.56	6.81
Sulfate (mg/L)	1480	790	448	548
Total Dissolved Solids (mg/L)	2380	1700	1120	1100

Table 2
Detection Monitoring Trigger Values (updated January 2022)

Parameter	MW-7	MW-8	MW-9	MW-10
Boron (ug/L)	110.75	105.15	44.46	TBD
Calcium (mg/L)	659.21	434.46	234.98	TBD
Chloride (mg/L)	137.06	1.87	20.97	TBD
Fluoride (mg/L)	0.11	0.11	0.11	TBD
pH (SU)	6.02 - 6.79	6.08 - 6.83	6.22 - 7.06	TBD
Sulfate (mg/L)	1537.59	852.16	525.81	TBD
Total Dissolved Solids (mg/L)	2863.07	1829.75	1260.69	TBD

Statistical Analysis

The Statistical Analysis Plan (SAP) for the facility and CCR guidance details that only downgradient wells (compliance wells) are to be analyzed for Statistically Significant Increases (SSIs). The SAP also specifies a 2-sample test be used to determine if an SSI has occurred.

The April 2023 monitoring data does not indicate that an SSI has occurred at the Keewatin facility. However, the analysis is incomplete with only 2 downgradient wells monitored and compared to a background dataset. MW-10 does not have established detection monitoring trigger values determined yet due to an inadequate background dataset size.

No parameters at MW-8 or MW-9 exceeded established trigger values in the April 2023 monitoring event.

The SAP for the facility indicates that the background dataset shall be updated every two years, provided an SSI has not occurred, by including the additional data into the background dataset. The background dataset was updated in the 2021 annual report with the data collected during 2020 and 2021. The updated trigger values are reflected in Table 2. Due to the trending values observed in MW-7, as well as MW-7 having significantly higher concentrations of Calcium, Chloride, Sulfate, and Total Dissolved Solids (TDS) compared to the downgradient locations, detection monitoring trigger values for MW-8 and MW-9 were based completely on intrawell analysis (comparing recent measurements from a well to background measurements from the same well) instead of interwell analysis (comparing values of MW-7 (upgradient) to MW-8 and MW-9 (downgradient)).

If you have any questions, please contact me at (218) 742-1022.

Sincerely,
Northeast Technical Services, Inc.

Evan C. Johnson, PE
Geotechnical Engineer

Appendix A: April 2023 Monitoring Results
Appendix B: Statistical Analysis Plan
Appendix C: Appendix III & Appendix IV Parameters

Appendix A:
April 2023 Monitoring Results

(removed due to duplication in Annual Report)

Appendix B
Sampling and Analysis Plan

GENERAL WASTE & RECYCLING, LLC SW-620
INDUSTRIAL WASTE LANDFILL

Statistical Analysis Plan for Groundwater Monitoring Data

Prepared For:

GENERAL WASTE & RECYCLING, LLC

Prepared by:

Northeast Technical Services, Inc.
526 Chestnut Street
Virginia, Minnesota 55792

(218) 741-4290

October 6, 2017

Project Number: 6385CC

"I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete." I certify that this groundwater stasistical analysis plan for the General Waste Industrial Waste Landfill described in this report meets all requirements put forth by 40 CFR §257.93 'Groundwater Sampling and Analysis Requirements.'

10-13-17

Evan Johnson, P.E. Date
Geotechnical Engineer
Minnesota License No. 53648

Table of Contents

List of Tables

List of Figures

1.0 Purpose

Per 40 CFR 257.93 'Groundwater Sampling and Analysis Requirements' (the rule), a statistical procedure for assessing collected groundwater data as to whether or not a release has occurred must implemented at all CCR units. The rule outlines five (5) statistical methods that may be utilized for analyzing collected data. The statistical procedure utilized should account for spatial variance, temporal trends, and address the handling of non-detect data. This Statistical Analysis Plan has been prepared to meet the requirements of the rule and provide the framework for analyzing the collected groundwater data at the General Waste & Recycling, LLC facility (the facility) in Keewatin, Minnesota.

