2021 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 2022

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

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 east

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 29 and October 21, 2021 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 the most in the upgradient monitoring well MW-7, most likely due to MW-7 being more susceptible to precipitation events affecting surface water within the tailings basin and therefore within groundwater in the area. MW-7 is a relatively shallow well (i.e., screened depth 16.6 to 26.6 feet below the ground surface) installed within the tailings basin material (Figure 3). MW-7 was found to be nearly dry during the October 2021 event; a sample was not able to be collected.

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.

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 laboratory results collected during 2021 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 2021 groundwater monitoring results. The statistical evaluation cannot be deemed complete since the monitoring location MW-3R is unable to be monitored. Until a statistically significant dataset (8 or more samples) for MW-10 is collected, statistical analysis for this location cannot be completed. The statistical analyses completed for the April and October events are presented in Appendix B.

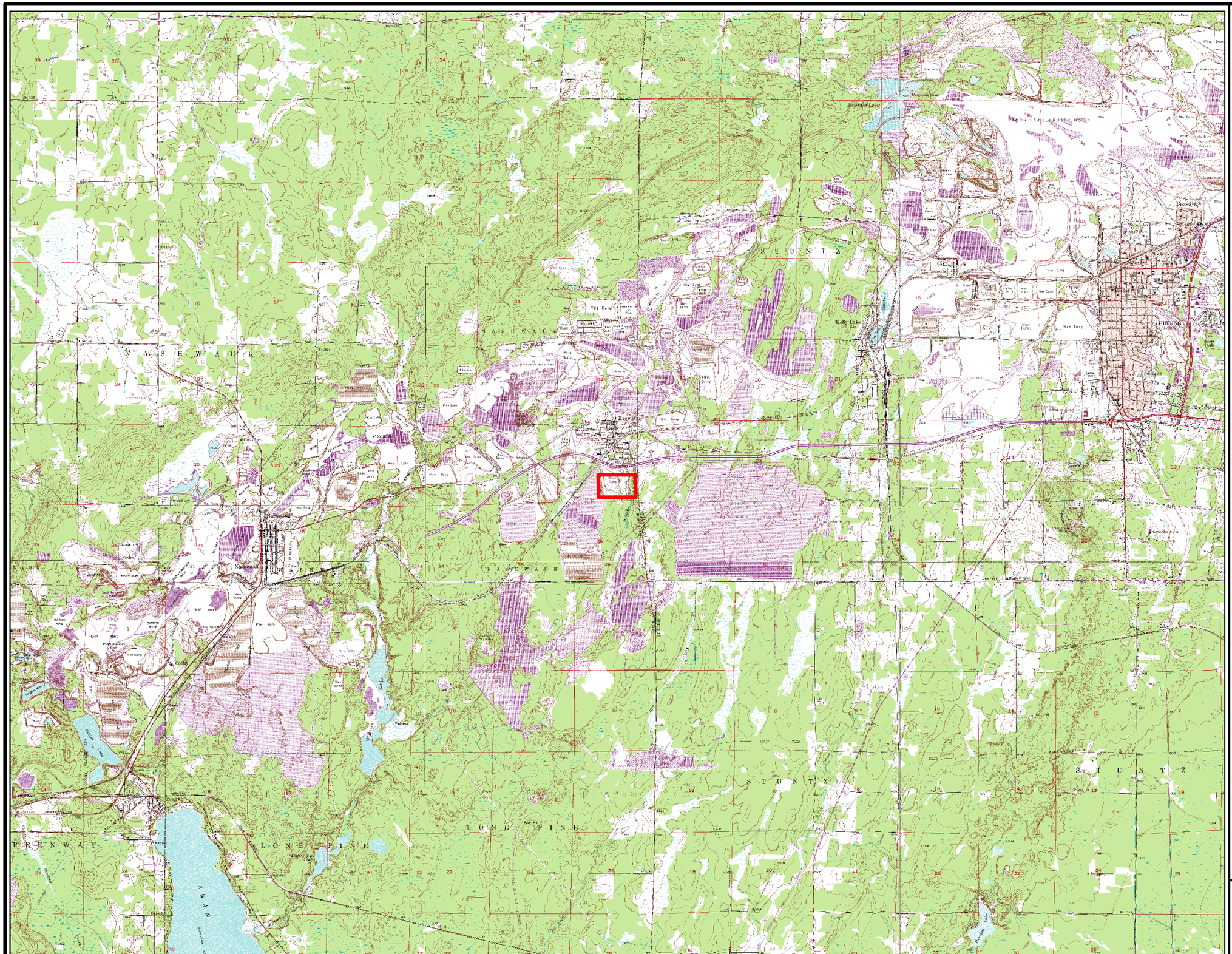
Following the SAP, the detection monitoring data collected in 2020 and 2021 was assessed and incorporated into the background dataset. After assessing the detection monitoring data, it was determined that intrawell assessment for MW-8 and MW-9 is more appropriate and will provide a higher statistical power than an interwell analysis (comparing upgradient well MW-7 parameters to downgradient wells MW-8 and MW-9 data). The groundwater monitored in MW-7 is very distinct from the groundwater monitored in MW-8 and MW-9, 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 2020 and 2021 monitoring can be found in Appendix C. The updated Upper Prediction Limits (UPLs) 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. MW-10 should be monitored a minimum of 8 events before completing statistical analysis. The Groundwater Monitoring System will be considered incomplete as determined by CRF 257.91 which requires a minimum of 3 down-gradient wells until MW-10 is able to be fully evaluated. SSI evaluations will continue but will be flagged as only including 2 downgradient locations until MW-10 can be included in the analysis.

FIGURES



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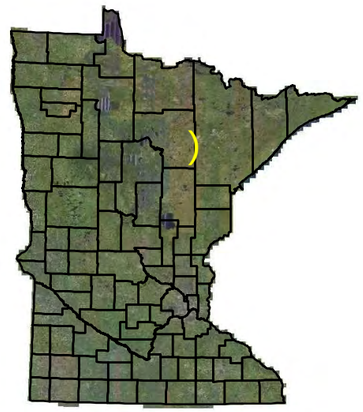
Feet

1 Inch = 6,000 Feet

Legend

Project Location



Notes:
Background imagery provded by MnGeo WMS.

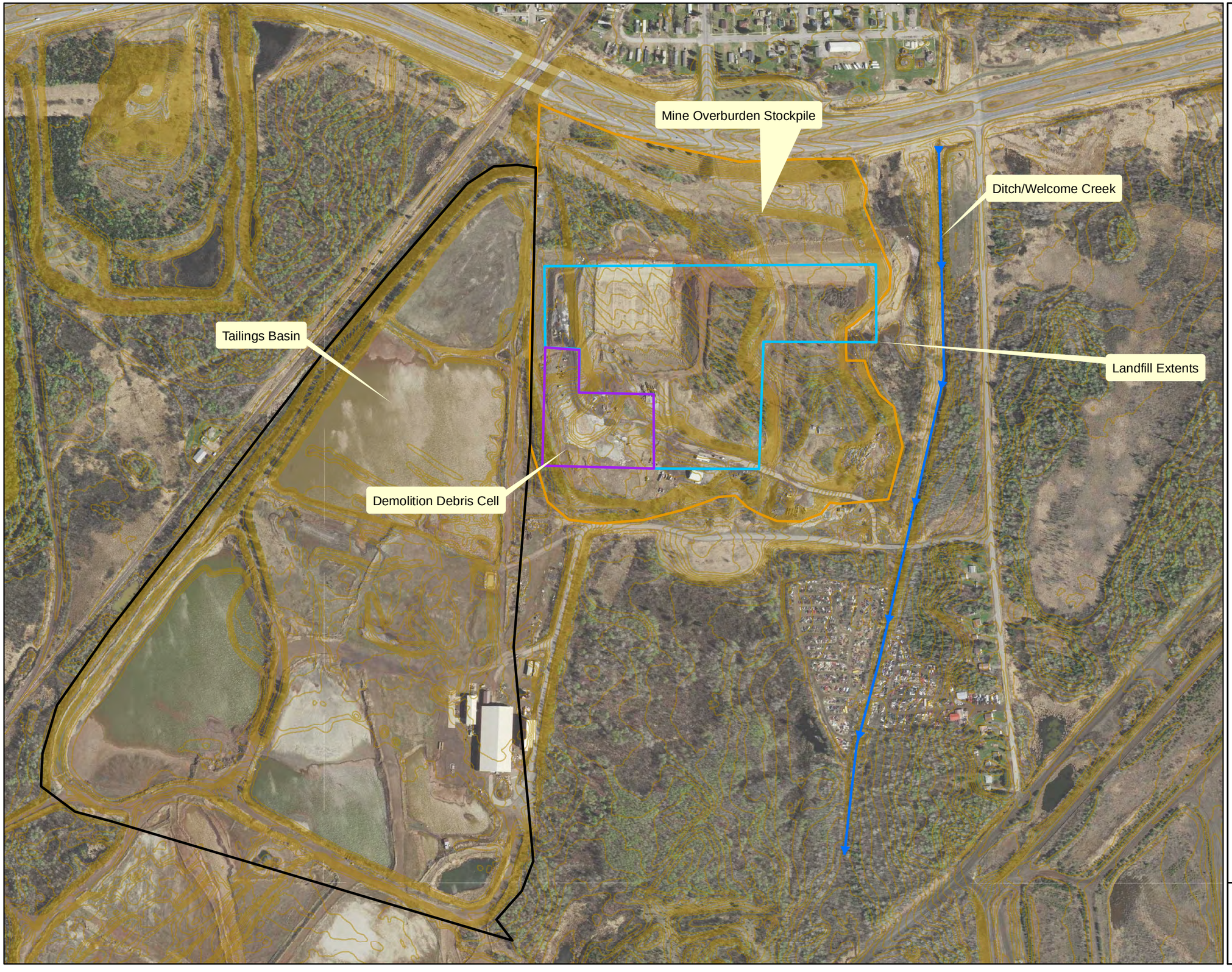
Figure 1
Site Vicinity Map

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

NTS Environmental Science & Engineering
www.netechnical.com

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

1



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0 250 500 1,000

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)

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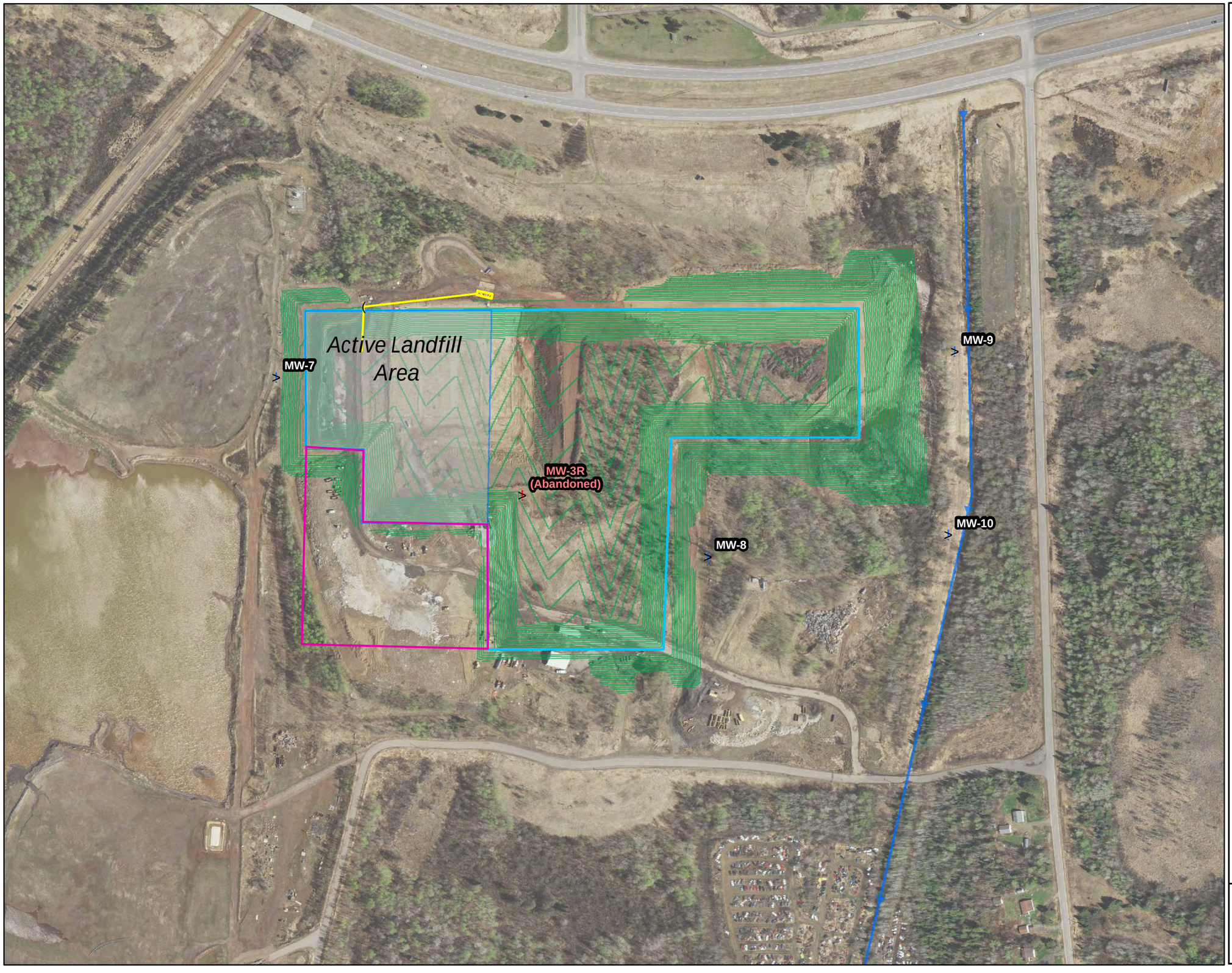
Drawn By :	E. Johnson
NTS Project #:	6385CC

2



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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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3

FIGURE 4
HYDROGRAPH

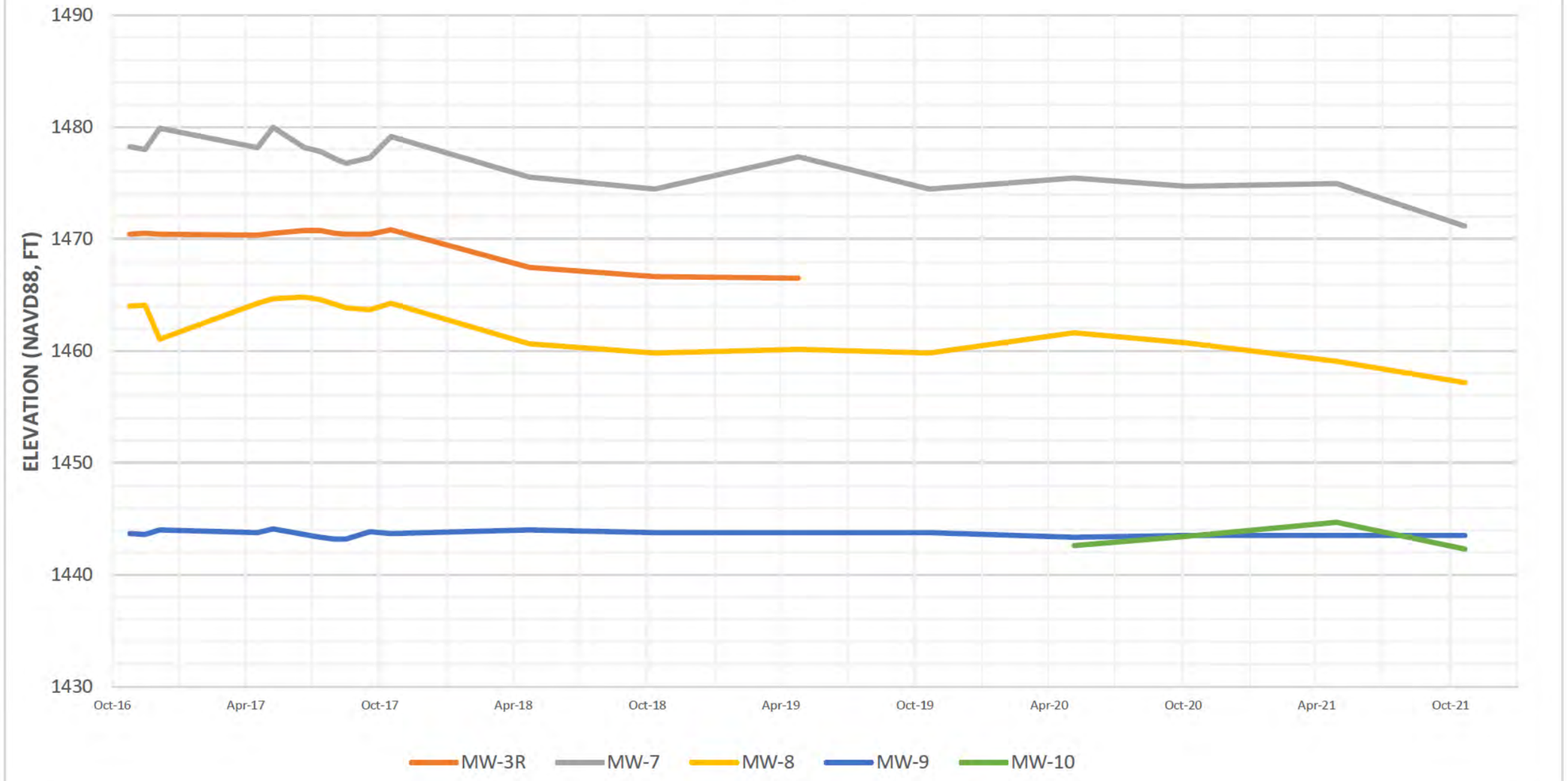

Figure 4
Groundwater Hydrograph

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

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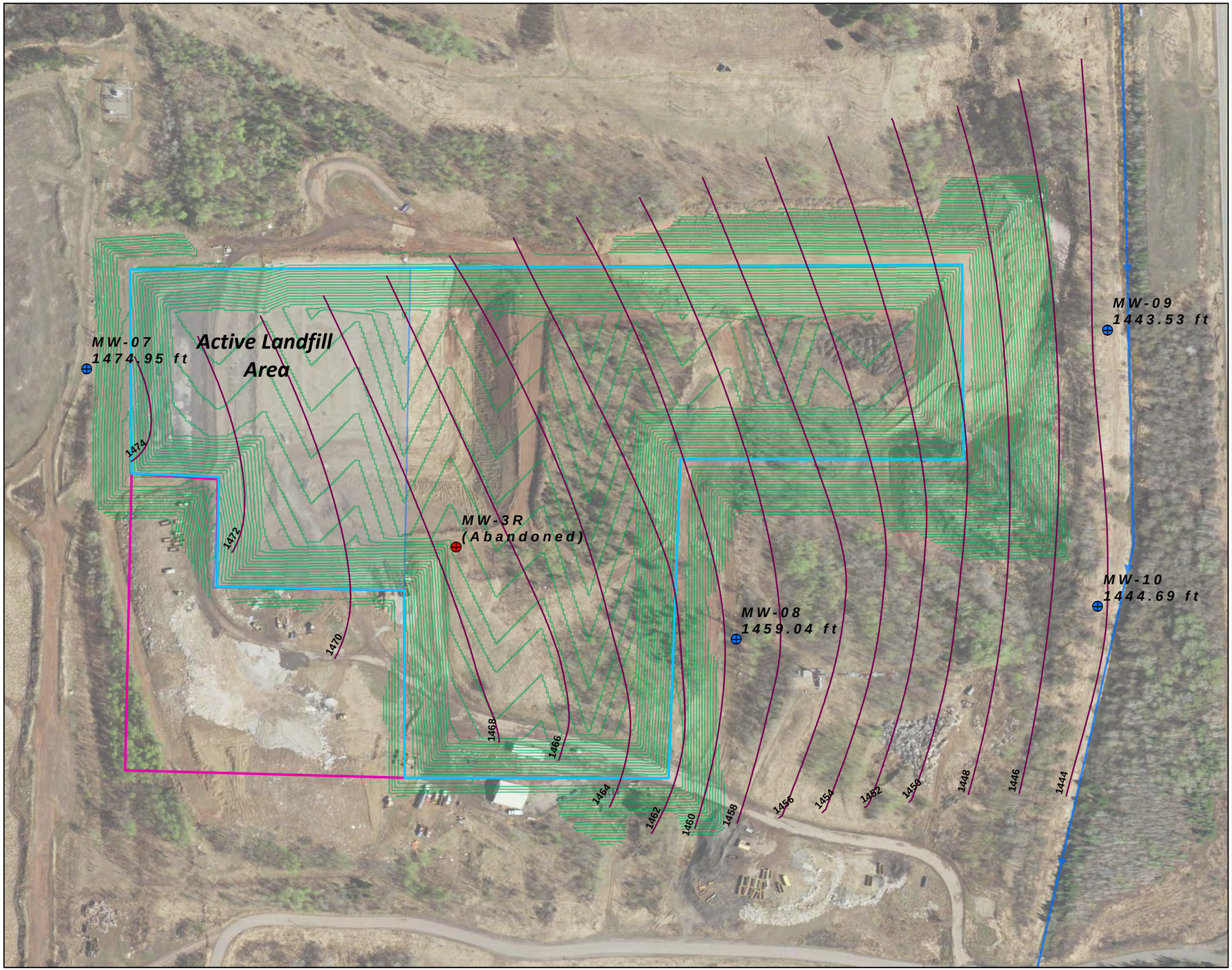
4



N

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Feet

1 Inch = 200 Feet

Legend

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

Notes:
-Background image has been provided by MnGeo, Itasca 2018.
- Groundwater contours were updated by E. Johnson in January 2022.