2.0 Initial Background Monitoring

2.1 Background Monitoring Parameters

The rule requires background monitoring of all CCR monitoring wells and eight (8) groundwater monitoring events must be completed prior to October 17, 2017. For this Statistical Analysis Plan, background monitoring includes monitoring for all parameters listed in Appendix III and Appendix IV of 40 CFR 257.93 (see Table 1 and Table 2, respectively).

2.2 Background Data Analysis

Per the rule, within 90 days of collecting the final background dataset, statistical analysis of the data is to be completed. Statistical analysis can be any of those allowed by the rule and should establish a means of determining if a Statistically Significant Inscrease (SSI) of a monitored parameter occurs during operation of the CCR unit to help determine if a leak or release has occurred from the CCR unit.

2.3 Establishing Background Dataset

2.3.1 Summary Statistics and Distribution

Once the final background dataset has been collected, summary statistics should be computed, including mean and variance. An analysis of the data set be conducted to see if data is parametric (normally distributed). A Shapiro-Wilk analysis should be completed to make this determination. This should be completed for each parameter at each well installation. If the data is skewed and does not pass the normality test, the data may be able to be transformed to a normal distribution via lognormal plotting.

If a normal distribution cannot be achieved naturally or by transformation, non-paremetric statistics may be utilized.

2.3.2 Interwell and Intrawell Analysis

It is recommended that the primary method of determining if a SSI has occurred at the site utilize an interwell analysis. This analysis will look at the dataset of the upgradient well (background well) to determine the Upper Prediction Limit (UPL), for the downgradient well concentrations. However, if spatial variation is present in the monitoring system, it may be necessary to assess data from an intrawell analysis. This analysis looks at the background dataset for a specific parameter in the same well to determine if a SSI has occurred. Both methods are viable and can be used for specific parameters. It is not necessary to have a single analysis type for all wells for all parameters at the facility.

Care should be taken when conducting an interwell analysis when the background dataset for downgradient wells may be affected by pre-existing CCR impacts. Given the timeframe of placed CCR materials at the facility, the estimated groundwater velocity, and the monitoring well locations, none of the existing monitoring wells would be expected to exhibit any signs of CCR impact. However, analysis should be completed for any future wells installed.

2.3.3 Upper Prediction Limit

Per the recommendation from the USEPA "Statistical Analysis of Groundwater Monitoring Data At RCRA Facilities Unified Guidance (2009)" (Unified Guidance) document, Upper Prediction Limits (UPL) will be utilized to assess for a SSI in the downgradient wells the facility. The UPL is calculated as follows:

$$UPL = x + ks$$

Where:
x = mean parameter concentration of background dataset
s = standard deviation of background dataset
k = site specific multiplier provided by the Unified Guidance Tables 19, depends on number of wells, number of parameters to be analyzed, size of background dataset

The UPL statistical method allows for both interwell and intrawell comparison.

2.4 Analyzing for Trends

Trends in data may occur due to natural temporal factors, but are not expected to be seen in the initial background dataset. Trend analysis should be completed for the background datasets. If a trend does exist, this should trigger an analysis to assess the potential cause of the trend (especially upward trends of monitored concentrations) and determination of the method to correct for the trend in the statistical approach.

Trend analysis to determine if a statistically significant trend exists can be completed by utilizing the Theil-Sen slope analysis with Mann-Kendall trend test ($\alpha = 0.05$) (non-parametric, more suitable for datasets with >20% non-detect results) or a Ordinary Least Squares (OLS) linear regression with Student's t-test ($\alpha = 0.01$) (parametric dataset, <20% non-detect results).

2.5 Non-Detect Data

Datasets that have less than 20% non-detect data may substitute the reporting limit divided by 2 (RL/2 method) for non-detect results for statistical analysis.

Datasets that contain 20-50% non-detect data must utilize the Kaplan-Meier method to compute summary statistics for the dataset.

Datasets that contain more than 50% non-detect data will not be able to compute summary statistics data reliably. It is recommended that the UPL be set to the highest or second highest observed value.

If all background data are non-detect, than the UPL shall be set to the highest Reporting Limit (RL) (assuming a reasonable RL have been reported that are below MCL concentrations).

2.6 Outliers

The dataset should be analyzed for outlier datapoints. This can be done visually by examining a time series plot of the data or by a box-and-whisker plot. If a datapoint appears to be an outlier, field notes, lab reports, and analysis programs should be checked for indications of erroneous data or transcription erros.

Numerical methods of determining an outlier may include a 3-sigma analaysis for parametric data (data point outside of 3 standard deviations) or the following for non-parametric data if the data point x is:

$$x > x'_{.75} + 3 * IQR$$

Where:

X = individual data point
$x'_{.75}$ = Third Quartile
$IQR = x'_{.75} - x'_{.25}$ (InterQuartile Range)

Datapoints determined to be outliers due to erroneous data collection may be removed from the dataset. Datapoints that appear to be representative data but are extreme may be excluded from the statistical analysis, but should remain in the data for future evaluation if the data set significantly changes.

2.7 Duplicate Samples

Duplicate samples collected for quality control means should not be included in the statistically analyzed dataset as they are not physically independent and will inappropriately skew the data.

3.0 Detection Monitoring

Following the completion of the background monitoring, detection monitoring will be initiated at the facility. Detection monitoring is to be conducted semiannually (preferably in the spring and

fall) and analyzed for Appendix III parameters only. Statisitcal analysis of the data must be completed within 90 days of receiving laboratory data.

3.1 Stastically Significant Increase

3.1.1 Two Sample Test

Two sample testing indicates that if a UPL (either interwell or intrawell) is exceeded for a parameter, then a second sample should be collected and analyzed. If analysis of the second sample indicates a concentration below the UPL, then a SSI has not occurred. If the second sample indicates a value above the UPL, then a SSI has occurred.

Three Sample Testing which would require 3 consecutive samples to indicate concentrations above the UPL for a SSI to be indicated may be appropriate for specific situations. One situation would be if False Positive readings (Type II error) appears to be exceeding 10% of the total dataset.

3.1.2 Pracitical monitoring Practice

Downgradient constituents should be compared to the established UPL determined from the upgradient well data (for interwell comparisons) or compared to the UPL determined from the segregated background dataset for the individual well (intrawell comparison). If a parameter exceeds a UPL, a second sample should be collected from the well and analyzed. If the second sample indicates a value above the UPL, then it can be determined that a SSI has occurred and Assessment monitoring should be initiated.

3.1.3 Responding to an SSI

If the statistical evaluation indicates a SSI has occurred, the data should be further evaluated to determine if the the SSI is likely caused by a CCR unit release and assessment monitoring should be initiated or if other factors of influence can be demonstrated to be taking effect. This demonstration must be certified by a qualified professional engineer within 90 days of completing the statistical evaluation (in addition to the 90 day requirement for conducting the statistical analysis).

4.0 Assessment Monitoring

Assessment monitoring occurs once evaluation of Detection Monitoring parameters (Appendix III) indicates a SSI and there is reason to believe that the SSI could indicate a release from a CCR unit. Assessment monitoring must begin within 90 days of determining that a SSI related to a potential release of the CCR unit has occurred.

4.1 Monitoring Parameters

The initial assessment monitoring event must include all parameters listed in Appendix III and Appendix IV of 40 CFR 257.93 at all monitoring well locations. Subsequent monitoring events may include Appendix III parameters and only the Appendix IV parameters that were detected in the initial monitoring event. Assessment monitoring will also be conducted on a semi-annual basis (e.g., spring and fall monitoring events).

4.2 Groundwater Protection Standard

A Groundwater Protection Standard (GWPS) must be established for each Appendix IV parameter. For parameters for which the USEPA has established a Maximum Contaminant Level (MCL), the MCL (shown on Tables 1 and 2) shall be used for the GWPS. For the parameters for which a MCL has not been established, then the Upper Tolerance Limit (UTL) ($\alpha = 0.05$, 95% coverage) of the parameter utilizing the upgradient (background) well(s) shall be utilized to establish a GWPS for the specific parameter. This determined UTL concentration shall be applied site-wide for all downgradient wells.