Figure 5
Groundwater Contour Map
April, 2021

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

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NTS Project #: 6385CC	

N

0 100 200 400

Feet

1 Inch = 200 Feet

Legend

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

Notes:
-Background image has been provided by MnGeo, Itasca 2018.
- Groundwater contours were updated by E. Johnson in January 2022.

Figure 6
Groundwater Contour Map
October, 2021

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

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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

ND* - 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
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
		29-May-20		<0.1			0.14	<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
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
		17-Apr-17	1710	551	780	454		441	<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**	8-May-17	1760	712	731	438		433	<2.0
		20-Jun-17	1810	746	672	459		458	<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
		4/23/2018	1520	488	617	481			
		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
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
		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, Field	mg/L	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		
		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		
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			

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**	6-May-20			1821	1486			
		5-Oct-20		2565	1869	1575	818		
		29-Apr-21		3004	1964	1601	790		
		25-Oct-21		(dry)	1749	1288	882		

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
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-Aug-17	0.21J	**0.24J**	<0.40	<0.40		<0.40	<0.20
		18-Sep-17	<0.20	**0.16J**	<0.40	<0.40		<0.40	<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
		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

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
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
		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		

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
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
		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

APPENDICES

APPENDIX A

ANALYTICAL LABORATORY REPORTS & FIELD REPORTS

Table 4: 2022 Updated UPLs Based on Unified Guidance			
Parameter	**MW-7**	**MW-8**	**MW-9**
Boron (ug/L)	110.75	105.15	44.46
Calcium (mg/L)	659.21	434.46	234.98
Chloride (mg/L)	137.06	1.87	20.97
Fluoride (mg/L)	0.11	0.11	0.11
pH (SU)	6.02 - 6.79	6.08 - 6.83	6.22 - 7.06
Sulfate (mg/L)	1537.59	852.16	525.81
Total Dissolved Solids (mg/L)	2863.07	1829.75	1260.69

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

Field Report Cover Sheet

Event Key: 6385CC_2021 Apr(1 of 1)

Field Date: 4/29/2021

Report Created: 4/29/2021 3:43:11 PM

Client:
General Waste Disposal & Recovery

NTS Project Name:
CCR Landfill Monitoring Master 2021

NTS Project Manager:
Scott Seeley

NTS Field Personnel:
Corey Andrews

Summary of Services Performed:

Prepped and departed for General Waste to conduct Spring CCR well monitoring event. Wells were sampled via the low flow stabilization method using submersible pumps. All sampling followed NTS protocol. 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

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
13:17	6.85	1.47	790.0	4.1	219	4.61

1444.71 Elevation, GW (MSL) in Water by Calculation, ft

7.91 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 51°F to 60°F
Wind Speed: 5-10 mph
Wind Direction: NW
Precipitation: None
Cloud Cover: Mostly Sunny
Airborne Particulate: None
Color, Purge: Colorless
Appearance, Purge: Clear
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Clear
Odor, Sample: None

Time: 12:37
MDH#: 847087
Well Depth (ft): 18.20
SWL (ft): 7.91
Pump Rate (gpm): 0.33
Interval (min): 5.09
Well Casing Diameter(in): 2
Pump Start (HH:MM): 12:52
Pump Stop (HH:MM): 13:22
Purge Volume (gal): 9.90
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 18.20ft - Static Water Level 7.91ft = Water Column 10.29ft
Water Column 10.29ft x *Conversion Factor 0.163gal/ft = Well Volume 1.679gal
Well Volume 1.679gal ÷ Pump Rate 0.33gpm = Well Volume Interval 5.089min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 12:52 - Pump End Time 13:22 = Pump Duration 30min
Pump Duration 30min x Pump Rate 0.33gpm = Volume Purged 9.9gal
Top of Casing Elevation 1452.62 - Static Water Level 7.91 = 1444.71ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 5.09 **Pump Rate (gpm):** 0.33

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
12:57	6.85	1.34	830.1	22.1	191	4.62	8.70
13:02	6.83	1.41	804.3	9.0	207	4.57	8.70
13:07	6.83	1.45	794.6	5.1	214	4.50	8.70
13:12	6.84	1.44	793.7	4.3	217	4.59	8.70
13:17	6.85	1.47	790.0	4.1	219	4.61	8.70

Stabilization Passes NTS Criteria: ☑

MW7

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
10:04	6.10	0.41	3004	20.0	257	8.61

1474.95 Elevation, GW (MSL) in Water by Calculation, ft

21.18 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 41°F to 50°F
Wind Speed: 5-10 mph
Wind Direction: NW
Precipitation: None
Cloud Cover: Overcast
Airborne Particulate: None
Color, Purge: Orange
Appearance, Purge: Turbid
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Clear
Odor, Sample: None

Time: 09:02
MDH#: 817979
Well Depth (ft): 26.63
SWL (ft): 21.18
Pump Rate (gpm): 0.15
Interval (min): 5.93
Well Casing Diameter(in): 2
Pump Start (HH:MM): 9:22
Pump Stop (HH:MM): 10:12
Purge Volume (gal): 7.50
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 26.63ft - Static Water Level 21.18ft = Water Column 5.45ft
Water Column 5.45ft x *Conversion Factor 0.163gal/ft = Well Volume 0.889gal
Well Volume 0.889gal ÷ Pump Rate 0.15gpm = Well Volume Interval 5.929min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 09:22 - Pump End Time 10:12 = Pump Duration 50min
Pump Duration 50min x Pump Rate 0.15gpm = Volume Purged 7.5gal
Top of Casing Elevation 1496.13 - Static Water Level 21.18 = 1474.95ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 5.93 **Pump Rate (gpm):** 0.15

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
9:28	6.09	0.72	2980	152.6	449	7.64	22.90
9:34	6.08	0.77	2996	46.0	385	8.13	22.88
9:40	6.08	0.67	3011	24.6	317	8.15	23.10
9:46	6.09	0.58	3029	21.3	290	8.60	23.07
9:52	6.10	0.51	3003	21.0	273	8.70	23.08
9:58	6.10	0.47	3000	20.5	266	8.58	23.10
10:04	6.10	0.41	3004	20.0	257	8.61	23.10

MW7 (Cont'd)

Stabilization Passes NTS Criteria: ☑

MW8

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
11:19	6.27	0.47	1964	102.3	214	9.90

1459.04 Elevation, GW (MSL) in Water by Calculation, ft

35.37 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 51°F to 60°F
Wind Speed: 5-10 mph
Wind Direction: NW
Precipitation: None
Cloud Cover: Mostly Sunny
Airborne Particulate: None
Color, Purge: Yellow
Appearance, Purge: Turbid
Odor, Purge: None
Color, Sample: Yellow
Appearance, Sample: Turbid
Odor, Sample: None

Time: 10:19
MDH#: 817978
Well Depth (ft): 41.22
SWL (ft): 35.37
Pump Rate (gpm): 0.15
Interval (min): 6.36
Well Casing Diameter(in): 2
Pump Start (HH:MM): 10:30
Pump Stop (HH:MM): 11:30
Purge Volume (gal): 9.00
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 41.22ft - Static Water Level 35.37ft = Water Column 5.85ft
Water Column 5.85ft x *Conversion Factor 0.163gal/ft = Well Volume 0.955gal
Well Volume 0.955gal ÷ Pump Rate 0.15gpm = Well Volume Interval 6.364min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 10:30 - Pump End Time 11:30 = Pump Duration 60min
Pump Duration 60min x Pump Rate 0.15gpm = Volume Purged 9gal
Top of Casing Elevation 1494.41 - Static Water Level 35.37 = 1459.04ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 6.36 **Pump Rate (gpm):** 0.15

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
10:37	6.24	1.52	1790	458	254	9.57	37.00
10:44	6.25	0.81	1900	387.4	232	10.29	36.82
10:51	6.25	0.50	1947	79.6	222	9.72	36.94
10:58	6.26	0.47	1968	107.6	218	9.60	36.89
11:05	6.27	0.45	1968	98.6	216	9.75	36.89
11:12	6.28	0.48	1964	100.2	217	9.80	37.00
11:19	6.27	0.47	1964	102.3	214	9.90	37.01

MW8 (Cont'd)

Stabilization Passes NTS Criteria: ☑

MW9

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:** Field Blank

Field Duplicate: Field Duplicate **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
12:20	6.49	0.34	1601	3.0	99	7.23

1443.53 Elevation, GW (MSL) in Water by Calculation, ft

11.19 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 51°F to 60°F
Wind Speed: 5-10 mph
Wind Direction: NW
Precipitation: None
Cloud Cover: Mostly Sunny
Airborne Particulate: None
Color, Purge: Colorless
Appearance, Purge: Clear
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Clear
Odor, Sample: None

Time: 11:43
MDH#: 817980
Well Depth (ft): 18.90
SWL (ft): 11.19
Pump Rate (gpm): 0.33
Interval (min): 3.81
Well Casing Diameter(in): 2
Pump Start (HH:MM): 12:00
Pump Stop (HH:MM): 12:30
Purge Volume (gal): 9.90
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 18.90ft - Static Water Level 11.19ft = Water Column 7.71ft
Water Column 7.71ft x *Conversion Factor 0.163gal/ft = Well Volume 1.258gal
Well Volume 1.258gal ÷ Pump Rate 0.33gpm = Well Volume Interval 3.813min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 12:00 - Pump End Time 12:30 = Pump Duration 30min
Pump Duration 30min x Pump Rate 0.33gpm = Volume Purged 9.9gal
Top of Casing Elevation 1454.72 - Static Water Level 11.19 = 1443.53ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 3.81 **Pump Rate (gpm):** 0.33

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
12:04	6.48	0.36	1607	33.6	116	7.40	11.58
12:08	6.48	0.35	1597	9.2	108	7.34	11.58
12:12	6.47	0.35	1609	3.1	105	7.22	11.58
12:16	6.48	0.34	1600	2.9	102	7.26	11.58
12:20	6.49	0.34	1601	3.0	99	7.23	11.58

Stabilization Passes NTS Criteria: ☑

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

Calibration Report

Event Key: 6385CC_2021 Apr(1 of 1)

Environmental Science & Engineering

Staff: Corey Andrews **Date:** 4/29/2021 **Post Cal Check:** ☑

Comments:

Sonde: R04-A	**PreCal (HH:MM):**	**PostCal (HH:MM):**	**PostEvent (HH:MM):**	
Last Temp Check: 2/4/2021				
Temp Specification: +/-0.1 ˚C	7:20	7:20	15:05	**Specifications:**
pH:	3.92	4.00	3.83	+/-0.2 SU
Standard (SU):	4.0	4.0	4.0	
Temperature (°C):	21.22	21.22	21.35	
pH:	7.06	7.02	7.01	+/-0.2 SU
Standard (SU):	7.0	7.0	7.0	
Temperature (°C):	21.16	21.16	21.20	
pH:	9.91	10.04	10.06	+/-0.2 SU
Standard (SU):	10.0	10.0	10.0	
Temperature (°C):	21.17	21.17	21.20	
Conductance, Specific:	0	0	0	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	0	0	0	
Temperature (°C):	21.12	21.12	20.69	
Conductance, Specific:	993.3	1000	1003	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	1000	1000	1000	
Temperature (°C):	21.16	21.16	20.69	
Turbidity:	0	0	0	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	0	0	0	
Temperature (°C):	21.12	21.12	21.07	
Turbidity:	117.8	100	99.3	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	100	100	100	
Temperature (°C):	21.26	21.26	21.07	

Calibration Report (cont'd)

Sonde:	R04-A	PreCal (HH:MM):	PostCal (HH:MM):	PostEvent (HH:MM):	
Last Temp Check:	2/4/2021				
Temp Specification:	+/-0.1 ˚C	7:20	7:20	15:05	Specifications:
Oxygen, Dissolved:		8.39	8.42	8.55	<8 +/-0.1 mg/L >8 AND <20 +/-0.2 mg/L >20 +/-10%
100% Oxygen Saturation:		8.45	8.45	8.61	
Temperature (°C):		21.0	21.0	20.1	
Bar.Pressure (mmHg):		721	721	722	
ORP:		439	439	439	+/-20 mV
Standard (mV):		439.8	439.8	441.5	
Temperature (°C):		21.3	21.3	20.6	

6355C Gen Waste CCR Monitoring 4/29/2021
Sky Andrews V#62
Weather: High 57°F / Mostly Cloudy / winds NW 10 to 20 mph
Equipment: RCH-A, A15-E, Submersible pump, flow cell
0700 Arrive at NTS. PreP/Cal/Load.
810 Depart NTS office.
700 Arrive at Gen Waste.
902 [mw7] Well locked & in good condition Unique well ID# 817979

SWL	TWD	WC	Vol	SWL (after)
21.18'	26.63'	5.45'	0.89 gal	23.10'

922 Begin pumping well @ 0.15 GPM Key #2106

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
0928	6.09	0.72	2950	152.6	449	7.64	22.90'
0934	6.08	0.77	2996	46.0	385	8.13	22.88'
0940	6.08	0.67	3011	24.6	317	8.15	23.10'
0946	6.09	0.58	3029	21.3	290	8.60	23.07'
0952	6.10	0.51	3003	21.0	273	8.70	23.08'
0958	6.10	0.47	3000	20.5	266	8.58	23.10'
1004	6.10	0.41	3004	20.0	257	8.61	23.10'

Sample obtained @ 1004.
1019 [mw8] Well locked & in good condition. Unique well ID# 817978

SWL	TWD	WC	Vol	SWL after
35.37'	41.22'	5.85'	0.95 gal	35.62'

1030 Begin pumping well @ 0.15 GPM Key #2106

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1037	6.24	1.52	1790	458	254	9.57	37.00
1044	6.25	0.81	1900	387.4	232	10.29	36.82'
1051	6.25	0.50	1947	79.6	222	9.72	36.94'
1058	6.26	0.47	1968	107.6	218	9.60	36.89'
1105	6.27	0.45	1968	98.6	216	9.75	36.89'
1112	6.28	0.48	1964	100.2	217	9.80	37.00'
1119	6.27	0.47	1964	102.3	214	9.90	37.01'

Sample obtained @ 1119
1143 [mw9] Well locked & in good condition. Unique well ID# 817980

SWL	TWD	WC	Vol	SWL After
11.19'	18.90'	7.71	1.26 gal	11.19'

1200 Begin pumping well @ 0.33 GPM Key #0410

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1204	6.48	0.36	1607	33.6	116	7.40	11.58
1208	6.48	0.35	1597	9.2	108	7.34	11.58
1212	6.49	0.35	1609	3.1	105	7.22	11.58
1216	6.48	0.34	1600	2.9	102	7.26	11.58

Scale: 1 square = _____
P. 1

6385CC Gen. Waste CCR Monitoring 4/29/2021
Corey Andrews

MW9 Cont.-

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1220	6.49	0.34	1601	3.0	99	7.23	11.58

sampled @ 1220 Dup 1221 FB 1225

1237 MW10 Well locked & in good condition. Unique well ID# 847087

SWL	TWD	WC	Vol	SWL After
7.91'	18.20'	10.29'	1.68 gal	7.91'

1252 Begin pumping well @ 0.33 GPM. Key #2121

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1257	6.85	1.34	830.1	22.1	191	4.62	8.70
1302	6.83	1.41	804.3	9.0	207	4.57	8.70
1307	6.83	1.45	794.6	5.1	214	4.50	8.70
1312	6.84	1.44	793.7	4.3	217	4.59	8.70
1317	6.85	1.47	790.0	4.1	219	4.61	8.70

sampled @ 1317.

1330 Depart Gen waste.

1415 Cede samples to PACE Analytical.

1420 Arrive back at NTS office. Unload/Post check/Report.

Corey Andrews

4/29/2021

Scale: 1 square = _____

Rite in the Rain

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

Vehicle Inspection Report

Event Key: 6385CC_2021 Apr(1 of 1)

Driver: Corey Andrews **Date:** 4/29/2021 **Time:** 08:00

Vehicle: V62 - 2014 GMC Sierra 1500 #1 **Odometer:**

Check each Item Inspected

Driver/Passenger Side

External Side Mirrors (Right and Left): ☑	Windows (clean; free of cracks): ☑	Tires (properly inflated, adequate tread): ☑

Comments:

Front/Rear

Tail Lights: ☑	Head Lights ☑	Damage to Body/Bumpers ☑
License Plates ☑	Fluid Leaks ☑	Turn Signals ☑

Comments:

Routine Maintenance

Oil Change (Current): ☑	Transmission Fluid (Change every 60k): ☑	Air Filter (Change every 30k): ☑
Gauges Operational ('check engine' light OFF): ☑	Spare Tire (present, properly inflated): ☑	

Comments:

Interior

Cleanliness: ☑	Brakes: ☑	Windshield Wipers and Fluid: ☑
Seat Belts (working condition): ☑	Parking Brake (reset/release): ☑	Rearview Mirror: ☑

Comments:

General/Safety

Insurance Card: ☑	Wheel Chocks: ☑	First Aid Kit: ☑
Operator's Manual: ☑	Strobe Light (if needed): ☑	Buggy Whip (if needed): ☑

Comments:

Deficiencies Corrected

Environmental Science & Engineering

Daily Tailgate Safety

Project: 6385 C **Date:** 4/29/2021

Work Site Hazard Assessment Worksheet

- ☐ PPE Required (List): High Viz Level* D
- ☐ Weather Conditions (List): High 55°F, Mostly Sunny, NW 10-20 mph
- ☐ Vehicular Traffic
- ☐ Communications
- ☐ Noise
- ☐ Equipment/Tools
- ☐ Housekeeping
- ☐ 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:

Vehicle Safety
Dehydration

Corrective Actions Taken:

Drive defensively
Drink plenty of water

Participants in Safety Discussion:

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

Signature of Site Supervisor/Examiner: Date: 4/29/2021

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

NTS
Environmental Science & Engineering

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

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
Apr-20

PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.