4.3 Move to Corrective Action

The UPL and UTL are useful to assess for a SSI or measurable increase above background. However, in order to assess if a dataset has stastically exceeded a set value (the GWPS), Confidence Limits would be the most appropriate. If the Lower Confidence Limit (LCL) of the Assessment Monitoring dataset exceeds the GWPS, then movement into Corrective Action is warranted.

This Statistical Analysis Plan does not address Corrective Action methods of monitoring. Corrective Action methods will be developed if required per the rule..

4.4 Return to Detection Monitoring

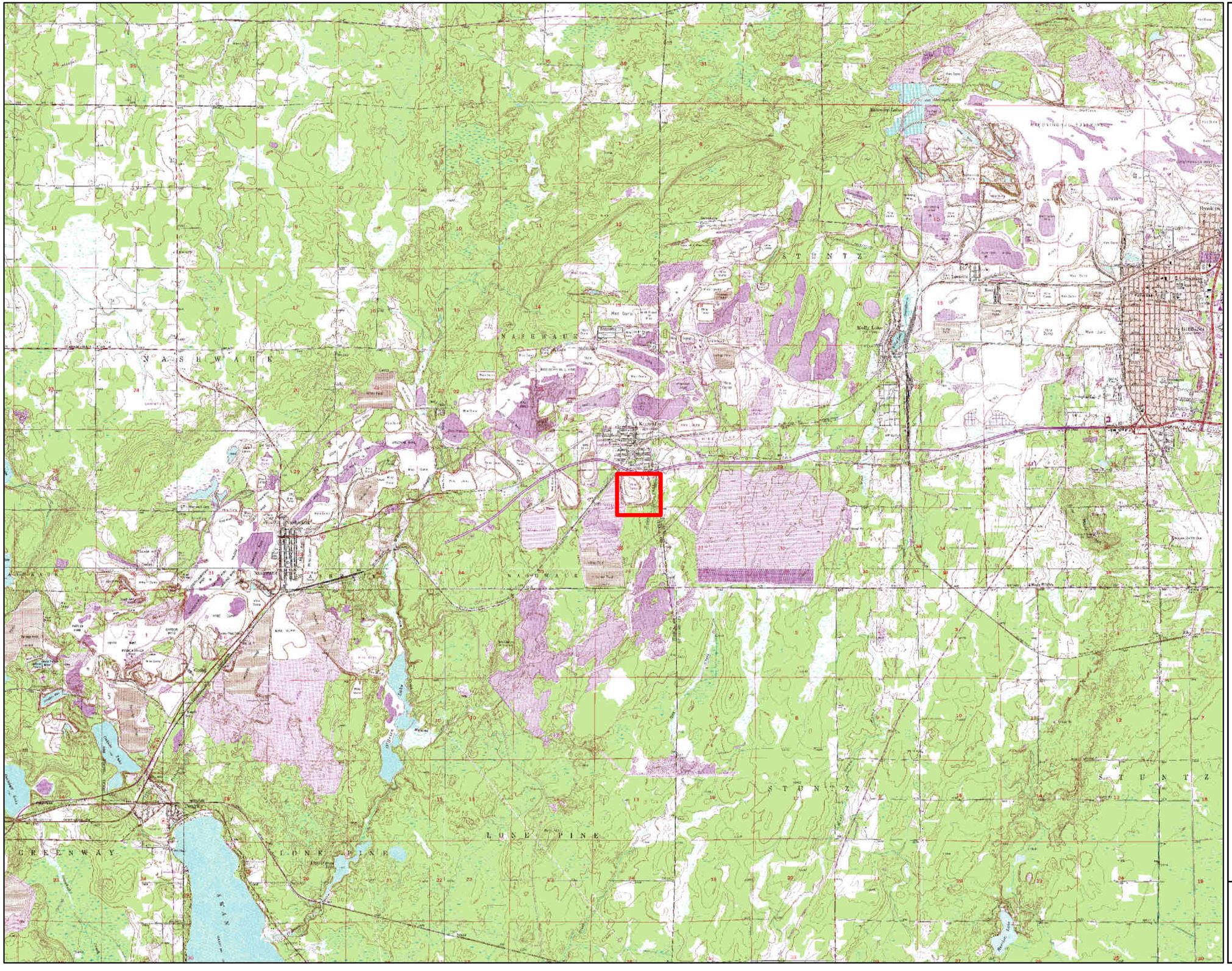
Assessment monitoring may cease and detection monitoring be re-initiated when all Appendix III and monitored Appendix IV parameters are below background (upgradient well) concentrations.