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	4/29/21	1004	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	4/29/21	1119	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	4/29/21	1220	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	4/29/21	1317	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	4/29/21	1221	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	4/29/21	1225	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

RELINQUISHED BY: Corey Andrews DATE: 4/29/21 TIME: 1415

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. Mathews

TEMP.AT ARRIVAL: 3.0 C

DATE: 4/29/21 TIME: 1415

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 Peer Review Report

Event Key: 6385CC_2021 Apr(1 of 1)
Report Date: 4/29/2021
Lab WO#: 10557751

Reviewer #1:	Date:	Reviewer #2:	Date:
		Terri Sabetti	4/29/2021

Report Sections	Required:	Included:	Report Sections	Required:	Included:
Cover Sheet:	☑	☐	Cover Sheet:	☑	☑
Location Information			Location Information		
Data Collection:	☐	☐	Data Collection:	☑	☑
Observation:	☐	☐	Observation:	☑	☑
Flow or Stabilization:	☐	☐	Flow or Stabilization:	☑	☑
Photographs:	☐	☐	Photographs:	☐	☐
Calibration:	☐	☐	Calibration:	☑	☑
Field Notes:	☑	☐	Field Notes:	☑	☑
Safety Forms:	☑	☐	Safety Forms:	☑	☑

	N/A:	OK:		N/A:	OK:
GW Calculations are Accurate:	☐	☐	GW Calculations are Accurate:	☐	☑
GW Stabilization Criteria met:	☐	☐	GW Stabilization Criteria met:	☐	☑
Flow Calculations are Accurate:	☐	☐	Flow Calculations are Accurate:	☑	☐
Sonde Passed Post Event Check:	☐	☐	Sonde Passed Post Event Check:	☐	☑
Consistent Values in Notes:		☐	Consistent Values in Notes:		☑
Consistent Dates and Times:		☐	Consistent Dates and Times:		☑
No Deviations from SOPs:		☐	Qualifiers added to Data:	☑	☐
Cover Sheet provides a complete description of key activities and observations:		☐	Data under correct Event Key:	☐	☑
			All Req'd Parameters Meas'd; Limits Met:	☐	☑

Reviewer #1 Comments:

Reviewer #2 Comments:

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

June 08, 2021

Scott Seeley
NTS
526 Chestnut Street
Virginia, MN 55792

RE: Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Dear Scott Seeley:

Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2021. 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

This is a revised report on June 8, 2021. Boron results for MW10 have been updated.

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

Sincerely,

Nicole Jarve

Nicole Jarve
nikki.jarve@pacelabs.com
(218) 727-6380
Project Manager

Enclosures

cc: Sample Data, Northeast Technical Services
Alan Phillips, Dem-Con Companies
Karissa Vosen, NTS

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

CERTIFICATIONS

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab
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
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 #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Ohio VAP Certification (1800) #: CL110*
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
*Please Note: Applicable air certifications are denoted with an asterisk (*).

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: REV:6385CC General Waste April
Pace Project No.: 10557751

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10557751001	**MW7**	Water	04/29/21 10:04	04/29/21 14:15
10557751002	**MW8**	Water	04/29/21 11:19	04/29/21 14:15
10557751003	**MW9**	Water	04/29/21 12:20	04/29/21 14:15
10557751004	**MW10**	Water	04/29/21 13:17	04/29/21 14:15
10557751005	**Field Duplicate**	Water	04/29/21 12:21	04/29/21 14:15
10557751006	**Field Blank**	Water	04/29/21 12:25	04/29/21 14:15

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

SAMPLE ANALYTE COUNT

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10557751001	**MW7**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751002	**MW8**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751003	**MW9**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751004	**MW10**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751005	**Field Duplicate**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751006	**Field Blank**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	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: REV:6385CC General Waste April
Pace Project No.: 10557751

Sample: MW7 **Lab ID: 10557751001** Collected: 04/29/21 10:04 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**2810**	mg/L	100	1		05/01/21 11:36		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**11.5**	mg/L	1.0	1		05/08/21 04:18	16887-00-6	
Fluoride	ND	mg/L	0.050	1		05/08/21 04:18	16984-48-8	
Sulfate	**1500**	mg/L	7.0	7		05/08/21 11:35	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		04/30/21 16:22		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**664**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:21	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**67.3**	ug/L	10.0	1	05/10/21 06:13	05/13/21 13:54	7440-42-8	

Sample: MW8 **Lab ID: 10557751002** Collected: 04/29/21 11:19 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1590**	mg/L	66.7	1		05/01/21 11:36		
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		05/08/21 05:04	16887-00-6	
Fluoride	ND	mg/L	0.050	1		05/08/21 05:04	16984-48-8	
Sulfate	**673**	mg/L	3.0	3		05/08/21 12:21	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	**7.0**	Std. Units	0.10	1		04/30/21 16:25		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**402**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:22	7440-70-2	P6

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Sample: MW8 **Lab ID: 10557751002** Collected: 04/29/21 11:19 Received: 04/29/21 14:15 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	**78.2**	ug/L	10.0	1	05/10/21 06:13	05/13/21 13:57	7440-42-8	

Sample: MW9 **Lab ID: 10557751003** Collected: 04/29/21 12:20 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1180**	mg/L	66.7	1		05/01/21 11:36		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**4.0**	mg/L	1.0	1		05/08/21 04:41	16887-00-6	
Fluoride	**0.079**	mg/L	0.050	1		05/08/21 04:41	16984-48-8	
Sulfate	**487**	mg/L	2.0	2		05/08/21 11:58	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		04/30/21 16:13		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**221**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:26	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**41.0**	ug/L	10.0	1	05/10/21 06:13	05/13/21 14:00	7440-42-8	

Sample: MW10 **Lab ID: 10557751004** Collected: 04/29/21 13:17 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**587**	mg/L	33.3	1		05/01/21 11:36		
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		05/07/21 09:04	16887-00-6	
Fluoride	**0.12**	mg/L	0.050	1		05/07/21 09:04	16984-48-8	
Sulfate	**238**	mg/L	10.0	10		05/07/21 11:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Sample: MW10 **Lab ID: 10557751004** Collected: 04/29/21 13:17 Received: 04/29/21 14:15 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		04/30/21 16:19		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**123**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:27	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**15.8**	ug/L	10.0	1	06/02/21 06:46	06/04/21 14:59	7440-42-8	

Sample: Field Duplicate **Lab ID: 10557751005** Collected: 04/29/21 12:21 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1170**	mg/L	66.7	1		05/01/21 11:36		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**3.9**	mg/L	1.0	1		05/08/21 05:27	16887-00-6	
Fluoride	**0.076**	mg/L	0.050	1		05/08/21 05:27	16984-48-8	
Sulfate	**396**	mg/L	2.0	2		05/08/21 13:29	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		04/30/21 16:05		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**224**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:29	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**41.6**	ug/L	10.0	1	05/10/21 06:13	05/13/21 14:19	7440-42-8	

Sample: Field Blank **Lab ID: 10557751006** Collected: 04/29/21 12:25 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	ND	mg/L	10.0	1		05/01/21 11:36		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Sample: Field Blank **Lab ID: 10557751006** Collected: 04/29/21 12:25 Received: 04/29/21 14:15 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		05/08/21 03:09	16887-00-6	
Fluoride	ND	mg/L	0.050	1		05/08/21 03:09	16984-48-8	
Sulfate	ND	mg/L	1.0	1		05/08/21 03:09	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	**5.7**	Std. Units	0.10	1		04/30/21 16:10		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	05/10/21 06:44	05/11/21 11:31	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	05/10/21 06:13	05/13/21 14:22	7440-42-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 739016 | Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 | Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

METHOD BLANK: 3941456 Matrix: Water
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	05/01/21 11:36	

LABORATORY CONTROL SAMPLE: 3941457

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	264	106	80-120	

SAMPLE DUPLICATE: 3941458

Parameter	Units	10557654001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	290	292	1	5	

SAMPLE DUPLICATE: 3945175

Parameter	Units	10557751002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1590	1630	3	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: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 740334
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: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

METHOD BLANK: 3948308 Matrix: Water
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	05/07/21 08:18	
Fluoride	mg/L	ND	0.050	05/07/21 08:18	
Sulfate	mg/L	ND	1.0	05/07/21 08:18	

LABORATORY CONTROL SAMPLE: 3948309

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.6	101	90-110	
Fluoride	mg/L	5	5.0	100	90-110	
Sulfate	mg/L	50	50.3	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3948310 3948311

Parameter	Units	10557751004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.5	50	50	52.4	53.5	102	104	90-110	2	20	
Fluoride	mg/L	0.12	5	5	5.2	5.3	101	103	90-110	2	20	
Sulfate	mg/L	238	500	500	754	754	103	103	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3948312 3948313

Parameter	Units	10558572002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	142	50	50	188	188	90	91	90-110	0	20	
Fluoride	mg/L	4.5	5	5	9.3	9.3	95	96	90-110	1	20	
Sulfate	mg/L	1000	500	500	1510	1500	100	99	90-110	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 738985
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: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

LABORATORY CONTROL SAMPLE: 3941194

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: 3941195

Parameter	Units	10557751005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.0	0	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: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 740684 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

METHOD BLANK: 3950441 Matrix: Water
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	05/11/21 10:56	

LABORATORY CONTROL SAMPLE: 3950442

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	20	22.3	111	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950443 3950444

Parameter	Units	10557670001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	8860 ug/L	20	20	30.4	30.3	108	107	70-130	1	20	

MATRIX SPIKE SAMPLE: 3950445

Parameter	Units	10557751002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	402	20	411	47	70-130	P6

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: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 740690 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751005, 10557751006

METHOD BLANK: 3950467 Matrix: Water
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751005, 10557751006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	05/13/21 09:31	

LABORATORY CONTROL SAMPLE: 3950468

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	100	98.3	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950469 3950470

Parameter	Units	10557645001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	273	100	100	368	381	94	107	70-130	3	20	

MATRIX SPIKE SAMPLE: 3950471

Parameter	Units	10563966001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	12.3	100	107	95	70-130	M1

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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: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 745787
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10557751004

METHOD BLANK: 3978198 Matrix: Water
Associated Lab Samples: 10557751004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	06/04/21 14:53	

LABORATORY CONTROL SAMPLE: 3978199

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3978200 3978201

Parameter	Units	10557751004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	15.8	100	100	116	112	100	96	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: REV:6385CC General Waste April
Pace Project No.: 10557751

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.

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.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10557751001	**MW7**	SM 2540C-2011	739016		
10557751002	**MW8**	SM 2540C-2011	739016		
10557751003	**MW9**	SM 2540C-2011	739016		
10557751004	**MW10**	SM 2540C-2011	739016		
10557751005	**Field Duplicate**	SM 2540C-2011	739016		
10557751006	**Field Blank**	SM 2540C-2011	739016		
10557751001	**MW7**	EPA 300.0	740334		
10557751002	**MW8**	EPA 300.0	740334		
10557751003	**MW9**	EPA 300.0	740334		
10557751004	**MW10**	EPA 300.0	740334		
10557751005	**Field Duplicate**	EPA 300.0	740334		
10557751006	**Field Blank**	EPA 300.0	740334		
10557751001	**MW7**	SM 4500-H+B-2011	738985		
10557751002	**MW8**	SM 4500-H+B-2011	738985		
10557751003	**MW9**	SM 4500-H+B-2011	738985		
10557751004	**MW10**	SM 4500-H+B-2011	738985		
10557751005	**Field Duplicate**	SM 4500-H+B-2011	738985		
10557751006	**Field Blank**	SM 4500-H+B-2011	738985		
10557751001	**MW7**	EPA 200.7	740684	EPA 200.7	740935
10557751002	**MW8**	EPA 200.7	740684	EPA 200.7	740935
10557751003	**MW9**	EPA 200.7	740684	EPA 200.7	740935
10557751004	**MW10**	EPA 200.7	740684	EPA 200.7	740935
10557751005	**Field Duplicate**	EPA 200.7	740684	EPA 200.7	740935
10557751006	**Field Blank**	EPA 200.7	740684	EPA 200.7	740935
10557751001	**MW7**	EPA 200.8	740690	EPA 200.8	740941
10557751002	**MW8**	EPA 200.8	740690	EPA 200.8	740941
10557751003	**MW9**	EPA 200.8	740690	EPA 200.8	740941
10557751004	**MW10**	EPA 200.8	745787	EPA 200.8	746147
10557751005	**Field Duplicate**	EPA 200.8	740690	EPA 200.8	740941
10557751006	**Field Blank**	EPA 200.8	740690	EPA 200.8	740941

WO#: 10557751

PM: NMJ Due Date: 05/13/21

CLIENT: DU-NTS DENNI

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

Environmental Science & Engineering

CHAIN C

REQUIRED TURN-AROUND TIME: 2 Weeks

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-20

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	4/29/21	1004	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	4/29/21	1119	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	4/29/21	1220	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	4/29/21	1317	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	4/29/21	1221	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	4/29/21	1225	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

RELINQUISHED BY: Corey Andrews DATE: 4/29/21 TIME: 1415

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. Mathews

TEMP.AT ARRIVAL: 3.0 C

DATE: 4/29/21 TIME: 1415

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

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 25Feb2020 Page 1 of 1
	Document No.: F-VM-C-001-rev.14	Issuing Authority: Pace Virginia Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: NTS

Project #: WO# : 10557751

10557751

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace ☐ Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No **Optional:** Proj. Due Date: Proj. Name:

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

Thermometer Used: ☑ 140792808 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read °C: 2.7 **Cooler Temp Corrected °C:** 3.0 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ NA

Temp should be above freezing to 6 °C Correction Factor: +0.3 **Date and Initials of Person Examining Contents:** BM 4/29/21

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5. If Fecal: ☐ <8 hours ☐ >8, <24 hours ☐ >24 hours
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No	☐ N/A	6. pH
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation properly preserved?	☑ Yes	☐ No	☐ N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	☐ Yes	☐ No	☑ N/A	14.
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	16.
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: _____

SEE EXCEPTION FORM Y N

FECAL WAIVER ON FILE Y N TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Nikki Jarvis **Date:** 4/30/21

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)

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

Laboratory Data Verification Checklist

Event Key: 6385CC_2021 Apr(1 of 1)

Collection Date: 4/29/2021
Report Date: 5/19/2021
Review Date: 5/24/2021

Lab: Pace Analytical
Lab WO#: 10557751

Reviewer #1: Karissa Vosen
Reviewer #2:

SAMPLE HANDLING AND PRESERVATION	N/A:	OK:
A copy of the chain of custody (COC) is provided with the final report	☐	☑
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 analyzed outside of the 15 min hold time. Results were qualified.

A revised report was issued 6/9 to report re-analysis of boron at MW10

CALIBRATION	N/A:	OK:
The report narrative or data qualifiers indicate there were calibration failures for any of the required analyses	☐	☐

METHOD BLANKS	N/A:	OK:
A method blank was analyzed for all applicable analytical methods	☐	☑
All method blanks are free of target analytes	☐	☑
If any method blanks had a detect, were the detected analytes present in associated samples?	☑	☐

LABORATORY CONTROL SAMPLES	N/A:	OK:
An LCS was prepared and analyzed for each analytical method and contains all target analytes being reported	☐	☑
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☐	☑
The percent recovery of all target analytes are within laboratory control limits	☐	☑
Any analytes with a percent recovery outside of laboratory control limits are qualified (flagged) in the associated samples	☑	☐

MATRIX SPIKES/MATRIX SPIKE DUPLICATES	N/A:	OK:
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 LCSD)	☑	☐
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☐	☑
The percent recovery of all target analytes are within laboratory control limits	☐	☐
The RPD is within laboratory control limits for all target analytes	☐	☑
Any analytes with a % recovery or RPD outside of laboratory control limits are qualified (flagged) in the parent sample	☐	☑

Comments: MW8 was spiked for 200.7 metals. Calcium recoveries exceeded lab control limits. The analyte concentration in the parent sample was significantly higher than the spike concentration. Lab qualifier retained.

LABORATORY DUPLICATES	N/A:	OK:
A Laboratory Duplicate was prepared and analyzed for each applicable analytical method	☐	☑
The RPD for the duplicate pair is within laboratory limits	☐	☑
Any analytes with an RPD outside of laboratory control limits are qualified (flagged) in the associated parent sample	☑	☐

SURROGATES	N/A:	OK:
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☑	☐
The percent recovery of all surrogate compounds are within laboratory control limits	☑	☐

FIELD DUPLICATES	N/A:	OK:
A field duplicate was required for this this project	☐	☑
The RPD for the duplicate pair is within the NTS control limits	☐	☐
Any analytes with an RPD outside of NTS control limits are qualified (flagged) in the parent sample	☐	☑

Comments: MW-9: sulfate exceeded NTS control limits on duplicate analysis. Result qualified.

FIELD and TRIP BLANKS	N/A:	OK:
A field blank and/or trip blank was required for this project	☐	☑
The blank is free of target analytes	☐	☑
If an analyte was detected in the blank, was it present in the associated samples?	☑	☐
If yes, was the associated data qualified in SWX?	☑	☐

ADDITIONAL CHECKS	N/A:	OK:
This project has been uploaded into SWX and correctly reflects the results reported within the laboratory report	☐	☑
Analysis to the MDL was required for this project	☑	☐
If analysis to the MDL was required, data was appropriately qualified with J flags?	☑	☐
Dilution factors are typical of past events and non-detects are not reported off dilutions	☐	☑
Total and dissolved parameters are in agreement	☑	☐
All lab results were evaluated against the associated permit limits or appear typical of past monitoring events	☐	☑
All lab QC calculations were accurate against SWX calculations	☐	☑

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

Field Report Cover Sheet

Event Key: 6385CC_2021 Oct(1 of 1)

Field Date: 10/21/2021

Report Created: 10/29/2021 1:20:37 PM

Client:
General Waste Disposal & Recovery

NTS Project Name:
CCR Landfill Monitoring Master 2021

NTS Project Manager:
Scott Seeley

NTS Field Personnel:
Corey Andrews

Summary of Services Performed:

Prepped and departed for General Waste to conduct Fall 2021 CCR well monitoring event. MW-9 and MW-10 were sampled via the low flow stabilization method using submersible pumps. MW-8 was sampled with bailer, three well volumes were removed prior to sampling. MW-7 was dry, no sample. 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

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
12:10	7.08	0.64	882.3	3.3	180	9.17

1442.32	Elevation, GW (MSL) in Water by Calculation, ft
10.30	Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 41°F to 50°F
Wind Speed: 10-20 mph
Wind Direction: N-NW
Precipitation: None
Cloud Cover: Clear
Airborne Particulate: None
Color, Purge: Colorless
Appearance, Purge: Clear
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Clear
Odor, Sample: None

Time: 12:06
MDH#: 847087
Well Depth (ft): 18.20
SWL (ft): 10.30
Pump Rate (gpm): 0.33
Interval (min): 3.91
Well Casing Diameter(in): 2
Pump Start (HH:MM): 11:58
Pump Stop (HH:MM): 12:15
Purge Volume (gal): 5.61
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 18.20ft - Static Water Level 10.30ft = Water Column 7.9ft
Water Column 7.9ft x *Conversion Factor 0.163gal/ft = Well Volume 1.289gal
Well Volume 1.289gal ÷ Pump Rate 0.33gpm = Well Volume Interval 3.907min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 11:58 - Pump End Time 12:15 = Pump Duration 17min
Pump Duration 17min x Pump Rate 0.33gpm = Volume Purged 5.61gal
Top of Casing Elevation 1452.62 - Static Water Level 10.30 = 1442.32ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 3.91 **Pump Rate (gpm):** 0.33

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
12:02	6.95	0.67	886.6	2.7	181	9.18	11.00
12:06	7.06	0.66	878.7	2.9	179	9.13	11.00
12:10	7.08	0.64	882.3	3.3	180	9.17	11.00

Stabilization Passes NTS Criteria: ☑

MW7

SECTION #1: DATA COLLECTION ☐ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):

1471.15	Elevation, GW (MSL) in Water by Calculation, ft
24.98	Static Water Level in Water by Field Measurement, ft
TRUE	Unable to Monitor (Dry, Frozen, Other) in Water by Field Observation, N/A

SECTION #2: OBSERVATIONS **Time:** 09:44

Well Frozen or Dry.

Air Temperature:	41°F to 50°F	**MDH#:**	817979
Wind Speed:	10-20 mph	**Well Depth (ft):**	26.60
Wind Direction:	N-NW	**SWL (ft):**	24.98
Precipitation:	None	**Pump Rate (gpm):**	
Cloud Cover:	Mostly Sunny	**Interval (min):**	
Airborne Particulate:	None	**Well Casing Diameter(in):**	2
Color, Purge:	Orange	**Pump Start (HH:MM):**	
Appearance, Purge:	Turbid	**Pump Stop (HH:MM):**	
Odor, Purge:	None	**Purge Volume (gal):**	
Color, Sample:		**Purging Strategy:**	Low-Flow Stabilization
Appearance, Sample:		**Well Plug Present:**	☑
Odor, Sample:		**Well Locked:**	☑

GW CALCULATIONS:
Interval calculations not performed in Field Buddy.
Pumping calculations not performed in Field Buddy.
Top of Casing Elevation 1496.13 - Static Water Level 24.98 = 1471.15ft

SECTION #3: STABILIZATION *Stabilization not Performed at this Location*

Stabilization Passes NTS Criteria: ☐

MW8

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
14:30	6.46	1.96	1749	100.8	241	10.36

1457.17 Elevation, GW (MSL) in Water by Calculation, ft

37.24 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS **Time:** 10:18

Removed 3 well volumes prior to sampling.

Air Temperature: 41°F to 50°F
Wind Speed: 10-20 mph
Wind Direction: N-NW
Precipitation: None
Cloud Cover: Mostly Sunny
Airborne Particulate: None
Color, Purge: Yellow
Appearance, Purge: Turbid
Odor, Purge: None
Color, Sample: Yellow
Appearance, Sample: Turbid
Odor, Sample: None

MDH#: 817978
Well Depth (ft): 41.22
SWL (ft): 37.24
Pump Rate (gpm):
Interval (min):
Well Casing Diameter(in): 2
Pump Start (HH:MM):
Pump Stop (HH:MM):
Purge Volume (gal):
Purging Strategy: Recovery (1 Purge)
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Interval calculations not performed in Field Buddy.
Pumping calculations not performed in Field Buddy.
Top of Casing Elevation 1494.41 - Static Water Level 37.24 = 1457.17ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** ? **Pump Rate (gpm):** ?

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
14:16	6.58	1.80	1695	617	251	10.56	
14:22	6.43	1.74	1705	359.3	246	9.54	
14:30	6.46	1.96	1749	100.8	241	10.36	

Stabilization Passes NTS Criteria: ☐

MW9

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:** Field Blank

Field Duplicate: Field Duplicate **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
11:25	6.55	0.49	1288	4.2	106	7.81

1443.5 Elevation, GW (MSL) in Water by Calculation, ft

11.22 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 31°F to 40°F
Wind Speed: 10-20 mph
Wind Direction: N-NW
Precipitation: None
Cloud Cover: Clear
Airborne Particulate: None
Color, Purge: Colorless
Appearance, Purge: Clear
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Clear
Odor, Sample: None

Time: 11:14
MDH#: 817980
Well Depth (ft): 18.90
SWL (ft): 11.22
Pump Rate (gpm): 0.25
Interval (min): 5.01
Well Casing Diameter(in): 2
Pump Start (HH:MM): 11:00
Pump Stop (HH:MM): 11:33
Purge Volume (gal): 8.25
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 18.90ft - Static Water Level 11.22ft = Water Column 7.68ft
Water Column 7.68ft x *Conversion Factor 0.163gal/ft = Well Volume 1.253gal
Well Volume 1.253gal ÷ Pump Rate 0.25gpm = Well Volume Interval 5.013min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 11:00 - Pump End Time 11:33 = Pump Duration 33min
Pump Duration 33min x Pump Rate 0.25gpm = Volume Purged 8.25gal
Top of Casing Elevation 1454.72 - Static Water Level 11.22 = 1443.5ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 5.01 **Pump Rate (gpm):** 0.25

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
11:05	6.55	0.50	1277	32.1	126	7.84	11.25
11:10	6.54	0.52	1283	14.2	117	7.75	11.25
11:15	6.54	0.50	1293	4.1	113	7.81	11.25
11:20	6.55	0.49	1280	4.3	109	7.76	11.25
11:25	6.55	0.49	1288	4.2	106	7.81	11.25

Stabilization Passes NTS Criteria: ☑

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

Calibration Report

Event Key: 6385CC_2021 Oct(1 of 1)

Environmental Science & Engineering

Staff: Corey Andrews **Date:** 10/21/2021 **Post Cal Check:** ☐

Comments: SpC 1000 did not pass post check.

Sonde: R04-O	**PreCal (HH:MM):**	**PostCal (HH:MM):**	**PostEvent (HH:MM):**	
Last Temp Check: 8/3/2021				
Temp Specification: +/-0.1 ˚C	7:30	7:30	16:15	**Specifications:**
pH:	4.22	4.00	3.84	+/-0.2 SU
Standard (SU):	4.0	4.0	4.0	
Temperature (°C):	20.06	20.06	19.92	
pH:	7.11	7.02	6.97	+/-0.2 SU
Standard (SU):	7.0	7.0	7.0	
Temperature (°C):	20.1	20.1	19.99	
pH:	9.88	10.05	9.86	+/-0.2 SU
Standard (SU):	10.0	10.0	10.0	
Temperature (°C):	19.98	19.98	20.19	
Conductance, Specific:	0.0	0.0	0.0	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	0	0	0	
Temperature (°C):	19.08	19.08	18.32	
Conductance, Specific:	1143	1000	901	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	1000	1000	1000	
Temperature (°C):	20.46	20.46	20.34	
Turbidity:	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):	19.63	19.63	19.64	
Turbidity:	101.1	100.0	102.3	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	100	100	100	
Temperature (°C):	19.81	19.81	19.81	

Calibration Report (cont'd)

Sonde: R04-O	PreCal (HH:MM):	PostCal (HH:MM):	PostEvent (HH:MM):	
Last Temp Check: 8/3/2021				
Temp Specification: +/-0.1 ˚C	7:30	7:30	16:15	Specifications:
Oxygen, Dissolved:	8.75	8.75	8.89	<8 +/-0.1 mg/L >8 AND <20 +/-0.2 mg/L >20 +/-10%
100% Oxygen Saturation:	8.75	8.75	8.78	
Temperature (°C):	19.5	19.5	19.4	
Bar.Pressure (mmHg):	725	725	726	
ORP:				+/-20 mV
Standard (mV):				
Temperature (°C):				

6385CC Gen Waste CCR Monitoring 10/21/21
Corey Andrews
Weather: 47°F / Sunny / winds NNW 10-15 mph
Equipment: R04-0, VM62, PID-R
0700 Prep / Cal / Load
0845 Depart NTS office
0935 Arrive @ Gen waste
0942 MW7 Well locked & in good condition. Unique well ID # 817979

SWL	TWD	WC	Vol (gal)	SWL (after)
24.98'	26.60	1.65'	0.27	Dry

Begin pumping well @ Key #2106

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
-	-	-	-	-	-	-	-

* Unable to obtain sample from well. Insufficient volume & recharge rate for a representable sample. Attempted to pump well with submersible pump with no success, purged well dry with bailer & had no recharge.

1018 MW8 Well locked & in good condition Unique well ID # 817978

SWL	TWD	WC	Vol	SWL (After)
37.24'	41.22'	3.98'	0.65 gal	

* Will return w/ bigger pump from Jukin to attempt stabilization.

1048 MW9 Well locked & in good condition. Unique well # 817980. Key #2106

SWL	TWD	WC	Vol	SWL after
11.22'	18.90'	7.68'	1.25 gal	11.22'

1100 Begin pumping well @ 0.25 GPM. 1125 sample. 1126 Dup. 1130 FB

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1105	6.55	0.50	1277	32.1	126	7.84	11.25
1110	6.54	0.52	1283	14.2	117	7.75	11.25
1115	6.54	0.50	1293	4.1	113	7.81	11.25
1120	6.55	0.49	1280	4.3	109	7.76	11.25
1125	6.55	0.49	1288	4.2	106	7.81	11.25

1144 MW10 Well locked & in good condition. Unique well ID # 847087

SWL	TWD	WC	Vol	SWL After
10.30'	18.20	7.9'	1.29 gal	10.30'

1158 Begin pumping well @ 0.33 Key #2121, 1210 sample obtained

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1202	6.95	0.67	856.6	2.7	181	9.18	11.00
1206	7.06	0.66	878.7	2.9	179	9.13	11.00
1210	7.08	0.64	882.3	3.3	180	9.17	11.00

Scale: 1 square = _____

63856/cc Gen Waste GW Sampling 10/21/21
Corey Andrews
High 47°F / Sunny / winds NNW 10-15 mph
1238 [MW-4] Well locked & in good condition.

SWL	TWD	WC	Vol	SWL After
22.52'	32.25'	9.73	1.59	23.60'

1250 Begin pumping well @ 0.25 GPM 1321 samples obtained.

Time	pH	LDO	SpC	Turb	ORP	Temp	SWL
1256	6.75	3.82	683.6	66.0	355	9.56	23.59'
1302	6.73	3.24	686.0	49.7	336	9.53	23.83'
1308	6.70	2.85	688.7	39.7	313	9.58	23.85'
1315	6.75	2.66	690.8	21.0	289	9.42	23.87'
1321	6.79	2.65	691.5	16.0	283	9.53	23.91'

*5 well volumes removed prior to sampling.

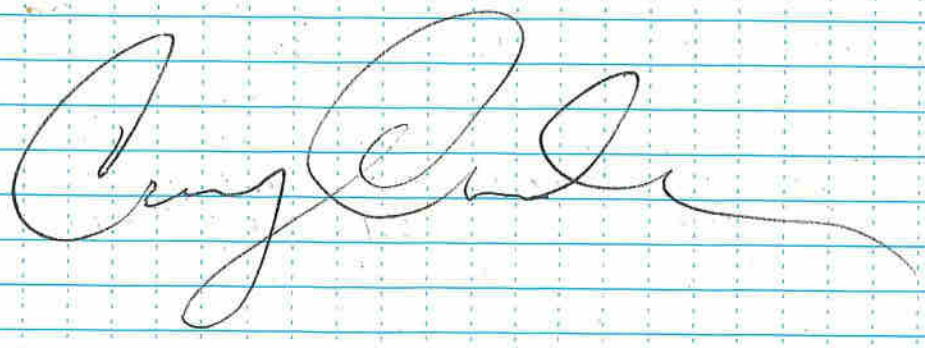
1351 [MW 8] 1430 samples obtained.

SWL	TWD	Vol	WC	SWL After
37.24'	41.22'	0.65 gal	3.98	

1400 Started pumping well @ 0.15 GPM well went dry in 5 minutes. purged 3 well volumes via bailer prior to sampling.

Time	pH	LDO	SpC	Turb	ORP	Temp
1416	6.58	1.80	1695	361.7	251	10.56
1422	6.43	1.74	1705	359.3	246	9.54
1430	6.46	1.96	1749	100.8	241	10.38

1508 Depart Gen. Waste.
1552 Cede samples to PACE Analytical.
1557 Arrive back at NTS office. Unload / Post check / Report



10/21/2021

Scale: 1 square = _____

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

Vehicle Inspection Report

Event Key: 6385CC_2021 Oct(1 of 1)

Driver: Corey Andrews **Date:** 10/21/2021 **Time:** 07:45

Vehicle: V62 - 2014 GMC Sierra 1500 #1 **Odometer:**

Check each Item Inspected

Driver/Passenger Side

External Side Mirrors (Right and Left): ☑	Windows (clean; free of cracks): ☑	Tires (properly inflated, adequate tread): ☑

Comments:

Front/Rear

Tail Lights: ☑	Head Lights ☑	Damage to Body/Bumpers ☑
License Plates ☑	Fluid Leaks ☑	Turn Signals ☑

Comments:

Routine Maintenance

Oil Change (Current): ☑	Transmission Fluid (Change every 60k): ☑	Air Filter (Change every 30k): ☑
Gauges Operational ('check engine' light OFF): ☑	Spare Tire (present, properly inflated): ☑	

Comments:

Interior

Cleanliness: ☑	Brakes: ☑	Windshield Wipers and Fluid: ☑
Seat Belts (working condition): ☑	Parking Brake (reset/release): ☑	Rearview Mirror: ☑

Comments:

General/Safety

Insurance Card: ☑	Wheel Chocks: ☑	First Aid Kit: ☑
Operator's Manual: ☑	Strobe Light (if needed): ☑	Buggy Whip (if needed): ☑

Comments:

Deficiencies Corrected

Environmental Science & Engineering

Daily Tailgate Safety

Project: 6385 CC Date: 10/21/21

Work Site Hazard Assessment Worksheet

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

walk cautiously
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: 10/21/21

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

NTS
Environmental Science & Engineering

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

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.

Oct-21

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	No Sample		X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	10/21/21	1430	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL		1125	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL		1210	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL		1126	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank		1130	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

RELINQUISHED BY: Corey Andrews DATE: 10/21/21 TIME: 1552

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: Melissa Woods

TEMP AT ARRIVAL: 4.5 C

DATE: 10/21/21 TIME: 1552

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 Peer Review Report

Event Key: 6385CC_2021 Oct(1 of 1)
Report Date: 10/21/2021
Lab WO#: 10584371

Reviewer #1:	Date:	Reviewer #2:	Date:
Nicholas Myre	11/3/2021	Carrie Jensen	10/29/2021

Report Sections	Required:	Included:
Cover Sheet:	☑	☑
Location Information		
Data Collection:	☑	☑
Observation:	☑	☑
Flow or Stabilization:	☑	☑
Photographs:	☐	☐
Calibration:	☑	☑
Field Notes:	☑	☑
Safety Forms:	☑	☑

	N/A:	OK:
GW Calculations are Accurate:	☐	☑
GW Stabilization Criteria met:	☐	☐
Flow Calculations are Accurate:	☑	☐
Sonde Passed Post Event Check:	☑	☐
Consistent Values in Notes:		☑
Consistent Dates and Times:		☑
No Deviations from SOPs:		☑
Cover Sheet provides a complete description of key activities and observations:		☑

Reviewer #1 Comments:

Report Sections	Required:	Included:
Cover Sheet:	☑	☑
Location Information		
Data Collection:	☑	☑
Observation:	☑	☑
Flow or Stabilization:	☑	☑
Photographs:	☐	☐
Calibration:	☑	☑
Field Notes:	☑	☑
Safety Forms:	☑	☑

	N/A:	OK:
GW Calculations are Accurate:	☐	☑
GW Stabilization Criteria met:	☐	☐
Flow Calculations are Accurate:	☑	☐
Sonde Passed Post Event Check:	☐	☐
Consistent Values in Notes:		☑
Consistent Dates and Times:		☑
Qualifiers added to Data:	☐	☑
Data under correct Event Key:	☐	☑
All Req'd Parameters Meas'd; Limits Met:	☐	☑

Reviewer #2 Comments:

Recovery (1 Purge) at MW8. Data qualified.

Specific Conductance did not pass Sonde post calibration check. Data qualified.

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

November 04, 2021

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

RE: Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

Dear Scott Seeley:

Enclosed are the analytical results for sample(s) received by the laboratory on October 21, 2021. 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,

Nicole Jarve

Nicole Jarve
nikki.jarve@pacelabs.com
(218) 727-6380
Project Manager

Enclosures

cc: Sample Data, Northeast Technical Services
Carrie Jensen, 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 General Waste Oct-21
Pace Project No.: 10584371

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab
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
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 #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Ohio VAP Certification (1800) #: CL110*
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
*Please Note: Applicable air certifications are denoted with an asterisk (*).

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 Oct-21
Pace Project No.: 10584371

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10584371001	**MW8**	Water	10/21/21 14:30	10/21/21 15:52
10584371002	**MW9**	Water	10/21/21 11:25	10/21/21 15:52
10584371003	**MW10**	Water	10/21/21 12:10	10/21/21 15:52
10584371004	**Field Duplicate**	Water	10/21/21 11:26	10/21/21 15:52
10584371005	**Field Blank**	Water	10/21/21 11:30	10/21/21 15:52

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

SAMPLE ANALYTE COUNT

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10584371001	**MW8**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10584371002	**MW9**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10584371003	**MW10**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10584371004	**Field Duplicate**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10584371005	**Field Blank**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	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 Oct-21
Pace Project No.: 10584371

Sample: MW8 **Lab ID: 10584371001** Collected: 10/21/21 14:30 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1370**	mg/L	333	1		10/27/21 10:07		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**2.0**	mg/L	1.0	1		10/30/21 11:34	16887-00-6	
Fluoride	**0.061**	mg/L	0.050	1		10/30/21 11:34	16984-48-8	
Sulfate	**692**	mg/L	3.0	3		10/30/21 20:22	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		10/26/21 16:28		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**372**	mg/L	0.50	1	10/27/21 06:38	10/28/21 12:33	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**57.1**	ug/L	10.0	1	10/27/21 06:18	11/01/21 11:15	7440-42-8	

Sample: MW9 **Lab ID: 10584371002** Collected: 10/21/21 11:25 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1060**	mg/L	40.0	1		10/27/21 10:07		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**6.4**	mg/L	2.0	2		10/30/21 20:45	16887-00-6	
Fluoride	**0.084**	mg/L	0.050	1		10/30/21 12:43	16984-48-8	
Sulfate	**431**	mg/L	2.0	2		10/30/21 20:45	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		10/26/21 15:54		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**206**	mg/L	0.50	1	10/27/21 06:38	10/28/21 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 General Waste Oct-21
Pace Project No.: 10584371

Sample: MW9 **Lab ID: 10584371002** Collected: 10/21/21 11:25 Received: 10/21/21 15:52 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	**35.5**	ug/L	10.0	1	10/27/21 06:18	11/01/21 11:19	7440-42-8	

Sample: MW10 **Lab ID: 10584371003** Collected: 10/21/21 12:10 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**754**	mg/L	20.0	1		10/27/21 10:07		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.3**	mg/L	1.0	1		10/30/21 13:06	16887-00-6	
Fluoride	**0.17**	mg/L	0.050	1		10/30/21 13:06	16984-48-8	
Sulfate	**389**	mg/L	1.0	1		10/30/21 13:06	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		10/26/21 16:12		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**149**	mg/L	0.50	1	10/27/21 06:38	10/28/21 12:36	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**18.5**	ug/L	10.0	1	10/27/21 06:18	11/01/21 11:22	7440-42-8	

Sample: Field Duplicate **Lab ID: 10584371004** Collected: 10/21/21 11:26 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1070**	mg/L	40.0	1		10/27/21 12:29		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**7.1**	mg/L	5.0	5		10/30/21 14:38	16887-00-6	
Fluoride	**0.084**	mg/L	0.050	1		10/30/21 13:29	16984-48-8	
Sulfate	**435**	mg/L	5.0	5		10/30/21 14:38	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
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ANALYTICAL RESULTS

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

Sample: Field Duplicate **Lab ID: 10584371004** Collected: 10/21/21 11:26 Received: 10/21/21 15:52 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	**7.1**	Std. Units	0.10	1		10/26/21 15:58		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**195**	mg/L	0.50	1	10/27/21 06:38	10/28/21 12:41	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**35.4**	ug/L	10.0	1	10/27/21 06:18	11/01/21 11:26	7440-42-8	

Sample: Field Blank **Lab ID: 10584371005** Collected: 10/21/21 11:30 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	ND	mg/L	10.0	1		10/27/21 12:29		
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		10/30/21 15:47	16887-00-6	
Fluoride	ND	mg/L	0.050	1		10/30/21 15:47	16984-48-8	
Sulfate	ND	mg/L	1.0	1		10/30/21 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	**5.8**	Std. Units	0.10	1		10/26/21 16:01		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	10/27/21 06:38	10/28/21 12:43	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	10/27/21 06:18	11/01/21 11:29	7440-42-8	

REPORT OF LABORATORY ANALYSIS

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

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

QC Batch: 779720 — Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 — Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10584371001, 10584371002, 10584371003

METHOD BLANK: 4152562 — Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/27/21 10:07	

METHOD BLANK: 4152566 — Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/27/21 10:08	

LABORATORY CONTROL SAMPLE: 4152563

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	224	90	80-120	

SAMPLE DUPLICATE: 4152564

Parameter	Units	10584082003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	249	231	8	5	D6

SAMPLE DUPLICATE: 4152565

Parameter	Units	10584156002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	261	264	1	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

QC Batch: 779794
QC Batch Method: SM 2540C-2011
Analysis Method: SM 2540C-2011
Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10584371004, 10584371005

METHOD BLANK: 4153018 Matrix: Water
Associated Lab Samples: 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/27/21 12:29	

METHOD BLANK: 4153022 Matrix: Water
Associated Lab Samples: 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/27/21 12:30	

LABORATORY CONTROL SAMPLE: 4153019

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	220	88	80-120	

SAMPLE DUPLICATE: 4153020

Parameter	Units	10584474005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	127	128	1	5	