5.0 Updating Background Data

Background datasets should be updated every 2 years assuming that a SSI has not occurred. A Student t-test (α=0.01, parametric) or Mann-Whitney ($\alpha = 0.05$, non-parametric) should be utilized to assess if the existing background dataset and the dataset to be added to the background dataset are statisctically different. If the data is shown not to be significantly different, the dataset should be pooled and the background dataset updated. If analysis of the data using the t-test or Mann-Whitney test indicates a statistical difference, the data should be analyzed to determine a potential cause for the stastistically significant difference.

TABLE 1 Appendix III Parameters	
Parameter	**MCL**
Boron	NA
Calcium	NA
Chloride	NA
Fluoride	4.0 mg/L
pH	NA
Sulfate	NA
Total Dissolved Solids (TDS)	NA

TABLE 2 Appendix IV Parameters	
Parameter	**MCL**
Antimony	0.006 mg/L
Arsenic	0.01 mg/L
Barium	2.0 mg/L
Beryllium	0.004 mg/L
Cadmium	0.10 mg/L
Chromium	0.10 mg/L
Cobalt	NA
Fluoride	4.0 mg/L
Lead	0.015 mg/L
Lithium	NA
Mercury	0.002 mg/L
Molybdenum	NA
Selenium	0.05 mg/L
Thallium	0.002 mg/L
Radium 226 and 228 combined	5 pCi/L



N

0 3,000 6,000 12,000

Feet

1 Inch = 6,000 Feet

Legend

Project Location

Notes:

-Background image has been provided by MNGEO Web Services

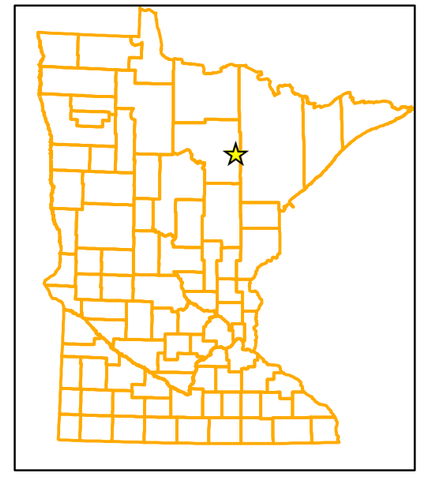


Figure 1
Site Location Map

General Waste Industrial Landfill
Statistical Analysis Plan **Certification**
Keewatin, MN (St. Louis)

Environmental Science & Engineering
www.netechnical.com

Date Drawn :
October 4, 2017

Drawn By :
Evan Johnson

NTS Project #:
6385CC

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Appendix C
CCR Appendix III and Appendix IV Tables

TABLE 1 Appendix III Parameters	
Parameter	**MCL**
Boron	NA
Calcium	NA
Chloride	NA
Fluoride	4.0 mg/L
pH	NA
Sulfate	NA
Total Dissolved Solids (TDS)	NA

TABLE 2 Appendix IV Parameters	
Parameter	**MCL**
Antimony	0.006 mg/L
Arsenic	0.01 mg/L
Barium	2.0 mg/L
Beryllium	0.004 mg/L
Cadmium	0.10 mg/L
Chromium	0.10 mg/L
Cobalt	NA
Fluoride	4.0 mg/L
Lead	0.015 mg/L
Lithium	NA
Mercury	0.002 mg/L
Molybdenum	NA
Selenium	0.05 mg/L
Thallium	0.002 mg/L
Radium 226 and 228 combined	5 pCi/L

January 8, 2024

Mr. Alan Phillips
Dem-Con Companies
13020 Dem-Con Drive
Shakopee, MN 55379
alanphillips@dem-con.com

Sent Via Email

RE: Statistical Analysis for October 2023 groundwater monitoring event for CCR compliance at the Keewatin, MN facility

Mr. Phillips,

NTS is pleased to submit this report summarizing the CCR monitoring data collected in October 2023 as well as the statistical analysis completed in accordance with the facility Statistical Analysis Plan (SAP).