SAMPLE DUPLICATE: 4153021

Parameter	Units	10584412002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	394	408	3	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

QC Batch: 780499 — 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: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

METHOD BLANK: 4156900 — Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/30/21 03:54	
Fluoride	mg/L	ND	0.050	10/30/21 03:54	
Sulfate	mg/L	ND	1.0	10/30/21 03:54	

LABORATORY CONTROL SAMPLE: 4156901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	100	99.8	100	90-110	
Fluoride	mg/L	5	5.0	100	90-110	
Sulfate	mg/L	100	100	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4156902 — 4156903

Parameter	Units	10582786001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	488	500	500	989	990	100	100	90-110	0	20	
Fluoride	mg/L	0.11	5	5	5.2	5.4	102	106	90-110	4	20	
Sulfate	mg/L	44.1	100	100	145	149	101	105	90-110	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4156904 — 4156905

Parameter	Units	10584371004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	7.1	500	500	528	528	104	104	90-110	0	20	
Fluoride	mg/L	0.084	5	5	5.2	5.3	102	105	90-110	3	20	
Sulfate	mg/L	435	500	500	953	949	104	103	90-110	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

QC Batch: 779467
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: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

LABORATORY CONTROL SAMPLE: 4151305

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: 4151306

Parameter	Units	10584367001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	10	H6

SAMPLE DUPLICATE: 4151307

Parameter	Units	10583942001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	10	H6

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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 General Waste Oct-21
Pace Project No.: 10584371

QC Batch: 779242 — Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 — Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

METHOD BLANK: 4150520 — Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	10/28/21 11:54	

LABORATORY CONTROL SAMPLE: 4150521

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	20	20.1	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4150522 4150523

Parameter	Units	10583581001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	57900 ug/L	20	20	77.9	75.3	100	87	70-130	3	20	

MATRIX SPIKE SAMPLE: 4150524

Parameter	Units	10584168001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	89700 ug/L	20	115	129	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

QC Batch: 779346 | Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 | Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

METHOD BLANK: 4150852 Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	10/29/21 03:11	

LABORATORY CONTROL SAMPLE: 4150853

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	100	103	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4150854 4150855

Parameter	Units	10583744003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	75.9	100	100	202	216	126	140	70-130	7	20	M1

MATRIX SPIKE SAMPLE: 4150856

Parameter	Units	10584103006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	205	100	347	142	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

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

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10584371001	**MW8**	SM 2540C-2011	779720		
10584371002	**MW9**	SM 2540C-2011	779720		
10584371003	**MW10**	SM 2540C-2011	779720		
10584371004	**Field Duplicate**	SM 2540C-2011	779794		
10584371005	**Field Blank**	SM 2540C-2011	779794		
10584371001	**MW8**	EPA 300.0	780499		
10584371002	**MW9**	EPA 300.0	780499		
10584371003	**MW10**	EPA 300.0	780499		
10584371004	**Field Duplicate**	EPA 300.0	780499		
10584371005	**Field Blank**	EPA 300.0	780499		
10584371001	**MW8**	SM 4500-H+B-2011	779467		
10584371002	**MW9**	SM 4500-H+B-2011	779467		
10584371003	**MW10**	SM 4500-H+B-2011	779467		
10584371004	**Field Duplicate**	SM 4500-H+B-2011	779467		
10584371005	**Field Blank**	SM 4500-H+B-2011	779467		
10584371001	**MW8**	EPA 200.7	779242	EPA 200.7	779860
10584371002	**MW9**	EPA 200.7	779242	EPA 200.7	779860
10584371003	**MW10**	EPA 200.7	779242	EPA 200.7	779860
10584371004	**Field Duplicate**	EPA 200.7	779242	EPA 200.7	779860
10584371005	**Field Blank**	EPA 200.7	779242	EPA 200.7	779860
10584371001	**MW8**	EPA 200.8	779346	EPA 200.8	779931
10584371002	**MW9**	EPA 200.8	779346	EPA 200.8	779931
10584371003	**MW10**	EPA 200.8	779346	EPA 200.8	779931
10584371004	**Field Duplicate**	EPA 200.8	779346	EPA 200.8	779931
10584371005	**Field Blank**	EPA 200.8	779346	EPA 200.8	779931

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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.

Oct-21

PROJECT NUMBER: 6385CC CCR Monitoirng

LOG-IN #	SAMPLE #	DESCRIPTION	COLLECTION: DATE	COLLECTION: TIME	MATRIX: LIQ.	MATRIX: 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	No Sample		X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	10/21/21	1430	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL		1125	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL		1210	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL		1126	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank		1130	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS: **SEE ATTACHED LIST WITH METHODS**

RELINQUISHED BY: Corey Andrews DATE: 10/21/21 TIME: 1552

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: Kristin Woods

TEMP.AT ARRIVAL: 4.5 C

DATE: 10/21/21 TIME: 1552

WO#: 10584371

PM: NMJ Due Date: 11/04/21

CLIENT: DU-NTS-SCOTT

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

WO# : 10584371

PM: NMJ **Due Date: 11/04/21**

CLIENT: DU-NTS-SCOTT

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 17June2019 Page 1 of 1
	Document No.: F-DUL-C-001-rev.07	Issuing Authority: Pace Duluth Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: NTS

Project #: **WO# : 10584371**

PM: NMJ **Due Date: 11/04/21**

CLIENT: DU-NTS-SCOTT

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ SpeeDee ☑ Pace ☐ Other:_____

Tracking Number: _____

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other:_____

Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Is there evidence of ice formation in samples? ☐ Yes ☑ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ NA

Temp Blank? ☑ Yes ☐ No **Thermometer Used:** ☑ 01339252/1710 ☐ 122639816 **Correction Factor °C:** +0.3

Temp should be above freezing to 6 °C **Cooler Temp Read °C:** 4.2 **Cooler Temp Corrected °C:** 4.5

Date and Initials of Person Examining Contents: 10/22/2021

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5. If Fecal: ☐ <8 hours ☐ >8, <24 hours ☐ >24 hours
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No	☐ N/A	6. pH
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved containers:
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation properly preserved?	☐ Yes	☐ No	☑ N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	☐ Yes	☐ No	☑ N/A	14.
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	16.
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: _____

FECAL WAIVER ON FILE: Y N TEMPERATURE WAIVER ON FILE: Y N

Project Manager Review: Nikki Jarve **Date:** 10/22/21

Intra-Regional Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 10584371 **Workorder Name:** 6385CC General Waste Oct-21 **Owner Received Date:** 10/21/2021 **Due Date:** 11/4/2021

Received at:	Send To Lab:
Pace Analytical Duluth 4730 Oneota St. Duluth, MN 55807 Phone (218) 727-6380	Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-1700

Report To:
Nicole Jarve

WO# : 10584371
10584371

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HNO3 BP3N	EPA 200.7	EPA 200.8	Miscellaneous Charges	LAB USE ONLY
1	MW8	PS	10/21/2021 14:30	10584371001	Water	1	X	X	X	
2	MW9	PS	10/21/2021 11:25	10584371002	Water	1	X	X	X	
3	MW10	PS	10/21/2021 12:10	10584371003	Water	1	X	X	X	
4	Field Duplicate	PS	10/21/2021 11:26	10584371004	Water	1	X	X	X	
5	Field Blank	PS	10/21/2021 11:30	10584371005	Water	1	X	X	X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] PACE	10/22/21 1650	JD Pace	10/22/21 1925
2				
3				
4				

Comments

Cooler Temperature on Receipt 1.4 °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.*

Pace Analytical®	Document Name: **Sample Condition Upon Receipt (SCUR) - MN**	Document Revised: 14Apr2021 **Page 1 of 1**
	Document No.: **ENV-FRM-MIN4-0150 Rev.02**	Pace Analytical Services - **Minneapolis**

Sample Condition Upon Receipt

Client Name: Pace Analytical Duluth

Project #:

WO#: 10584371
PM: NMJ Due Date: 11/04/21
CLIENT: DU-NTS-SCOTT

Courier: ☐ Fed Ex ☐ 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) ☐ OS418-LS ☐ T4(0254) ☐ T5(0489) ☐ 160285052 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ 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 **Average Corrected Temp (no temp blank only):** _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

Correction Factor: true **Cooler Temp Corrected w/temp blank:** 1.4 °C

USDA Regulated Soil: (☑ N/A, water sample/Other: _____)
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

Date/Initials of Person Examining Contents: JD 10.23.21
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 (F-MN-Q-338) 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.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used?	☑ Yes	☐ No		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 on Container Below:** **See Exception** ☐ **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 - 005
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 ☑ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate 1
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** **See Exception** ☐ **ENV-FRM-MIN4-0142**
				Res. Chlorine: 0-6 Roll 222921 | 0-6 Strip | 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	13. **See Exception** ☐ **ENV-FRM-MIN4-0140**
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	14.
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 Jarvi **Date:** 10/25/21

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: _____

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

Laboratory Data Verification Checklist

Event Key: 6385CC_2021 Oct(1 of 1)

Collection Date: 10/21/2021
Report Date: 11/4/2021
Review Date: 11/8/2021

Lab: Pace Analytical
Lab WO#: 10584371

Reviewer #1: Carrie Jensen
Reviewer #2:

SAMPLE HANDLING AND PRESERVATION	N/A:	OK:
A copy of the chain of custody (COC) is provided with the final report	☐	☑
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 initiated outside of the 15 minute EPA required holding time. Data qualified.

CALIBRATION	N/A:	OK:
The report narrative or data qualifiers indicate there were calibration failures for any of the required analyses	☐	☐

METHOD BLANKS	N/A:	OK:
A method blank was analyzed for all applicable analytical methods	☐	☑
All method blanks are free of target analytes	☐	☑
If any method blanks had a detect, were the detected analytes present in associated samples?	☑	☐

LABORATORY CONTROL SAMPLES	N/A:	OK:
An LCS was prepared and analyzed for each analytical method and contains all target analytes being reported	☐	☑
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☐	☑
The percent recovery of all target analytes are within laboratory control limits	☐	☑
Any analytes with a percent recovery outside of laboratory control limits are qualified (flagged) in the associated samples	☑	☐

MATRIX SPIKES/MATRIX SPIKE DUPLICATES	N/A:	OK:
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 LCSD)	☑	☐
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☐	☑
The percent recovery of all target analytes are within laboratory control limits	☐	☐
The RPD is within laboratory control limits for all target analytes	☐	☑
Any analytes with a % recovery or RPD outside of laboratory control limits are qualified (flagged) in the parent sample	☑	☐

Comments: Boron matrix spike recovery exceeded QC limits Batch accepted based on LCS recovery. Parent samples associated with another WO.

LABORATORY DUPLICATES	N/A:	OK:
A Laboratory Duplicate was prepared and analyzed for each applicable analytical method	☐	☑
The RPD for the duplicate pair is within laboratory limits	☐	☐
Any analytes with an RPD outside of laboratory control limits are qualified (flagged) in the associated parent sample	☑	☐

Comments: TDS precision between the sample and the duplicate exceed lab control limits Parent sample associated with another WO.

SURROGATES	N/A:	OK:
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☑	☐
The percent recovery of all surrogate compounds are within laboratory control limits	☑	☐

FIELD DUPLICATES	N/A:	OK:
A field duplicate was required for this this project	☐	☑
The RPD for the duplicate pair is within the NTS control limits	☐	☑
Any analytes with an RPD outside of NTS control limits are qualified (flagged) in the parent sample	☑	☐

Comments: Field Duplicate taken at MW9.

FIELD and TRIP BLANKS	N/A:	OK:
A field blank and/or trip blank was required for this project	☐	☑
The blank is free of target analytes	☐	☑
If an analyte was detected in the blank, was it present in the associated samples?	☑	☐
If yes, was the associated data qualified in SWX?	☑	☐

ADDITIONAL CHECKS	N/A:	OK:
This project has been uploaded into SWX and correctly reflects the results reported within the laboratory report	☐	☑
Analysis to the MDL was required for this project	☑	☐
If analysis to the MDL was required, data was appropriately qualified with J flags?	☑	☐
Dilution factors are typical of past events and non-detects are not reported off dilutions	☐	☑
Total and dissolved parameters are in agreement	☑	☐
All lab results were evaluated against the associated permit limits or appear typical of past monitoring events	☐	☑
All lab QC calculations were accurate against SWX calculations	☐	☑

APPENDIX B

April 2021 & October 2021 Statistical Evaluation Reports

July 12, 2021

Mr. Jon Penheiter
Dem-Con Companies
13020 Dem-Con Drive
Shakopee, MN 55379
jonpenheiter@dem-con.com

Sent Via Email

RE: Statistical Analysis for April 2021 groundwater monitoring event for CCR compliance at the Keewatin, MN facility

Mr. Penheiter,

NTS is pleased to submit this report summarizing the CCR monitoring data collected in April, 2021 as well as the statistical analysis completed in accordance with the facility Statistical Analysis Plan (SAP).

MW-3R was included in the initial groundwater monitoring plan but 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 3 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 shows that no monitoring trigger values were intersected during the April 2021 monitoring event at the compliance/downgradient wells MW-8 and MW-9. Parameters measured at MW-10 appear congruent with previous measurements.

The upgradient well MW-7 has shown trending concentrations over the previous 3 years of monitoring and no longer aligns with the background dataset collected in 2016 and 2017. These trends are not observed in the downgradient compliance wells.

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 29, 2021 at locations MW-7, MW-8, MW-9, and MW-10. Laboratory results were received from PACE Analytical on June 8, 2021. 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. The highlighted cells in Table 1 indicate monitored results above the trigger value (MW-7 Calcium, Total Dissolved Solids (TDS), and pH).

Table 1
2021 April Detection Monitoring Event Results

Parameter	MW-7	MW-3R	MW-8	MW-9	MW-10
Boron (ug/L)	67.3	n/a	78.2	41	15.8
Calcium (mg/L)	664	n/a	402	221	123
Chloride (mg/L)	11.5	n/a	1.5	4.0	1.5
Fluoride (mg/L)	<0.05	n/a	<0.05	0.079	0.12
pH (SU)	6.10	n/a	6.27	6.49	6.85
Sulfate (mg/L)	1500	n/a	673	487	238
Total Dissolved Solids (mg/L)	2810	n/a	1590	1180	587

Table 2
Detection Monitoring Trigger Values (updated January 2020)

Parameter	MW-7	MW-3R	MW-8	MW-9	MW-10
Boron (ug/L)	110.01	n/a	119.29	50	TBD
Calcium (mg/L)	579.98	n/a	438.4	233.23	TBD
Chloride (mg/L)	132.82	n/a	1.52	22.65	TBD
Fluoride (mg/L)	0.11	n/a	0.10	0.10	TBD
pH (SU)	6.12– 6.79	n/a	6.23 – 7.13	6.23 – 7.13	TBD
Sulfate (mg/L)	1197.73	n/a	865.08	527.68	TBD
Total Dissolved Solids (mg/L)	2391.34	n/a	1863.13	1243.1	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 2021 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 size.

MW-7 has shown trending concentrations from 2017 through April 2021. It can be seen that Calcium, TDS, and Sulfate indicate increasing trends; Chloride and pH indicate decreasing trends. All five parameters are now outside the range observed when conducting background monitoring for the facility in 2016 and 2017.

The observed trends observed in MW-7 and changes in the water chemistry are not reflected in the downgradient compliance wells. The monitored parameters in the downgradient locations MW-8 and MW-9 have remained consistent and are well represented by the background dataset.

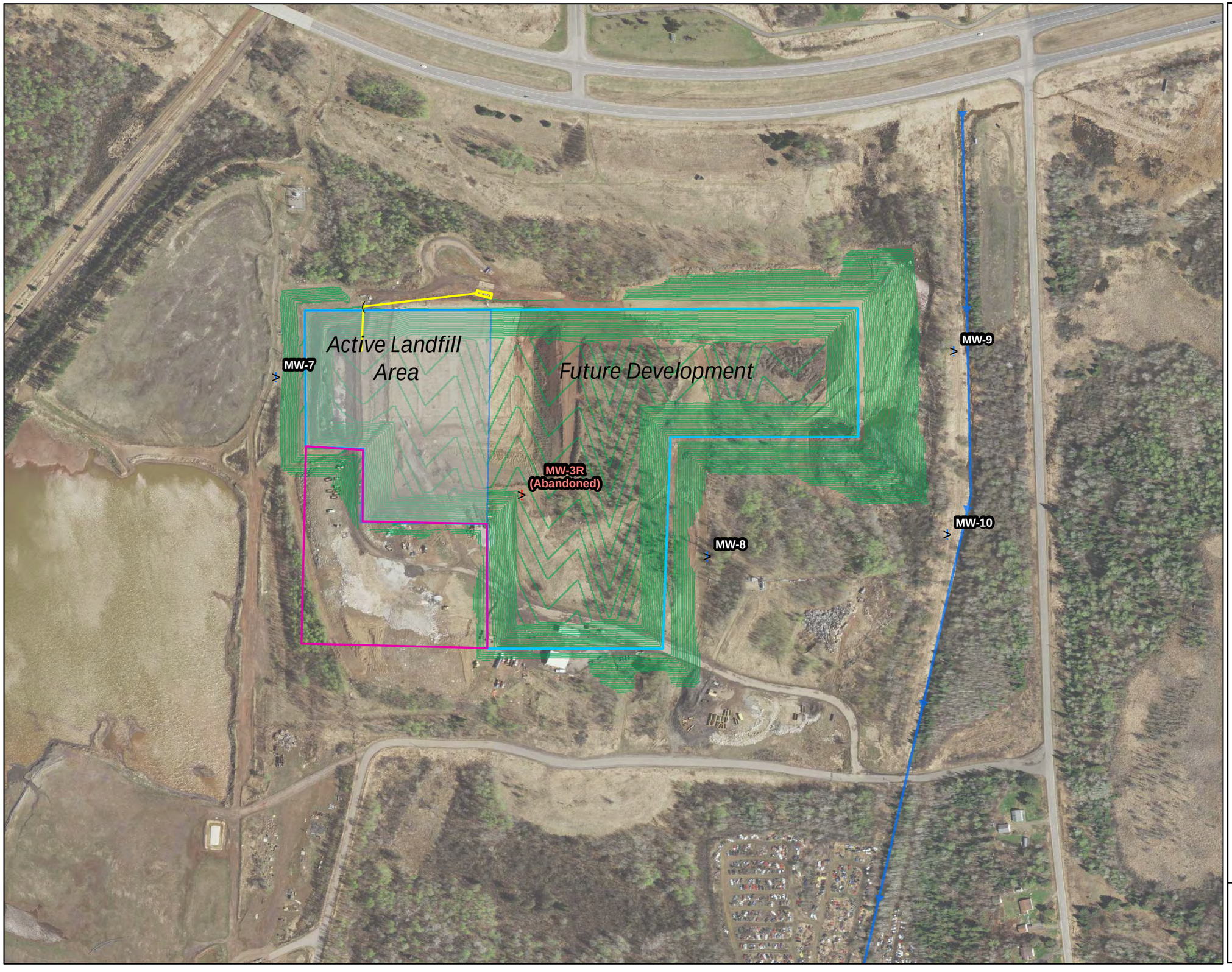
The SAP for the facility indicates that the background dataset shall be updated every two years, provided an SSI has not occurred, by including the additional data into the background dataset. Due to the trending values observed in MW-7, as well as MW-7 having significantly higher concentrations of Calcium, 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)) when the trigger values were updated in January 2020.

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 2021 Monitoring Results
Appendix B: Statistical Analysis Plan
Appendix C: Appendix III & Appendix IV Parameters



Ü

0 150 300 600

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 **1**
Site Detail Map

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

NTS Environmental Science & Engineering
www.netechnical.com

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

1

Appendix A:
April 2021 Monitoring Results

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

Field Report Cover Sheet

Event Key: 6385CC_2021 Apr(1 of 1)

Field Date: 4/29/2021

Report Created: 4/29/2021 3:43:11 PM

Client:
General Waste Disposal & Recovery

NTS Project Name:
CCR Landfill Monitoring Master 2021

NTS Project Manager:
Scott Seeley

NTS Field Personnel:
Corey Andrews

Summary of Services Performed:

Prepped and departed for General Waste to conduct Spring CCR well monitoring event. Wells were sampled via the low flow stabilization method using submersible pumps. All sampling followed NTS protocol. 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.

MW7

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
10:04	6.10	0.41	3004	20.0	257	8.61

1474.95 Elevation, GW (MSL) in Water by Calculation, ft

21.18 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 41°F to 50°F
Wind Speed: 5-10 mph
Wind Direction: NW
Precipitation: None
Cloud Cover: Overcast
Airborne Particulate: None
Color, Purge: Orange
Appearance, Purge: Turbid
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Clear
Odor, Sample: None

Time: 09:02
MDH#: 817979
Well Depth (ft): 26.63
SWL (ft): 21.18
Pump Rate (gpm): 0.15
Interval (min): 5.93
Well Casing Diameter(in): 2
Pump Start (HH:MM): 9:22
Pump Stop (HH:MM): 10:12
Purge Volume (gal): 7.50
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 26.63ft - Static Water Level 21.18ft = Water Column 5.45ft
Water Column 5.45ft x *Conversion Factor 0.163gal/ft = Well Volume 0.889gal
Well Volume 0.889gal ÷ Pump Rate 0.15gpm = Well Volume Interval 5.929min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 09:22 - Pump End Time 10:12 = Pump Duration 50min
Pump Duration 50min x Pump Rate 0.15gpm = Volume Purged 7.5gal
Top of Casing Elevation 1496.13 - Static Water Level 21.18 = 1474.95ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 5.93 **Pump Rate (gpm):** 0.15

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
9:28	6.09	0.72	2980	152.6	449	7.64	22.90
9:34	6.08	0.77	2996	46.0	385	8.13	22.88
9:40	6.08	0.67	3011	24.6	317	8.15	23.10
9:46	6.09	0.58	3029	21.3	290	8.60	23.07
9:52	6.10	0.51	3003	21.0	273	8.70	23.08
9:58	6.10	0.47	3000	20.5	266	8.58	23.10
10:04	6.10	0.41	3004	20.0	257	8.61	23.10

MW8

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
11:19	6.27	0.47	1964	102.3	214	9.90

1459.04 Elevation, GW (MSL) in Water by Calculation, ft

35.37 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 51°F to 60°F
Wind Speed: 5-10 mph
Wind Direction: NW
Precipitation: None
Cloud Cover: Mostly Sunny
Airborne Particulate: None
Color, Purge: Yellow
Appearance, Purge: Turbid
Odor, Purge: None
Color, Sample: Yellow
Appearance, Sample: Turbid
Odor, Sample: None

Time: 10:19
MDH#: 817978
Well Depth (ft): 41.22
SWL (ft): 35.37
Pump Rate (gpm): 0.15
Interval (min): 6.36
Well Casing Diameter(in): 2
Pump Start (HH:MM): 10:30
Pump Stop (HH:MM): 11:30
Purge Volume (gal): 9.00
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 41.22ft - Static Water Level 35.37ft = Water Column 5.85ft
Water Column 5.85ft x *Conversion Factor 0.163gal/ft = Well Volume 0.955gal
Well Volume 0.955gal ÷ Pump Rate 0.15gpm = Well Volume Interval 6.364min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 10:30 - Pump End Time 11:30 = Pump Duration 60min
Pump Duration 60min x Pump Rate 0.15gpm = Volume Purged 9gal
Top of Casing Elevation 1494.41 - Static Water Level 35.37 = 1459.04ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 6.36 **Pump Rate (gpm):** 0.15

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
10:37	6.24	1.52	1790	458	254	9.57	37.00
10:44	6.25	0.81	1900	387.4	232	10.29	36.82
10:51	6.25	0.50	1947	79.6	222	9.72	36.94
10:58	6.26	0.47	1968	107.6	218	9.60	36.89
11:05	6.27	0.45	1968	98.6	216	9.75	36.89
11:12	6.28	0.48	1964	100.2	217	9.80	37.00
11:19	6.27	0.47	1964	102.3	214	9.90	37.01

MW9

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:** Field Blank

Field Duplicate: Field Duplicate **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
12:20	6.49	0.34	1601	3.0	99	7.23

1443.53 Elevation, GW (MSL) in Water by Calculation, ft

11.19 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 51°F to 60°F
Wind Speed: 5-10 mph
Wind Direction: NW
Precipitation: None
Cloud Cover: Mostly Sunny
Airborne Particulate: None
Color, Purge: Colorless
Appearance, Purge: Clear
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Clear
Odor, Sample: None

Time: 11:43
MDH#: 817980
Well Depth (ft): 18.90
SWL (ft): 11.19
Pump Rate (gpm): 0.33
Interval (min): 3.81
Well Casing Diameter(in): 2
Pump Start (HH:MM): 12:00
Pump Stop (HH:MM): 12:30
Purge Volume (gal): 9.90
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 18.90ft - Static Water Level 11.19ft = Water Column 7.71ft
Water Column 7.71ft x *Conversion Factor 0.163gal/ft = Well Volume 1.258gal
Well Volume 1.258gal ÷ Pump Rate 0.33gpm = Well Volume Interval 3.813min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 12:00 - Pump End Time 12:30 = Pump Duration 30min
Pump Duration 30min x Pump Rate 0.33gpm = Volume Purged 9.9gal
Top of Casing Elevation 1454.72 - Static Water Level 11.19 = 1443.53ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 3.81 **Pump Rate (gpm):** 0.33

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
12:04	6.48	0.36	1607	33.6	116	7.40	11.58
12:08	6.48	0.35	1597	9.2	108	7.34	11.58
12:12	6.47	0.35	1609	3.1	105	7.22	11.58
12:16	6.48	0.34	1600	2.9	102	7.26	11.58
12:20	6.49	0.34	1601	3.0	99	7.23	11.58

Stabilization Passes NTS Criteria: ☑

MW10

SECTION #1: DATA COLLECTION ☑ **Sample Collected** **Field Blank:**

Field Duplicate: **Equip Blank:**

Time (HH:MM):	pH (SU):	DO (mg/L):	SpecCond (µS/cm):	Turbidity (NTU):	ORP (mV):	Temp (°C):
13:17	6.85	1.47	790.0	4.1	219	4.61

1444.71 Elevation, GW (MSL) in Water by Calculation, ft

7.91 Static Water Level in Water by Field Measurement, ft

SECTION #2: OBSERVATIONS

Air Temperature: 51°F to 60°F
Wind Speed: 5-10 mph
Wind Direction: NW
Precipitation: None
Cloud Cover: Mostly Sunny
Airborne Particulate: None
Color, Purge: Colorless
Appearance, Purge: Clear
Odor, Purge: None
Color, Sample: Colorless
Appearance, Sample: Clear
Odor, Sample: None

Time: 12:37
MDH#: 847087
Well Depth (ft): 18.20
SWL (ft): 7.91
Pump Rate (gpm): 0.33
Interval (min): 5.09
Well Casing Diameter(in): 2
Pump Start (HH:MM): 12:52
Pump Stop (HH:MM): 13:22
Purge Volume (gal): 9.90
Purging Strategy: Low-Flow Stabilization
Well Plug Present: ☑
Well Locked: ☑

GW CALCULATIONS:
Total Water Depth 18.20ft - Static Water Level 7.91ft = Water Column 10.29ft
Water Column 10.29ft x *Conversion Factor 0.163gal/ft = Well Volume 1.679gal
Well Volume 1.679gal ÷ Pump Rate 0.33gpm = Well Volume Interval 5.089min
*Conversion Factor Formula: ((Pi(([Casing Diameter ft]/2)^2)12)/(12^3))7.48
Pump Start Time 12:52 - Pump End Time 13:22 = Pump Duration 30min
Pump Duration 30min x Pump Rate 0.33gpm = Volume Purged 9.9gal
Top of Casing Elevation 1452.62 - Static Water Level 7.91 = 1444.71ft

SECTION #3: STABILIZATION **Well Vol Interval (min):** 5.09 **Pump Rate (gpm):** 0.33

Spec:	+/- 0.2 SU	+/- 0.2 mg/L	+/- 5 %	<=5 NTU +/- 10 %	+/- 20 mV	+/- 0.2 °C	
Time (HH:MM):	**pH (SU):**	**DO (mg/L):**	**SpecCond (µS/cm):**	**Turbidity (NTU):**	**ORP (mV):**	**Temp (°C):**	**SWL (ft):**
12:57	6.85	1.34	830.1	22.1	191	4.62	8.70
13:02	6.83	1.41	804.3	9.0	207	4.57	8.70
13:07	6.83	1.45	794.6	5.1	214	4.50	8.70
13:12	6.84	1.44	793.7	4.3	217	4.59	8.70
13:17	6.85	1.47	790.0	4.1	219	4.61	8.70

Stabilization Passes NTS Criteria: ☑

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

Calibration Report

Event Key: 6385CC_2021 Apr(1 of 1)

Environmental Science & Engineering

Staff: Corey Andrews **Date:** 4/29/2021 **Post Cal Check:** ☑

Comments:

Sonde: R04-A	**PreCal (HH:MM):**	**PostCal (HH:MM):**	**PostEvent (HH:MM):**	
Last Temp Check: 2/4/2021				
Temp Specification: +/-0.1 ˚C	7:20	7:20	15:05	**Specifications:**
pH:	3.92	4.00	3.83	+/-0.2 SU
Standard (SU):	4.0	4.0	4.0	
Temperature (°C):	21.22	21.22	21.35	
pH:	7.06	7.02	7.01	+/-0.2 SU
Standard (SU):	7.0	7.0	7.0	
Temperature (°C):	21.16	21.16	21.20	
pH:	9.91	10.04	10.06	+/-0.2 SU
Standard (SU):	10.0	10.0	10.0	
Temperature (°C):	21.17	21.17	21.20	
Conductance, Specific:	0	0	0	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	0	0	0	
Temperature (°C):	21.12	21.12	20.69	
Conductance, Specific:	993.3	1000	1003	Sum of +/-1 µmhos/cm AND +/-0.5%
Standard (µmhos/cm):	1000	1000	1000	
Temperature (°C):	21.16	21.16	20.69	
Turbidity:	0	0	0	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	0	0	0	
Temperature (°C):	21.12	21.12	21.07	
Turbidity:	117.8	100	99.3	<100 +/-1 NTU >100 AND <400 +/-12 NTU >400 AND <3000 +/-150 NTU
Standard (NTU):	100	100	100	
Temperature (°C):	21.26	21.26	21.07	

Calibration Report (cont'd)

Sonde:	R04-A	PreCal (HH:MM):	PostCal (HH:MM):	PostEvent (HH:MM):	
Last Temp Check:	2/4/2021				
Temp Specification:	+/-0.1 ˚C	7:20	7:20	15:05	Specifications:
Oxygen, Dissolved:		8.39	8.42	8.55	<8 +/-0.1 mg/L >8 AND <20 +/-0.2 mg/L >20 +/-10%
100% Oxygen Saturation:		8.45	8.45	8.61	
Temperature (°C):		21.0	21.0	20.1	
Bar.Pressure (mmHg):		721	721	722	
ORP:		439	439	439	+/-20 mV
Standard (mV):		439.8	439.8	441.5	
Temperature (°C):		21.3	21.3	20.6	

6355C Gen Waste CCR Monitoring 4/29/2021
Sky Andrews V#62
Weather: High 57°F / Mostly Cloudy / winds NW 10 to 20 mph
Equipment: RCH-A, A15-E, Submersible pump, flow cell
0700 Arrive at NTS. PreP/Cal/Load.
810 Depart NTS office.
700 Arrive at Gen Waste.
902 [mw7] Well locked & in good condition Unique well ID# 817979

SWL	TWD	WC	Vol	SWL (after)
21.18'	26.63'	5.45'	0.89 gal	23.10'

922 Begin pumping well @ 0.15 GPM Key #2106

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
0928	6.09	0.72	2950	152.6	449	7.64	22.90'
0934	6.08	0.77	2996	46.0	385	8.13	22.88'
0940	6.08	0.67	3011	24.6	317	8.15	23.10'
0946	6.09	0.58	3029	21.3	290	8.60	23.07'
0952	6.10	0.51	3003	21.0	273	8.70	23.08'
0958	6.10	0.47	3000	20.5	266	8.58	23.10'
1004	6.10	0.41	3004	20.0	257	8.61	23.10'

Sample obtained @ 1004.
1019 [mw8] Well locked & in good condition. Unique well ID# 817978

SWL	TWD	WC	Vol	SWL after
35.37'	41.22'	5.85'	0.95 gal	35.62'

1030 Begin pumping well @ 0.15 GPM Key #2106

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1037	6.24	1.52	1790	458	254	9.57	37.00
1044	6.25	0.81	1900	387.4	232	10.29	36.82'
1051	6.25	0.50	1947	79.6	222	9.72	36.94'
1058	6.26	0.47	1968	107.6	218	9.60	36.89'
1105	6.27	0.45	1968	98.6	216	9.75	36.89'
1112	6.28	0.48	1964	100.2	217	9.80	37.00'
1119	6.27	0.47	1964	102.3	214	9.90	37.01'

Sample obtained @ 1119
1143 [mw9] Well locked & in good condition. Unique well ID# 817980

SWL	TWD	WC	Vol	SWL After
11.19'	18.90'	7.71	1.26 gal	11.19'

1200 Begin pumping well @ 0.33 GPM Key #0410

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1204	6.48	0.36	1607	33.6	116	7.40	11.58
1208	6.48	0.35	1597	9.2	108	7.34	11.58
1212	6.49	0.35	1609	3.1	105	7.22	11.58
1216	6.48	0.34	1600	2.9	102	7.26	11.58

Scale: 1 square = _____
P. 1

6385CC Gen. Waste CCR Monitoring 4/29/2021
Corey Andrews

MW9 Cont.-

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1220	6.49	0.34	1601	3.0	99	7.23	11.58

sampled @ 1220 Dup 1221 FB 1225

1237 MW10 Well locked & in good condition. Unique well ID# 847087

SWL	TWD	WC	Vol	SWL After
7.91'	18.20'	10.29'	1.68 gal	7.91'

1252 Begin pumping well @ 0.33 GPM. Key #2121

Time	pH	DO	SpC	Turb	ORP	Temp	SWL
1257	6.85	1.34	830.1	22.1	191	4.62	8.70
1302	6.83	1.41	804.3	9.0	207	4.57	8.70
1307	6.83	1.45	794.6	5.1	214	4.50	8.70
1312	6.84	1.44	793.7	4.3	217	4.59	8.70
1317	6.85	1.47	790.0	4.1	219	4.61	8.70

sampled @ 1317.

1330 Depart Gen waste.

1415 Cede samples to PACE Analytical.

1420 Arrive back at NTS office. Unload/Post check/Report.

Corey Andrews

4/29/2021

Scale: 1 square = _____

Rite in the Rain

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

Vehicle Inspection Report

Event Key: 6385CC_2021 Apr(1 of 1)

Driver: Corey Andrews **Date:** 4/29/2021 **Time:** 08:00

Vehicle: V62 - 2014 GMC Sierra 1500 #1 **Odometer:**

Check each Item Inspected

Driver/Passenger Side

External Side Mirrors (Right and Left): ☑	Windows (clean; free of cracks): ☑	Tires (properly inflated, adequate tread): ☑

Comments:

Front/Rear

Tail Lights: ☑	Head Lights ☑	Damage to Body/Bumpers ☑
License Plates ☑	Fluid Leaks ☑	Turn Signals ☑

Comments:

Routine Maintenance

Oil Change (Current): ☑	Transmission Fluid (Change every 60k): ☑	Air Filter (Change every 30k): ☑
Gauges Operational ('check engine' light OFF): ☑	Spare Tire (present, properly inflated): ☑	

Comments:

Interior

Cleanliness: ☑	Brakes: ☑	Windshield Wipers and Fluid: ☑
Seat Belts (working condition): ☑	Parking Brake (reset/release): ☑	Rearview Mirror: ☑

Comments:

General/Safety

Insurance Card: ☑	Wheel Chocks: ☑	First Aid Kit: ☑
Operator's Manual: ☑	Strobe Light (if needed): ☑	Buggy Whip (if needed): ☑

Comments:

Deficiencies Corrected

Environmental Science & Engineering

Daily Tailgate Safety

Project: 6385 C **Date:** 4/29/2021

Work Site Hazard Assessment Worksheet

- ☐ PPE Required (List): High Viz Level* D
- ☐ Weather Conditions (List): High 55°F, Mostly Sunny, NW 10-20 mph
- ☐ Vehicular Traffic
- ☐ Communications
- ☐ Noise
- ☐ Equipment/Tools
- ☐ Housekeeping
- ☐ 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:

Vehicle Safety
Dehydration

Corrective Actions Taken:

Drive defensively
Drink plenty of water

Participants in Safety Discussion:

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

Signature of Site Supervisor/Examiner: Date: 4/29/2021

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

NTS
Environmental Science & Engineering

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

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
Apr-20

PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.

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	4/29/21	1004	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	4/29/21	1119	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	4/29/21	1220	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	4/29/21	1317	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	4/29/21	1221	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	4/29/21	1225	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

RELINQUISHED BY: Corey Andrews DATE: 4/29/21 TIME: 1415

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. Mathews

TEMP.AT ARRIVAL: 3.0 C

DATE: 4/29/21 TIME: 1415

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 Peer Review Report

Event Key: 6385CC_2021 Apr(1 of 1)
Report Date: 4/29/2021
Lab WO#: 10557751

Reviewer #1:	Date:	Reviewer #2:	Date:
		Terri Sabetti	4/29/2021

Report Sections	Required:	Included:
Cover Sheet:	☑	☐
Location Information		
Data Collection:	☐	☐
Observation:	☐	☐
Flow or Stabilization:	☐	☐
Photographs:	☐	☐
Calibration:	☐	☐
Field Notes:	☑	☐
Safety Forms:	☑	☐

	N/A:	OK:
GW Calculations are Accurate:	☐	☐
GW Stabilization Criteria met:	☐	☐
Flow Calculations are Accurate:	☐	☐
Sonde Passed Post Event Check:	☐	☐
Consistent Values in Notes:		☐
Consistent Dates and Times:		☐
No Deviations from SOPs:		☐
Cover Sheet provides a complete description of key activities and observations:		☐

Reviewer #1 Comments:

Report Sections	Required:	Included:
Cover Sheet:	☑	☑
Location Information		
Data Collection:	☑	☑
Observation:	☑	☑
Flow or Stabilization:	☑	☑
Photographs:	☐	☐
Calibration:	☑	☑
Field Notes:	☑	☑
Safety Forms:	☑	☑

	N/A:	OK:
GW Calculations are Accurate:	☐	☑
GW Stabilization Criteria met:	☐	☑
Flow Calculations are Accurate:	☑	☐
Sonde Passed Post Event Check:	☐	☑
Consistent Values in Notes:		☑
Consistent Dates and Times:		☑
Qualifiers added to Data:	☑	☐
Data under correct Event Key:	☐	☑
All Req'd Parameters Meas'd; Limits Met:	☐	☑

Reviewer #2 Comments:

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

June 08, 2021

Scott Seeley
NTS
526 Chestnut Street
Virginia, MN 55792

RE: Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Dear Scott Seeley:

Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2021. 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

This is a revised report on June 8, 2021. Boron results for MW10 have been updated.

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

Sincerely,

Nicole Jarve

Nicole Jarve
nikki.jarve@pacelabs.com
(218) 727-6380
Project Manager

Enclosures

cc: Sample Data, Northeast Technical Services
Alan Phillips, Dem-Con Companies
Karissa Vosen, NTS

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

CERTIFICATIONS

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab
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
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 #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Ohio VAP Certification (1800) #: CL110*
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
*Please Note: Applicable air certifications are denoted with an asterisk (*).