MW-3R which was included in the initial groundwater monitoring plan was abandoned during landfill expansion during the summer of 2019. This down-gradient compliance well has been replaced with MW-10 in the groundwater monitoring network. MW-10 was first monitored on May 29, 2020. The first monitoring event included the CCR guidance Appendix III and Appendix IV parameters. There are now 8 samples collected, which should provide sufficient background to generate upper prediction limits (UPLs). UPLs will be established for MW-10 and provided in the 2023 Annual Report. MW-10 will plan to be assessed utilizing the determined UPLs during the 2024 monitoring events.

Since only 2 compliance/downgradient wells are able to be assessed against a background dataset for statistically significant increases (SSIs), the current groundwater monitoring system does not meet the requirements of 40 CFR 257.91, and a complete semi-annual evaluation to determine if a SSI has occurred as outlined by the site specific Statistical Analysis Plan (SAP) cannot be fully completed. MW-8 and MW-9 will be assessed for a SSI and general comments regarding MW-10 data provided.

Review of the data indicates that no trigger values were exceeded during the October 2023 monitoring event. Parameters measured at MW-10 appear congruent with previous measurements at the same location. Boron at MW-9 was reported as <50 ug/L, and the associated trigger limit is 44.46 ug/L. The elevated reporting limit was caused by the laboratory conducting the test with a dilution faction of 5, even though it was unnecessary. This was not considered a trigger value exceedance.

Detection Monitoring

Detection monitoring at the Keewatin facility includes monitoring of 4 groundwater wells, one upgradient well (MW-7) and three downgradient wells (MW-8, MW-9, and MW-10). MW-3R has been replaced by MW-10 beginning in May, 2020. Field parameters and laboratory samples were

collected on October 16, 2023 at all monitoring locations. Laboratory results were received from PACE Analytical on October 31, 2023. Lab analyses completed includes those found in the CCR guidance Appendix III table (See Appendix C). The monitoring results and the established detection monitoring trigger values can be seen in Tables 1 and 2, respectively.

Table 1
2023 October Detection Monitoring Event Results

Parameter	MW-7	MW-8	MW-9	MW-10
Boron (ug/L)	84.9	76.8	<50	<50
Calcium (mg/L)	498	387	213	189
Chloride (mg/L)	1.9	1.4	8.0	1.1
Fluoride (mg/L)	0.072	0.060	0.084	0.16
pH (SU)	6.2	6.38	6.7	7.4
Sulfate (mg/L)	1370	825	431	427
Total Dissolved Solids (mg/L)	2470	1790	1190	920

Table 2
Detection Monitoring Trigger Values (updated January 2022)

Parameter	MW-7	MW-8	MW-9	MW-10
Boron (ug/L)	110.75	105.15	44.46	TBD
Calcium (mg/L)	659.21	434.46	234.98	TBD
Chloride (mg/L)	137.06	1.87	20.97	TBD
Fluoride (mg/L)	0.11	0.11	0.11	TBD
pH (SU)	6.02 - 6.79	6.08 - 6.83	6.22 - 7.06	TBD
Sulfate (mg/L)	1537.59	852.16	525.81	TBD
Total Dissolved Solids (mg/L)	2863.07	1829.75	1260.69	TBD

Statistical Analysis

The Statistical Analysis Plan (SAP) for the facility and CCR guidance details that only downgradient wells (compliance wells) are to be analyzed for Statistically Significant Increases (SSIs). The SAP also specifies a 2-sample test be used to determine if an SSI has occurred.

The October 2023 monitoring data does not indicate that an SSI has occurred at the Keewatin facility. However, the analysis is incomplete with only 2 downgradient wells monitored and compared to a background dataset. MW-10 does not have established detection monitoring trigger values determined yet. However, with the completion of the October 2023 monitoring event, MW-10 has 8 samples collected. Statistics will be calculated and trigger values determined to be utilized for MW-10 for the 2024 monitoring events. These values will be reported in the 2023 Annual Report.