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: REV:6385CC General Waste April
Pace Project No.: 10557751

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10557751001	**MW7**	Water	04/29/21 10:04	04/29/21 14:15
10557751002	**MW8**	Water	04/29/21 11:19	04/29/21 14:15
10557751003	**MW9**	Water	04/29/21 12:20	04/29/21 14:15
10557751004	**MW10**	Water	04/29/21 13:17	04/29/21 14:15
10557751005	**Field Duplicate**	Water	04/29/21 12:21	04/29/21 14:15
10557751006	**Field Blank**	Water	04/29/21 12:25	04/29/21 14:15

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

SAMPLE ANALYTE COUNT

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10557751001	**MW7**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751002	**MW8**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751003	**MW9**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751004	**MW10**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751005	**Field Duplicate**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10557751006	**Field Blank**	SM 2540C-2011	AA2	1	PASI-DU
		EPA 300.0	CD3	3	PASI-DU
		SM 4500-H+B-2011	CD3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	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: REV:6385CC General Waste April
Pace Project No.: 10557751

Sample: MW7 **Lab ID: 10557751001** Collected: 04/29/21 10:04 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**2810**	mg/L	100	1		05/01/21 11:36		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**11.5**	mg/L	1.0	1		05/08/21 04:18	16887-00-6	
Fluoride	ND	mg/L	0.050	1		05/08/21 04:18	16984-48-8	
Sulfate	**1500**	mg/L	7.0	7		05/08/21 11:35	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		04/30/21 16:22		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**664**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:21	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**67.3**	ug/L	10.0	1	05/10/21 06:13	05/13/21 13:54	7440-42-8	

Sample: MW8 **Lab ID: 10557751002** Collected: 04/29/21 11:19 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1590**	mg/L	66.7	1		05/01/21 11:36		
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		05/08/21 05:04	16887-00-6	
Fluoride	ND	mg/L	0.050	1		05/08/21 05:04	16984-48-8	
Sulfate	**673**	mg/L	3.0	3		05/08/21 12:21	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	**7.0**	Std. Units	0.10	1		04/30/21 16:25		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**402**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:22	7440-70-2	P6

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
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ANALYTICAL RESULTS

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Sample: MW8 **Lab ID: 10557751002** Collected: 04/29/21 11:19 Received: 04/29/21 14:15 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	**78.2**	ug/L	10.0	1	05/10/21 06:13	05/13/21 13:57	7440-42-8	

Sample: MW9 **Lab ID: 10557751003** Collected: 04/29/21 12:20 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1180**	mg/L	66.7	1		05/01/21 11:36		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**4.0**	mg/L	1.0	1		05/08/21 04:41	16887-00-6	
Fluoride	**0.079**	mg/L	0.050	1		05/08/21 04:41	16984-48-8	
Sulfate	**487**	mg/L	2.0	2		05/08/21 11:58	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		04/30/21 16:13		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**221**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:26	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**41.0**	ug/L	10.0	1	05/10/21 06:13	05/13/21 14:00	7440-42-8	

Sample: MW10 **Lab ID: 10557751004** Collected: 04/29/21 13:17 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**587**	mg/L	33.3	1		05/01/21 11:36		
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		05/07/21 09:04	16887-00-6	
Fluoride	**0.12**	mg/L	0.050	1		05/07/21 09:04	16984-48-8	
Sulfate	**238**	mg/L	10.0	10		05/07/21 11:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
4730 Oneota St.
Duluth, MN 55807
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ANALYTICAL RESULTS

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Sample: MW10 **Lab ID: 10557751004** Collected: 04/29/21 13:17 Received: 04/29/21 14:15 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		04/30/21 16:19		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**123**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:27	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**15.8**	ug/L	10.0	1	06/02/21 06:46	06/04/21 14:59	7440-42-8	

Sample: Field Duplicate **Lab ID: 10557751005** Collected: 04/29/21 12:21 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1170**	mg/L	66.7	1		05/01/21 11:36		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**3.9**	mg/L	1.0	1		05/08/21 05:27	16887-00-6	
Fluoride	**0.076**	mg/L	0.050	1		05/08/21 05:27	16984-48-8	
Sulfate	**396**	mg/L	2.0	2		05/08/21 13:29	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		04/30/21 16:05		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**224**	mg/L	0.50	1	05/10/21 06:44	05/11/21 11:29	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**41.6**	ug/L	10.0	1	05/10/21 06:13	05/13/21 14:19	7440-42-8	

Sample: Field Blank **Lab ID: 10557751006** Collected: 04/29/21 12:25 Received: 04/29/21 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	ND	mg/L	10.0	1		05/01/21 11:36		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Sample: Field Blank **Lab ID: 10557751006** Collected: 04/29/21 12:25 Received: 04/29/21 14:15 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		05/08/21 03:09	16887-00-6	
Fluoride	ND	mg/L	0.050	1		05/08/21 03:09	16984-48-8	
Sulfate	ND	mg/L	1.0	1		05/08/21 03:09	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	**5.7**	Std. Units	0.10	1		04/30/21 16:10		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	05/10/21 06:44	05/11/21 11:31	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	05/10/21 06:13	05/13/21 14:22	7440-42-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 739016 | Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 | Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

METHOD BLANK: 3941456 Matrix: Water
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	05/01/21 11:36	

LABORATORY CONTROL SAMPLE: 3941457

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	264	106	80-120	

SAMPLE DUPLICATE: 3941458

Parameter	Units	10557654001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	290	292	1	5	

SAMPLE DUPLICATE: 3945175

Parameter	Units	10557751002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1590	1630	3	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: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 740334
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: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

METHOD BLANK: 3948308 Matrix: Water
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	05/07/21 08:18	
Fluoride	mg/L	ND	0.050	05/07/21 08:18	
Sulfate	mg/L	ND	1.0	05/07/21 08:18	

LABORATORY CONTROL SAMPLE: 3948309

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.6	101	90-110	
Fluoride	mg/L	5	5.0	100	90-110	
Sulfate	mg/L	50	50.3	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3948310 3948311

Parameter	Units	10557751004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.5	50	50	52.4	53.5	102	104	90-110	2	20	
Fluoride	mg/L	0.12	5	5	5.2	5.3	101	103	90-110	2	20	
Sulfate	mg/L	238	500	500	754	754	103	103	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3948312 3948313

Parameter	Units	10558572002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	142	50	50	188	188	90	91	90-110	0	20	
Fluoride	mg/L	4.5	5	5	9.3	9.3	95	96	90-110	1	20	
Sulfate	mg/L	1000	500	500	1510	1500	100	99	90-110	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 738985
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: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

LABORATORY CONTROL SAMPLE: 3941194

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: 3941195

Parameter	Units	10557751005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.0	0	10	H6

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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: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 740684 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

METHOD BLANK: 3950441 Matrix: Water
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751004, 10557751005, 10557751006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	05/11/21 10:56	

LABORATORY CONTROL SAMPLE: 3950442

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	20	22.3	111	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950443 3950444

Parameter	Units	10557670001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	8860 ug/L	20	20	30.4	30.3	108	107	70-130	1	20	

MATRIX SPIKE SAMPLE: 3950445

Parameter	Units	10557751002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	402	20	411	47	70-130	P6

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: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 740690 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751005, 10557751006

METHOD BLANK: 3950467 Matrix: Water
Associated Lab Samples: 10557751001, 10557751002, 10557751003, 10557751005, 10557751006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	05/13/21 09:31	

LABORATORY CONTROL SAMPLE: 3950468

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	100	98.3	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3950469 3950470

Parameter	Units	10557645001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	273	100	100	368	381	94	107	70-130	3	20	

MATRIX SPIKE SAMPLE: 3950471

Parameter	Units	10563966001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	12.3	100	107	95	70-130	M1

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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: REV:6385CC General Waste April
Pace Project No.: 10557751

QC Batch: 745787
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10557751004

METHOD BLANK: 3978198 Matrix: Water
Associated Lab Samples: 10557751004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	06/04/21 14:53	

LABORATORY CONTROL SAMPLE: 3978199

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3978200 3978201

Parameter	Units	10557751004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	15.8	100	100	116	112	100	96	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: REV:6385CC General Waste April
Pace Project No.: 10557751

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.

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.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

Pace Analytical Services, LLC
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Duluth, MN 55807
(218) 727-6380

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: REV:6385CC General Waste April
Pace Project No.: 10557751

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10557751001	**MW7**	SM 2540C-2011	739016		
10557751002	**MW8**	SM 2540C-2011	739016		
10557751003	**MW9**	SM 2540C-2011	739016		
10557751004	**MW10**	SM 2540C-2011	739016		
10557751005	**Field Duplicate**	SM 2540C-2011	739016		
10557751006	**Field Blank**	SM 2540C-2011	739016		
10557751001	**MW7**	EPA 300.0	740334		
10557751002	**MW8**	EPA 300.0	740334		
10557751003	**MW9**	EPA 300.0	740334		
10557751004	**MW10**	EPA 300.0	740334		
10557751005	**Field Duplicate**	EPA 300.0	740334		
10557751006	**Field Blank**	EPA 300.0	740334		
10557751001	**MW7**	SM 4500-H+B-2011	738985		
10557751002	**MW8**	SM 4500-H+B-2011	738985		
10557751003	**MW9**	SM 4500-H+B-2011	738985		
10557751004	**MW10**	SM 4500-H+B-2011	738985		
10557751005	**Field Duplicate**	SM 4500-H+B-2011	738985		
10557751006	**Field Blank**	SM 4500-H+B-2011	738985		
10557751001	**MW7**	EPA 200.7	740684	EPA 200.7	740935
10557751002	**MW8**	EPA 200.7	740684	EPA 200.7	740935
10557751003	**MW9**	EPA 200.7	740684	EPA 200.7	740935
10557751004	**MW10**	EPA 200.7	740684	EPA 200.7	740935
10557751005	**Field Duplicate**	EPA 200.7	740684	EPA 200.7	740935
10557751006	**Field Blank**	EPA 200.7	740684	EPA 200.7	740935
10557751001	**MW7**	EPA 200.8	740690	EPA 200.8	740941
10557751002	**MW8**	EPA 200.8	740690	EPA 200.8	740941
10557751003	**MW9**	EPA 200.8	740690	EPA 200.8	740941
10557751004	**MW10**	EPA 200.8	745787	EPA 200.8	746147
10557751005	**Field Duplicate**	EPA 200.8	740690	EPA 200.8	740941
10557751006	**Field Blank**	EPA 200.8	740690	EPA 200.8	740941

WO#: 10557751

PM: NMJ Due Date: 05/13/21

CLIENT: DU-NTS DENNI

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

Environmental Science & Engineering

CHAIN C

REQUIRED TURN-AROUND TIME: 2 Weeks

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-20

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	4/29/21	1004	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	4/29/21	1119	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL	4/29/21	1220	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL	4/29/21	1317	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL	4/29/21	1221	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank	4/29/21	1225	X		N		1		1			Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS:
SEE ATTACHED LIST WITH METHODS

RELINQUISHED BY: Corey Andrews DATE: 4/29/21 TIME: 1415

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. Mathews

TEMP.AT ARRIVAL: 3.0 C

DATE: 4/29/21 TIME: 1415

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

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 25Feb2020 Page 1 of 1
	Document No.: F-VM-C-001-rev.14	Issuing Authority: Pace Virginia Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: NTS

Project #: WO# : 10557751

10557751

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace ☐ Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No **Optional:** Proj. Due Date: Proj. Name:

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

Thermometer Used: ☑ 140792808 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read °C: 2.7 **Cooler Temp Corrected °C:** 3.0 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ NA

Temp should be above freezing to 6 °C Correction Factor: +0.3 **Date and Initials of Person Examining Contents:** BM 4/29/21

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5. If Fecal: ☐ <8 hours ☐ >8, <24 hours ☐ >24 hours
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No	☐ N/A	6. pH
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation properly preserved?	☑ Yes	☐ No	☐ N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	☐ Yes	☐ No	☑ N/A	14.
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	16.
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: _____

SEE EXCEPTION FORM Y N

FECAL WAIVER ON FILE Y N TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Nikki Jarvis **Date:** 4/30/21

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)

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

Laboratory Data Verification Checklist

Event Key: 6385CC_2021 Apr(1 of 1)

Collection Date: 4/29/2021
Report Date: 5/19/2021
Review Date: 5/24/2021

Lab: Pace Analytical
Lab WO#: 10557751

Reviewer #1: Karissa Vosen
Reviewer #2:

SAMPLE HANDLING AND PRESERVATION	N/A:	OK:
A copy of the chain of custody (COC) is provided with the final report	☐	☑
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 analyzed outside of the 15 min hold time. Results were qualified.

A revised report was issued 6/9 to report re-analysis of boron at MW10

CALIBRATION	N/A:	OK:
The report narrative or data qualifiers indicate there were calibration failures for any of the required analyses	☐	☐

METHOD BLANKS	N/A:	OK:
A method blank was analyzed for all applicable analytical methods	☐	☑
All method blanks are free of target analytes	☐	☑
If any method blanks had a detect, were the detected analytes present in associated samples?	☑	☐

LABORATORY CONTROL SAMPLES	N/A:	OK:
An LCS was prepared and analyzed for each analytical method and contains all target analytes being reported	☐	☑
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☐	☑
The percent recovery of all target analytes are within laboratory control limits	☐	☑
Any analytes with a percent recovery outside of laboratory control limits are qualified (flagged) in the associated samples	☑	☐

MATRIX SPIKES/MATRIX SPIKE DUPLICATES	N/A:	OK:
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 LCSD)	☑	☐
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☐	☑
The percent recovery of all target analytes are within laboratory control limits	☐	☐
The RPD is within laboratory control limits for all target analytes	☐	☑
Any analytes with a % recovery or RPD outside of laboratory control limits are qualified (flagged) in the parent sample	☐	☑

Comments: MW8 was spiked for 200.7 metals. Calcium recoveries exceeded lab control limits. The analyte concentration in the parent sample was significantly higher than the spike concentration. Lab qualifier retained.

LABORATORY DUPLICATES	N/A:	OK:
A Laboratory Duplicate was prepared and analyzed for each applicable analytical method	☐	☑
The RPD for the duplicate pair is within laboratory limits	☐	☑
Any analytes with an RPD outside of laboratory control limits are qualified (flagged) in the associated parent sample	☑	☐

SURROGATES	N/A:	OK:
Laboratory control limits are listed on the report and seem reasonable when compared to the suggested guidelines in the MPCA QC Policy	☑	☐
The percent recovery of all surrogate compounds are within laboratory control limits	☑	☐

FIELD DUPLICATES	N/A:	OK:
A field duplicate was required for this this project	☐	☑
The RPD for the duplicate pair is within the NTS control limits	☐	☐
Any analytes with an RPD outside of NTS control limits are qualified (flagged) in the parent sample	☐	☑

Comments: MW-9: sulfate exceeded NTS control limits on duplicate analysis. Result qualified.

FIELD and TRIP BLANKS	N/A:	OK:
A field blank and/or trip blank was required for this project	☐	☑
The blank is free of target analytes	☐	☑
If an analyte was detected in the blank, was it present in the associated samples?	☑	☐
If yes, was the associated data qualified in SWX?	☑	☐

ADDITIONAL CHECKS	N/A:	OK:
This project has been uploaded into SWX and correctly reflects the results reported within the laboratory report	☐	☑
Analysis to the MDL was required for this project	☑	☐
If analysis to the MDL was required, data was appropriately qualified with J flags?	☑	☐
Dilution factors are typical of past events and non-detects are not reported off dilutions	☐	☑
Total and dissolved parameters are in agreement	☑	☐
All lab results were evaluated against the associated permit limits or appear typical of past monitoring events	☐	☑
All lab QC calculations were accurate against SWX calculations	☐	☑

Appendix B:
Statistical 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

Appendix C:
Appendix III and Appendix IV Parameters

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

December 28, 2021

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 2021 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, 2021 as well as the statistical analysis completed in accordance with the facility Statistical Analysis Plan (SAP).

MW-7 was found dry on October 29, 2021 and therefore was not sampled during the fall event.

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 4 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 one trigger value was intersected at MW-8 (chloride) during the October 2021 monitoring event. This is the first occurrence of this trigger limit being exceeded and therefore does not constitute a SSI. Parameters measured at MW-10 appear congruent with previous measurements.

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 28, 2021 at locations MW-8, MW-9, and MW-10. MW-7 was not monitored

due to the well being found dry. Laboratory results were received from PACE Analytical on November 4, 2021. 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. The highlighted cells in Table 1 indicate monitored results above the trigger value (MW-8 Chloride).

Table 1
2021 October Detection Monitoring Event Results

Parameter	MW-7	MW-3R	MW-8	MW-9	MW-10
Boron (ug/L)	(dry)	n/a	57.1	35.5	18.5
Calcium (mg/L)	(dry)	n/a	372	206	149
Chloride (mg/L)	(dry)	n/a	2.0	6.4	1.3
Fluoride (mg/L)	(dry)	n/a	0.06	.084	0.17
pH (SU)	(dry)	n/a	6.46	6.55	7.08
Sulfate (mg/L)	(dry)	n/a	692	431	389
Total Dissolved Solids (mg/L)	(dry)	n/a	1370	1060	754

Table 2
Detection Monitoring Trigger Values (updated January 2020)

Parameter	MW-7	MW-3R	MW-8	MW-9	MW-10
Boron (ug/L)	110.01	n/a	119.29	50	TBD
Calcium (mg/L)	579.98	n/a	438.4	233.23	TBD
Chloride (mg/L)	132.82	n/a	1.52	22.65	TBD
Fluoride (mg/L)	0.11	n/a	0.10	0.10	TBD
pH (SU)	6.12– 6.79	n/a	6.23 – 7.13	6.23 – 7.13	TBD
Sulfate (mg/L)	1197.73	n/a	865.08	527.68	TBD
Total Dissolved Solids (mg/L)	2391.34	n/a	1863.13	1243.1	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 2021 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.

MW-8 exceeded the trigger value for Chloride. This is the first occurrence of a chloride concentration exceeding the trigger value at MW-8 and therefore is not considered a SSI.

MW-7 was not sampled due to the well being dry. A well going dry is not specifically addressed in the SAP, but it is reasonable to say that this does not constitute a SSI. MW-7 being dry can likely be ascribed to the drought-like conditions observed throughout the summer of 2021. If the well continues to be found dry in future monitoring events, a new upgradient well may need to be installed to maintain compliance with federal regulations. This may be beneficial since the water chemistry of MW-7 has been trending over the previous 4 years of monitoring.

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. 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 background dataset will be updated with data collected in 2020 and 2021 prior to conducting an evaluation of the anticipated April, 2022 data.

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: October 2021 Monitoring Results
Appendix B: Statistical Analysis Plan
Appendix C: Appendix III & Appendix IV Parameters

Appendix A:
October 2021 Monitoring Results

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

November 04, 2021

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

RE: Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

Dear Scott Seeley:

Enclosed are the analytical results for sample(s) received by the laboratory on October 21, 2021. 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,

Nicole Jarve

Nicole Jarve
nikki.jarve@pacelabs.com
(218) 727-6380
Project Manager

Enclosures

cc: Sample Data, Northeast Technical Services
Carrie Jensen, 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 General Waste Oct-21
Pace Project No.: 10584371

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab
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
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 #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Ohio VAP Certification (1800) #: CL110*
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
*Please Note: Applicable air certifications are denoted with an asterisk (*).

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 Oct-21
Pace Project No.: 10584371

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10584371001	**MW8**	Water	10/21/21 14:30	10/21/21 15:52
10584371002	**MW9**	Water	10/21/21 11:25	10/21/21 15:52
10584371003	**MW10**	Water	10/21/21 12:10	10/21/21 15:52
10584371004	**Field Duplicate**	Water	10/21/21 11:26	10/21/21 15:52
10584371005	**Field Blank**	Water	10/21/21 11:30	10/21/21 15:52

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

SAMPLE ANALYTE COUNT

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10584371001	**MW8**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10584371002	**MW9**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10584371003	**MW10**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10584371004	**Field Duplicate**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	1	PASI-M
10584371005	**Field Blank**	SM 2540C-2011	RL1	1	PASI-DU
		EPA 300.0	AK3	3	PASI-DU
		SM 4500-H+B-2011	JH3	1	PASI-DU
		EPA 200.7	DM	1	PASI-M
		EPA 200.8	ALB	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 General Waste Oct-21
Pace Project No.: 10584371

Sample: MW8 **Lab ID: 10584371001** Collected: 10/21/21 14:30 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1370**	mg/L	333	1		10/27/21 10:07		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**2.0**	mg/L	1.0	1		10/30/21 11:34	16887-00-6	
Fluoride	**0.061**	mg/L	0.050	1		10/30/21 11:34	16984-48-8	
Sulfate	**692**	mg/L	3.0	3		10/30/21 20:22	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		10/26/21 16:28		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**372**	mg/L	0.50	1	10/27/21 06:38	10/28/21 12:33	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**57.1**	ug/L	10.0	1	10/27/21 06:18	11/01/21 11:15	7440-42-8	

Sample: MW9 **Lab ID: 10584371002** Collected: 10/21/21 11:25 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1060**	mg/L	40.0	1		10/27/21 10:07		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**6.4**	mg/L	2.0	2		10/30/21 20:45	16887-00-6	
Fluoride	**0.084**	mg/L	0.050	1		10/30/21 12:43	16984-48-8	
Sulfate	**431**	mg/L	2.0	2		10/30/21 20:45	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		10/26/21 15:54		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**206**	mg/L	0.50	1	10/27/21 06:38	10/28/21 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 General Waste Oct-21
Pace Project No.: 10584371

Sample: MW9 **Lab ID: 10584371002** Collected: 10/21/21 11:25 Received: 10/21/21 15:52 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	**35.5**	ug/L	10.0	1	10/27/21 06:18	11/01/21 11:19	7440-42-8	

Sample: MW10 **Lab ID: 10584371003** Collected: 10/21/21 12:10 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**754**	mg/L	20.0	1		10/27/21 10:07		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**1.3**	mg/L	1.0	1		10/30/21 13:06	16887-00-6	
Fluoride	**0.17**	mg/L	0.050	1		10/30/21 13:06	16984-48-8	
Sulfate	**389**	mg/L	1.0	1		10/30/21 13:06	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		10/26/21 16:12		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**149**	mg/L	0.50	1	10/27/21 06:38	10/28/21 12:36	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**18.5**	ug/L	10.0	1	10/27/21 06:18	11/01/21 11:22	7440-42-8	

Sample: Field Duplicate **Lab ID: 10584371004** Collected: 10/21/21 11:26 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	**1070**	mg/L	40.0	1		10/27/21 12:29		
300.0 IC Anions WW 28 Day DU	Analytical Method: EPA 300.0 Pace Analytical Services - Duluth, MN							
Chloride	**7.1**	mg/L	5.0	5		10/30/21 14:38	16887-00-6	
Fluoride	**0.084**	mg/L	0.050	1		10/30/21 13:29	16984-48-8	
Sulfate	**435**	mg/L	5.0	5		10/30/21 14:38	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 Oct-21
Pace Project No.: 10584371

Sample: Field Duplicate **Lab ID: 10584371004** Collected: 10/21/21 11:26 Received: 10/21/21 15:52 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	**7.1**	Std. Units	0.10	1		10/26/21 15:58		H6
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Minneapolis							
Calcium	**195**	mg/L	0.50	1	10/27/21 06:38	10/28/21 12:41	7440-70-2	
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis							
Boron	**35.4**	ug/L	10.0	1	10/27/21 06:18	11/01/21 11:26	7440-42-8	

Sample: Field Blank **Lab ID: 10584371005** Collected: 10/21/21 11:30 Received: 10/21/21 15:52 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C TDS DU	Analytical Method: SM 2540C-2011 Pace Analytical Services - Duluth, MN							
Total Dissolved Solids	ND	mg/L	10.0	1		10/27/21 12:29		
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		10/30/21 15:47	16887-00-6	
Fluoride	ND	mg/L	0.050	1		10/30/21 15:47	16984-48-8	
Sulfate	ND	mg/L	1.0	1		10/30/21 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	**5.8**	Std. Units	0.10	1		10/26/21 16:01		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	10/27/21 06:38	10/28/21 12:43	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	10/27/21 06:18	11/01/21 11:29	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 Oct-21
Pace Project No.: 10584371

QC Batch: 779720 — Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 — Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10584371001, 10584371002, 10584371003

METHOD BLANK: 4152562 — Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/27/21 10:07	

METHOD BLANK: 4152566 — Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/27/21 10:08	

LABORATORY CONTROL SAMPLE: 4152563

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	224	90	80-120	

SAMPLE DUPLICATE: 4152564

Parameter	Units	10584082003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	249	231	8	5	D6

SAMPLE DUPLICATE: 4152565

Parameter	Units	10584156002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	261	264	1	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 Oct-21
Pace Project No.: 10584371

QC Batch: 779794
QC Batch Method: SM 2540C-2011
Analysis Method: SM 2540C-2011
Analysis Description: 2540C TDS DU
Laboratory: Pace Analytical Services - Duluth, MN
Associated Lab Samples: 10584371004, 10584371005

METHOD BLANK: 4153018 Matrix: Water
Associated Lab Samples: 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/27/21 12:29	

METHOD BLANK: 4153022 Matrix: Water
Associated Lab Samples: 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/27/21 12:30	

LABORATORY CONTROL SAMPLE: 4153019

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	220	88	80-120	

SAMPLE DUPLICATE: 4153020

Parameter	Units	10584474005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	127	128	1	5	

SAMPLE DUPLICATE: 4153021

Parameter	Units	10584412002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	394	408	3	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 Oct-21
Pace Project No.: 10584371

QC Batch: 780499
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: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

METHOD BLANK: 4156900 Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/30/21 03:54	
Fluoride	mg/L	ND	0.050	10/30/21 03:54	
Sulfate	mg/L	ND	1.0	10/30/21 03:54	

LABORATORY CONTROL SAMPLE: 4156901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	100	99.8	100	90-110	
Fluoride	mg/L	5	5.0	100	90-110	
Sulfate	mg/L	100	100	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4156902 4156903

Parameter	Units	10582786001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	488	500	500	989	990	100	100	90-110	0	20	
Fluoride	mg/L	0.11	5	5	5.2	5.4	102	106	90-110	4	20	
Sulfate	mg/L	44.1	100	100	145	149	101	105	90-110	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4156904 4156905

Parameter	Units	10584371004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	7.1	500	500	528	528	104	104	90-110	0	20	
Fluoride	mg/L	0.084	5	5	5.2	5.3	102	105	90-110	3	20	
Sulfate	mg/L	435	500	500	953	949	104	103	90-110	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

QC Batch: 779467
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: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

LABORATORY CONTROL SAMPLE: 4151305

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: 4151306

Parameter	Units	10584367001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	10	H6

SAMPLE DUPLICATE: 4151307

Parameter	Units	10583942001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	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 Oct-21
Pace Project No.: 10584371

QC Batch: 779242 — Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 — Analysis Description: 200.7 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

METHOD BLANK: 4150520 — Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	10/28/21 11:54	

LABORATORY CONTROL SAMPLE: 4150521

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	20	20.1	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4150522 4150523

Parameter	Units	10583581001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	57900 ug/L	20	20	77.9	75.3	100	87	70-130	3	20	

MATRIX SPIKE SAMPLE: 4150524

Parameter	Units	10584168001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	89700 ug/L	20	115	129	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 Oct-21
Pace Project No.: 10584371

QC Batch: 779346 | Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 | Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

METHOD BLANK: 4150852 Matrix: Water
Associated Lab Samples: 10584371001, 10584371002, 10584371003, 10584371004, 10584371005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	10/29/21 03:11	

LABORATORY CONTROL SAMPLE: 4150853

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	100	103	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4150854 4150855

Parameter	Units	10583744003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	75.9	100	100	202	216	126	140	70-130	7	20	M1

MATRIX SPIKE SAMPLE: 4150856

Parameter	Units	10584103006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	205	100	347	142	70-130	M1

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 Oct-21
Pace Project No.: 10584371

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

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 6385CC General Waste Oct-21
Pace Project No.: 10584371

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10584371001	**MW8**	SM 2540C-2011	779720		
10584371002	**MW9**	SM 2540C-2011	779720		
10584371003	**MW10**	SM 2540C-2011	779720		
10584371004	**Field Duplicate**	SM 2540C-2011	779794		
10584371005	**Field Blank**	SM 2540C-2011	779794		
10584371001	**MW8**	EPA 300.0	780499		
10584371002	**MW9**	EPA 300.0	780499		
10584371003	**MW10**	EPA 300.0	780499		
10584371004	**Field Duplicate**	EPA 300.0	780499		
10584371005	**Field Blank**	EPA 300.0	780499		
10584371001	**MW8**	SM 4500-H+B-2011	779467		
10584371002	**MW9**	SM 4500-H+B-2011	779467		
10584371003	**MW10**	SM 4500-H+B-2011	779467		
10584371004	**Field Duplicate**	SM 4500-H+B-2011	779467		
10584371005	**Field Blank**	SM 4500-H+B-2011	779467		
10584371001	**MW8**	EPA 200.7	779242	EPA 200.7	779860
10584371002	**MW9**	EPA 200.7	779242	EPA 200.7	779860
10584371003	**MW10**	EPA 200.7	779242	EPA 200.7	779860
10584371004	**Field Duplicate**	EPA 200.7	779242	EPA 200.7	779860
10584371005	**Field Blank**	EPA 200.7	779242	EPA 200.7	779860
10584371001	**MW8**	EPA 200.8	779346	EPA 200.8	779931
10584371002	**MW9**	EPA 200.8	779346	EPA 200.8	779931
10584371003	**MW10**	EPA 200.8	779346	EPA 200.8	779931
10584371004	**Field Duplicate**	EPA 200.8	779346	EPA 200.8	779931
10584371005	**Field Blank**	EPA 200.8	779346	EPA 200.8	779931

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#:	REPORT TO:
GENERAL WASTE and RECYLING LLC DEMOLITION & INDUSTRIAL LANDFILL ITASCA COUNTY, MINNESOTA	SCOTT SEELEY & KARISSA VOSEN
SAMPLER: Corey Andrews	PERMIT REQ.: SW-620-002
PROJECT: GENERAL WASTE DISPOSAL and RECYCLING, LLC.	Oct-21
PROJECT NUMBER: 6385CC CCR Monitoirng	COLLECTION:

LOG-IN #:	SAMPLE #	DESCRIPTION:	DATE:	TIME:	MATRIX LIQ.	MATRIX 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	No Sample		X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW8	GW WELL	10/21/21	1430	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW9	GW WELL		1125	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	MW10	GW WELL		1210	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Duplicate	GW WELL		1126	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS
	Field Blank	Field Blank		1130	X		N		1		1		Boron, Calcium, Chloride, Flouride, pH, Sulfate & TDS

SPECIAL INSTRUCTIONS: **SEE ATTACHED LIST WITH METHODS**

RELINQUISHED BY: Corey Andrews	DATE: 10/21/21 TIME: 1552	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:		TEMP.AT ARRIVAL: 4.5 C	
DATE: 10/21/21	TIME: 1552		

WO#: 10584371

PM: NMJ Due Date: 11/04/21

CLIENT: DU-NTS-SCOTT

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

WO# : 10584371

PM: NMJ **Due Date: 11/04/21**

CLIENT: DU-NTS-SCOTT

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 17June2019 Page 1 of 1
	Document No.: F-DUL-C-001-rev.07	Issuing Authority: Pace Duluth Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: NTS

Project #: WO#: 10584371

PM: NMJ Due Date: 11/04/21
CLIENT: DU-NTS-SCOTT

Courier: ☐Fed Ex ☐UPS ☐USPS ☐Client ☐SpeeDee ☑Pace ☐Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☐Yes ☑No **Seals Intact?** ☐Yes ☐No

Packing Material: ☑Bubble Wrap ☐Bubble Bags ☐None ☐Other:

Type of Ice: ☑Wet ☐Blue ☐None ☐Samples on ice, cooling process has begun

Is there evidence of ice formation in samples? ☐Yes ☑No **Biological Tissue Frozen?** ☐Yes ☐No ☑NA

Temp Blank? ☑Yes ☐No **Thermometer Used:** ☑01339252/1710 ☐122639816 **Correction Factor °C:** +0.3

Temp should be above freezing to 6 °C **Cooler Temp Read °C:** 4.2 **Cooler Temp Corrected °C:** 4.5

Date and Initials of Person Examining Contents: 10/22/2021

				Comments:
Chain of Custody Present?	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out?	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished?	☑Yes	☐No	☐N/A	3.
Sampler Name and Signature on COC?	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time?	☑Yes	☐No	☐N/A	5. If Fecal: ☐<8 hours ☐>8, <24 hours ☐>24 hours
Short Hold Time Analysis (<72 hr)?	☑Yes	☐No	☐N/A	6. pH
Rush Turn Around Time Requested?	☐Yes	☑No	☐N/A	7.
Sufficient Volume?	☑Yes	☐No	☐N/A	8.
Correct Containers Used?	☑Yes	☐No	☐N/A	9.
-Pace Containers Used?	☑Yes	☐No	☐N/A	
Containers Intact?	☑Yes	☐No	☐N/A	10.
Filtered Volume Received for Dissolved Tests?	☐Yes	☐No	☑N/A	11. Note if sediment is visible in the dissolved containers:
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑Yes	☐No	☐N/A	12.
All containers needing acid/base preservation properly preserved?	☐Yes	☐No	☑N/A	13. Note samples needing adjustment:
Headspace in Methyl Mercury Container	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm)?	☐Yes	☐No	☑N/A	15.
Trip Blank Present?	☐Yes	☐No	☑N/A	16.
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:

FECAL WAIVER ON FILE: Y N TEMPERATURE WAIVER ON FILE: Y N

Project Manager Review: Nikki Jarve **Date:** 10/22/21

Intra-Regional Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 10584371 Workorder Name: 6385CC General Waste Oct-21 Owner Received Date: 10/21/2021 Due Date: 11/4/2021

Received at:	Send To Lab:
Pace Analytical Duluth 4730 Oneota St. Duluth, MN 55807 Phone (218) 727-6380	Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-1700

Report To:
Nicole Jarve

WO# : 10584371

10584371

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HNO3 BP3N	EPA 200.7	EPA 200.8	Miscellaneous Charges	LAB USE ONLY
1	MW8	PS	10/21/2021 14:30	10584371001	Water	1	X	X	X	
2	MW9	PS	10/21/2021 11:25	10584371002	Water	1	X	X	X	
3	MW10	PS	10/21/2021 12:10	10584371003	Water	1	X	X	X	
4	Field Duplicate	PS	10/21/2021 11:26	10584371004	Water	1	X	X	X	
5	Field Blank	PS	10/21/2021 11:30	10584371005	Water	1	X	X	X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	Jacob Pace	10/22/21 1650	JD Pace	10/22/21 1925
2				
3				
4				

Comments

Cooler Temperature on Receipt 1.4 °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.*

Pace Analytical®	Document Name: **Sample Condition Upon Receipt (SCUR) - MN**	Document Revised: 14Apr2021 **Page 1 of 1**
	Document No.: **ENV-FRM-MIN4-0150 Rev.02**	Pace Analytical Services - **Minneapolis**

Sample Condition Upon Receipt

Client Name: Pace Analytical Duluth

Project #: WO#: 10584371
PM: NMJ Due Date: 11/04/21
CLIENT: DU-NTS-SCOTT

Courier: ☐ Fed Ex ☐ 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) ☐ OS418-LS ☐ T4(0254) ☐ T5(0489) ☐ 160285052 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Dry ☐ 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 **Average Corrected Temp (no temp blank only):** _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

Correction Factor: true **Cooler Temp Corrected w/temp blank:** 1.4 °C

USDA Regulated Soil: (☒ N/A, water sample/Other: _____)
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

Date/Initials of Person Examining Contents: JD 10.23.21
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 (F-MN-Q-338) 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.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☐ Yes	☒ No		6.
Sufficient Volume?	☒ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☒ Yes ☒ Yes	☐ No ☐ No		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 on Container Below:** **See Exception** ☐ ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☒ Yes	☐ No	☐ N/A	12. Sample # 001 - 005
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☒ Yes	☐ No	☐ N/A	☐ NaOH ☒ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate 1
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☒ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** **See Exception** ☐ ENV-FRM-MIN4-0142
				Res. Chlorine: 0-6 Roll 222921 | 0-6 Strip | 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☒ N/A	13. **See Exception** ☐ ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☒ N/A	
Trip Blank Present?	☐ Yes	☐ No	☒ N/A	14.
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 Jarvi **Date:** 10/25/21

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: _____

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.

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

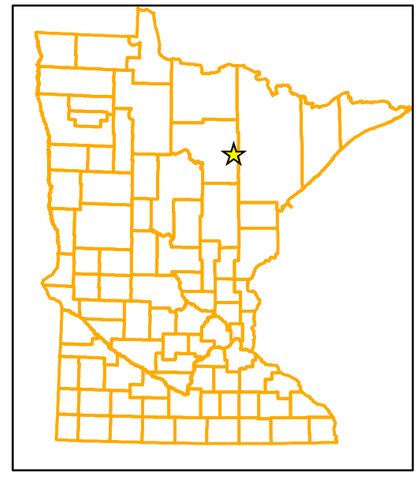

Figure 1
Site Location Map

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

1

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

APPENDIX C
2022 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 3 CCR wells (did not include MW-10, insufficient data) 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
    b. MW-8 and MW-9 Detection datasets appear generally consistent with background datasets
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 and detection monitoring dataset 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=.001<.01, statistically different, due to large non-detects in background dataset
        ii. Calcium (STT): p=.07
        iii. Chloride (STT): p=.20
        iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no change
        v. Sulfate (STT): p=.02
        vi. TDS (STT): p=.03
        vii. pH (STT): p=.76
    b. MW-8
        i. Boron (TW): p=.39
        ii. Calcium (STT): p=.42
        iii. Chloride (STT): p=.19
        iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no change
        v. Sulfate (STT): p=.14
        vi. TDS (STT): p=.25
        vii. pH (STT): p=.86
    c. MW-9
        i. Boron (n/a): Nearly all non-detect, cannot conduct statistics, but no obvious change
        ii. Calcium (STT): p=.20
        iii. Chloride (STT): p=.08
        iv. Fluoride (n/a): Nearly all non-detect, cannot conduct statistics, but no obvious change
        v. Sulfate (STT): p=.46
        vi. TDS (STT): p=.15
        vii. pH (STT): p=.16

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 behavior of MW-7 (upgradient) well with all downgradient wells (MW-3R, MW-8, MW-9), interwell analysis will no longer be performed between the upgradient and downgradient wells. Intrawell analyses will be conducted for MW-8 and MW-9. MW-3R will no longer be updated since it is abandoned. 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 results, then dataset is normal.
    b. Removed high non-detects from MW-8 Boron results, then dataset is normal.
    c. Remove pH reading from 7/11/17 for all datasets, suspect pH, faulty equipment, bad reading. Without outlier, all pH datasets are normal.
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-3R	MW-8	MW-9
Boron (ug/L)	110.01	n/a	119.29	50.00
Calcium (mg/L)	579.98	n/a	438.40	233.23
Chloride (mg/L)	132.82	n/a	1.52	22.65
Fluoride (mg/L)	0.11	n/a	0.10	0.10
pH (SU)	6.12 - 6.79	n/a	6.23-7.13	6.23-7.13
Sulfate (mg/L)	1197.73	n/a	865.08	527.68
Total Dissolved Solids (mg/L)	2391.34	n/a	1863.13	1243.10

Table 2: Updated UPLs Based on ProUCL only

Parameter	MW-7	MW-3R	MW-8	MW-9
Boron (ug/L)	113.5	n/a	110.9	88.8
Calcium (mg/L)	666.5	n/a	436.1	235.8
Chloride (mg/L)	139.7	n/a	1.77	21.34
Fluoride (mg/L)	0.11	n/a	0.11	0.11
pH (SU)	6.00-6.80	n/a	6.08 – 6.85	6.21 – 7.08
Sulfate (mg/L)	1562	n/a	857.2	528.3
Total Dissolved Solids (mg/L)	2899	n/a	1838	1266

Table 3: Updated UPLs Based on Unified Guidance				
Parameter	**MW-7**	**MW-3R**	**MW-8**	**MW-9**
Boron (ug/L)	110.75		105.15	44.46
Calcium (mg/L)	659.21		434.46	234.98
Chloride (mg/L)	137.06		1.87	20.97
Fluoride (mg/L)	0.11		0.11	0.11
pH (SU)	6.02 - 6.79		6.08 - 6.83	6.22 - 7.06
Sulfate (mg/L)	1537.59		852.16	525.81
Total Dissolved Solids (mg/L)	2863.07		1829.75	1260.69

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.