No parameters at MW-8 or MW-9 exceeded established trigger values in the October 2023 monitoring event.

The SAP for the facility indicates that the background dataset shall be updated every two years, provided an SSI has not occurred, by including the additional data into the background dataset. The background dataset was updated in the 2021 annual report with the data collected during 2020 and 2021. The updated trigger values are reflected in Table 2. Due to the trending values observed in MW-7, as well as MW-7 having significantly higher concentrations of Calcium, Chloride, Sulfate, and Total Dissolved Solids (TDS) compared to the downgradient locations, detection monitoring trigger values for MW-8 and MW-9 were based completely on intrawell analysis (comparing recent measurements from a well to background measurements from the same well) instead of interwell analysis (comparing values of MW-7 (upgradient) to MW-8 and MW-9 (downgradient)). The data collected in 2022 and 2023 will be incorporated into the background dataset and updated trigger values reported in the 2023 annual report to be utilized for future monitoring.

If you have any questions, please contact me at (218) 742-1022.

Sincerely,
Northeast Technical Services, Inc.

Evan Johnson 1-8-2024

Evan C. Johnson, PE
Geotechnical Engineer

Appendix A: October 2023 Monitoring Results
Appendix B: Statistical Analysis Plan
Appendix C: Appendix III & Appendix IV Parameters

Appendix A:
October 2023 Monitoring Results

(Removed due to duplication in Annual Report)

Appendix B
Sampling and Analysis Plan

(Removed due to duplication in Annual Report)

APPENDIX C

2024 UPDATE OF BACKGROUND DATASET RATIONALE/WORKFLOW

A two year period of detection monitoring was completed at General Waste CCR Facility. The Statistical Analysis Plan (SAP) indicates the background dataset should be assessed following a two year period and detection monitoring added to the background dataset if not statistically different and if no Statistically Significant Increase (SSI) has occurred. The following outlines the process followed to assess the detection/background monitoring results for the Appendix III parameters (Boron, Calcium, Chloride, Fluoride, Sulfate, TDS, pH).

1.) Complete time series Plots for 4 CCR wells at the facility to allow for visual assessment of Detection monitoring as it relates to background monitoring data.
    a. MW-7 indicates large trends in Chloride, TDS, and Sulfate, with Chloride decreasing, and TDS & Sulfate increasing, though the data appears to be relatively stable over the last 2-3 years.
    b. MW-8 Sulfate and TDS was elevated in 2022-2023 compared to 2018-2021, but comparable to the baseline data collected in 2016-2017.
    c. MW-9 detection dataset appears generally consistent with background dataset
    d. MW-10 data appears generally consistent with perhaps a minor decreasing trend in Chloride present.
2.) A Students T-Test (STT) was conducted (α=.01)(no Non-detects) or Tarone-Ware (TW) (α=.01)(with Non-detects) to assess if the background dataset (2016-2021) and detection monitoring dataset (2022-2023) were statistically different or not. If the p-value is not less than 0.01, the background and detection monitoring datasets are not statistically different.

    a. MW-7
        i. Boron (TW): p=.337
        ii. Calcium (STT): p=.09
        iii. Chloride (STT): p=.002<.01, 2022-2023 Chloride is statistically less than the background dataset.
        iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no change
        v. Sulfate (STT): p=.002<.01, Sulfate in 2022-2023 was statistically higher than background dataset
        vi. TDS (STT): p=.025
        vii. pH (STT): p=.958
    b. MW-8
        i. Boron (TW): p=.863
        ii. Calcium (STT): p=.141
        iii. Chloride (STT): p=.579
        iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no change
        v. Sulfate (STT): p=.004<.01, Sulfate in 2022-2023 was statistically higher than background dataset.
        vi. TDS (STT): p=.03
        vii. pH (STT): p=.935
    c. MW-9
        i. Boron (TW): .419
        ii. Calcium (STT): p=.727

iii. Chloride (STT): p=.791
iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no obvious change
v. Sulfate (STT): p=.556
vi. TDS (STT): p=.434
vii. pH (STT): p=.783

3.) Added Detection Monitoring results to 'background' dataset, despite statistical difference. Reasons discussed at each bullet point above.
4.) Due to the stark difference in chemistry of MW-7 (upgradient) well with all downgradient wells (MW-8, MW-9, MW-10), interwell analysis will no longer be performed between the upgradient and downgradient wells. Intrawell analyses will be conducted for MW-8 and MW-9 and MW-10. Additionally, intrawell analysis will be completed for MW-7 to assess for changes in the upgradient watershed, even though the upgradient well is not assessed for Statistically Significant Increases (SSIs).
5.) Check all updated 'background' datasets for normality utilizing Robust Regression on order Statistics (ROS) to analyze datasets
    a. Removed high non-detects from MW-7 Boron. Dataset does not appear normal, gamma, or log-normal distributed utizling ROS, but is very borderline as being normally distributed. Passes normality if the singe non-detect value is substituted for DL/2. Will process as normally distributed.
    b. Removed high non-detects from MW-8 Boron. Dataset does not appear normal, gamma, or log-normal distributed utizling ROS, but is very borderline as being normally distributed. Passes normality if the singe non-detect value is substituted for DL/2. Will process as normally distributed.
    c. MW-8 Field pH and Field Conductivity fail ROS normally distributed test. pH passes lognormal distribution, Field Conductivity does not appear to follow any distribution.
    d. MW-9 Field pH and Field Conductivity fail ROS normally distributed test. Neither follow any distribution.
    e. Remove pH reading from 7/11/17 for MW-7, MW-8, MW-9 datasets, suspect pH, faulty equipment, bad reading.

6.) Determine Upper Prediction Limits (UPLs) for each parameter at each well using 2-sample, UPL at p=95 with ProUCL. See Table 2
    a. Utilize ROS Normal distribution for data with non-detects

Table 1: Previous UPLs

Parameter	MW-7	MW-8	MW-9	MW-10
Boron (ug/L)	110.75	105.15	44.46	TBD
Calcium (mg/L)	659.21	434.46	234.98	TBD
Chloride (mg/L)	137.06	1.87	20.97	TBD
Fluoride (mg/L)	0.11	0.11	0.11	TBD
pH (SU)	6.02 - 6.79	6.08 - 6.83	6.22 - 7.06	TBD
Sulfate (mg/L)	1537.59	852.16	525.81	TBD
Total Dissolved Solids (mg/L)	2863.07	1829.75	1260.69	TBD

Table 2: 2024 Updated UPLs Based on ProUCL only				
Parameter	**MW-7**	**MW-8**	**MW-9**	**MW-10**
Boron (ug/L)	93.74	105	44.83	43.24
Calcium (mg/L)	676.5	436.4	233	248.6
Chloride (mg/L)	137.1	1.739	19.62	1.764
Fluoride (mg/L)	0.101	0.0751	0.0985	0.182
pH (SU)	6.00-6.77	6.07 – 6.81	6.24 – 7.03	6.50-7.33
Sulfate (mg/L)	1785	903.7	521.0	643.0
Total Dissolved Solids (mg/L)	3033	1902	1263	1252

Table 3: 2024 Updated UPLs Based on Unified Guidance				
Parameter	MW-7	MW-8	MW-9	MW-10
Boron (ug/L)	104.3	106.17	43.456	41.81138
Calcium (mg/L)	663.06	433.04	231.3	252.5454
Chloride (mg/L)	131.36	1.784	18.879	1.87491
Fluoride (mg/L)	0.1038	0.0787	0.09844	0.184238
pH (SU)	6.03 - 6.74	6.09 - 6.79	6.27 - 7.01	6.48 - 7.35
Sulfate (mg/L)	1729.9	891.16	515.6	655.738
Total Dissolved Solids (mg/L)	2963	1882.2	1252.06	1272.862

7.) Determine UPL for each parameter at each well using Table 19 of the unified guidance with 1 of 2 sample, 3 wells, 16 background samples, 7 COCs, semi-annual assessment. See Table 3.

8.) The 2 methodologies utilized to calculate UPLs exhibit similar results. The UPLs determined by the Unified Guidance will be utilized as the monitoring limits for the next 2 years. This methodology is specifically laid out in the Unified Guidance Rule and is therefore more defensible.